REX-004

Expert Valuation Report of
Prof. Graham Davis and The Brattle Group

October 6, 2015

Bear Creek Mining Corporation v. Republic of Peru

ICSID Case No. ARB/14/21

Quantum of Damages Analysis

PREPARED FOR

Sidley Austin LLP
on behalf of
The Republic of Peru

PREPARED BY

Graham A. Davis, Ph.D.
William J. Coulter Professor of Mineral Economics
Colorado School of Mines

Florin A. Dorobantu, Ph.D.
Senior Associate
The Brattle Group

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THE Brattle GROUP

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I. Introduction and Summary of Conclusions

A. Assignment and Qualifications

1. We have been asked by counsel to the Republic of Peru (Peru or Respondent) to review and comment on the report of Howard N. Rosen and Chris Milburn dated May 29, 2015 (the FTI Report),[1] which quantifies damages to Bear Creek Mining Corporation (Claimant) from the alleged expropriation by Respondent of its Santa Ana mining project (Santa Ana or the Project).

2. Our professional qualifications are as follows:

3. **Graham A. Davis** is the William J. Coulter Professor of Mineral Economics at the Colorado School of Mines (CSM), where he has been a full-time faculty member since 1993. One of his main teaching and research fields is mine valuation under uncertainty. His peer-reviewed research papers on asset valuation have been cited over 300 times. At CSM, he teaches a 15-week graduate course on advanced mineral and energy asset valuation, which includes instruction on the use of discounted cash flow, real options, and simulation methods to value and manage natural resource projects. Professor Davis has also published extensively on these topics and he teaches a three-day short course, with Dr. Michael Samis, on advanced mineral and energy project valuation. The course is offered through the Continuing Education Division of CSM. Around 200 mining and energy industry practitioners have attended offerings of this course in Canada, the United States, and Australia.

4. Professor Davis' academic research is complemented by consulting to major mining companies, including Newmont Mining and Rio Tinto. He has served as an expert witness in disputes involving mine valuations for both claimants and sovereigns. He has also worked as a Metallurgical Engineer in major mining companies in Africa and Canada. In all, he has worked at six different open pit and underground mines spanning the production of uranium, copper, silver, gold, molybdenum, lead, and zinc.

5. He is a Qualified Person for valuation under the Canadian National Instrument 43-101 (a standard designed to ensure accurate resource reporting for mining companies listed on Canadian stock exchanges), and he holds professional membership status in both the

[1] Expert Report of Howard N. Rosen and Chris Milburn, FTI Consulting, May 29, 2015, ("FTI Report").

Society for Mining, Metallurgy, and Exploration and the Australasian Institute of Mining and Metallurgy. He is also a Competent Person for valuation under the JORC reporting code in Australia. In 2014 the Society for Mining, Metallurgy, and Exploration and the American Institute of Mining, Metallurgical, and Petroleum Engineers awarded Professor Davis their Mineral Economics award "for research and teaching of modern methods of valuing and evaluating undeveloped mineral resources, and the role of minerals in economic development."

6. Professor Davis received a Ph.D. in Mineral Economics from Pennsylvania State University, an MBA from the University of Cape Town, and a BS in Metallurgical Engineering from Queen's University at Kingston. Professor Davis' resume is included in Appendix C.

7. **Florin A. Dorobantu** is a Senior Associate at The Brattle Group, a consulting firm with offices in New York, Washington, DC, Cambridge, MA, San Francisco, London, Madrid, Rome, and Toronto. He holds a Ph.D. and a master's degree in Economics from Duke University and a bachelor's degree in Economics and Business Administration from the American University in Bulgaria.

8. Since joining The Brattle Group in 2007, Dr. Dorobantu has performed valuation analyses in a variety of industries, including mining, oil & gas, large project engineering and construction, consumer goods, financial services, and business process outsourcing. He has prepared expert testimony on damages before the Permanent Court of Arbitration and the International Chamber of Commerce (ICC) and has performed consulting work in arbitration proceedings before the International Centre for the Settlement of Investment Disputes (ICSID), the London Court of International Arbitration (LCIA), and ICC, as well as matters in U.S. federal, state, and tax courts and regulatory proceedings before U.S. public utilities commissions. Dr. Dorobantu's resume is included in Appendix C.

9. We confirm that we are independent from the parties involved in this arbitration. For our work in this matter, The Brattle Group is being paid on a time and materials basis. Our compensation is not contingent on our conclusions or on the outcome of the arbitration.

B. Background and Summary of Conclusions

10. We understand that the Claimant seeks damages from the alleged expropriation of the Santa Ana project, a development-stage silver mining project located in the Puno province

of Peru. Claimant, through a Canadian subsidiary and its Peruvian branch, owned the concessions that formed the project.[2]

11. The Claimant was and is a publicly traded company listed in Canada on the TSX Venture Exchange.[3] In addition to Santa Ana, Claimant owned another project in Peru, Corani, which it held through a separate set of subsidiaries.[4]

12. We understand that on June 25, 2011, Claimant's rights to own and pursue development of the Santa Ana project were revoked through Supreme Decree No. 032-2011-EM (Supreme Decree 032). Because Santa Ana was located within 50 km of Peru's border with Bolivia, it could be owned and operated by a non-Peruvian entity only pursuant to special authorization. We understand that Bear Creek's rights to own and pursue development of Santa Ana had been granted in 2007 pursuant to Supreme Decree 083-2007-EM, which was revoked by Supreme Decree 032.

13. Claimant alleges that the issuance of Supreme Decree 032 constituted a breach of the Free Trade Agreement between Canada and Peru (FTA) and seeks damages equal to the Project's fair market value (FMV) as of June 23, 2011 (FTI Valuation Date).[5] The FTI Report estimated that the FMV of Santa Ana at the FTI Valuation Date was $224.2 million.[6]

14. Claimant seeks also damages to the Corani project that it contends resulted from the alleged expropriation of Santa Ana.[7] The FTI Report estimated that the damages to the Corani project were $170.6 million before pre-award interest.[8] Claimant seeks also pre-award interest between the FTI valuation Date and the date of the award based on a 5% annual interest rate, calculated with monthly compounding.[9]

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[2] Claimant's Memorial on the Merits, dated May 29, 2015 ("Claimant's Memorial"), ¶ 107. The factual summary we include here is presented only for context and is not intended to offer a complete or legal interpretation of the facts or the parties' positions.

[3] "Bear Creek Mining Corporation Consolidated Financial Statements December 31, 2011 and 2010," Notes to Consolidated Financial Statements (BR-13), Section 1. Nature of Business; "Bear Creek Mining Corporation Interim Consolidated Financial Statements, Six Months Ended June 20, 2015 and 2014," Notes to Consolidated Financial Statements (BR-14), Section 1.

[4] Claimant's Memorial, ¶ 107, Figure 9.

[5] Claimant's Memorial, ¶ 11.

[6] FTI Report, ¶ 7.54.

[7] Claimant's Memorial, ¶¶ 11-12.

[8] FTI Report, ¶ 8.12; Claimant's Memorial ¶ 12.

[9] FTI Report, ¶¶ 9.4, 9.7.

15. We have been instructed to review the FTI Report and evaluate the reliability of its calculations of damages to Santa Ana and Corani, as well as its calculation of pre-award interest.

16. We understand that Respondent's position is that Claimant is not entitled to damages because Respondent has not breached the FTA. If damages are awarded by the Tribunal, we understand that Respondent argues they should equal at most the amount that Claimant had invested in the Santa Ana project by the date of Supreme Decree 032. We have been instructed to calculate this amount.

1. Santa Ana Damages

17. Our analysis of FTI's calculation of the FMV of the Santa Ana project starts from the fundamental premise that a reliable estimation of an asset's FMV must be consistent with market indicators of value for that same asset. In this case, FTI obtained a DCF estimate of Santa Ana's FMV that is well above the range of values derived from the market price of Bear Creek's publicly traded shares, even though FTI used that same market price to determine damages for Corani. The explanations that FTI offered for this contradiction do not withstand economic scrutiny and we conclude that FTI's assessment of damages for Santa Ana is unreliable and overstates the Project's FMV.

18. Bear Creek is a publicly traded company listed on the TSX Venture Exchange, a major Canadian stock exchange. In the period before the alleged expropriation of Santa Ana its shares traded freely and frequently on par with the largest mining companies in the world. Mining companies listed in Canada are subject to extensive disclosure standards and requirements, which make reliable information about each company's projects available to investors. Therefore, trades in Bear Creek's shares meet the requirements typically associated with the definition of FMV: open and unrestricted markets, arm's length trading between willing buyers and sellers, reasonable availability of information.

19. The market prices established by trades in Bear Creek's shares provide a direct measure of the FMV of its projects. This measure, called the enterprise value (EV), is directly observable and approximately equal to the combined FMV of Bear Creek's two main projects, Corani and Santa Ana.[10] FTI relied on Bear Creek's EV when determining the loss

[10] The approximation arises because Bear Creek's EV includes the value of other assets and reflects the possibility that the company would in the future identify positive net present value (NPV) projects.

Continued on next page

of value to Bear Creek associated with its Corani project. But Bear Creek's EV also provides a basis to calculate a market benchmark against which to compare FTI's DCF estimate of Santa Ana's FMV.

20. This benchmark is the portion of Bear Creek's EV attributed to Santa Ana. It was in fact calculated by FTI as a step in its estimation of damages to Corani. Applying this method and FTI's results, we derive a benchmark range of values for Santa Ana's FMV of $42 million to $149 million as of June 23, 2011 (FTI's Valuation Date). FTI's conclusion of damages for Santa Ana, $224.2 million, is 50% higher than the top end of the benchmark range, and 152% higher than the average benchmark. The discrepancy between FTI's damages and the benchmark is striking.

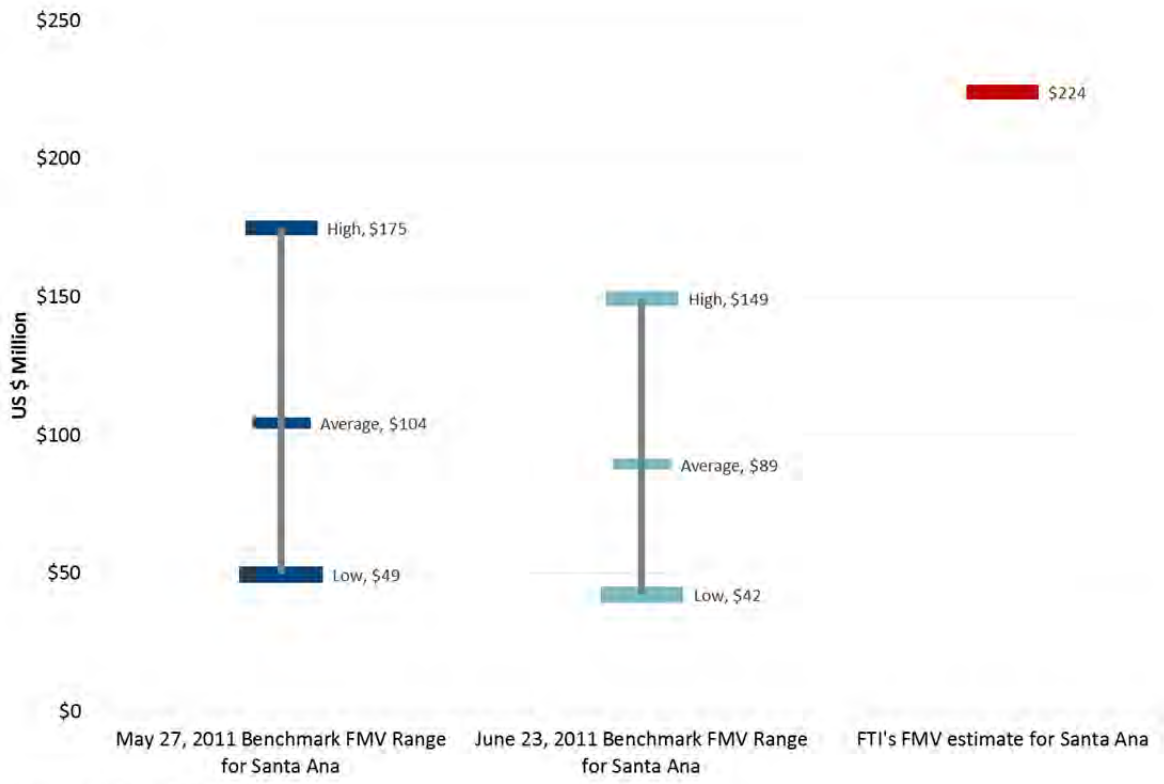
21. The same inconsistency arises under the alternative legal scenario that assumes the suspension of Santa Ana's Environmental Impact Assessment study (EIA) on May 30, 2011 was a treaty breach. Using Bear Creek's EV as of May 27, 2011, the business day before the EIA suspension, indicates that FTI overstated Santa Ana's FMV by the same order of magnitude as at June 23, 2011.[11] The inconsistency is illustrated for both dates in Figure 1.

Continued from previous page

The value of these assets combined is small and does not create a material error in the approximate value.

[11] As we explain below, the market value calculated as of May 27, 2011 should be adjusted for non-breaching events between the calculation date and the valuation date.

Figure 1. FTI's Estimate of Santa Ana's FMV Is Inconsistent with the Market Benchmark Derived from Bear Creek's Share Price



Sources: Table 3 and Table 4.

22. FTI dismissed the market information provided by Bear Creek's share price as irrelevant to its damages assessment for Santa Ana based on the extraordinary assumption that Bear Creek's share price does not reflect the FMV of its productive assets.[12] There is no economic support for this assumption.

23. First, FTI suggests that sentiment and momentum drive Bear Creek's share price, making it irrelevant as a measure of FMV. This leads to the implausible conclusion that the same is true for any publicly traded company in the world. FTI does not establish why investors would be unable to value a well-traded mining company like Bear Creek, with extensive public information about its projects available and a solid analyst following.

24. FTI's argument is also internally inconsistent because its DCF valuation for Santa Ana also relies on exchange-traded share prices. The equity risk premium and the beta estimates, the

[12] FTI indicates two other reasons, which we discuss as well in the report (Sections II.C.1 and II.C.4) and show that cannot justify its decision to not reconcile the Santa Ana FMV estimate against the market benchmark.

main components of FTI's measure of project risk, are based on the share prices of publicly traded companies, including mining companies. If FTI doubts their reliability, it should not rely on the DCF estimates of Santa Ana's FMV either.

25. Second, FTI points, without evidence, to illiquidity as potential cause for Bear Creek's share price to misrepresent the FMV of the company's assets. The argument works only if Bear Creek's assets, Corani and Santa Ana, are less liquid that its traded shares. This is not credible – there is far less trading in whole mining projects than in stocks, even for a thinly traded public company. Bear Creek however was not a thinly traded company – it was a member of the S&P/TSX Venture Select Index and, adjusted for shares outstanding, traded as frequently as BHP Billiton, Barrick Gold, and Rio Tinto, three of the largest mining companies in the world.

26. Inconsistency with a market benchmark is not the only reason to doubt the reliability of FTI's valuation for Santa Ana. The simple DCF method that it employed is not well suited to value mining projects, for which more modern techniques, sometimes called "modern DCF" or "real options", generally produce more precise valuations. Indeed, even within the framework of FTI's simple DCF method, several errors compound to overstate the already imprecise result.

27. First, according to SRK,[13] the mine plans and cost projections on which FTI relied are internally inconsistent and reflect calculation errors. They overstate total silver production and understate mining costs. Second, economic research indicates also that on average, feasibility study projections understate capital expenditures, particularly for relatively small projects such as Santa Ana. Third, SRK finds that FTI's DCF projections understate the time necessary to advance the project to the production stage under typical permitting, engineering, and social conditions. Fourth, FTI's project timeline does not reflect any expectation of delays due to the community opposition facing the Project at the Valuation Date. We find that Peru projects that had faced social opposition had been delayed by up to five years. Finally, FTI's DCF model erroneously assumes no expected change in fiscal terms and other policies toward the Peruvian mining sector despite the market indications that the incoming President of Peru would increase taxes for mining projects.

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[13] Expert Report of Neal Rigby, SRK Consulting, October 6, 2015 ("SRK Report").

28. These errors in FTI's model have sizable effects on its estimate. We were asked to quantify the effect of correcting these errors when a reliable correction could be made with the available information. These calculations are shown in Table 1.

Table 1. Impact of Corrections to FTI's Santa Ana FMV Estimate (Extended Life Case) ($ Million)

	Revised Inputs for Santa Ana Extended Life Case DCF	NPV Based on FTI's DCF Model	Impact of Correction Relative to Previous Line	Percent Change
[1]	FTI NPV	224		
[2]	SRK Inputs	178	(46)	-20%
[3]	SRK Inputs and 14% Capex Overrun	170	(9)	-5%
[4]	SRK Inputs, 1 Year Delay and 14% Increase in Capex	134	(35)	-21%
[5]	SRK Inputs, 4 Year Delay and 14% Increase in Capex	70	(64)	-47%

Sources & Notes:
[1]: FTI Schedule 1.
[2]: Workpaper 22 - A1.
[3]: Workpaper 22 - B1.
[4]: Workpaper 22 - C1.
[5]: Workpaper 22 - D1.

29. There are other errors and imprecisions which are more difficult to correct, primarily associated with the proper accounting for cash flow risk. We do not attempt to make adjustments for these because the simple DCF model is not well suited to accommodate them. We note that those corrections can have large impacts and could increase or decrease the adjusted numbers shown in Table 1.

30. FTI's reliance on its simple DCF model at the expense of consistency with the market benchmark that FTI itself used to calculate Corani damages cannot be justified. It is not supported by theoretical or empirical economic evidence, it is undermined by reliance on biased inputs, and overstates the FMV of the Project.

2. Corani Damages

31. Claimant's calculation of damages for the Corani project rests on a double inconsistency. First, although FTI was instructed to assess the loss of value *to date*, its calculation stops on June 27, 2011 and reflects no developments between that date and the date of the FTI Report. At most, FTI's calculation reflects the loss in the market value of Corani immediately after Santa Ana was expropriated, which is admittedly not what FTI was instructed to calculate.

32. We conducted a review of the developments related to Corani between June 2011 and September 2015 to assess whether the Corani project, which Bear Creek continues to own and develop, has suffered losses to date. Claimant stated that the loss of value to Corani was due to three factors caused by the Santa Ana alleged breaches: difficulty attracting financing due to the increase in outside capital, delays caused by these financing difficulties, and an increase in the market perception of the risk of illegal acts by Respondent against Corani.

33. We find that the factors put forward by Claimant have not caused a realized loss to Corani to date. Bear Creek has not yet started financing for the project so it could not have incurred higher financing costs. After the Santa Ana alleged illegal expropriation, Claimant has not identified any illegal act that the Government took to interfere with Corani's development. Finally, although the project was delayed, the delay was caused by Bear Creek's decision to pursue engineering optimization in an environment of sharply decreased commodity prices. According to Bear Creek, this strategy paid off and increased the profitability of the project, which suggests that the delay did not cause a loss.

34. Although no realized loss has occurred to date, it is possible that Corani's current market value is lower than it would have been absent Respondent's alleged breaches because of market expectations of future losses linked to Respondent's alleged illegal actions. We term these unrealized losses. Our analysis reveals that while immediately after the Santa Ana alleged illegal expropriation, Corani's market value was affected negatively, as were the market values of other mining projects in Peru, that initial reaction was reversed.

35. At the time of the alleged breaches, the political situation in Peru was subject to change and uncertainty. While the Government actions related to Santa Ana were taken by the outgoing government, any future government action relevant to Corani would be driven by the new government to be formed by newly elected President Humala. As of June 27, 2011, the last date reflected in FTI's calculation, President Humala had not named his cabinet. Once the new cabinet was announced however, several weeks later, both Bear Creek's share price and that of other mining companies with assets in Peru increased, reflecting the market perception that President Humala's choices for key cabinet positions had moderate policy positions.

36. This initial reversal in market values is an illustration why FTI's focus on the immediate market reaction does not capture the loss to date in the market value of Corani. In addition to the short-term reversal in market values, the admitted support that the Corani project

has received from both the Peruvian government and the local communities do not support a claim that by now, a reduction in Corani's market value would persist because of continued expectations of loss due to government actions.

37. The second inconsistency in Claimant's calculation of damages for Corani is FTI's contradictory assumption that Santa Ana was worth $104.3 million when calculating damages for Corani but it was worth $224.2 million when calculating damages for Santa Ana. FTI attempts to explain this inconsistency by arguing that Bear Creek's share price reflected less than half of Santa Ana's FMV. As we explained in our discussion of using Bear Creek's share price to develop a benchmark for Santa Ana's FMV, such a discrepancy cannot be explained by the factors that FTI propose.

38. Moreover, FTI's measure of damages to Corani is based on the change in Bear Creek's share price due to the alleged breaches. If the share price can measure the loss of value to Corani correctly, then FTI must assume that it is only the Santa Ana project that is mis-valued by the market and not Corani. This striking assumption has no justification because investors have more information about Santa Ana, which is a more advanced and less complex project than Corani.

3. Claimant's Amount Invested in Santa Ana

39. We have been instructed to calculate the quantum of damages based on Claimant's amount of investment in the Project. We base our calculation of the investment amount on Bear Creek's publicly available financial statements, which are prepared in accordance with Canadian Generally Accepted Accounting Principles. Bear Creek's financial statements identify the exploration costs that the company has reported it incurred to acquire and develop the Project. As of June 30, 2011, these costs total $21,827,687, as presented in more detail in Section IV.

4. Pre-Award Interest

40. We calculate pre-award interest based on a commercially reasonable rate in U.S. dollars as provided for by the Free Trade Agreement between Canada and the Republic of Peru. Commercial rates depend on the time value of money and the borrower's credit risk. Because the award amount would be owed by Respondent, a relevant benchmark is the commercial rate that reflects Respondent's credit risk. We estimate the compensation for the time value of money using the yield on short-term U.S. Treasury bills. We then add the credit risk premium estimated from rates on credit default swaps on Respondent's sovereign debt denominated in U.S. dollars. The total pre-award interest between the Valuation Date

and September 24, 2015 is 2.79% of the damages amount. This corresponds to an average annual interest rate of 0.65%.

41. We present also pre-award interest calculations based on the risk-free rate, which is also a commercial rate, under an alternative scenario in which Claimant is entitled only to compensation for the time value of money and not for risk. This is a legal question that hinges on whether the risks borne by the Claimant before the award are better characterized as litigation risks, and if so, whether compensation for litigation risk should be awarded. We do not opine on this legal question. Under this theory, the total pre-award interest as of September 24, 2015 is 0.69%, corresponding to an average annual interest rate of approximately 0.16%.

42. Claimant's theory of pre-award interest coincides with our first calculation, which includes compensation for Respondent's credit risk. There should be no disagreement therefore between our calculations and FTI's. FTI however did not use a commercial rate and instead used a monetary policy interest rate for operations in Peruvian currency published by the Central Reserve Bank of Peru. This is simply the wrong rate and cannot form the basis for calculating interest at a commercially reasonable rate for an amount denominated in U.S. dollars.

II. Santa Ana Damages

A. Damages Standard and Valuation Date

43. The FTA provides that compensation for an expropriation "shall be equivalent to the fair market value of the expropriated investments immediately before the expropriation took place ('date of expropriation'), and shall not reflect any change in value occurring because the intended expropriation had become known earlier."[14] We have applied this standard.

44. The date as of which the FMV of Santa Ana should be determined is June 24, 2011 (Valuation Date), the day immediately before the alleged expropriation took place through the issuance of Supreme Decree 032.[15] Information regarding the forthcoming decree, however, was known the day prior. The FTA instructs that the FMV calculation should exclude any effect of that information. The valuation cannot simply be performed one day

[14] Canada-Peru FTA (C-01), Article 812, ¶ 2.

[15] Supreme Decree 032 was issued on June 25, 2011 (C-05: Supreme Decree No. 032-2011-EM).

earlier, however, because other factors that caused the Project FMV to change prior to the Valuation Date should be reflected in the valuation.

45. Claimant alleges that the suspension of Santa Ana's EIA process on May 30, 2011 also constituted a treaty breach.[16] While we understand that the treaty does not define compensation for non-expropriatory breaches, the same economic framework can be applied. In this case, the calculation of Santa Ana's FMV as of the Valuation Date should exclude any impact of the EIA suspension. FMV should, however, reflect the impact of unrelated changes in the Project's value prior to the Valuation Date, such as those caused by market-wide or industry factors not alleged to constitute breaches of the FTA.

46. FTI chose June 23, 2011 as its valuation date (FTI Valuation Date) for Santa Ana. This choice ignores the one-day change in Santa Ana's FMV that was due to market factors other than prior knowledge of the alleged expropriation. FTI erroneously did not perform any adjustment to its FMV calculated as of June 23, 2011, but the error is small.[17]

47. A reliable method of calculating the FMV of Santa Ana must use market inputs and produce a result that is consistent with market indicators of value. FTI relied on the income approach to estimate Santa Ana's FMV, which requires estimating the Project's expected future cash flows and adjusting them for risk and the time value of money. When applied correctly using accurate inputs, the income approach can provide a reliable estimate of FMV. A reliable FMV estimate obtained this way should be reconcilable with market benchmarks obtained through other methods.

48. FTI's implementation of the income approach fails on two accounts. First, it produces an FMV estimate that cannot be reconciled with the combined market value of Bear Creek's productive assets, which is observable directly. Second, it has methodological flaws and relies on incorrect technical and economic inputs.

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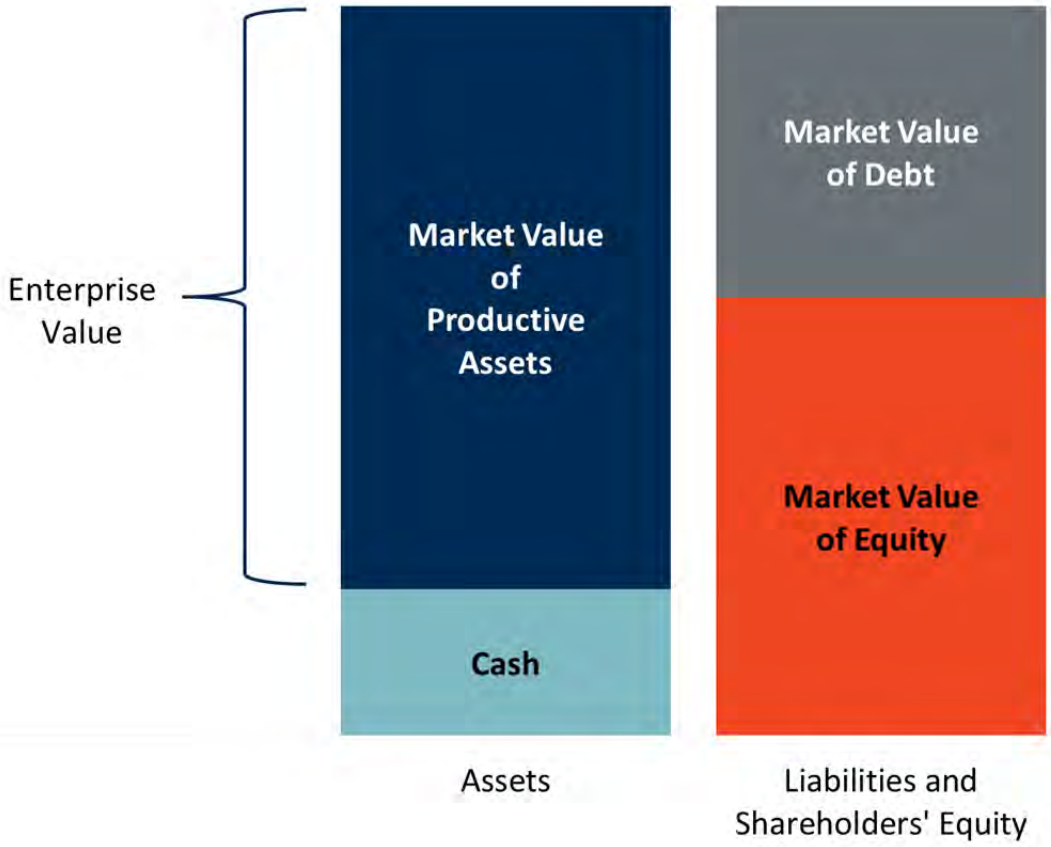
[16] Claimant's Memorial, ¶ 73.

[17] FTI's DCF valuation method relies on silver futures prices and the 20-year Treasury bond rate, which change daily. Between June 23 and June 24, 2011, the futures price curve dropped by about 1% (Workpaper 15) and the 20-year Treasury bond rate fell by 1 basis point.

B. FTI'S ESTIMATE OF SANTA ANA'S FMV CANNOT BE RECONCILED WITH BEAR CREEK'S ENTERPRISE VALUE

49. A fundamental economic principle, illustrated in Figure 2, is that the market value of a company's assets is equal to the market value of the claims on the company's assets (debt and equity).[18]

Figure 2. Enterprise Value



50. The enterprise value (EV) is the market value of a company's productive assets, shown in dark blue in Figure 2. It is calculated by subtracting the amount of cash from the market value of its equity and debt.

51. Bear Creek is publicly traded on the TSX Venture Exchange (TSXV) in Canada. Its share price on the Valuation Date therefore provides a direct measure of the combined FMV of all the company's assets, including Santa Ana. As Bear Creek had no debt at the Valuation Date, its EV is simply the market value of its equity less available cash.

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[18] This identity is sometimes referred to as the economic balance sheet of the company. For a detailed discussion, see, for example, Holthausen, Robert W. and Mark E. Zmijewski, *Corporate Valuation: Theory, Evidence & Practice* (Cambridge Business Publishers, 2014) (BR-130), pp. 6-8.

52. The FMV of Bear Creek's equity is straightforward to determine because it is reflected in the company's share price. The owner of a 1% share in the company receives 1% of the value that the company's assets generate, either over time as they generate cash flows from production or more immediately if the company sells its assets for cash. A buyer of that 1% share, therefore, is at most willing to pay 1% of the value of the assets.[19] A seller of that 1% share likewise will accept no less than 1% of the value of the assets. If trading occurs in active markets with competing buyers and sellers, the price of that 1% share will equal 1% of the value of the assets. If a 1% stake in the company is worth 1% of the assets' value, and the price of that 1% stake is known via market information, then the total asset value as judged by the market is simply 100 times the observed price of the 1% share. This is the principle of value additivity, a foundation of finance theory.

53. Market trades in Bear Creek's shares reflect the key elements of FMV transactions. They are conducted between willing, arm's length buyers and sellers in an open and unrestricted competitive market. As shown in Table 2, Bear Creek's stock was well traded, with a daily trading volume in the range of the twenty largest mining companies in the world.

[19] If a company has debt, a share in the company would reflect the value of assets net of debt.

Table 2. Average Daily Volume as Percentage of Floating Shares Outstanding

Company Name	2010	2011
BEAR CREEK MINING CORP	0.54%	0.65%
BHP Billiton Ltd	0.58%	0.53%
VALE SA	2.20%	1.83%
RIO TINTO PLC	0.92%	0.92%
FREEPORT-MCMORAN INC	3.09%	2.17%
BARRICK GOLD CORP	0.54%	0.49%
GOLDCORP INC	0.58%	0.55%
SOUTHERN COPPER CORP	1.62%	1.62%
NEWMONT MINING CORP	1.60%	1.48%
KINROSS GOLD CORP	0.89%	0.71%
CLIFFS NATURAL RESOURCES INC	4.27%	2.83%
SILVER WHEATON CORP	0.77%	0.94%
FIRST QUANTUM MINERALS LTD	0.92%	0.83%
AGNICO EAGLE MINES LTD	0.62%	0.67%
CIA DE MINAS BUENAVENTUR-COM	0.51%	0.60%
CAMECO CORP	0.43%	0.58%
YAMANA GOLD INC	0.93%	0.77%
ELDORADO GOLD CORP	0.92%	0.71%
IAMGOLD CORP	0.98%	0.70%
ALUMINA LTD	0.86%	0.73%
FRANCO-NEVADA CORP	0.42%	0.58%
Minimum:	0.42%	0.49%
Average:	1.18%	1.01%
Median:	0.91%	0.72%
Maximum:	4.27%	2.83%

Sources: Workpaper 1 - Workpaper 3.
Notes: Companies chosen represent the 20 largest mining companies by market capitalization on June 24, 2011 for all companies in the "Metals Mining" industry, as classified by Bloomberg. The benchmark companies are listed in decreasing order of their market capitalization.

54. The buyers and sellers of Bear Creek's shares had reasonable information available through the publicly available disclosures made by Bear Creek pursuant to Canadian securities

regulations,[20] as well as through analyses published by multiple analysts at major financial institutions.[21] Bear Creek's shareholders were large investors with experience in the mining industry and the resources to analyze the available information effectively.[22] Its largest shareholder shortly after the Valuation Date was Silver Wheaton, an experienced silver market player, who held 14.4% of Bear Creek's shares.[23] The second largest shareholder, with a 10.1% share, was Sprott Asset Management, a large investment company with $9 billion in assets under management (AUM) and an active owner and trader of mining shares.[24]

55. Bear Creek's share price provides a reliable and direct measure of the FMV of its projects. If Santa Ana were Bear Creek's only project, then its FMV would be equal to the company's EV.[25] Bear Creek also owned Corani, so the company's EV reflects the combined FMV of both assets. Knowing the relative value of the two projects, however, would make the calculation of each asset's FMV possible. For example, knowing that Corani's FMV is four times Santa Ana's FMV implies that Santa Ana's FMV is 20% of the company's EV.[26]

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[20] These include disclosure rules applicable generally to listed companies, such as NP 51-201 - Disclosure Standards (BR-107) and NI 51-102 - Continuous Disclosure Obligations (BR-108), and rules applicable specifically to mining companies, such as NI 43-101 - Standards of Disclosure for Mineral Projects (BR-106).

[21] For example, FTI identified seven analysts who were following the company (FTI Report, Appendix 8).

[22] Bear Creek's CEO, Mr. Swarthout, described the share ownership as follows: "we have a very strong long-term institutional investor group comprising probably 60% to 70% … [t]hese groups are all very sophisticated investment funds." Bear Creek Mining Corp, "Special Call," June 2, 2015 (BR-132), p. 3.

[23] S&P Capital IQ, Bear Creek Mining Corp. Public Ownership History, June 30, 2011 (BR-112).

[24] Sprott AUM as of June 30, 2011. Sprott Inc., *Report to Shareholders*, June 30, 2011 (BR-29), p. 8. Sprott's Canadian Equity Fund, for example, had a total NAV of $1.5 billion as of September 30, 2011, a majority of which was constituted by metals and mining companies. See "Sprott Canadian Equity Fund: Quarterly Portfolio Disclosure as at September 30, 2011" (BR-28), p. 1.

[25] To be precise, equating the single project's FMV to the company's EV would result in a small overstatement because the EV reflects also the possibility that the company would identify positive NPV projects in the future.

[26] As Bear Creek also owned several other properties, this method tends to overstate Santa Ana's FMV. However, the effect is small because Bear Creek's other assets (Tassa, La Yegua, Alejandra, and Sumi), were all early-stage exploration properties. Bear Creek Mining Corporation, *Bear Creek Mining Corporation Interim Consolidated Financial Statements, First Quarter ended March 31, 2011,* May 25, 2011 (BR-11), Note 8.

56. An estimate of the ratio of the two projects' market values is available. Indeed FTI used a method relying on ratios to calculate the market value of Corani.[27] Using the relative value of Santa Ana and Corani implied by the valuations published by seven analysts, FTI estimated that Santa Ana represented 19.2% of Bear Creek's EV, with a range from 9.1% to 32.2%.[28] The average 19.2% share implies a benchmark value for Santa Ana of $104.3 million as of May 27, 2011.[29]

57. FTI ignored this market-based benchmark and instead used an income approach to conclude that Santa Ana's FMV was $224.2 million, more than double the EV approach.[30] The magnitude of FTI's inconsistency is illustrated in Table 3. Not only is FTI's $224.2 million FMV estimate as of the FTI Valuation Date more than double the value of Santa Ana FTI itself used in valuing Corani (middle column of Table 3), it is 28% higher than the high end of the range defined by the analyst estimates of the relative value of Santa Ana and Corani. There is no economic justification for this discrepancy.

Table 3. FTI's Santa Ana FMV Estimate versus Market Benchmark, May 27, 2011 (US$ Million)

Bear Creek EV at May 27, 2011	[1]	543.5		
		Low	Average	High
FTI Estimate of Santa Ana Share of EV	[2]	9.1%	19.2%	32.2%
Implied Santa Ana FMV at June 23, 2011	[3]	49.5	104.3	175.0
FTI Estimate of Santa Ana FMV	[4]	224.2	224.2	224.2
Excess above Benchmark FMV ($ million)	[5]	174.7	119.9	49.2
Excess above Benchmark FMV (%)	[6]	353%	115%	28%

Sources and Notes:
[1]: FTI-03, Data Provided by Capital IQ.
[2]: FTI Report, Figure 26.
[3]: [1] x [2].
[4]: FTI Report, Figure 2.
[5]: [4] - [3].
[6]: [5] / [3].

58. The calculations in Table 3 are based on Bear Creek's EV as of May 27, 2011, the trading day before Santa Ana's EIA was suspended. They reflect a damages scenario in which the

[27] FTI Report, ¶ 8.5-8.12.

[28] FTI Report, Figure 26.

[29] FTI Report, Figure 27.

[30] FTI Report, Figure 2.

EIA suspension is determined to be a treaty breach.[31] In the alternative damages scenario in which only the expropriation is determined to be a breach, the benchmark value should be calculated based on Bear Creek's EV as of June 23, 2011.[32] This further magnifies the amount by which FTI's FMV estimate exceeds the market benchmark. As shown in Table 4, at the average estimate of relative values, FTI's valuation for Santa Ana is 150% higher than the benchmark market value. At the high end of the range, it is 50% over the benchmark market value.

Table 4. FTI's Santa Ana FMV Estimate versus Market Benchmark, June 23, 2011 (US$ Million)

Bear Creek EV at June 23, 2011	[1]	464.0		
		Low	Average	High
FTI Estimate of Santa Ana Share of EV	[2]	9.1%	19.2%	32.2%
Implied Benchmark for Santa Ana FMV	[3]	42.2	89.1	149.4
FTI Estimate of Santa Ana FMV	[4]	224.2	224.2	224.2
Excess above Benchmark FMV ($ million)	[5]	182.0	135.1	74.8
Excess above Benchmark FMV (%)	[6]	431%	152%	50%

Sources and Notes:
[1]: FTI-03, Data Provided by Capital IQ.
[2]: FTI Report, Figure 26.
[3]: [1] x [2].
[4]: FTI Report, Figure 2.
[5]: [4] - [3].
[6]: [5] / [3].

59. The market benchmark in row 3 of Table 3 and Table 4 that we use to test FTI's estimate of the value of Santa Ana is not itself a precise estimate of Santa Ana's FMV, but it is indicative of the range of values where the true FMV is likely to lie. The benchmark incorporates imprecise estimates of the relative value of the two projects, based on analyst calculations.[33] In principle, a comprehensive, modern discounted cash flow (DCF) analysis

[31] As explained in Section II.A, the May 27 value should be adjusted to reflect the effect of market changes other than the impact of the alleged breaches until the FTI Valuation Date. In its calculation of Corani damages, FTI used the change in the TSX Global Mining Index over the period (FTI Report, ¶ 8.5.). Because the index decreased after May 27, 2011, applying a similar adjustment to Bear Creek's EV would only magnify the discrepancy between FTI's FMV estimate and the market benchmark.

[32] The result would then be adjusted to the Valuation Date (June 24) by an adjustment reflecting market changes unrelated to the expropriation.

[33] Some additional error is caused by not subtracting the value of Bear Creek's other properties from the EV. As we discussed above, those properties were at the early stages of exploration and unlikely to

Continued on next page

can be used to value the two individual assets (Santa Ana and Corani).[34] The resulting values could be tested (in total) against the observable EV of Bear Creek at the valuation date to ensure consistency with that market value. If the total did not match the observable EV, there are calibration mechanisms that can be undertaken. A more precise ratio of value attributed to Santa Ana could then be determined.

60. A reliable modern DCF analysis would require detailed and project-specific cost and risk estimates. It would also incorporate Monte Carlo simulation to reflect the impact of uncertainty about future commodity prices and to capture non-linear interactions between different uncertain cash flow determinants.[35] Such an analysis would require substantial supporting analyses and inputs beyond those developed by Claimant's experts. In the absence of these necessary inputs, the measure based on the analysts' approximation of the relative market value of Santa Ana and Corani offers a useful indication of FMV against which to test the reasonableness of FTI's result.

61. To be clear, we do not suggest that the individual asset values calculated by the analysts are reliable. Their methods are simplistic and have flaws, and the range of asset values that results is large. Some of the valuations appear to be contingent on project success and produce values for a future (target) date, while others make *ad hoc* adjustments for risks. We do not rely on these reports for the specific values, but rather only for the relative value of the Santa Ana and Corani assets. While analyst valuations overstate the two projects' contemporaneous combined FMV (which we can see directly in the market),[36]

Continued from previous page

have a substantial market value. In any case, correcting this source of imprecision would only magnify the inconsistency between FTI's conclusion and the market benchmark.

[34] The modern DCF method is also known as the "real options" valuation method. It is an implementation of the income approach to valuation that avoids the shortcomings of the simple DCF method that FTI used, accounts for risk more reliably, and can measure the value of management decision-making in response to changes in the future economic environment. We discuss this in Section II.D.1.

[35] Monte Carlo simulation involves generating a large number of possible future cash flow streams according to statistical models that capture the variability in different cash flows components (e.g., metal prices, fuel costs, realization of inferred resources) and calculating the asset's present value by averaging the present value across all the simulated paths. See, for example, Brealey, Richard A, Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance*, Tenth edition ("Brealey and Myers, 10th ed.") (BR-128), pp. 249-253.

[36] For example, the four reports published in June 2011 prior to the Valuation Date calculate combined values in excess of $1 billion (FTI Report, Figure 26), while Bear Creek's EV over the period did not exceed $500 million (FTI-03).

each analyst used consistent assumptions across the two projects. Consistency in valuation assumptions across projects implies that the error in measuring the relative value is small compared to the error in the individual asset valuations.

62. To illustrate this concept, consider Canaccord's analyst valuations, which use a "peak silver" price of $47.50.[37] Because this is above the price the market expected,[38] all else constant, Canaccord's DCF model overstates each project's FMV. But because both projects' FMVs are inflated, their *relative* valuations are subject to a smaller error. Similarly, each analyst uses the same fiscal term assumptions for both projects, but some reports reflect the likelihood of increased taxation following the election of President Humala and some do not.[39] Both assumptions cannot be right on a given date, but because each analyst values Corani and Santa Ana using the same rate, the error in the relative value will not be of the same magnitude as that in the individual asset valuations.

C. FTI's Failure to Reconcile Its FMV Estimate of Santa Ana with Bear Creek's Share Price Is Unjustified

63. FTI did not reconcile the striking difference between its DCF estimate of Santa Ana's FMV and the range of market values implied by Bear Creek's share price.[40] FTI instead dismissed Bear Creek's share price as "not … [a] sufficiently reliable measure to determine the FMV of the Project at the Valuation [Date]."[41] We discuss the reasons provided by FTI for its decision to ignore Bear Creek's share price as a relevant benchmark. These reasons cannot justify FTI's argument to ignore Bear Creek's traded value.

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[37] Campbell, Nicholas and Gabriel Gonzalez, Canaccord Genuity Analyst Report, June 7, 2011 (FTI-56), p.1.

[38] The Canaccord analyst labels this a peak-silver price and adjusts the resulting NAVPS (net asset value per share) of Bear Creek downward to offset the overstatement of value. Campbell, Nicholas, Canaccord Genuity Analyst Report, June 7, 2011 (FTI-56), p. 3. It is more than twice Canaccord's own institutional silver price forecast TD Bank, "Commodity Price Research Estimates," June 25, 2011, p. 2 (FTI-29).

[39] Specifically, Canaccord and Paradigm Capital make adjustments related to increased taxation risk. Blyth, Don, et al., Paradigm Capital Inc Analyst Report, June 8, 2011 (FTI-55), pp. 2-3. Campbell, Nicholas, Canaccord Genuity Analyst Report, June 7, 2011 (FTI-56), pp. 1, 4.

[40] See Table 3 and Table 4 above for the calculation of the difference.

[41] FTI Report, ¶ 7.69.

1. Bear Creek's Ownership of Multiple Projects

64. The first reason offered by FTI for not relying on Bear Creek's share price is that Bear Creek owned other assets, "the value of which would need to be determined and deducted to arrive at the FMV of the project."[42] This view is inconsistent with how FTI calculated damages for Corani.

65. To calculate damages for Corani, FTI apportioned the combined value of Bear Creek's assets into two parts: 19.2% for Santa Ana and 80.8% for Corani. To claim that the same could not be done to calculate damages for Santa Ana is contradictory.

66. Beyond Santa Ana and Corani, FTI stated that any other assets amounted only to "an immaterial balance."[43] The inability to value these other admittedly immaterial assets, therefore, cannot justify failure to use EV and to reconcile with it values from other methods.

2. Sentiment and Momentum

67. FTI argues that "[p]ublicly traded share prices of junior mining companies like Bear Creek may not be representative of the FMV of the underlying mineral properties they own due to a number of factors."[44] FTI then identifies two factors, the first being "[s]entiment and momentum."[45]

68. Bear Creek was listed on a major Canadian stock exchange and was subject to securities disclosure rules. Mining companies have transparent reporting requirements, as documented in the NI 43-101, NP 51-201, and NI 51-102 standards for disclosure of material information.[46] Due to these extensive regulatory disclosure requirements, mining companies are among the most transparent businesses in the market today. For example, every material item of asset inventory must be disclosed and every material change in business environment announced.[47] In essence, to argue that the market cannot correctly

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[42] FTI Report, ¶ 7.69 (i).

[43] FTI Report, fn. 123.

[44] FTI Report, ¶ 7.69 (ii).

[45] FTI Report, ¶ 7.69 (ii).

[46] National Instrument 43-101 – Standards of Disclosure for Mineral Projects (BR-106); National Policy 51-201 – Disclosure Standards (BR-107); National Instrument 51-102 – Continuous Disclosure Obligations (BR-108).

[47] NP 51-201 (BR-107), Part 2.1; NI 43-101 (BR-106), Article 4.1.

value Bear Creek's two major assets is to conclude that the market cannot correctly value any asset on any listed stock exchange.

69. If one rejects the stock market's ability to compute the value of assets like Santa Ana and Corani, for which there were extensive, publicly available technical reports outlining projected production quantities and costs for each asset, one must also reject the proposition that the share prices of companies like General Motors or United Airlines reflect fair market value. Indeed the market has less information as to the likely future cash flow generation or strategic plans for these companies than it did for Bear Creek.

70. This is an extraordinary view of the relevance of public stock markets, at odds with their central importance in all developed economies and with mainstream financial economics. Consider as an example the advice from the world's leading corporate finance textbook, *Principles of Corporate Finance*:

> Our two examples of gold and copper producers are illustrations of a universal principle of finance: When you have the market value of an asset, *use it*, at least as a starting point in your analysis.[48]

71. FTI's view of public markets is also internally inconsistent. FTI's Santa Ana FMV estimate relies on prices of financial assets traded in public markets.

    a. Silver and gold price projections rely on futures prices,[49] which reflect public trading on COMEX.

    b. FTI's beta estimate, a key measure of cash flow risk that affects the project discount rate, is based on the publicly traded share prices of U.S. precious metal mining companies and the S&P 500 stock index, an average of 500 U.S. stocks.[50]

    c. Professor Damodaran's equity risk premium used by FTI, another key component of the discount rate, is calculated from closing prices of the publicly traded companies included in the S&P 500 stock index.[51]

72. Price projections and the discount rate are key inputs into the DCF method. Doubt as to their economic relevance would also cast doubt on the relevance of FTI's DCF calculations.

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[48] Brealey and Myers, 10th ed. (BR-128), p. 273 (emphasis in original).

[49] FTI Report, ¶ 7.47.

[50] FTI Report, ¶¶ A5.21-22.

[51] FTI Report, ¶ A5.16-17.

3. Illiquidity and Trading Ease

73. The second reason that FTI offers to explain why Bear Creek's share prices may not reflect the FMV of its assets is illiquidity.[52] Illiquidity can affect market prices, but it is not plausible that for Bear Creek's stock it is a significant factor that could explain substantial underpricing of Bear Creek's assets.

74. Bear Creek's mining assets are *less* liquid than its traded shares. If anything, a potential buyer of the Santa Ana property would require a *discount* relative to the value implied by Bear Creek's share price, rather than a premium, as FTI argues.

75. Our analysis of average daily trading volume, presented in Table 2 above, shows in any case that Bear Creek shares were trading in volumes similar (proportionately) to those of the largest mining companies in the world. For example, as a fraction of floating shares outstanding, Bear Creek's trading volume was about the same as BHP Billiton, Rio Tinto, and Barrick Gold, three of the five largest mining companies in the world by market capitalization in 2011.

76. Bear Creek's stock was also included by Standard & Poor's (S&P) in its S&P/TSX Venture Select index, which included only 30 of the approximately 2,400 companies listed on the TSXV.[53] This also indicates sufficient liquidity in Bear Creek's shares, and S&P specifically cites liquidity as a condition for inclusion in the Select index.[54]

4. Impact of Respondent's Actions

77. FTI argues that the share price is not "a sufficiently reliable measure to determine FMV," because it "may have reflected the impact from the Respondent's actions, or other factors (i.e., protests) prior to the Valuation Date."[55] That argument also does not support ignoring EV.

78. First, the impact of Respondent's actions can be accounted for, if necessary, by using share prices before the alleged treaty breaches occurred, and adjusting the resulting valuation for

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[52] FTI Report, ¶ 7.69 (ii) (2).

[53] TSX VXTC Index Stock File as of May 31, 2011 (BR-115); TMX Group – Equity Financings Statistics June 2011 (BR-111).

[54] As of 2014, S&P required that "[i]ndex constituents … have adequate liquidity" (S&P/TSX Venture Select Index Methodology, July 2014). While it is not clear that S&P applied the same rule in 2011, Bear Creek met S&P's liquidity criteria and was included in the index in 2014, when it traded at a lower volume than in 2011 (see Table 2).

[55] FTI Report, ¶ 7.69, 7.69 iii.

the impact of unrelated factors until the Valuation Date. FTI employs a similar approach in its assessment of damages to Corani.[56]

79. Second, FTI does not explain why the impact of community protests should be excluded from the FMV calculation. Community opposition can cause project delays, increase costs to the company, or even prevent a project from being developed.[57] Unless there is a presumption that the State has a treaty obligation to quash all protests and eliminate any community opposition to projects, which we are instructed is not an appropriate legal position, accounting for the impact of social opposition is critical to obtaining a reliable measure of damages. This provides an example of how using the share price as a starting point for the valuation provides timely signals about the market impact of project-specific factors that can otherwise be difficult to quantify reliably.

80. Third, if there is a prior alleged breach, the correct approach is to identify and value the impact of that breach or, if legally appropriate, to change the valuation date. It is not economically valid to use the possibility of an unspecified past breach for which Claimant does not seek to hold Peru liable to argue that less precise methods should replace observable traded public values at a later date. That is to say, the method chosen must be capable of identifying the impact of the alleged breaches and to reconcile the valuation with the public market data. It is not meaningful to use a valuation that clearly exceeds the value in public markets based on a hypothesis that there may be earlier impacts that might constitute breaches and that possibly suppressed that value in some indeterminate way.

D. FTI's DCF Calculation Is Unreliable

81. Faced with a substantial difference between its DCF estimate and the FMV benchmark implied by Bear Creek's share price, FTI ignored the market-based indicator and relied exclusively on the inflated DCF result. FTI's confidence in its DCF valuation, despite its large deviation from EV benchmark, is misplaced. The market-based value given by Bear Creek's share price, although imprecise because of its reliance on an approximate split of value between the two projects, however, is more reliable than FTI's DCF result.

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[56] To adjust the value of the Corani project between May 27 and June 27, 2011, FTI applied a 7.3% reduction equal to the fall in the S&P/TSX Global Mining Index over that period (FTI Report, ¶ 8.5 (i)).

[57] We present evidence of the impact of delays on mining projects in Peru in Section II.D.2.b below.

82. FTI's DCF calculation is unreliable for three reasons: (i) the simple DCF implementation that FTI used is not well suited to the valuation of a mining project like Santa Ana ii) FTI relied on inaccurate technical inputs from RPA, and (iii) FTI made several economic errors.

1. Shortcomings of the Simple DCF Method Employed by FTI

83. The simple DCF method that FTI used has two basic steps. The first is to project the components of a project's stream of cash flows to the owner over time and then combine them to derive free cash flows. These components of free cash flows include, for example, prices, quantities, capital expenditures, and operating costs. The resulting free cash flow projections must be what economists call *expected* or *unbiased* cash flows.

84. The second step is to value each of these cash flows. The valuation of the cash flows requires two distinct operations. The first is to adjust the cash flows for their timing. Later cash flows are worth less than early cash flows simply because market participants prefer a dollar today to one tomorrow, since they can invest a dollar today without risk and receive a higher amount tomorrow. That preference can be measured via bond markets. Technically, the cash flows are "discounted" for time using the risk-free rate of interest.

85. The second part of the cash flow valuation step is to further "discount" the cash flows for their risk. This second adjustment is based on the premise, which has been verified in financial markets, that investors are risk averse. That means that investors would prefer less risk to more, all else equal.

86. In general risk refers to variance or volatility around the expected value of an uncertain quantity. When adjusting expected cash flows for risk, only a certain kind of risk, called "systematic risk", matters. Systematic risk is risk that cannot be diversified by holding a portfolio with a large number of assets, in which asset-specific (or idiosyncratic) fluctuations offset each other. Because they cannot eliminate it, investors demand compensation for bearing it in the form of a commensurate expected return.[58] Therefore, assets subject to more systematic risk must offer higher expected returns to induce investors to hold them. Higher expected returns imply lower prices than less risky assets with similar cash expected flows.

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[58] Of course investors would not mind being compensated for diversifiable risk too, but in a competitive market they cannot, because competition among investors eliminates return for risk that investors can eliminate by diversification.

87. The exact nature of this second adjustment is complex in practice due to the absence of direct market signals as to the specific level of systematic risk in a given project's free cash flows. The cash flow components of a silver mine vary significantly in their non-diversifiable risk. Revenues carry the non-diversifiable risks common to silver, whose price varies with world silver demand, which is itself a function of the level of global economic activity (and other factors), or at least those types of activity that use silver. As a "store of value" silver prices also vary with expected inflation, which is an independent source of non-diversifiable risk. Fuel costs carry the non-diversifiable risks common to oil, which also depend on the level of global economic activity, but not exactly in the same way as silver prices. Fuel costs also depend on the political stability of oil producing regions, which adds another dimension of non-diversifiable risk. The costs of machinery and labor have their own unique components of non-diversifiable risk.

88. The simple DCF model that FTI used offers a simplistic approach to the risk discounting problem: it assumes an exponentially increasing discounting of the free cash flows of the project as their time to realization becomes more distant. That is, the riskiness of the cash flows is assumed to compound over time at a constant rate (called the discount rate).

89. Modern finance has pointed out two major problems (and many minor problems) with this discounting approach.[59] First, it is unlikely that any project's cash flows will have exponentially increasing uncertainty.[60]

90. Second, there are no clear market signals as to how the risk of a particular project's free cash flows stream should be discounted. If all silver mines had the same relative amounts of revenue and costs from energy, machinery, labor, etc, then it would not matter that each component had its own discount rate. However, silver mines do vary in how much they have of each component. So there is a large degree of inaccuracy in taking a discount rate from an "average" silver mine and applying it to any particular mine. Textbook solutions

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[59] For a detailed discussion of these problems and how a modern DCF approach can help solve them see Samis, Michael, Graham A. Davis, David Laughton, and Richard Poulin, "Valuing uncertain asset cash flows when there are no options: A real options approach," *Resources Policy* 30 (2006), pp. 285-298 (BR-122). The modern DCF approach is also appropriate when during the course of a project's life, management can make decisions that capture upside opportunities or avoid losses. Examples of such management decisions include expanding mine capacity if metal prices rise above expectations or stop or delay production if it becomes unprofitable due to declining prices or rising costs. See Brealey and Myers, 10th ed. (BR-128), Chapter 22, for an explanation of real options.

[60] Robicheck, Alexander A, and Stewart C. Myers, "Conceptual Problems in the Use of Risk-Adjusted Discount Rates," *The Journal of Finance*, Vol. 21, No. 4 (1966), pp. 727-730 (BR-126).

suggest finding a proxy asset, such as a single asset silver mining company whose only project is identical to Santa Ana, and whose observable market value can be used to measure its systematic risk.[61] This works in theory, but as FTI noted, there are no comparable properties to Santa Ana that traded over time,[62] and the hope of finding a proxy company is slim.

91. Unfortunately, the errors in discounting the project cash flows for risk can have a large impact on the resultant project valuation. If the Santa Ana project is just slightly riskier in investors' eyes than the risk of the average precious metal mining company, then applying the market risk adjustments investors use for precious metal mining companies to Santa Ana's cash flows will result in a substantial overvaluation of Santa Ana. Likewise, if Santa Ana's cash flows are on the whole less risky, the application of the market risk adjustments investors use for precious metal mining companies will result in a substantial undervaluation.

92. Beginning in the 1970s modern finance recognized that there was a solution to this risk discounting problem. The simple DCF method discounts each year's project cash flows and adds them, using a principle of finance called value additivity. Modern finance refines this approach: it discounts each cash flow component (*e.g.*, silver revenues, gold revenues, mining costs, milling costs) within each project year, and then via the principle of value additivity adds these to come up with the value of that year's cash flows.[63] It then again applies the principle of value additivity to add the values from each of the project years to come up with the value of the project.

93. The process may sound like it has just the same problems as the simple approach. How is the valuator to know how much to discount each cash flow item? Fortunately, for mining projects there are market signals telling the valuator how to do this.[64] Forward markets in

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[61] Textbooks also warn of the difficulty of doing so. The leading corporate finance textbook, *Principles of Corporate Finance*, warns that "[y]ou cannot hope to estimate the relative risk of assets with any precision." Brealey and Myers, 10th ed. (BR-128), p. 224.

[62] FTI Report, ¶ 7.67.

[63] The approach is sometimes called "at-source" discounting for risk, because each cash flow item is adjusted for systematic risk before combining all items into free cash flows. The resulting cash flows are called certainty-equivalent cash flows.

[64] This is an important distinction – while the modern DCF can be more reliable than the simple DCF, it needs more market inputs. If market signals about the risk of the major cash flow components are not available, then the improvement in precision does not occur.

the metals, for example, tell them how to discount revenue uncertainty. In forward markets, investors agree today to exchange a unit of metal at a pre-defined future date for an agreed upon price.[65] Because that agreed upon price, called the forward price, is known today, it is already discounted for risk and requires only adjustment for the time value of money.

94. For cash flow items that do not have forward markets, proxy markets that are fairly close to the cash flow item can be found. For example, forward markets for crude oil can provide a proxy for diesel fuel forward prices.

95. The modern DCF approach may yield a higher or lower value than that determined by the simple DCF approach, depending on whether the project's cash flow components exhibit more or less risk than the broad index used in the simple analysis. This approach provides a more rigorous path to the valuation of each asset than the blunt assumptions in the simple DCF method.

96. The advantages of the modern DCF approach have been recognized by the mining industry. It is recognized by CIMVal, the Standards and Guidelines for the Valuation of Mineral Properties published by the Canadian Institute for Mining, Metallurgy and Petroleum Special Committee on Valuation of Mineral Resources, as professionally acceptable,[66] and has been used in NI 43-101 compliant technical reports for complex mining projects.[67]

97. Aside from the imprecision of the simple DCF method, which FTI could have remedied by employing a more rigorous approach as discussed above, FTI's method suffers also from several errors that magnify that imprecision. We discuss these in the next subsection.

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[65] In a forward contract, counterparties agree on a fixed price for the future delivery (and payment) of a product. If a forward contract is traded on an exchange, it is called a futures contract. Brealey and Myers, 10th ed. (BR-128), p. 652.

[66] *CIMVal Standards and Guidelines for Valuation of Mineral Properties*, Prepared by the CIM Special Committee of the Canadian Institute of Mining, Metallurgy, and Petroleum on Valuation of Mineral Properties, February 2003 ("CIMVal") (FTI-04), p. 22.

[67] For details, see Samis, Michael, L. Martinez, Graham A. Davis, and JB Whyte, "Using Dynamic Discounted Cash Flow and Real Option Methods for Economic Analysis in NI43-101 Technical Reports," VALMIN Seminar Series (BR-123).

2. Errors in FTI's DCF Based on RPA's Base Case

98. FTI's cash flow projections rely on technical production and cost inputs provided by RPA (RPA Report).[68] The RPA Report presents two scenarios: a Base Case and an Extended Life Case,[69] and FTI stated that the Extended Life Case "is useful for determining the FMV of the project."[70] FTI's damages conclusion is based only on the Extended Life Case, although FTI calculates also the NPV implied by the RPA's Base Case.[71]

99. We reviewed the SRK Report and we were asked to determine the impact on FTI's damages calculation if the technical errors that SRK identified in RPA's calculations are corrected as deemed appropriate by SRK. We identified several other errors, which we discuss also below, and for which we provide a more reliable estimate where possible within FTI's simple DCF framework. We note that because we cannot make corrections for all errors in FTI's calculations, the adjusted figures we present below are not corrected valuations but rather indications of the magnitude of the impact that FTI's errors that we can quantify have on its valuation. We begin with the Base Case.

a. Mine Production and Cost Projections

100. SRK concluded that both the FSU and the RPA Report made an error in calculating the appropriate cut-off grade for resources and reserve determination, resulting in a "gross overstatement of reserves."[72] As a result, according to SRK, RPA's Base Case substantially overstates the amount of reserves and the resultant mine life. SRK concluded also that RPA understated operating costs and overstated silver recovery.[73] Making no other changes to FTI's model but the corrections provided by SRK reduces FTI's result based on the Base Case by $25 million (from $191 million to $166 million).[74]

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68 Technical Review of the Santa Ana Project and Corani Project, Puno, Peru, May 29, 2015.

69 RPA Report, p. 3-3.

70 FTI Report, ¶ 7.20

71 FTI Report, ¶ 7.55.

72 SRK Report, ¶ 75.

73 SRK Report, Sections 6.5 – 6.7, 6.12.

74 Workpaper 19.

101. Research shows that mining feasibility studies tend to understate capital costs, with the average mining project experiencing a 14% overrun after accounting for general inflation.[75] FTI took no steps to avoid this downward bias in capital costs. Adjusting capital expenditures to eliminate this average bias further reduces the result of FTI's DCF calculation by $8 million to $158 million.[76]

b. Timeline to Production

102. FTI's present value calculation assumes that construction would start before the end of calendar year 2011 and the first year of production would be 2013.[77] This is an aggressive timeline that, all else constant, overstates project value because it fails to account for likely delays caused by technical factors, permitting, and social opposition. In a DCF analysis delays cause asset value to decline. A DCF analysis requires the use of an unbiased expectation of the timing of future cash flows. However, the timeline used by FTI is a best-case scenario that ignores two sources of project delays.

103. First, SRK finds that the timeline on which FTI relied understates the time required to mobilize the project team, complete the detailed engineering necessary to begin construction, and obtain the necessary permits. We note that SRK's concerns are validated by evidence from Peru's expert who has reviewed the status of Bear Creek's pursuit of the required exploitation permits and landowner agreements, and who notes that, as of June 2011, Bear Creek apparently had not obtained *any* of the necessary landowner agreements and had not yet received approval of the environmental impact assessment, which is the starting point for all subsequent exploitation permits and certifications.[78] Accordingly, SRK estimates that a reasonable estimate of the additional time required to complete these steps is one year.[79] Adding one year of delay would push cash flows into the future and result in additional costs,[80] resulting in a further reduction in FTI's NPV estimate (in addition to that

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[75] Bertisen, Jasper and Graham A. Davis (2008), "Bias and Error in Mine Project Capital Cost Estimation," The Engineering Economist, 53(2): 118-139 (BR-116), p. 123.

[76] Workpaper 19.

[77] FTI Report, Schedule 1.

[78] Expert Report of Luis Rodriguez-Mariategui Canny, October 5, 2015, ¶¶ 47, 67, 107-108.

[79] SRK Report, ¶ 92.

[80] We estimate the additional annual costs by the average Santa Ana exploration costs shown in Bear Creek's financial statements for the period between project acquisition and the second quarter of 2011 (see Table 7 in Section IV). We excluded land acquisition costs and other fees associated with the purchase of the property, as these would not be incurred in the future.

implied by the adjustments that SRK made to production and cost projections). Such a one-year delay reduces FTI's calculated value by $39 million for the Base Case. The resulting Project NPV after this adjustment is $119 million.[81]

104. Second, the timeline assumes no delays due to community opposition, although at the Valuation Date the mine was subject to community opposition. SRK's estimate of an additional one year does not reflect delays due to ongoing social opposition.[82] The recent historical experience of mines in Peru, as of the Valuation Date, provides evidence of substantial delays relative to the timelines envisioned in feasibility studies when the projects subsequently face significant community opposition. Table 5 shows that projects that encountered community opposition were delayed by up to five years and out of six projects, four experienced delays in excess of four years.[83]

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81 Workpaper 19.

82 SRK Report, ¶ 92.

83 To identify the projects included in Table 5, we started with a list of metals mining companies that reported revenues from Peru in their 2011 or 2012 financial statements, obtained from S&P Capital IQ. We then reviewed their public disclosures to identify mining projects in Peru that were either in production or had an estimated production start date as of the Valuation Date. To ensure a comprehensive coverage, we cross checked this list of projects against the largest ten mines, by 2011 production, for the following metals: silver, copper, gold, and zinc, which are commodities in which Peru has a substantial market share. For each mine that had completed a feasibility study (FS), we identified the timeline to production projected in the FS. We then compared that timeline with the actual start of production or, for mines not yet in production as of 2011, the revised projected production start date as of 2011. A complete list of the projects for which information was available is shown in Workpaper 4, including the mines that were not subject to community protests and social opposition.

Table 5. Peruvian Mining Project Delays Due to Social Opposition in Peru Prior to the Valuation Date

Project	Owner	Metals	Original Projected Start of Production	Actual Start of Production/Projected Start of Production in 2011	Calculated Delay (years)
La Zanja	Buenaventura	Gold	3Q or 4Q 2005	September 2010 - Community relations caused the delay; opposition to the project developed when environmental and health concerns arose in communities downstream from La Zanja. Opposition against the mine peaked in 2004 when protesters destroyed the exploration camp.	5
Pucamarca	Minsur	Gold, SIlver	Late 2007 to Early 2008	Production actually began on 1/12/2013, as it was stymied by community relations. In 2011, it was expected that production at Pucamarca would begin in late 2012.	4.5
Antamina	BHP Billiton/Glencore Canada	Copper, Zinc	Feb-02	Oct-01	-0.3
Tia Maria	Southern Copper/Newmont Mining	Copper	Q4 2010	The 2011 Southern Copper Annual Report states it was expected that production at Tia Maria would begin in early 2015, following the Peruvian government's rejection of the EIA in 2011 due to community resistance.	4.3
Rio Blanco	Monterrico Resources (owned by Zijin Mining)	Copper	2011	As of the 2011 Annual Report, the projected production date was 2015. This project was plagued by delays. In 2005, police allegedly shot dead one protester and tortured 30 others after they marched against the mine's construction.	4
Quellaveco	Anglo American	Copper	First Production: 2014 Full Production: 2016	As of the 2011 Anglo American Annual Report, the forecasts had been updated as follows: First Production: 2016 Full Production: 2017 The Annual Report states that "we've slowed down progress while we participate in a multi-stakeholder dialogue and work with the local communities to seek to fully understand their concerns and aspirations."	1.5
				Average Delay	3.2
				Median Delay	4.1

Source: Workpaper 4.

105. Because the Santa Ana project was subject to social opposition and community protests before the first alleged breach by Respondent, the Project's market value should be based on an expected timeline to production that reflects the impact of protests. The data in Table 5 indicate that substantial delays were likely as Bear Creek worked to obtain the social

license needed to operate. Incorporating the four-year delay typical for this group of projects into FTI's DCF calculation further lowers the resulting NPV of the Base Case to $54 million.[84]

c. Fiscal Regime

106. FTI used the fiscal assumptions in place as of the Valuation Date to calculate after-tax cash flows. These include a corporate income tax rate of 30%, a sliding scale royalty capped at 3% of Net Smelter Return (NSR), and no special taxes on mining revenues or profits.[85] These assumed fiscal terms are appropriate if they are expected to apply for the life of the Project. As of the Valuation Date however taxes and royalties for the mining sector in Peru were expected to increase. This makes FTI's fiscal terms assumptions biased upward and results in overstating the DCF result.

107. The election of President Humala on June 6, 2011 increased market expectations of higher mining taxes and royalties. While both candidates in the election had advocated tax increases, President Humala's position was perceived as more aggressive.[86] Of the seven analysts analyzed by FTI, the two who issued reports after the election results were announced indicated that an increase in taxes for the mining sector was likely.[87] The Paradigm analyst report assumed a 10% increase in income tax and a doubling of the royalty rate to 6% in its DCF model:

> With the social unrest in Peru, we had expected that taxes and royalty rates would likely be increased no matter who won the election. Given that the left-leaning candidate was victorious, we expect the rise will be more than it would have been under Keiko Fujimori … We have adjusted our financial model to assume higher taxes, royalties and permitting times.[88]

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84 We assumed three, respectively four years of delay in total, including the additional year projected by SRK. See Workpaper 19.

85 FTI Report, ¶ A5.25 and Schedule 1.

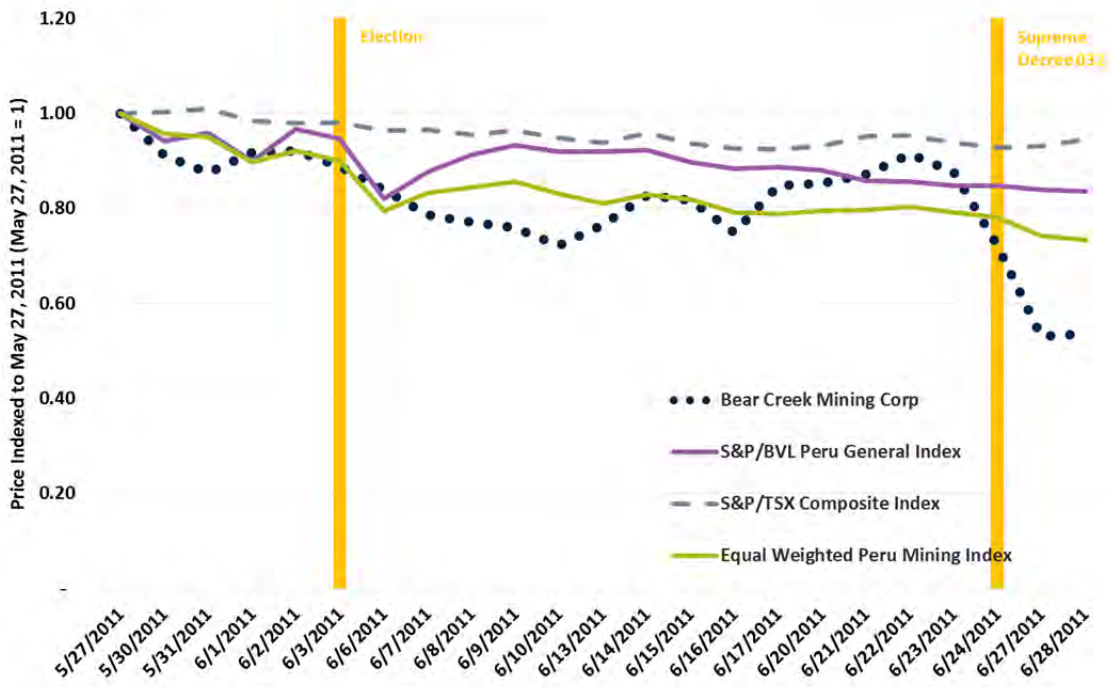
86 Paradigm Capital Analyst Report, June 8, 2011 (FTI-55), pp.1-2.

87 Paradigm Capital Analyst Report, June 8, 2011 (FTI-55), pp.1-2; Campbell, Nicholas, Canaccord Genuity Analyst Report, June 7, 2011 (FTI-56), p.1. In September 2011, a special mining tax was introduced and the royalty scheme modified from a NSR royalty to one based on operating margin. El Congreso de la República, "Ley que crea el impuesto especial a la minería," September 23, 2011 (BR-141). El Congreso de la República, "Ley que modifica la ley 28258, ley de regalia minera," September 23, 2011 (BR-142).

88 Paradigm Capital Analyst Report, June 8, 2011 (FTI-55), pp.1-2.

108. The expectation of higher taxes and royalties is consistent with the stock market reaction following the election. As shown in Figure 3, the immediate negative reaction was sharp. For mining stocks, represented by the green line,[89] there was an initial drop of 12% on June 6, followed by a partial recovery in the following days. The overall Lima stock market, shown in purple, had a more pronounced recovery, which is consistent with the expectation that the increase in taxes would affect only the mining sector.[90]

Figure 3. Peru Stock Market Reaction to June 6, 2011 Election Results



Source: Bloomberg. The Peru Mining Index is calculated based on the equal-weighted average return of 16 publicly traded companies that own assets exclusively in Peru (excluding Bear Creek). For index calculation and selection of constituents, see Workpapers 5 and 10.

109. The market and analyst reaction indicate that a worsening of fiscal terms for mining projects in Peru was likely as of the Valuation Date. By not accounting for this market expectation, FTI's DCF estimate overstates the FMV of Santa Ana. The magnitude of the

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89 To capture the effect of events in Peru on the market value of mining projects in Peru, we developed an index of companies focused exclusively on the Peruvian mining market. The index includes 16 companies traded on the TSX, TSXV, NYSE, or BVL that own mining assets exclusively in Peru. See Workpaper 10 for selection of companies and Workpapers 5-7 for index construction.

90 The chart includes also the S&P/TSX Composite Index (dashed grey line) as a benchmark for general market movements not specific to Peru.

market reaction suggests that the impact was material, though it is not possible to estimate it without a careful analysis that FTI has not conducted.

d. Project Discount Rate

110. FTI applied a simple risk-adjusted discount rate to adjust the Project's expected cash flows for timing and risk. In the absence of a market signal for the systematic risk of Santa Ana's cash flows, FTI used an approximation based on two components.

111. The first component reflects the average risk of a group of 73 U.S. precious metal mining companies in 2010.[91] Precious metal mining is a global business, with the location of the company listing in no way reflecting the location of the company's mines. FTI's estimate therefore likely reflects a combination of risk factors from across the world to which mining companies are exposed. It is a blunt measure, as it yields the same average value for precious metals project, anywhere in the world, no matter what the metal or the differences in their exposures to systematic risk factors.

112. The second component, a country risk premium, is an attempt to customize the discount rate for projects located in Peru. This two-part approach is an *ad-hoc* method that lacks support in finance theory and has not been tested empirically.[92] Moreover, the adjustment is again blunt – there is nothing to account for differences in risk among projects within Peru, be they in the mining industry or another industry.

113. This imprecision in the estimate of the discount rate is important because small differences in risk discounting have large impacts on project value. For example, starting with FTI's result as adjusted to reflect corrections to technical inputs and four years of delay ($54 million), a 2% decrease in the discount rate increases the implied NPV by 29% (to $69 million); a 2% increase in the discount rate lowers the implied NPV by 23% to $41 million.[93]

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[91] FTI Report, ¶¶ A5.21-22.

[92] Kruschwitz, Lutz and Andreas Loffler, Gerwald Mandl (2012), "Damodaran's Country Risk Premium: A Serious Critique," *Business Valuation Review*, 31(2/3): 75-84 (BR-121). Professor Damodaran acknowledges that the model that he proposes, which FTI used, is not derived from rigorous theoretical foundations and reflects his adjustments to models that practitioners sometimes use to accommodate the view that emerging market projects carry more risk (Damodaran, Aswath (2012), "Response to 'Damodaran's Country Risk Premium: A Serious Critique,'" *Business Valuation Review*, 31(2/3): 85-86) (BR-120).

[93] Workpaper 19.

114. For all of these reasons there is merit when textbooks advise that one should use market signals like share prices when one has them,[94] as is the case here.

e. Silver Price Projections

115. FTI's silver price projections reflect an inconsistent mix of futures and spot prices. For the period through December 2015, FTI's price forecast relies on futures prices. After that, FTI uses an average of historical spot prices, analyst forecasts, and futures prices to calculate a long-run silver price of $22.21/oz in real 2011 dollars.[95] The long-run price reflects only a 1.5% weighting on futures prices, so that the price series goes from relying 100% on futures prices in 2015 to only relying on them 1.5% in 2016.

116. The mix of futures and spot prices is inconsistent with finance principles. Futures contracts guarantee a price for delivery of silver at some future time. Because the futures price is guaranteed, it is not subject to risk from spot price fluctuations. Accordingly, futures prices reflect no risk – if futures prices are used in a DCF analysis, the appropriate discount rate is the risk-free rate.[96] Spot prices however, are not fixed and vary day to day, exposing an investor to systematic risk. In the DCF framework used by FTI, which adjusts for systematic risk through the discount rate, revenue projections should be based on expected spot prices to avoid double counting.[97]

117. The end result of FTI's method is a price projection that decreases slowly for several years, then drops sharply from $30.78/oz in 2015 to $22.21 in 2016, and then remains constant for the remaining project life.[98] The sharp projected fall in the real silver price in 2016, illustrated in Figure 4, is not consistent with commodity pricing theory. Moreover, the assumption of a constant real silver price in the long run is not supported by economic evidence. Research on the pricing of silver indicates that it is slightly mean reverting in

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[94] Brealey and Myers, 10th ed. (BR-128), p. 273.

[95] FTI Report, Figure 19, Figure 20, and ¶ 7.47.

[96] This is only true for the price component of cash flows. If other cash flow components reflect systematic risk, they should not be discounted at the risk-free rate.

[97] FTI confuses the issue by presuming that futures prices should be used because they are the "actual market prices that could be obtained at the Valuation Date for sales of silver…" and that Bear Creek would have used futures contracts to hedge its commodity price risk (FTI Report, ¶¶ 7.28-29). It is well known in finance that the market value of an asset is the same whether or not the firm sells its production forward (Black 1976). That is, hedging decisions by a firm neither create nor destroy value, so whether Bear Creek planned to hedge its future sales or not is irrelevant to Santa Ana's FMV.

[98] FTI Report, Figure 21.

nominal terms, which means that it tends toward a long-run *constant nominal* value, which implies a *declining real* value.[99] FTI's constant real price assumption implies a rising nominal price of silver, as shown in Figure 4. It is hard to quantify FTI's error without generating a rigorous model for silver prices, but based on observed futures prices the overall effect of FTI's inconsistent assumptions appears to be to understate prices in the short-run and overstate them, in the long-run.

Figure 4: FTI Silver Forecasts

Source: Bloomberg, FTI Report pp. 48 - 49, ¶94, Workpaper 17.

118. FTI also implemented its DCF model under an alternative price forecast, which it stated was consistent with the methodology adopted by the Tribunal in another investment arbitration.[100] In this alternative approach, FTI assumed a *constant real* silver price equal to the real futures price in December 2015. In contrast, the Tribunal in the case FTI refers to

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[99] Casassus, Jaime, and Pierre Collin-Dufresne (2005), "Stochastic Convenience Yield Implied from Commodity Futures and Interest Rates," *The Journal of Finance* 60(5): 2283-2331 (BR-119); Bessembinder, Hendrik and Jay F. Coughenour, Paul J. Seguin, and Margaret Monroe Smoller (1995), "Mean Reversion in Equilibrium Asset Prices: Evidence form the Futures Term Structure," *The Journal of Finance* 50(1): 361-375 (BR-117).

[100] FTI Report, Schedule 2 and ¶ 7.50.

adopted a method that assumed a *constant nominal* silver price.[101] FTI therefore inflated its price projection without support – had it followed the authority it cites, it would have used a decreasing real price projection.[102]

119. In addition, in this alternative scenario that relies only on futures prices, FTI did not adjust its discount rate downwards, even though by using futures prices it has adjusted for a large portion of the risk of the project. The value of Santa Ana under this alternative scenario would thus be higher than $333 million if this error were corrected, making it even more difficult to reconcile with Bear Creek's EV of $543 million (reflecting both Santa Ana and Corani) and highlighting that FTI's assumptions combine to overstate Santa Ana's FMV.

3. Errors in FTI's DCF Model Based on RPA's Extended Life Case

120. RPA's Extended Life Case adds 35 million tonnes of additional low grade resource (as opposed to reserves) in the production.[103] The additional material comes from lowering the resource pit cutoff grade from 17.5 g/t to 14 g/t, indicative of a higher price scenario for the life of the mine compared with the base case. The lower cutoff grade increases the number of economic blocks of resource.

121. Unlike in the base case, RPA does not run a Whittle Pit Optimization on the resource material in this extended case and thus does not estimate year by year tonnages or grades.[104] In the absence of a Whittle Pit Optimization one also cannot estimate which blocks of resource are economic to recover once stripping and waste movement are taken into account. RPA simply assume that 75% of the additional material would be economic to

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[101] The Gold Reserve award cited by FTI states that the DCF model on which it relied assumed a constant copper price equal to $3.55, which it states was the price as of April 2008 for the futures contract with delivery June 2010 (FTI-27, ¶ 836). This is a nominal price, unadjusted for inflation, unlike FTI's projected price (the longest maturity futures price available from Bloomberg is $3.553 for the contract expiring March 2010; the discrepancy between the maturity dates however does not imply that the June 2010 futures contract would have been priced at $3.55 in real 2008 dollars because the futures contract on the London Metals Exchange for delivery June 2010 had a lower, not higher price than $3.55; for $3.55 to be in real dollars, the nominal futures price for the June 2010 contract would have to have been higher). If the Tribunal in Gold Reserve intended to rely on a constant real price, therefore, that price would have been lower than $3.55, given the expected inflation rate of 2.39% also selected by the Tribunal in that case (FTI-27, ¶ 838).

[102] FTI Report, Figure 22 and Schedule 2.

[103] RPA Report, Tables 14-2, 14-3.

[104] SRK Report, ¶¶ 118-119.

mine, and that 0.81 tonnes of waste must be mined for each tonne of ore.[105] Neither of these numbers is supported by an engineering analysis. SRK find that this approach of adding low grade resources to the end of the mine life is "far too simplistic" and, by assuming a 75% conversion of resources to mined material, it represents "a deliberate strategy to inflate value."[106]

122. The same CIMVal standards and guidelines that FTI frequently cites states are clear that when resources are included in the income approach, "the technical and related parameters used must be estimated or confirmed by one or more Qualified Persons and a qualifying statement must be included in the Valuation Report about the confidence level of the technical and related parameters relative to Feasibility Study or Prefeasibility Study confidence level."[107] That means that there must be some qualifying statement about stripping ratios, grades, tonnages, recoveries, and other factors that affect cash flow and hence value. The RPA report includes no qualifying statements, and simply presents in Appendix B a flat-line projection of the technical aspects of this additional material without providing an explanation for the projections.

123. Not only is the additional resource material not subjected to a Whittle pit optimization, but it includes Inferred Resources. FTI correctly defines resources as a concentration of material that has "reasonable prospects for eventual economic extraction."[108] An important distinction exists, however, between Measured and Indicated (M&I) Resources and resources classified as Inferred Resources. Although FTI quoted the extensive caveats that CIMVal provides about including inferred resources in valuation, it provided no justification for its decision to do so. CIMVal requires that the inclusion of Inferred Resources in valuation "must be justified in the Valuation Report and treated appropriately for the higher risk or uncertainty of Inferred Mineral resources compared to Measured and Indicated Mineral Resources."[109] FTI referred only to RPA's statement that "dilution and extraction factors were applied to the Mineral Resources and the Extended Life material was reduced by 25% to account for the uncertainty of future conversion to Mineral

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105 RPA Report, Appendix B.

106 SRK Report, ¶ 89.

107 CIMVal (FTI-04), pp. 24-25.

108 FTI Report, ¶ 4.16.

109 CIMVal (FTI-04), p. 24, quoted in FTI Report, ¶ 7.22.

Reserves."[110] RPA's description does not indicate that Inferred Resources were treated differently than Measured and Indicated Resources, as CIMVAL requires to reflect their higher level of geological uncertainty.

124. The inclusion of Inferred Resources in an income approach valuation is controversial. NI43-101 disclosure standards prohibit the use of Inferred Resources in a Feasibility Study,[111] and CIMVal discourages their use.[112] If included they must be treated differently than M&I Resources, with care to adjust for their speculative nature.[113] The CIM Definition Standards in place in June 2011 state that "Due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral resources must be excluded from estimates forming the basis of feasibility or other economic studies."[114] Rather than exclude Inferred Resources, or at least treat them differently from Measured and Indicated Resources by applying a separate risk factor, RPA simply assumes that 75% of the entire 47 million tonnes of the Measured, Indicated, and Inferred resource is mineable and indeed mined. This results in a conversion rate of 87.1% from the resource pit to mined material. SRK note that "This is … yet another gross overstatement."[115]

125. In summary, RPA's Extended Life Case simply tacks on low grade resource material to the base case, without proper engineering and economic assessment, and is thus rendered unreliable and cannot be used as a basis for valuation. As a result, SRK concluded that the Extended Life Case was internally inconsistent and "defie[d] all reason".[116]

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110 FTI Report, ¶ 7.23; RPA Report, p. 14-3.

111 NI 43-101 (2005) (BR-106), Companion Policy 43-101CP, ¶ 2.3.

112 CIMVal (FTI-04), p. 27.

113 CIMVal (FTI-04), p. 27.

114 CIM Definition Standards for Mineral Resources and Mineral Reserves, Prepared by the CIM Standing Committee on Reserve Definitions, Adopted by CIM Council on November 27, 2010 (BR-105), p. 4.

115 SRK Report, ¶ 85.

116 SRK Report, ¶ 84.

126. At our request, SRK produced a reasonable correction that would result in a meaningful Extended Life Case consistent with RPA's intent.[117] In that correction, SRK estimated the equivalent to RPA's Extended Life Mineral Potential,[118] only this time running the resource through a Whittle Pit Optimization that determines year by year tonnages, grades, and stripping ratios. In SRK's analysis, the stripping ratio near the end of the mine life, as the pit deepens and widens into the surrounding barren mountains, becomes greater than 3, in contrast to RPA's assumption that it remains constant at 0.81. A higher stripping ratio increases costs and decreases asset value.

127. SRK's analysis also defined the portion of the available material each year that is Inferred Resource and due to geological uncertainty. We have assumed that 50% of that material would end up being ore and 50% waste once additional drilling is conducted as the mining plan progresses.

128. Once we redo FTI's extended case with SRK's extended life mineral potential and the assumption that 100% of Measured and Indicated is mineable as ore and 50% of Inferred ore ends up as ore, and after adjusted operating costs and silver recovery assumption as in the Base Case, the Extended Life Case value calculated according to FTI's model drops from $224.2 million to $178 million, as shown in Table 6.

129. The impact of the other adjustments considered for the Base Case result in the following adjusted valuations for the Extended Life Case.

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[117] SRK Extended Life Projections.

[118] RPA Report, Table 14-3.

Table 6. Impact of Corrections to FTI's Extended Life Case

	Revised Inputs for Santa Ana Extended Life Case DCF	NPV Based on FTI's DCF Model	Impact of Correction Relative to Previous Line	Percent Change
[1]	FTI NPV	224		
[2]	SRK Inputs	178	(46)	-20%
[3]	SRK Inputs and 14% Capex Overrun	170	(9)	-5%
[4]	SRK Inputs, 1 Year Delay and 14% Increase in Capex	134	(35)	-21%
[5]	SRK Inputs, 4 Year Delay and 14% Increase in Capex	70	(64)	-47%

Sources & Notes:
[1]: FTI Schedule 1.
[2]: Workpaper 22 - A1.
[3]: Workpaper 22 - B1.
[4]: Workpaper 22 - C1.
[5]: Workpaper 22 - D1.

130. As in the Base Case, imprecision from the blunt risk adjustments in the discount rate and the inconsistent treatment of price projections applies to these adjustments as well. The result obtained after these corrections could understate or overstate the result that would be obtained by applying a valuation method better suited to this case.

III. Corani Damages

131. The second component of Claimant's quantum calculation reflects its argument that the alleged illegal expropriation of Santa Ana "has had and continues to have serious economic repercussions on Corani by compromising Bear Creek's ability to use cash flows from Santa Ana to develop Corani."[119] Mr. Swarthout, Bear Creek's CEO, argues that the loss of Santa Ana affected the Corani project as follows:

> The expropriation will undoubtedly make it extremely difficult for Bear Creek to obtain financing for Corani, which resulted in a significant delay in the Corani Project's development schedule pending resolution of the Santa Ana situation. Furthermore, the Government's expropriation of Santa Ana has substantially raised the risk profile associated with Corani in the eyes of mining investors because Corani is located approximately 350 kilometers

[119] Claimant's Memorial, ¶ 101.

away from Santa Ana where the Government demonstrated its willingness to sacrifice an advanced mining project to appease political activists.[120]

132. The Claimant's request for damages for Corani is intended to reflect the loss of value of Corani to date caused by the alleged breaches involving Santa Ana.[121] It is therefore critical to evaluate whether -- during the period between the alleged breaches and today -- any of the claimed harmful effects of the alleged breaches have occurred.

133. FTI acknowledged that "the full reduction in the value of Corani has not crystallized."[122] But it is striking that FTI did not evaluate whether *any* loss of value caused by the alleged breaches has crystallized. We review first the evidence of harm to date (realized loss) and then discuss the evidence of unrealized loss, i.e. loss of current market value by the *expectation* of potential future harm. We then discuss FTI's measure of damages, which relies on the ex-ante expectation of potential harm as of the date following the alleged illegal expropriation and makes no reference to subsequent events.

A. Realized Loss to Corani to Date

134. The Claimant identified three potential causes of loss: (i) an increase in financing costs due both to greater amounts of outside capital required and a higher cost for outside capital; (ii) a delay in developing the project due to lack of financing options; and (iii) an increase in market's perception of Corani's project risk arising from treaty breaches by Respondent.[123] Concerning realized loss to date, Claimant's argument poses three immediate questions:

    a. Has Bear Creek suffered increased financing costs to date?

    b. Has the project been delayed to date because of the alleged breaches? If so, did the delay result in lost project value?

    c. Has Respondent taken any illegal actions that harmed the Corani project to date?

135. As explained below, the answer to each question is "no". This establishes that no losses have been realized to date. If losses exist, they are unrealized, which we discuss in the next section.

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[120] Witness Statement of Andrew T. Swarthout, Bear Creek Mining Corporation Claimant, v. The Republic of Peru, Respondent ("Swarthout WS"), ¶ 46.

[121] FTI states that "[w]e have been asked to quantify the reduction, to date, in the value of Corani as a result of the alleged breaches" (FTI Report, ¶ 8.2).

[122] FTI Report, ¶ 8.2.

[123] Claimant's Memorial, ¶ 56; Swarthout WS, ¶ 46; FTI Report, ¶ 8.1.

1. Increased Financing Costs

136. The answer to the first question is straightforward, because Bear Creek has not sought or obtained financing for Corani to date. As of June 2, 2015, Bear Creek had modified the engineering plan for the development of Corani and projected that construction would not begin until 2016.[124] In a special call with analysts to discuss the results of an updated feasibility study, the CEO of Bear Creek informed investors that "Bear Creek has $29 million, no debt in the treasury and has no need to raise any financing until a production decision is made for the Corani project."[125]

2. Delay

137. The Corani project has experienced a delay relative to the timeline projected in 2011.[126] The question for damages is whether that delay was caused by the alleged breaches. If so, damages may result if the delay corresponded with a worsening economic environment. If the delay was caused by other factors, however, then it would not be appropriate to claim damages as a result of the alleged breach.

138. Apart from Mr. Swarthout's testimony, Bear Creek has not provided evidence that the delay to Corani was caused by the loss of Santa Ana. It is clear, however, that at least some of the delay was caused by technical factors. Although the 2011 Feasibility Study did not envision undertaking an updated feasibility study Bear Creek decided in September 2014 to pursue optimization strategies.[127] This strategic change required it to prepare an updated Feasibility Study and to make modifications to the EIA.[128]

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124 Bear Creek Mining Corp, "Special Call," June 2, 2015 (BR-132), pp. 4, 7.

125 Bear Creek Mining Corp, "Special Call," June 2, 2015 (BR-132), p. 3, emphasis added.

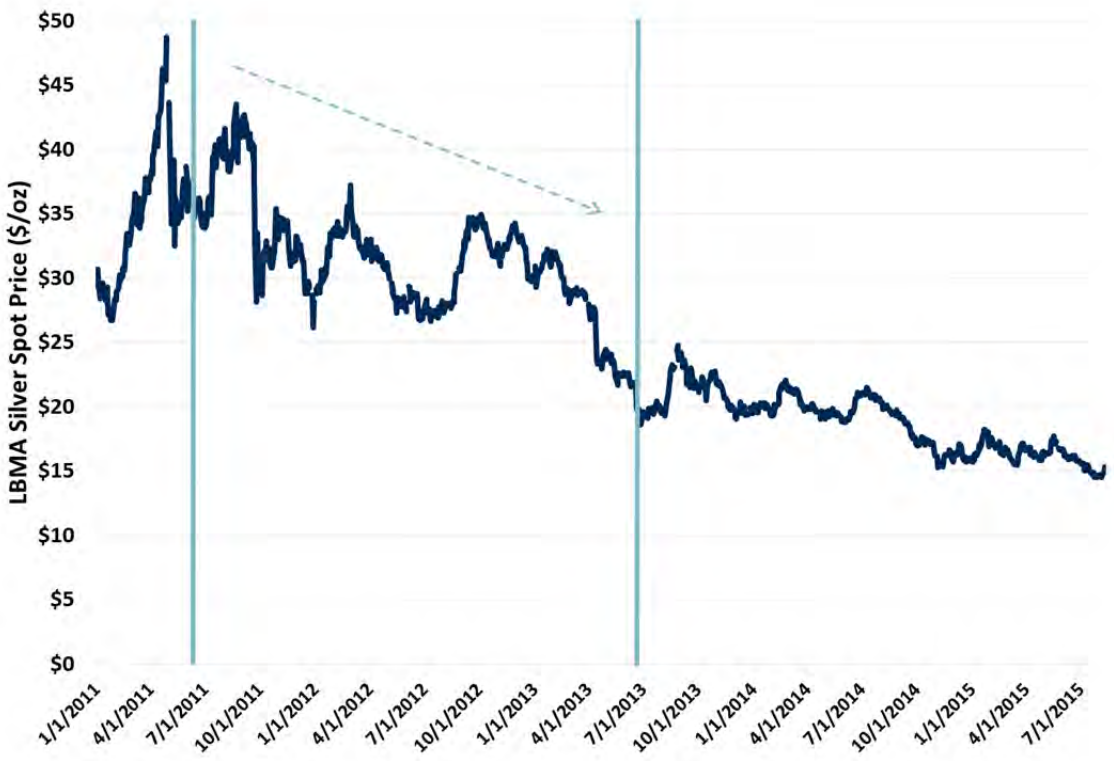
126 The 2011 Corani Feasibility Study projected production would start in 2015 (Bear Creek Mining Corp., "Special Call," November 10, 2011 (BR-131), p. 6). As of 2015, production was expected to start no sooner than 2018. Bear Creek planned to submit the amended EIA in Q3 2015 (2015 Feasibility Study (BR-104), p. 313) and plant construction was expected to begin approximately 8 months after Bear Creek received EIA approval and financing (2015 Feasibility Study (BR-104), p. 301). Construction was expected to last approximately 2 years (Bear Creek Mining Corp., "Special Call," June 2, 2015 (BR-132), p. 14).

127 "Bear Creek provides update on Corani, Peru optimization and detailed engineering progress; Several significant opportunities to be incorporated into detailed engineering," September 8 2014, SEDAR (BR-78).

128 "Bear Creek provides update on Corani, Peru optimization and detailed engineering progress; Several significant opportunities to be incorporated into detailed engineering," September 8 2014, SEDAR (BR-78).

139. It is not unusual for mining companies to re-evaluate engineering options when market conditions change.[129] As shown in Figure 5, by mid-2013, the silver spot price had fallen from above $30/oz at the time the 2011 Corani Feasibility Study was prepared to approximately $20/oz. This would have affected negatively the economics of the Corani project, creating the need to seek cost reductions through technical optimization.

Figure 5. LMBA Silver Spot Price 2011-2015 (US$/oz)



Source: Bloomberg.

140. As a public company, Bear Creek was obligated to disclose material facts to investors. But Bear Creek did not disclose to investors any view that the decision to pursue optimization strategies was caused by the loss of Santa Ana. Instead, prior to 2013 Bear Creek consistently maintained that Corani was on schedule and that it was not affected by the events at Santa Ana. There is no mention of delays or financing difficulties in the Corani

[129] For example, Buenaventura, a Peruvian mining company, had to identify ways to improve efficiency to offset the decreased revenue from falling commodity prices at several of its projects: "Buenaventura has been studying ways to lower costs at its operations as metal prices decline, Mr. Benavides said. He said the company identified areas to improve efficiency at its Uchucchacua silver mine, and is now looking at how to cut costs at its Orcopampa gold mine;" the company indicated that declining metal prices could further impact development plans at its Minas Conga gold-copper project as well. "Peru's Buenaventura: Conga Project May Be Complicated by Low Mineral Prices", April 25, 2013 (BR-85).

Feasibility Study issued in December 2011,[130] nor in the company's 2011 annual report,[131] company news releases or other public statements. To the contrary, Bear Creek stated publicly that it saw no impact of the Santa Ana events on the Corani project. In a special call with analysts on June 27, the Monday after the issuance of Supreme Decree 032, Bear Creek's CEO stated:

> Corani is unaffected by the actions taken by the government or the protests and is on track for completion of the Feasibility Study …. So I think Corani can move forward, regardless of what we do, whether it's seek a political solution to Santa Ana or legal recourse. So Corani, we don't see the timeline as affected … So I would say our 2014 goal is still valid.[132]

141. As of August 2012, the company anticipated starting production at Corani in 2015, with full scale production in 2016,[133] in line with the timeline presented in the 2011 Feasibility Study. The EIA was scheduled to be submitted in September 2012 and approval was anticipated by the end of 2013.[134] In December 2012, Bear Creek stated that the mine was still on track to begin production in 2015 and that the company would advance its financing plan in 2013.[135]

142. The company reaffirmed that Corani was on schedule in April 2013.[136] The EIA was approved by the Ministry of Mines in September 2013, in line with company's expectations

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130 For example, the study's conclusion about finance risks states only that "Significant raises in the long-term financing charges could affect the cost of capital needed for the start of operation" and makes no mention of risks arising from the loss of Santa Ana. (Corani 2011 Feasibility Study (C-0066), Section 25.3.6)

131 The 2011 Annual report notes only that "Construction of the Corani mine will require financing either by way of share issuance, debt financing and/or by other financing alternatives to meet the projected $574 million capital requirement for the project" (Bear Creek Mining Corp. 2011 Annual Report, Management Discussion and Analysis (BR-03), p. 22). The management discussion makes no reference to any impact on Corani of the Santa Ana developments.

132 Transcript of Bear Creek Mining Corp. Special Call, Monday, June 27, 2011 (BR-133), pp. 3, 7 (emphasis added).

133 "Bear Creek provides Corani project and exploration update, Peru," August 16, 2012 (BR-76).

134 "Bear Creek provides Corani project and exploration update, Peru," August 16, 2012 (BR-76).

135 "Bear Creek submits Corani ESIA; silver project on track for approval," December 11 2012, SEDAR (BR-77).

136 "Bear Creek announces positive Corani public hearing and life of mine community investment agreements; Large scale silver project on track for approval," SEDAR, April 15, 2013 (BR-80).

when it began the approval process.[137] It was not until that point that Bear Creek first mentioned a connection between Corani's financing ability and the return of Santa Ana to the company.[138]

143. Subsequently however, in a special call with analysts in May 2014, Bear Creek's CEO once again stated that "[w]e have Corani moving forward totally uninterfered by this Santa Ana process."[139] In its June 2015 MD&A Bear Creek states that "The Company believes it has maintained good working relationships with the local communities and has continued to operate development activities at Corani without interruption."[140]

144. Bear Creek's decision to delay Corani may have been driven by a desire to avoid developing both projects at the same time, if Santa Ana was returned to the company, rather than by a lack of financing.[141]

145. Then, once the decision to pursue an updated Feasibility Study was taken, at some point before September 2014, the timeline was affected because of the time required to complete the study and need to make modifications to the EIA.[142] This delay was the result of a decision by Bear Creek to conduct an updated Feasibility Study and not by the alleged breaches by Respondent. The 2015 Corani Feasibility Study outlines the need for the updated study:

> A scoping level study was completed in 2008 for the Project and a pre-feasibility level study in 2009. In 2011, a NI 43-101 compliant feasibility study was prepared followed by additional optimization work. This updated feasibility study documents the culmination of the optimization work to investigate and reduce the capital costs, raise the internal rate of return, and

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137 "Bear Creek Announces Approval of Corani ESIA, Peru," September 25 2013, SEDAR (BR-79).

138 "Bear Creek Announces Approval of Corani ESIA, Peru," September 25 2013, SEDAR (BR-79).

139 Bear Creek Mining Corp, "Special Call," May 14 2014 (BR-134), p. 4 (emphasis added).

140 Bear Creek Mining Corporation, Management Discussion and Analysis, Quarter Ended June 30, 2015 (BR-01), p. 13.

141 "It really depends on market conditions, how quickly both of these projects move in parallel. And then at the appropriate time, we need to look at how long we would have to delay Corani. I can tell you, I think that we don't want to build both projects at the same time. But if we can accelerate Santa Ana, that becomes a real consideration, but we don't know the answer to that today." Bear Creek Mining Corp, "Special Call," May 14 2014 (BR-134), p. 7.

142 "Bear Creek provides update on Corani, Peru optimization and detailed engineering progress; Several significant opportunities to be incorporated into detailed engineering," September 8 2014 (BR-78).

> to reduce risk by streamlining the project and performing additional engineering and optimization of the site layout.[143]

146. Moreover, there is no indication that the delay harmed Bear Creek. To the contrary, according to Bear Creek's President and CEO, taking the time to do the updated feasibility study:

> "created a more compact, efficient and cost-effective operation with a smaller physical and environmental footprint, which we expect will result in a shorter and less costly path to permitting. We were able to further refine the geo-metallurgical model and mine sequencing, which led to an 8% increase in overall silver recovery with a 7% increase in silver reporting to the lead concentrate relative to zinc, partially offsetting the effects of the small ore reserve reduction….As a result of a reduction in total capital costs and optimization of the metallurgy and mine plan, the key financial metrics of the Corani project were significantly improved…"[144]

147. The press release includes a table showing how the value of the project as calculated in the feasibility studies has risen from 2011 to 2015.[145]

3. Respondent Interference

148. The third factor that Bear Creek has identified as a cause of loss to Corani is the increased threat of illegal government action. Bear Creek has not identified any action by the Peruvian government directed at Corani that has interfered with its development and would constitute a breach of the FTA.

149. To the contrary, the Corani project received its EIA approval within the expected time frame, and Bear Creek acknowledged the support of the government entities involved in the approval process.[146] Similarly, the company has maintained strong community support

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143 2015 Updated Corani Feasibility Study (BR-104), p. 22 (emphasis added).

144 "Bear Creek Mining Announces Results of Updated Corani Feasibility Study," Bear Creek June 2, 2015 news release (BR-75), p. 2.

145 "Bear Creek Mining Announces Results of Updated Corani Feasibility Study," Bear Creek June 2, 2015 news release (BR-75), p. 2.

146 FTI submitted the EIA application for Corani to Peruvian authorities in December 2012 and received the approval in September 2013, noting that "[t]he Company received strong support from the local communities and the various Peruvian Ministries, including the Peruvian Ministry of Energy and Mines ('MEM'), during the approval process." Bear Creek Mining Corporation, Management Discussion and Analysis for the Year Ended December 31, 2013 (BR-02), p. 4.

for the project and has disclosed no indication to date that social opposition to the project could result in government actions similar to the alleged breaches related to Santa Ana.

150. In summary, there is no evidence that Bear Creek has actually experienced (realized) any loss to date driven by increased financing costs, delays related to the Santa Ana alleged breaches, or interference by Respondent. In the absence of such evidence, the only loss that Claimant could have suffered to date is an unrealized loss through a reduction in the market value of the Corani project. We discuss this potential value reduction next.

B. UNREALIZED LOSS TO CORANI TO DATE

151. We now turn to the evidence regarding Claimant's belief that the three factors discussed above (increased financing needs and costs, delay, and heightened market perception of project risk) are *expected* by the market to occur at some future point, resulting in a reduction Corani's current market value compared to the but for case. We do not find evidence that Corani's market value today has been reduced by Respondent's alleged breaches.

1. Increased Financing Costs and Delay

152. For Corani's market value to fall because of an increase in expected financing costs and delays to the project timeline, two facts would have to be established: first, that the loss of Santa Ana was expected to increase financing costs and cause delays to Corani, and second, that the expectation of these increased costs and delay is relevant to Corani's market value.

153. It is important to distinguish between the value of Corani *if Bear Creek continues to own it* and the *market value* of Corani. Corani's market value, which is the price that willing buyers in a competitive market would pay Bear Creek for the project, is not necessarily equal to what the project is worth if Bear Creek continues to own it and does not sell it. If, as a result of losing the cash flows from Santa Ana's production, Bear Creek has difficulty obtaining financing,[147] Bear Creek could mitigate those losses by selling the project to a buyer who does not face such financing difficulties.[148] As long as the expropriation of Santa

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[147] "The expropriation will undoubtedly make it extremely difficult for Bear Creek to obtain financing for Corani, which resulted in significant delay in the Corani Project's development schedule pending resolution of the Santa Ana situation" (Swarthout WS, ¶ 46).

[148] FTI recognizes this point, and yet ignores it in its analysis simply because it has not happened (FTI Report ¶ 8.2). Yet FTI's definition of FMV (¶ 7.3) relies on the hypothetical that the market value of an asset is at all times what it would trade for in an open and unrestricted market (*i.e.*, competitive), not necessarily what it is in the hands of the current owner.

Ana had no effect on potential buyers' access to financing or available cash resources (therefore implying no delay if the project were in their hands), the events at Santa Ana would not have had an impact on these buyers' willingness to pay for Corani.[149]

154. Consider an illustrative example. Suppose we owned a plot of land in downtown Manhattan, on which we grow tomatoes. The value of the land to us, if we plan to keep growing tomatoes, is much lower than if we sold it to a real estate developer. It would not make sense to claim that the land has little market value because growing tomatoes is not particularly profitable. The land's market value would be determined by its traded or tradeable value in its more profitable use as commercial or residential real estate. Moreover, if the prospect of a lengthy drought lowered the profit from growing tomatoes, it would not make sense to conclude that it caused a decrease in the land's market value.

155. Bear Creek's unsubstantiated argument that the loss of Santa Ana made it difficult for Bear Creek to finance the Corani project and resulted in delays does not imply that Corani's market value was affected. There is an active market for development stage mining properties and major mining companies regularly buy properties from juniors.[150] If Bear Creek faced substantial difficulties financing Corani because of the loss of Santa Ana, or for any other reason, it could have avoided or substantially mitigated a consequent loss by selling the project (or brining in a partner to develop it).

156. An increase in the amount of outside financing does not necessarily imply a loss to Bear Creek from the additional financing costs. Basic financial economics principles imply that while borrowing (or issuing equity) has explicit costs (*e.g.*, interest expense or dividends to the new shareholders), using internal funds is also costly because of their opportunity cost. It is an economic fallacy to argue, for example, that by using internal funds a company is "saving" the interest expense of borrowing the same amount, because the internal funds could have been invested and generated returns. Those potential returns, foregone if the

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[149] A decrease in the project's value to Bear Creek could affect its selling price if there were no or limited competition among potential buyers. Claimant has provided no evidence that this was the case and the presence of a large number of mining companies in Peru, including silver mining companies, suggests that if Bear Creek tried to sell Corani it would have benefitted from competition among multiple buyers.

[150] For example, of 100 randomly chosen junior mining companies listed on the Australian Stock Exchange in 2004, 10 were acquired by other companies in the following 10 years. Of the remainder, 28 went into production, 6 went bankrupt, 4 switched to oil and gas exploration, and 52 were still listed as junior companies. (Schodde, Richard, "Survival rates and the financial performance of Australian junior explorers," Ausimm Bulletin) (BR-125).

funds are used to finance an internal project, are a real economic cost. To conclude that outside financing is more expensive requires comparing the cost of external financing with the expected return that Bear Creek could earn by investing in investments of the same risk as the Corani project (this is referred to as the cost of capital). But since Corani's cost of capital is driven by Corani's risk, and since in general equal risk implies equal expected returns, it is not clear that Bear Creek would have suffered a loss from having to raise more external funds Corani compared to using retained earnings instead.[151]

157. Bear Creek's public statements following the loss of Santa Ana are also inconsistent with an expectation of loss to Corani due to increased financing costs or needs. Bear Creek did not disclose to investors that Corani, now its only substantial project, faced material delays or increased costs, suggesting that either Bear Creek had no concerns about these issues, or it deemed them immaterial.[152]

158. Under Canadian securities regulations, Bear Creek's management was under an obligation to disclose any material negative impact of Santa Ana on Corani's value.[153] A loss in Corani project's value of $170 million due to unexpected delays and increased financing costs, as estimated by FTI,[154] would be material. Not only did Bear Creek not disclose any such impact immediately after the Santa Ana events, it did not do so upon releasing the results of the Corani Feasibility Study in November 2011. At that time, Bear Creek discussed the

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151 Asymmetric information between outside investors and firm management can make outside financing more expensive, as predicted by the so-called "pecking order" theory of capital structure (Brealey and Myers, 10th ed. (BR-128), pp. 460-462). For Bear Creek however asymmetric information is unlikely to be a major problem because of the information available publicly about the firm's projects. See our discussion of the availability of information for Bear Creek's investors in Section II.B.

152 See our discussion in Section III.A.

153 In order to maintain the listing privilege on TSX Venture Exchange a company must fulfill a number of requirements on a continuing basis, including timely disclosure of material information. TSX defines material information as "any information relating to the business and affairs of an Issuer that results in or would reasonably be expected to result in a significant change in the market price or value of any of the Issuer's Listed Shares, and includes Material Facts and Material Changes." TSX Venture Corporate Finance Policy 3.3 Timely Disclosure, Section 2.1 (BR-109). "An Issuer must disclose Material Information concerning its business and affairs immediately after management of the Issuer becomes aware of the existence of Material Information, or in the case of information previously known, upon it becoming apparent that the information is material." TSX Venture Corporate Finance Policy 3.3 Timely Disclosure, Section 3.1 (BR-109).

154 FTI Report, Figure 2.

need for financing in optimistic terms and restated the expectation that construction would begin in 2014 with commercial production beginning in 2015.[155]

159. Finally, the increase in outside financing that the loss of cash flows from Santa Ana could have caused was relatively small, because Santa Ana's revenue was small relative to the projected construction cost of the much larger Corani project. The free cash flows from Santa Ana (estimated by Bear Creek at $68 million per year) would not have been sufficient to cover the substantial construction costs of Corani (anticipated to be about $253 million per year).[156] Moreover, while the loss of Santa Ana deprived Bear Creek of that project's cash flows, it also meant Bear Creek did not incur Santa Ana's construction costs, estimated by Bear Creek at $71 million.[157] The net increase in outside financing caused by the loss of Santa Ana, based on Bear Creek's estimates, was about $65 million, or 11% of Corani's estimated initial capital costs.[158] There is no clear reason to expect that this increase in the amount of external financing would lengthen the time or cost to obtain such financing and therefore, as Bear Creek claims, cause project delays.[159]

2. Increased Market Perception of Project Risk

160. Bear Creek argues also that the expropriation of Santa Ana generated an increase in the market's assessment of the probability that similar government actions might be taken in the future against the Corani project.[160] We agree that if such an increase in probability occurred and persisted to date, it would have reduced the value of Corani to Bear Creek and to potential buyers. Therefore it would have lowered the project's FMV (unlike the factors resulting from Bear Creek's alleged financing difficulties). Our analysis indicates

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155 Transcript of Bear Creek Mining Corp. Special Call, Thursday, November 10, 2011 (BR-131), p. 6.

156 Bear Creek estimated Corani's total initial capital costs would have been $574 million (Swarthout WS, ¶ 46). Given that the 2011 Corani Feasibility Study anticipated that 88% of this initial capital would be incurred over a two-year period (C-0066, Section 22.5.1), the required annual capital expenditure is $253 million (88% x $574 million / 2 years).

157 *Bear Creek Mining Corporation Revised Feasibility Study Santa Ana project – Puno, Peru NI 43-101 Technical Report Update to the 21-Oct-2010 Report*, April 1, 2011(C-0061), Table 1.4.

158 Calculated as two years of Santa Ana cash flows lost ($2 x $68 million = $136 million) less Santa Ana's freed up construction costs of $71 million.

159 To put the amount in perspective, firms listed on the TSX Venture exchange, the same exchange on which bear Creek was listed, raised $7 billion in the six-month period ending June 30, 2011. TMX Group - Equity Financing Statistics June 2011 (BR-111).

160 Claimant's Memorial, ¶ 101; Swarthout WS, ¶ 46.

that such an increase in market's perception of the probability of intervention was temporary and has reversed.

161. First, there are important differences between Corani and Santa Ana that make a direct inference that the government may take adverse action to Corani for the same reasons as Santa Ana tenuous. Because Corani was not within the 50-km order zone that required a special permit, the stated reason for the government's actions against Santa Ana would not apply to Corani.[161] On Claimant's view that the expropriation of Santa Ana was driven by the government's desire to quell the violence generated by community protests,[162] that same concern is not present for Corani, which has not been subject to protests from the local communities.[163]

162. Second, Bear Creek itself emphasized publicly to investors the lack of a connection between the two projects and assured investors that the expropriation of Santa Ana created no threat to Corani. In its June 27, 2011 special call with analysts, Bear Creek's CEO stated:

> I want to emphasize that Corani is a distinctly different project. It is located in a very sparsely populated area at very high elevations. The project does not operate under a Supreme Decree … And finally it's an entirely different culture, meaning Quechua as opposed to Aymara in the South of Puno and therefore, the path forward is much, much different. We enjoy very, very solid support from the communities.[164]

163. Similarly, disclosures that Bear Creek filed with the Canadian securities regulators did not indicate a pending threat to Corani from the Santa Ana events. In particular, neither the quarterly nor the 2011 annual report published after the date of the alleged FTA breaches indicated a link between Santa Ana and Corani or an increase in the risk of the Corani project due to the Santa Ana expropriation.[165]

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[161] Supreme Decree 032 stated that "[c]ircumstances have been made known that would imply the disappearance of the legally required conditions for the issuance [Supreme Decree 083, which granted Bear Creek the right to operate within 50 km of the border]." (C-05).

[162] See Claimant's Memorial, ¶ 73.

[163] Transcript of Bear Creek Mining Corp. Special Call, Monday, June 27, 2011 (BR-133), p. 3. Corani Project Optimized and Final Feasibility Study, May 30, 2015 (BR-104), ¶ 25.2.2, 25.2.8.

[164] Transcript of Bear Creek Mining Corp. Special Call, Monday, June 27, 2011, 2:00 pm GMT, p. 3 (BR-133), emphasis added.

[165] Bear Creek Mining Corporation Consolidated Financial Statements, Year ended December 31, 2011, March 27, 2012 (BR-13); Bear Creek Mining Corporation Interim Consolidated Financial Statements, Second Quarter ended June 30, 2011, August 15, 2011 (BR-12).

164. Over time, Bear Creek has repeatedly emphasized the strong support from the communities surrounding the Corani project. In June 2015, the company stated:

> … we can't emphasize this enough that the project enjoys not only regional and local community support, but also federal government support. And I think that our team, our CSR team has done a magnificent job of creating long-term relationships that bridge between elected mayors, et cetera, lieutenant governors. We've enjoyed solid relationships for the better part of 7 years now. And we've -- our communities, who enthusiastically embrace the EIA approval, just can't wait to see a mine built. So -- and the federal government has been very supportive of us. They point to Corani in many instances as the model for companies launching new projects for community and social relations … And they are working basically side-by-side with us.[166]

165. The continued community support does not suggest the existence of concerns that social opposition would lead the government to take actions similar to the alleged Santa Ana breaches.

166. The lack of a direct link between Santa Ana and Corani suggests that if markets perceived an increase in risk, that perception likely applied not only to Corani but to all other mining projects in Peru. In other words, if Corani's market value was affected, so was the market value of all other mining projects in Peru. Indeed, news reports following the enactment of Supreme Decree 032 indicate that stock prices of some other mining companies with investments in Peru dropped.[167] The average reaction across a broader group of mining companies with assets exclusively in Peru, captured in an equal-weighted index we developed,[168] was not substantial: the index fell 6.3%, about 3.2% more than the TSXV Index and 5.7% more than the TSX Global Mining Index changed over the same period.

167. We agree with FTI that there was a market reaction to the news of the Santa Ana expropriation.[169] That news and the market reaction, however, must be analyzed in the context of the political environment in Peru at the time. That context also is important to

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166 Bear Creek Mining Corp, "Special Call," June 2, 2015, p. 7 (BR-132), emphasis added.

167 For example, an article published on June 27 notes that "Peru's action casts doubt on other resource operations in the country, which relies heavily on foreign investment and received about 70% of its GDP from the mining industry" ("Bear Creek Plunges Deeper on Peru Mine Dispute," Business News Network, June 27, 2011) (BR-69).

168 See Workpaper 5. Over the same window (5/23/2011 to 5/27/2011), the S&P TSX Composite Index fell 0.7%, the S&P BVL Peru General Index fell 0.9%, and the price of silver fell 5.6% on the LBMA.

169 The magnitude of the drop however is considerably smaller than that implied by FTI's estimated Corani damages.

understand why subsequent developments indicate that the initial reaction was reversed as the political situation stabilized.

168. While a new President was elected on June 6, 2011, the actions against Santa Ana were taken by the outgoing government.[170] This suggests that investors' expectations beyond the immediate term depended on their view of the President-elect and the future government. Therefore, any implications of the Santa Ana expropriation for the broader investment community were mediated by investors' expectations of the incoming President's political positions.

169. President Humala's election created an uncertain political and investment environment in its immediate aftermath.[171] There were concerns that President Humala would raise taxes for mining companies and have a generally less friendly attitude toward businesses and foreign investors.[172] Indeed, on news of President Humala's election on June 6, 2011, the Lima stock market index dropped substantially (as did Bear Creek's stock price).[173] On the same day, an index formed of publicly traded mining companies with assets exclusively in Peru fell also about 8%, as indicated by the first orange vertical line in Figure 6.[174]

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170 "Bear Creek Mining Shares Drop after Peru Revokes Mining Permit," Dow Jones Newswires, June 27, 2011 (BR-70).

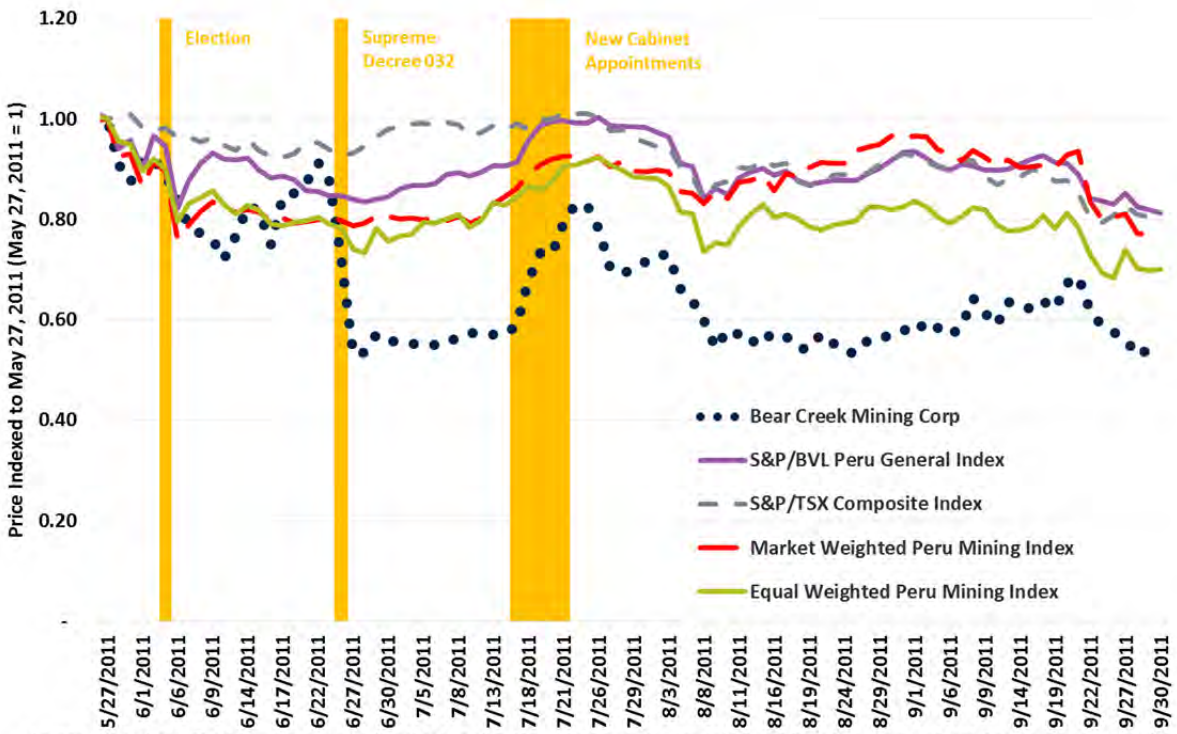
171 One analyst who covered Bear Creek's stock stated that "Ollanta Humala's edge out victory over Keiko Fujimori has cast a pale of uncertainty over investment in Peru." Campbell, Nicholas, Canaccord Genuity Analyst Report, June 7, 2011 (FTI-56), p.1.

172 Paradigm Capital Analyst Report, June 8, 2011 (FTI-55), pp.1-2; Campbell, Nicholas, Canaccord Genuity Analyst Report, June 7, 2011 (FTI-56), pp. 1, 4; "Peru's Humala edges ahead in polls; markets nervous," Reuters News, June 3, 2011 (BR-74).

173 The Lima stock price index fell 14% on June 6, 2011, when the election results were announced. Bear Creek's share price fell 5.6% on the same day, while an index comprising TSX or TSXV-listed mining companies with at least 50% of assets of 50% of revenues in Peru fell 8%. For reference, the TSX Composite fell 1.8%.

174 See Workpaper 5 for the data supporting Figure 6.

Figure 6. Bear Creek's Share Price vs. Market Indicators (Indexed to May 27, 2011)



Source: Bloomberg. The Peru Mining Index/Market Weighted Peru Mining Index are calculated based on the equal-weighted average return/ market capitalization-weighted average return of 16 publicly traded companies that own assets exclusively in Peru (excluding Bear Creek). For index calculation and selection of constituents, see Workpapers 5 and 10.

170. Subsequent to the publication of Supreme Decree 032, the market's perception of the incoming government's political views clarified, particularly after the new President appointed officials perceived as moderates by the business community to key Government positions.[175] As evidenced by the steady recovery of both the Lima stock index and the index of mining companies with exposure to Peru, market concerns about the new President's policies diminished.[176] By July 21, when the full composition of the new government was announced,[177] the Lima stock index had recovered to pre-election levels.

171. There is no evidence to date that the Corani project has suffered or is expected to suffer from harmful government actions once the new government took office. Any initial market

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175 "Instant View – Peru President-elect Humala picks ministers," Reuters News, July 21, 2011.

176 The overall stock market shows a more pronounced recovery, particularly during the week when President Humala's cabinet appointments were made public. This reaction is consistent with the expectation that special mining taxes would be imposed, which would affect the mining sector but not the broader market.

177 "Peru's Humala: Paying Agriculture Bonds 'Doesn't Make Sense,'" Dow Jones News Service, July 21, 2011 (BR-72); "Peru's Humala names top cabinet ministers," AFP, July 21, 2011 (BR-73).

concern that was reflected in the decline in Bear Creek's share price on June 27, 2011 has not been confirmed by the government's subsequent record.[178] Indeed, as Figure 6 shows, by one month after the Santa Ana expropriation, Bear Creek's share price had recovered much of the drop recorded immediately after expropriation.[179]

C. FTI'S CALCULATION OF DAMAGES TO CORANI IS INCONSISTENT WITH ITS CONCLUSION ABOUT SANTA ANA'S FMV

172. FTI calculated unrealized damages to Corani based on the short-term change in Bear Creek's share price following the alleged breaches.[180] Specifically, FTI compared its estimated market value of Corani on June 27, 2011 absent the alleged breaches to Bear Creek's observed EV on June 27 and concluded that the difference measured the market value loss to Corani. As the method uses no information after June 27, at most it could capture the unrealized loss to Corani on that date. It cannot measure any changes in that initial loss that have occurred to date. Although FTI acknowledged that its instructions were to "quantify the reduction, *to date*, in the value of Corani,"[181] its approach ignored all developments after June 27, 2011.

173. FTI's explanation that its focus on the immediate market reaction is motivated by uncertainty about "the precise terms and amounts of financing absent versus given the alleged breaches"[182] is not logical. The future is, of course, uncertain, but the past is not. Information is known about the evolution of Corani's market value to date and should not be ignored. This information, summarized in Section III.A, indicates that none of the potential adverse effects of the Santa Ana expropriation on Corani have been realized to date. Even if the initial market reaction reflected an increased expectation of harm to Corani, as FTI argues, the lack of confirmatory evidence over the following four-year period reduced the initial concerns.

174. By focusing only on the immediate market reaction in June 2011 and ignoring subsequent developments, FTI's estimate of Corani damages is irrelevant to the standard of damages

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178 See discussion on Section III.A.

179 While the share price fell subsequently, that fall was associated with a large market downturn in mid-August, in which all benchmarks shown in Figure 6 fell substantially.

180 Specifically, FTI used the change in Bear Creek's EV between May 27, 2011 and June 27, 2011. FTI Report, ¶ 8.5.

181 FTI Report, ¶ 8.2 (emphasis added).

182 FTI Report, ¶ 8.3.

FTI purports to apply. Therefore we do not analyze FTI's method further, except to point out that even if it measured the relevant market reaction, FTI inflated total damages through a serious internal inconsistency.

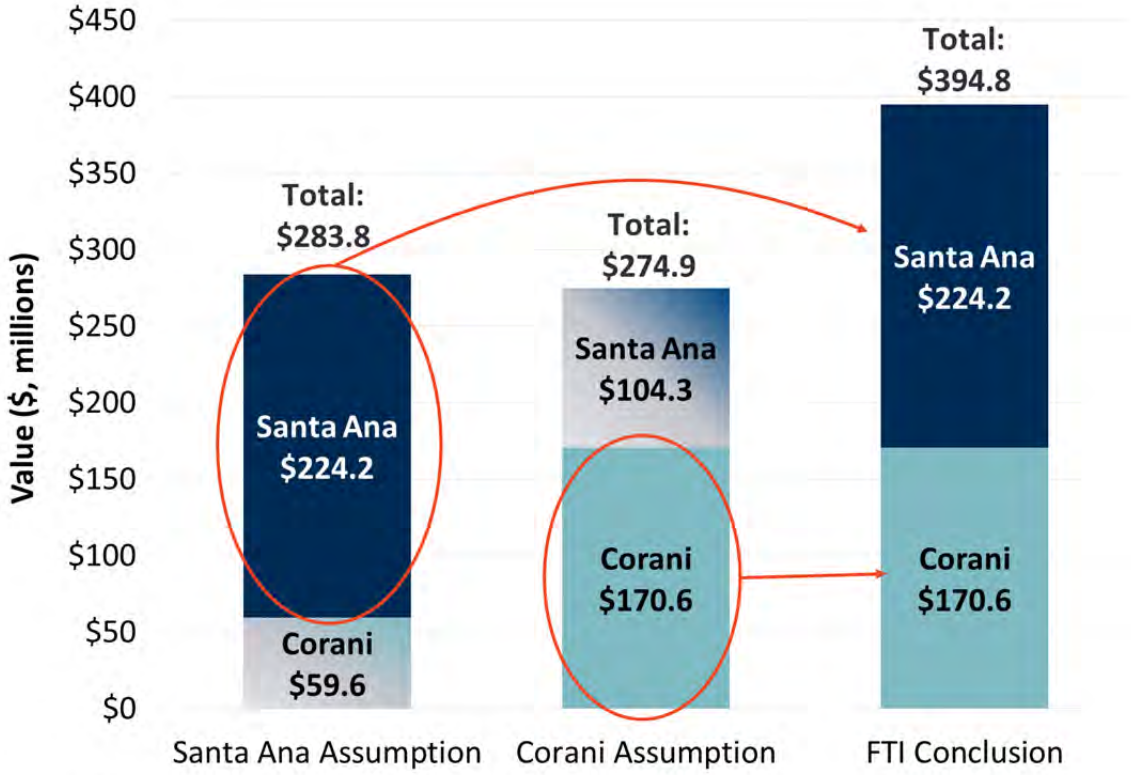
175. FTI starts from Bear Creek's EV as measured by its share price before the alleged breaches. To determine Corani's FMV, FTI then subtracts the value attributable to Santa Ana, based on the relative value estimated from analyst reports. The calculation has three steps:

- Step 1: Start with Bear Creek's EV at May 27, 2011 as a measure of the combined market value of Corani and Santa Ana.
- Step 2: Subtract the market value of Santa Ana assuming it is 19.2% of the combined market value.
- Step 3: Calculate the but-for market value of Corani on June 27, 2011 based on the change in an index of mining stocks.
- Step 4: Calculate damages by subtracting Bear Creek's actual EV on June 27 from the but-for value calculated in Step 3.

176. The inconsistency, which we illustrate in Figure 7, arises at Step 2. To calculate Corani's FMV, FTI says Santa Ana was worth $104.3 million.[183] To calculate Santa Ana damages, FTI says Santa Ana was worth $224.2 million, more than double the amount used to calculate Corani damages.

[183] This is reflected in the second column of Figure 27 in the FTI Report, which forms the basis for its conclusion on Corani damages.

Figure 7: FTI's Assumption about Santa Ana's Market Value Is Inconsistent across Its Santa Ana and Corani Damages Calculations



Source: FTI Report, Figure 27.

177. This inconsistency allows FTI to arrive at total damages of $394.8 million before interest, shown in the high bar labeled "FTI Conclusion" in Figure 7. An internally consistent approach would result in total damages of about $275 to $284 million regardless of FTI's view of Santa Ana's FMV:

- If FTI's DCF is accurate and Santa Ana's FMV is $224.2 million, then Corani damages should be $59.6 million by FTI's method, for a total of $283.8 million (bar labeled "Santa Ana Assumption" in Figure 7);
- If FTI's share price approach is accurate and Santa Ana's FMV is $104.3 million, then Corani damages should be $170.6 million by FTI's method, for a total of $274.9 million (bar labeled "Santa Ana Assumption" in Figure 7).[184]

[184] FTI considers a third case in FTI's Figure 27, which asserts that Bear Creek's share price on May 27, before the alleged breaches occurred, reflected no value for Santa Ana. Such an assumption beggars belief.

178. FTI explains its inconsistency by resorting to an assumption that Bear Creek's share price did not fully reflect Santa Ana's alleged FMV. The mispricing that FTI assumes is substantial: FTI concludes that only $104.3 million, or 46.5%, of Santa Ana's alleged FMV of $224 million was reflected in Bear Creek's share price. Yet, FTI assumes at the same time that the share price reflects Corani's market value correctly. One inconsistency is explained by another.

179. If it were true that the market was unable to reliably value Santa Ana, for which Bear Creek had recently released an updated Feasibility Study, then there is no justification to assume, as FTI does, that the same market can nevertheless correctly value the impact of the alleged unlawful acts on the more complex Corani project, for which less information was available (given its earlier stage).[185]

180. Of course, as we explained in Section II, there is no reason to believe that Bear Creek's share price does not reflect the FMV of the company's assets. It is even less believable that the market would price one asset correctly and misprice the other by over 50%.

IV. Claimant's Amount Invested in the Santa Ana Project

181. As an alternative measure of damages, we were asked to calculate the total amount of Bear Creek's investment in the Santa Ana project between the date it was acquired and the alleged expropriation date. We perform this calculation based on the annual exploration costs and the cumulative capitalized costs that Bear Creek reported for the Santa Ana Project in its consolidated financial statements from 2004, when Bear Creek acquired the Santa Ana project, to the second quarter of 2011, which ended on June 30, 2011 and is the reporting period that includes the alleged expropriation date.[186]

182. The decision regarding which of its costs to allocate to the Project was made by Bear Creek, which prepares its financial statements in accordance with Canadian generally accepted accounting principles (Canadian GAAP).[187] The exploration costs include drilling, salaries

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[185] As of the Valuation Date, the most recent comprehensive analysis of the Corani project was the Prefeasibility Study released in October 2009.

[186] Given the alleged expropriation occurred on June 23, 2011, there is only a one-week period by which the reporting period exceeds the relevant period. It is unlikely that the resulting difference is material.

[187] The Canadian Institute of Chartered Accountants (CICA) started incorporating IFRS into Canadian GAAP in 2010 and required publicly accountable companies to apply such standards in 2011. Bear

Continued on next page

and consulting, engineering and consulting, assaying and sampling, community relations, supplies and general, travel, acquisition and claim fees, maintenance costs, and geophysics. The total exploration costs of all Bear Creek's projects are reported as part of the operating expenses on its Consolidated Statements of Loss and Comprehensive Loss for each reporting period. The capitalized costs include land acquisition costs and provisions for asset retirement obligations. Upon the expropriation of the Project, Bear Creek recognized an impairment loss of $0.9 million for the capitalized resource property costs.[188]

183. Table 7 presents the composition of exploration costs and capitalized costs reported for Santa Ana between 2004 and second quarter of 2011.

Continued from previous page

Creek started reporting in accordance with the updated standards in 2011 interim financials. Bear Creek 2011 Q2 Consolidated Financial Statements (BR-12), p. 6.

188 Bear Creek reported an impairment loss of $1 million in its 2011 Q2 interim report. However, that amount includes the provision for future reclamation costs, $0.1 million. Bear Creek later updated the impairment loss to be $0.9 million in its 2011 annual report, which includes only the impairment loss for the carrying amount of Santa Ana resource property costs. We exclude the provision for asset retirement obligations from the total amount invested. Bear Creek 2011 Q2 Consolidated Financial Statements (BR-12), p. 11; Bear Creek 2011 Consolidated Financial Statements for Year ended December 31, 2011 (BR-13), p. 18.

Table 7: Santa Ana Investment Costs (US$)

		Total 2004-2011Q2
[1]	Drilling	7,994,832
[2]	Salaries and consulting	7,404,312
[3]	Assaying and sampling	750,537
[4]	Travel	1,878,520
[5]	Supplies and general	2,302,516
[6]	Acquisition and claim fees (Maintenance costs)	508,149
[7]	Geophysics	57,407
[8]	Total Exploration Costs	20,896,273
[9]	Capitalized Costs (Land Acquisition)	931,414
[10]	Cumulative Asset Retirement Obligations	-
[11]	Total Cost of Investments	21,827,687

Sources:
Sources: Bear Creek Mining Corp., 2004 Annual Report (BR-04), p. 19; Bear Creek Mining Corp., 2005 Annual Report (BR-05), p. 23; Bear Creek Mining Corp., Consolidated Financial Statements 31 December 2006 and 2005 (BR-06), p. 6; Bear Creek Mining Corp., Consolidated Financial Statements 31 December 2007 and 2006 (BR-07), pp. 6, 13; Bear Creek Mining Corp., Consolidated Financial Statements 31 December 2008 and 2007 (BR-08), pp. 6, 20; Bear Creek Mining Corp., Consolidated Financial Statements 31 December 2009 and 2008 (BR-09), pp. 15, 27; Bear Creek Mining Corp., Consolidated Financial Statements 31 December 2010 and 2009 (BR-10), pp. 13, 21; Bear Creek Mining Corp., Interim Consolidated Financial Statements, Six Months Ended June 30, 2011 and 2010 (BR-12), pp. 10, 12.
Notes:
All expenses and costs are annual data, except for "Cumulative Asset Retirement Obligations," which is reported as a cumulative balance.
2011 Q2 numbers are rounded to the nearest thousand.
The line item "salaries and consulting" is split into "salaries and consulting" and "engineering and consulting" in the 2009 and 2010 annual reports and in the 2011Q2 report.
The line item "supplies and general" is split into "supplies and general" and "community relations" in the 2010 annual report.
[8]: Sum of [1] through [7]; expensed as operating expense every year.
[11]: Sum of [8] through [10].

184. Based on Bear Creek's reporting of exploration costs and capitalized resource property costs, we calculate the total cost of investment in the Santa Ana Project as of June 30, 2011 at $21,827,687.

V. Pre-Award Interest

185. The FTA states that compensation in the case of expropriation "shall be payable in a freely convertible currency and shall include interest at a commercially reasonable rate for that currency from the date of expropriation until date of payment"[189] We have been instructed to calculate the commercially reasonable rate that would apply to any damages determined as of the Valuation Date.

A. Pre-Award Interest at Respondent's Borrowing Rate

186. A commercial interest rate can be expressed as the sum of two components: the risk-free rate, which reflects compensation for the time value of money, and a risk premium, which reflects compensation for bearing risk. In this case, the appropriate risk-free rate is the short-term rate in U.S. Treasury bills because the currency in which damages are calculated is the U.S. dollar. A short-term interest rate is the appropriate measure of the time value of money, because it is the only rate that reflects no risk. Long-term rates, which typically are higher than short-term rates at any point in time, include a premium for liquidity and unanticipated inflation risk. We use the one-month U.S. Treasury bill rate, reset monthly.

187. The applicable spread above the risk-free rate depends on what risk the Claimant should be compensated for. Risk premiums embedded in commercial rates vary with the credit risk of the borrower: borrowers more likely to default face higher risk premiums. The FTA does not specify whose borrower risk should be reflected in the commercial rate applicable to pre-award interest. As the compensation amount is owed by Respondent, a natural benchmark is Respondent's default risk, which is reflected in the price of credit default swaps (CDS) on its sovereign bonds or in the yield on the same bonds.[190]

188. We use the CDS spread on Peru's sovereign bonds because in general the CDS market is more liquid than the market for sovereign bonds. It provides therefore a better measure of credit risk than the sovereign bond market. As with the risk-free rate, the appropriate

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[189] FTA, Article 812.

[190] The Respondent's borrowing rate is the rate implied by the so-called "forced loan theory" of pre-award interest, under which the failure to provide immediate compensation upon expropriation is viewed as a forced loan that the Claimant made to Respondent. This appears to be the theory that Claimant puts forward in this case: "[w]ith respect to interest, by not paying compensation for the taking of the Santa Ana Project, Peru has in effect given itself an interest-free loan for several years …" (Claimant's Memorial, ¶ 13). We discuss this issue more in the section that addresses FTI's calculation of pre-award interest.

benchmark CDS contract is a short-term contract. For Peru, the shortest term CDS contract is for a one-year maturity.[191] The average one-year CDS risk premium during the period between the Valuation Date and September 24, 2015 is 0.49%.

189. To determine the pre-award interest rate, we added the sovereign spread to the one-year U.S. Treasury bill rate, reset monthly. The resulting average *annual* interest rate between the Claimant's Valuation Date and September 24, 2015 is 0.65%. The *cumulative* pre-award interest adds up to 2.79% of the award amount. To compare this to FTI's cumulative pre-award interest rate, we use FTI's assumption of 5% annual compounding interest from the Claimant's Valuation Date through September 24, 2015. This implies a cumulative pre-award interest amount of 23.65% of the award amount.

190. We were not asked to calculate interest until an expected future award date in this case and accordingly we have not formed an opinion about the expected award date. FTI has not presented the basis for its estimated award date of March 15, 2017 so we cannot comment on its estimation method. We note however that reliance on a short-term market interest rate precludes the exact calculation of future interest even if the award date were known, because interest rates would change in the meantime. To avoid unnecessary approximation, we only calculate pre-award interest to September 24, 2015 and anticipate updating our calculations prior to the hearing.

B. Pre-Award Interest at the Risk-Free Rate

191. The above discussion assumes that compensation for risk is deemed appropriate by the Tribunal. The question whether compensation for risk is appropriate, and therefore whether a spread above the risk-free rate should be included in the pre-award interest, hinges on legal questions of when the liability is created and whether certain risks are best characterized as financial risks or litigation risks.

192. The risk-free rate, which is also a commercial rate, has been proposed in the economic literature under the theory that awarding a higher rate would compensate the claimant for litigation risk. This view is in part an expression of a legal view regarding the presumption of innocence, under which liability arises only at the time of the award.

> The risk of the defendant's bankruptcy is not the only risk the plaintiff bears. It also bears the risk of losing the case …. [T]he risk that the defendant will

[191] CDS contracts on Peru sovereign credit are available for maturities between one and ten years (S&P Capital IQ).

> go bankrupt during trial is properly associated with the risks of litigation, not with the violation itself. It is hard to see why that risk should be singled out as one for which the plaintiff is to be compensated. Accordingly, we retain the position that prejudgment interest should be awarded at the risk-free rate.[192]

193. If the risk-free rate is applicable, then the resulting *cumulative* pre-award interest amount to September 24, 2015 is 0.69% of the award amount, that is, for every $1 million in damages as of the Claimant's Valuation Date, pre-award interest to the calculation date is about $6,900. This corresponds to an average *annual* interest risk-free rate of 0.16% over the calculation period.

C. FTI'S PRE-AWARD INTEREST RATE CALCULATION

194. FTI calculated pre-award interest using an annual interest rate of 5%, compounded monthly through March 15, 2017.[193] This calculation is based on three premises: that the right rate is 5%, that this rate should be compounded monthly, and that the relevant end-date of the calculation is March 15, 2017.

195. FTI states that it has been "instructed by Counsel that the applicable rate legal interest rate for judgments in Peru is determined based on a reference rate published by the Central Reserve Bank of Peru. On June 23, 2011, the legal interest rate was 5.0%."[194] Claimant's Memorial does not refer to a reference rate published by the Central Reserve Bank of Peru. The only statement in Claimant's Memorial that defines the appropriate pre-award interest rate is the following:

> With respect to interest, by not paying compensation for the taking of the Santa Ana Project, Peru has in effect given itself an interest-free loan for several years while simultaneously depriving Bear Creek of the funds to which it is rightly entitled. In order to avoid incentivizing States to engage in this type of conduct, Bear Creek submits that an appropriate rate of interest would be the cost to Peru had it been required to obtain a loan equivalent to the compensation amount in the international markets.[195]

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192 Fisher, Franklin M. and R. Craig Romaine. "Janis Joplin's Yearbook and the Theory of Damages," *Journal of Accounting, Auditing & Finance* 5-1/2 (1990), pp. 147-148, (BR-124). The excerpt involves a discussion in the context of the U.S. legal system.

193 FTI Report, ¶ 2.8.

194 FTI Report, ¶ 9.3.

195 Claimant's Memorial, ¶ 13.

196. The Memorial therefore puts forward a forced-loan theory of pre-award interest and concludes that the applicable interest rate should reflect Respondent's cost of borrowing. That interest rate, as we calculated in Section V.A, varies over time and has been on average 0.65% per year from the Valuation Date through September 24, 2015.

197. If FTI's choice of interest rate is intended to reflect the statement excerpted above from Claimant's Memorial, then the rate it used is simply incorrect. First, it appears to be based on a rate published by the Central Reserve Bank of Peru for "Monetary regulation credit,"[196] which is a rate for credit in Peruvian currency, not in U.S. dollars.[197] For transactions in U.S. dollars, the rate for monetary regulation credit at FTI's Valuation Date was one-month LIBOR plus 1%, or 1.19%.[198] Because the award is calculated in U.S. dollars, the pre-award interest rate should also be defined in the same currency.

198. Second, because it is a short-term rate, as indicated by the reference to the one-month LIBOR benchmark for transactions in U.S. dollars, it cannot be used for the long term without updating, as FTI did by applying it to March 2017. While we agree that a short-term rate is appropriate, when using a short-term rate to calculate interest over periods beyond the term for which the interest rate is defined, the rate must be updated to reflect changes over time. In this case, because the benchmark LIBOR is a one-month rate, it should be updated every month. As of September 24, 2015, if FTI had applied the reference

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[196] FTI's source document for the reference rate it used does not show any interest rate equal to 5.0%. It does however include two rates equal to 5.05%, one described as applicable to "Monetary regulation credit" and the other to "Outcome of the direct temporary buying securities (Repo)" (FTI-31). We do not know which of these two rates FTI used but note that, based on our review of similar documents to that relied on by FTI but covering different periods, the two rates are always equal (for example, see Summary of Monetary and Exchange Operations for September 21-25, 2015 (BR-137); Summary of Monetary and Exchange Operations for December 29-31, 2014 (BR-136); Summary of Monetary and Exchange Operations for December 21-28, 2012 (BR-135); all weekly such reports are published at http://www.bcrp.gob.pe/statistics/meoc/monetary-and-exchange-operations-weekly-tables.html).

[197] This is clear from a weekly report published also by Peru's Central Bank, in which the 5.05% rate for monetary regulation credit is listed under Monetary Indicators in Domestic Currency (Central Reserve Bank of Peru, Weekly Economic Report No. 26, July 1, 2011, p. xv (BR-138)). Another central Reserve Bank publication dated June 2011 states: "The Board also approved to maintain the annual interest rates on lending and deposit operations in domestic currency (not included in auctions) between the BCRP and the financial system, as described below … Direct repo and rediscount operations: 5.05 percent" (Central Reserve Bank of Peru Informative Note, "Monetary Program for June 2011, BCRP Maintains the Reference Interest Rate at 4.25%") (BR-140).

[198] Central Reserve Bank of Peru, Weekly Economic Report No. 26, July 1, 2011, p. xvii, fn. ****** (BR-138).

rate it relied on, but in the correct currency, the average annual interest would have been 1.20%, which implies cumulative interest of 5.29% of the award amount.[199]

199. With respect to compounding, we agree with FTI that commercial interest rates should be applied with compounding. The frequency of compounding should be consistent with how the interest rate is defined and how often it is reset. In this case, using a one-month benchmark rate is consistent with monthly compounding.

Date: October 6, 2015

Graham Davis

Florin Dorobantu

[199] The rate for transactions in Peruvian currency has also decreased over time. At September 15, 2015 it was equal to 4.05% (Central Reserve Bank of Peru, Weekly Economic Report No. 35, September 18, 2015, p. xvii) (BR-139).

Appendix A – Materials Relied On

No.	Document
Public Company Filings	
BR-01	*Bear Creek Mining Corporation, Management Discussion and Analysis, Quarter Ended June 30, 2015,* May 19, 2015.
BR-02	*Bear Creek Mining Corporation, Management Discussion and Analysis for the Year Ended December 31, 2013,* April 3, 2014.
BR-03	*Bear Creek Mining Corporation Management Discussion and Analysis For the Year Ended December 31, 2011.*
BR-04	*Bear Creek Mining Corporation, 2004 Annual Report,* April 15, 2005.
BR-05	*Bear Creek Mining Corporation, 2005 Annual Report*, May 11, 2006.
BR-06	*Bear Creek Mining Corporation, Consolidated Financial Statements 31 December 2006 and 2005*, March 20, 2007.
BR-07	*Bear Creek Mining Corporation, Consolidated Financial Statements 31 December 2007 and 2006*, March 28, 2008.
BR-08	*Bear Creek Mining Corporation, Consolidated Financial Statements 31 December 2008 and 2007*, March 17, 2009.
BR-09	*Bear Creek Mining Corporation, Consolidated Financial Statements 31 December 2009 and 2008*, March 29, 2010.
BR-10	*Bear Creek Mining Corporation, Consolidated Financial Statements 31 December 2010 and 2009*, March 18, 2011.
BR-11	*Bear Creek Mining Corporation Interim Consolidated Financial Statements, First Quarter ended March 31, 2011,* May 25, 2011.
BR-12	*Bear Creek Mining Corporation Interim Consolidated Financial Statements, Second Quarter ended June 30, 2011,* August 15, 2011.
BR-13	*Bear Creek Mining Corporation Consolidated Financial Statements, Year ended December 31, 2011,* March 27, 2012.
BR-14	*Bear Creek Mining Corporation Interim Consolidated Financial Statements, Six Months Ended June 20, 2015 and 2014.*
BR-15	*Xstrata Annual Report 2010.* http://www.glencore.com/assets/investors/doc/transaction_archive/jse_listing/xta-ar2010-en.pdf (accessed October 2, 2015).
BR-16	*Xstrata Annual Report 2011.* http://www.glencore.com/assets/investors/doc/reports_and_results/xstrata/2011/xta-ar2011-en.pdf (accessed October 2, 2015).
BR-17	*Anglo American Annual Report 2008.* http://www.angloamerican.com/~/media/Files/A/Anglo-American-PLC-V2/investors/a-reports/2009rep/ar2008.pdf (accessed October 2, 2015).
BR-18	*Anglo American Annual Report 2011.*

	http://www.angloamerican.com/~/media/Files/A/Anglo-American-PLC-V2/investors/reports/aa-annual-report-2011.pdf (accessed October 2, 2015).
BR-19	*Southern Copper 2007 Annual Report*. http://www.southernperu.com/ENG/invrel/2007/AnnualReport/m2007i.pdf (accessed October 5, 2011).
BR-20	*Southern Copper 2011 Annual Report*. http://www.southernperu.com/ENG/invrel/2011/AnnualReport/annualreport2011.pdf (accessed September 29, 2011).
BR-21	*Compania de Minas Buenaventura Memoria Anual 2009.*
BR-22	*Compania de Minas Buenaventura Memoria Anual 2011.*
BR-23	*Compania de Minas Buenaventura Form 20-F, For the fiscal year ended December 31, 2003.* https://www.sec.gov/Archives/edgar/data/1013131/000101313104000007/buenaventura.htm (accessed September 27, 2015).
BR-24	*Newmont Mining 2009 Annual Report*. http://www.newmont.com/files/doc_financials/annual/2009_Annual_Report.pdf (accessed October 4, 2015).
BR-25	*Gold Fields 2006 Annual Report.* https://www.goldfields.co.za/pdf_archives/full_2006.pdf (accessed September 27, 2015).
BR-26	*International Minerals Corporation Management's Discussion and Analysis ("MD&A"), Nine Month Period Ended March 31, 2006.*
BR-27	*Compania Minera Milpo S.A.A. Memoria Annual 2004, p. 6.*
BR-28	Sprott Asset Management LP, *Sprott Canadian Equity Fund: Quarterly Portfolio Disclosure as at September 30, 2011,* September 30, 2011.
BR-29	Sprott Inc., *Report to Shareholders*, June 30, 2011.
Peru Mining Company Information	
BR-30	*Aguila American Gold Limited, Management's Discussion and Analysis for the Nine Months Ended January 31, 2012, March* 28, 2012.
BR-31	*Alianza Holdings (formerly known as Estrella Gold Corporation) Management's Discussion and Analysis, September 30, 2011*, November 29, 2011.
BR-32	*Alianza Holdings (formerly known as Estrella Gold Corporation) Consolidated Financial Statements, Year ended December 31, 2011,* April 16, 2012.
BR-33	*AM Gold Inc. Consolidated Financial Statements, Year ended December 31, 2011,* April 27, 2012.
BR-34	*AM Gold Inc., Management's Discussion and Analysis for the Quarter Ended September 30, 2011,* November 24, 2011.
BR-35	*Andean American Gold Corp S&P Capital IQ Company Profile*.
BR-36	*AQM Copper Inc., Management's Discussion and Analysis for the Nine Months Ended December 31, 2011, March* 28, 2012.
BR-37	*Candelaria Silver Inc. S&P Capital IQ Company Profile*.
BR-38	*Candente Copper Corp., Management's Discussion and Analysis, Year ended December 31, 2011,* March 28, 2012.
BR-39	*Castrovirreyna Compania Minera S.A. S&P Capital IQ Company Profile.*
BR-40	*Chinalco Mining Corporation International, Stock Price Information*.

BR-41	*Compañía de Minas Buenaventura S.A.A., Form 20-F, For the Fiscal Year ended December 31, 2011*, April 30, 2012.
BR-42	*Compañía Minera Atacocha S.A.A.*, *Memoria Anual 2011*, February 23, 2012.
BR-43	*Compañía Minera Milpo S.A.A.*, *Memoria Anual 2011*, February 23, 2012.
BR-44	*Cuervo Resources Inc. S&P Capital IQ Company Profile*.
BR-45	*Cuervo Resources Inc., Reuters Company Profile*.
BR-46	*Fortuna Silver Mines Inc., Management's Discussion and Analysis for the Year Ended December 31, 2011,* March 23, 2012.
BR-47	*Hochschild Mining plc, Annual Report & Accounts 2011*, March 19, 2012.
BR-48	*Lara Exploration, Management's Discussion and Analysis, Year Ended December 31, 2011*, April 23, 2012.
BR-49	*Lupaka Gold Corp., Management's Discussion and Analysis, Year Ended December 31, 2011*, March 26, 2012.
BR-50	*Minera Gold Limited., Corporate/ Minera Gold – About Us*.
BR-51	*Minera IRL Limited, Annual Report and Accounts, Year Ended December 31, 2011*, March 29, 2012.
BR-52	*Monterrico Metals plc, S&P Capital IQ Summary.*
BR-53	*Panoro Minerals Ltd., Management's Discussion and Analysis, Year Ended December 31, 2011*, April 24, 2012.
BR-54	*Peruvian Precious Metals Corp. (formerly known as Sienna Gold Inc.), Management's Discussion and Analysis, Year Ended September 30, 2011*, January 30, 2012.
BR-55	*Plexmar Resources Inc., S&P Capital IQ Summary.*
BR-56	*Poderosa, Memorial Anual de Sostenibilidad 2011,* March 30, 2012.
BR-57	*Sociedad Minera El Brocal S.A.A., Financial Statements as of December 31, 2011*, February 3, 2012.
BR-58	*Standard Tolling (formerly known as Golden Alliance Resources Corp.), Management's Discussion and Analysis, Year Ended December 31, 2011*, April 24, 2012.
BR-59	*Straight Gold Corporation, Management's Discussion and Analysis, Year Ended December 31, 2011*, April 19, 2012.
BR-60	*Sulliden Gold Corporation Ltd., S&P Capital IQ Summary.*
BR-61	*Vena Resources Inc., Management's Discussion and Analysis, Year Ended December 31, 2011*, March 28, 2012.
BR-62	*Volcan Compañía Minera S.A.A., Annual Report 2011,* March 2012.
BR-63	*Xiana Mining (formerly known as Dorato Resources Inc.), Management's Discussion & Analysis, Nine Months Ended October 31, 2011*, December 28, 2011.
BR-64	*Zincore Metals Inc., Management's Discussion and Analysis, Year Ended December 31, 2011*, March 16, 2012.
BR-65	Nish, Caitlin, "Shares End Higher as European Banks Gain," Dow Jones Newswires, May 27, 2011.
BR-66	*Monterrico Metals Plc Report and Accounts, 31 December 2011.*
<u>News Articles and Press Releases</u>	
BR-67	Koven, Peter, "Bear Creek shares plunge after Peruvian protests; Stock falls 27.1%; Permit revocation casts cloud over Peruvian mining," Financial Post, June 28, 2011.

BR-68	"Peru halts Canada mining operations amid protests," Agence France Presse. June 25, 2011 8:00pm GMT.
BR-69	"Bear Creek Plunges Deeper on Peru Mine Dispute," Business News Network, June 27, 2011.
BR-70	"Bear Creek Mining Shares Drop after Peru Revokes Mining Permit," Dow Jones Newswires, June 27, 2011.
BR-71	"Peru's Humala edges ahead in polls; markets nervous," Reuters News, June 3, 2011.
BR-72	"Peru's Humala: Paying Agriculture Bonds 'Doesn't Make Sense,'" Dow Jones News Service, July 21, 2011.
BR-73	"Peru's Humala names top cabinet ministers," AFP, July 21, 2011.
BR-74	"Peru's Humala edges ahead in polls; markets nervous," Reuters News, June 3, 2011.
BR-75	"Bear Creek Mining Announces Results of Updated Corani Feasibility Study," Bear Creek June 2, 2015 news release.
BR-76	"Bear Creek provides Corani project and exploration update, Peru," August 16, 2012, SEDAR.
BR-77	"Bear Creek submits Corani ESIA; silver project on track for approval," December 11 2012, SEDAR.
BR-78	"Bear Creek provides update on Corani, Peru optimization and detailed engineering progress; Several significant opportunities to be incorporated into detailed engineering," September 8 2014, SEDAR.
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Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
1/1/2010	3358.359	N/A	N/A	N/A	N/A	N/A	606.831	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/4/2010	3358.359	1679.179	3256.724	3256.724	1523.969	1523.969	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/5/2010	3358.359	1679.179	3256.724	3256.724	1523.969	1523.969	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/6/2010	3358.359	1679.179	3256.724	3256.724	1524.05	1524.05	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/7/2010	3358.359	1679.179	3256.724	3256.724	1524.068	1524.068	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/8/2010	3358.359	1679.179	3256.724	3256.724	1524.072	1524.073	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/11/2010	3358.359	1679.179	3256.724	3256.724	1524.072	1524.073	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/12/2010	3358.359	1679.179	3256.724	3256.724	1524.08	1524.08	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/13/2010	3358.359	1679.179	3256.724	3256.724	1524.092	1524.092	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/14/2010	3358.359	1679.179	3256.724	3256.724	1524.092	1524.092	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/15/2010	3358.359	1679.179	3256.724	3256.724	1524.178	1524.178	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/18/2010	3358.359	N/A	N/A	3256.724	N/A	1524.178	606.831	N/A	984.074	733.333	N/A	N/A	695.891	N/A
1/19/2010	3358.359	1679.179	3256.724	3256.724	1524.191	1524.191	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/20/2010	3358.359	1679.179	3256.724	3256.724	1524.191	1524.191	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/21/2010	3358.359	1679.179	3256.724	3256.724	1524.191	1524.191	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/22/2010	3358.359	1679.179	3256.724	3256.724	1524.204	1524.204	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/25/2010	3358.359	1679.179	3256.724	N/A	1524.204	1524.204	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/26/2010	3358.359	1679.179	3256.724	3256.724	1524.21	1524.21	N/A	859.755	984.074	733.333	850	480.406	695.891	130.975
1/27/2010	3358.359	1679.179	3256.724	3256.724	1524.21	1524.21	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/28/2010	3358.359	1679.179	3256.724	3256.724	1524.233	1524.233	606.831	859.755	984.074	733.333	850	480.406	695.891	130.975
1/29/2010	3358.359	1679.179	3256.724	3256.724	1524.236	1524.235	606.831	859.755	984.074	733.333	850	480.406	695.891	138.87
1/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/1/2010	3358.359	1679.179	3256.724	3256.724	1524.241	1524.241	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/2/2010	3358.359	1679.179	3256.724	3256.724	1524.241	1524.241	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/3/2010	3358.359	1679.179	3256.724	3256.724	1524.241	1524.241	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/4/2010	3358.359	1679.179	3256.724	3256.724	1524.241	1524.241	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/5/2010	3358.359	1679.179	3256.724	3256.724	1524.251	1524.251	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/8/2010	3358.359	1679.179	3256.724	3256.724	1524.251	1524.251	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/9/2010	3358.359	1679.179	3256.724	3256.724	1524.251	1524.251	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/10/2010	3358.359	1679.179	3256.724	3256.724	1524.251	1524.251	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/11/2010	3358.359	1679.179	3256.724	3256.724	1524.287	1524.287	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/12/2010	3358.312	1679.179	3256.724	3256.724	1524.294	1524.294	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/15/2010	3358.312	N/A	N/A	N/A	N/A	1524.516	606.831	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/16/2010	3358.312	1679.179	3256.724	N/A	1524.516	1524.516	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/17/2010	3358.312	1679.179	3256.724	3256.724	1524.579	1524.579	606.831	859.755	984.328	733.557	850	480.406	696.027	138.87
2/18/2010	3358.312	1679.179	3256.724	3256.724	1524.635	1524.635	606.831	859.755	984.328	733.557	850	480.406	696.027	135.224
2/19/2010	3358.312	1679.179	3256.724	3256.724	1524.635	1524.635	606.831	859.755	984.328	733.557	850	480.406	696.027	135.224
2/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/22/2010	3358.312	1679.179	3256.724	3256.724	1524.694	1524.694	606.831	859.755	984.328	733.557	850	480.406	696.027	135.224
2/23/2010	3358.312	1679.179	3256.724	3256.724	1524.694	1524.694	606.831	859.755	984.328	733.557	850	480.406	696.027	135.224
2/24/2010	3358.312	1679.179	3256.724	3256.724	1524.728	1524.728	606.831	859.755	984.328	733.557	850	480.406	696.027	135.224
2/25/2010	3358.312	1679.179	3256.724	3256.724	1524.776	1524.776	606.831	859.755	984.328	733.557	850	480.406	696.027	135.224
2/26/2010	3358.312	1679.179	3256.724	3256.724	1524.826	1524.825	606.831	859.755	984.328	733.557	850	480.406	696.027	135.224
2/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/1/2010	3358.312	1679.179	3256.724	3256.724	1524.841	1524.841	606.831	859.755	984.355	733.763	850	480.406	696.175	135.224
3/2/2010	3358.312	1679.179	3256.724	3256.724	1524.882	1524.882	606.831	861.13	984.355	733.763	850	480.406	696.175	135.224

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
3/3/2010	3358.312	1679.179	3256.724	3256.724	1524.926	1524.926	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/4/2010	3358.312	1679.179	3256.724	3256.724	1525.068	1525.068	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/5/2010	3358.312	1679.179	3256.724	3256.724	1525.093	1525.093	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/8/2010	3358.312	1679.179	3256.724	3256.724	1525.115	1525.115	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/9/2010	3358.312	1679.179	3256.724	3256.724	1525.115	1525.132	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/10/2010	3358.312	1679.179	3256.724	3256.724	1525.115	1525.132	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/11/2010	3358.312	1679.179	3256.724	3256.724	1525.392	1525.393	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/12/2010	3358.312	1679.179	3256.724	3256.724	1525.416	1525.415	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/15/2010	3358.312	1679.179	3256.724	3256.724	1525.457	1525.457	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/16/2010	3358.312	1679.179	3256.724	3256.724	1525.491	1525.491	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/17/2010	3358.312	1679.179	3256.724	3256.724	1525.491	1525.491	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/18/2010	3358.312	1679.179	3256.724	3256.724	1525.559	1525.559	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/19/2010	3358.312	1679.179	3256.724	3256.724	1525.559	1525.559	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/22/2010	3358.312	1679.179	3256.724	3256.724	1525.577	1525.577	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/23/2010	3358.312	1679.179	3256.724	3256.724	1525.598	1525.598	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/24/2010	3358.312	1679.179	3256.724	3256.724	1525.598	1525.598	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/25/2010	3358.312	1679.179	3256.724	3256.724	1525.598	1525.598	606.831	861.13	984.355	733.763	850	483.03	696.175	135.224
3/26/2010	3358.312	1679.179	3256.724	3256.724	1525.617	1525.617	606.831	861.13	984.355	733.763	850	483.03	696.175	135.427
3/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/29/2010	3358.312	1679.179	3256.724	3256.724	1525.617	1525.617	606.831	861.13	984.355	733.763	850	483.03	696.175	135.427
3/30/2010	3358.312	1679.179	3256.724	3256.724	1525.633	1525.633	606.831	861.13	984.355	733.763	850	483.03	696.175	135.427
3/31/2010	3358.312	1679.179	3256.724	3256.724	1525.665	1525.665	606.831	861.13	984.355	733.763	850	483.03	696.175	135.427
4/1/2010	3358.312	1679.179	3256.724	3256.724	1525.668	1525.668	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/2/2010	3358.312	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/5/2010	3358.312	1679.179	3256.724	3256.724	1525.668	N/A	N/A	861.13	984.419	733.835	850	483.03	696.614	135.427
4/6/2010	3358.312	1679.179	3256.724	3256.724	1525.668	1525.668	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/7/2010	3358.312	1679.179	3256.724	3256.724	1525.709	1525.709	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/8/2010	3358.312	1679.179	3256.724	3256.724	1525.719	1525.719	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/9/2010	3358.312	1679.179	3256.724	3256.724	1525.719	1525.719	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/12/2010	3358.312	1679.179	3256.724	3256.724	1525.719	1525.719	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/13/2010	3358.312	1679.179	3256.724	3256.724	1525.719	1525.719	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/14/2010	3358.312	1679.179	3256.724	3256.724	1525.777	1525.777	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/15/2010	3358.312	1679.179	3256.724	3256.724	1525.781	1525.781	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/16/2010	3358.312	1679.179	3256.724	3256.724	1525.781	1525.781	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/19/2010	3358.312	1679.179	3256.724	3256.724	1525.787	1525.787	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/20/2010	3358.312	1679.179	3256.724	3256.724	1525.787	1525.787	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/21/2010	3358.312	1679.179	3256.724	N/A	1525.822	1525.822	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/22/2010	3358.312	1679.179	3256.724	3256.724	1525.846	1525.846	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/23/2010	3358.312	1679.179	3256.724	3256.724	1525.846	1525.846	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/26/2010	3358.312	1679.179	3256.724	3256.724	1525.846	1525.846	N/A	861.13	984.419	733.835	850	483.03	696.614	135.427
4/27/2010	3358.312	1679.179	3256.724	3256.724	1525.85	1525.85	606.831	861.13	984.419	733.835	850	483.03	696.614	135.427
4/28/2010	3358.312	1679.179	3256.724	3256.724	1525.85	1525.85	606.831	861.13	984.419	733.835	850	483.458	696.614	135.427
4/29/2010	3358.312	1679.179	3256.724	3256.724	1525.85	1525.85	606.831	861.13	984.419	733.835	850	483.458	696.614	135.432
4/30/2010	3358.312	1679.179	3256.724	3256.724	1525.85	1525.85	606.831	861.13	984.419	733.835	850	483.458	696.614	135.432
5/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
5/3/2010	3358.312	1679.179	3256.724	3256.724	1525.85	N/A	606.831	861.13	984.519	733.878	850	483.458	696.84	135.432
5/4/2010	3358.312	1679.179	3256.724	3256.724	1525.852	1525.852	606.831	861.13	984.519	733.878	850	483.458	696.84	135.432
5/5/2010	3358.312	1679.179	3256.724	3256.724	1525.857	1525.857	606.831	861.13	984.519	733.878	850	483.458	696.84	135.432
5/6/2010	3358.312	1679.179	3256.724	3256.724	1525.858	1525.858	606.831	861.13	984.519	733.878	850	483.458	696.84	135.432
5/7/2010	3358.312	1679.179	3256.724	3256.724	1525.858	1525.858	606.831	861.13	984.519	733.878	850	483.458	696.84	135.432
5/8/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/10/2010	3358.312	1679.179	3256.724	3256.724	1525.858	1525.858	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/11/2010	3358.312	1679.179	3256.724	3256.724	1525.858	1525.858	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/12/2010	3358.312	1679.179	3256.724	3256.724	1525.86	1525.86	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/13/2010	3358.312	1679.179	3256.724	3256.724	1525.86	1525.86	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/14/2010	3358.312	1679.179	3256.724	3256.724	1525.86	1525.86	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/15/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/17/2010	3358.312	1679.179	3256.724	3256.724	1525.86	1525.86	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/18/2010	3358.312	1679.179	3256.724	3256.724	1525.86	1525.86	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/19/2010	3358.312	1679.156	3256.724	3256.724	1525.86	1525.86	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/20/2010	3358.312	1679.156	3256.724	3256.724	1525.86	1525.86	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/21/2010	3358.312	1679.156	3256.724	3256.724	1525.868	1525.868	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/22/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/24/2010	3358.312	1679.156	3256.724	3256.724	1525.868	1525.868	606.831	865.296	N/A	N/A	850	483.458	N/A	135.432
5/25/2010	3358.312	1679.156	3256.724	3256.724	1525.868	1525.868	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/26/2010	3358.312	1679.156	3256.724	3256.724	1525.868	1525.868	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/27/2010	3358.312	1679.156	3256.724	3256.724	1525.883	1525.883	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/28/2010	3358.312	1679.156	3256.724	3256.724	1525.883	1525.883	606.831	865.296	984.519	733.878	850	483.458	696.84	135.432
5/29/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/31/2010	3358.312	N/A	N/A	3256.724	N/A	N/A	606.831	N/A	984.519	733.878	N/A	N/A	696.84	N/A
6/1/2010	3358.312	1679.156	3256.724	3256.724	1525.893	1525.893	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/2/2010	3358.312	1679.156	3256.724	3256.724	1525.893	1525.893	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/3/2010	3358.312	1679.156	3256.724	N/A	1525.893	1525.893	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/4/2010	3358.312	1679.156	3256.724	3256.724	1525.9	1525.9	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/7/2010	3358.312	1679.156	3256.724	3256.724	1525.901	1525.901	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/8/2010	3358.312	1679.156	3256.724	3256.724	1525.901	1525.901	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/9/2010	3358.312	1679.156	3256.724	3256.724	1525.901	1525.901	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/10/2010	3358.312	1679.156	3256.724	3256.724	1525.901	1525.901	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/11/2010	3358.312	1679.156	3256.724	3256.724	1525.901	1525.901	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/14/2010	3358.312	1679.156	3256.724	3256.724	1525.901	1525.901	N/A	865.296	984.573	733.919	850	483.458	701.513	135.432
6/15/2010	3358.312	1679.156	3256.724	3256.724	1525.92	1525.92	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/16/2010	3358.312	1679.156	3256.724	3256.724	1525.92	1525.92	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/17/2010	3358.312	1679.156	3256.724	3256.724	1525.92	1525.92	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/18/2010	3358.312	1679.156	3256.724	3256.724	1525.927	1525.927	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/21/2010	3358.312	1679.156	3256.724	3256.724	1525.927	1525.927	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/22/2010	3358.312	1679.156	3256.724	3256.724	1525.927	1525.927	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/23/2010	3358.312	1679.156	3256.724	3256.724	1525.932	1525.932	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/24/2010	3358.312	1679.156	3256.724	3256.724	1525.932	1525.932	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/25/2010	3358.312	1679.156	3256.724	3256.724	1525.932	1525.932	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/28/2010	3358.312	1679.156	3256.724	3256.724	1525.932	1525.932	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/29/2010	3358.312	1679.156	3256.724	3256.724	1525.932	1525.932	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
6/30/2010	3358.312	1679.156	3256.724	3256.724	1525.932	1525.932	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432
7/1/2010	3358.312	1679.156	3256.724	3256.724	1525.943	1525.943	606.831	865.296	N/A	N/A	850	483.458	N/A	135.432
7/2/2010	3358.312	1679.156	3256.724	3256.724	1525.943	1525.943	606.831	865.296	984.573	733.919	850	483.458	701.513	135.432

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
7/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/5/2010	3358.312	N/A	N/A	3256.724	N/A	1525.945	606.831	N/A	984.573	733.919	N/A	N/A	701.513	N/A
7/6/2010	3358.312	1679.156	3256.724	3256.724	1525.945	1525.945	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/7/2010	3358.312	1679.156	3256.724	3256.724	1525.945	1525.945	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/8/2010	3358.312	1679.156	3256.724	3256.724	1525.945	1525.945	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/9/2010	3358.312	1679.156	3256.724	N/A	1525.945	1525.945	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/12/2010	3358.312	1679.156	3256.724	3256.724	1525.945	1525.945	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/13/2010	3358.312	1679.156	3256.724	3256.724	1525.945	1525.945	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/14/2010	3358.312	1679.156	3256.724	3256.724	1525.945	1525.945	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/15/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/16/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/19/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/20/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/21/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/22/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/23/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/26/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/27/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/28/2010	3358.312	1679.156	3256.724	3256.724	1525.947	1525.947	606.831	865.296	985.26	735.278	850	483.458	702.626	135.432
7/29/2010	3358.312	1679.156	3256.724	3256.724	1525.948	1525.948	606.831	865.296	985.26	735.278	850	484.698	702.626	135.441
7/30/2010	3358.312	1679.156	3256.724	3256.724	1525.948	1525.948	606.831	865.296	985.26	735.278	850	484.698	702.626	135.441
7/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/2/2010	3358.312	1679.156	3256.724	3256.724	1525.959	1525.959	606.831	865.296	N/A	N/A	850	484.698	N/A	135.441
8/3/2010	3358.312	1679.156	3256.724	3256.724	1525.959	1525.959	606.831	865.296	985.26	735.278	850	484.698	702.626	135.441
8/4/2010	3358.312	1679.156	3256.724	3256.724	1525.959	1525.959	606.831	865.296	985.511	736.048	850	484.698	703.865	135.441
8/5/2010	3358.312	1679.156	3256.724	3256.724	1525.959	1525.959	606.831	865.296	985.511	736.048	850	484.698	703.865	135.441
8/6/2010	3358.312	1679.156	3256.724	3256.724	1525.959	1525.959	606.831	865.296	985.511	736.048	850	484.698	703.865	135.441
8/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/9/2010	3358.312	1679.156	3256.724	3256.724	1525.959	1525.959	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/10/2010	3358.312	1679.156	3256.724	3256.724	1525.961	1525.961	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/11/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/12/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/13/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/16/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/17/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/18/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/19/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/20/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/23/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/24/2010	3358.312	1679.156	3256.724	3256.724	1525.962	1525.962	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/25/2010	3358.312	1679.156	3256.724	3256.724	1525.964	1525.964	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/26/2010	3358.312	1679.156	3256.724	3256.724	1525.964	1525.964	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/27/2010	3358.312	1679.156	3256.724	3256.724	1525.964	1525.964	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/30/2010	3358.312	1679.156	3256.724	3256.724	1525.964	N/A	606.831	940.873	985.511	736.048	850	484.698	703.865	135.441
8/31/2010	3358.312	1679.156	3256.724	3256.724	1525.964	1525.964	606.831	940.873	985.678	736.048	850	484.698	703.865	135.441
9/1/2010	3358.312	1679.156	3256.724	3256.724	1525.964	1525.964	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
9/2/2010	3358.312	1679.156	3256.724	3256.724	1525.964	1525.964	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/3/2010	3358.312	1679.156	3256.724	3256.724	1525.965	1525.965	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/6/2010	3358.312	N/A	N/A	3256.724	N/A	1525.972	606.831	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/7/2010	3358.312	1679.156	3256.724	N/A	1525.972	1525.972	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/8/2010	3358.312	1679.156	3256.724	3256.724	1525.974	1525.974	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/9/2010	3358.312	1679.156	3256.724	3256.724	1525.974	1525.974	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/10/2010	3358.312	1679.156	3256.724	3256.724	1525.978	1525.978	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/13/2010	3358.312	1679.156	3256.724	3256.724	1525.979	1525.979	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/14/2010	3358.312	1679.156	3256.724	3256.724	1525.979	1525.979	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/15/2010	3358.312	1679.156	3256.724	3256.724	1525.993	1525.993	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/16/2010	3358.312	1679.156	3256.724	3256.724	1525.993	1525.993	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/17/2010	3358.312	1679.156	3256.724	3256.724	1525.993	1525.993	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/20/2010	3358.312	1679.156	3256.724	3256.724	1525.993	1525.993	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/21/2010	3358.312	1679.156	3256.724	3256.724	1526	1526	606.831	940.873	985.679	736.078	850	484.698	703.878	135.441
9/22/2010	3358.312	1679.156	3256.724	3256.724	1526	1526	606.831	940.873	985.679	736.078	850	484.698	714.487	135.441
9/23/2010	3358.312	1679.156	3256.724	3256.724	1526	1526	606.831	940.873	985.679	736.078	850	484.698	714.487	135.441
9/24/2010	3358.312	1679.156	3256.724	3256.724	1526.001	1526.001	606.831	940.873	985.679	736.078	850	484.698	714.487	135.441
9/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/27/2010	3358.312	1679.156	3256.724	3256.724	1526.001	1526.001	606.831	940.873	985.679	736.078	850	484.698	714.487	135.441
9/28/2010	3358.312	1679.156	3256.724	3256.724	1526.003	1526.003	606.831	940.873	985.679	736.078	850	484.698	1139.487	135.441
9/29/2010	3358.312	1679.156	3256.724	3256.724	1526.012	1526.012	606.831	940.873	985.679	736.078	850	484.698	1139.487	135.441
9/30/2010	3358.312	1679.156	3256.724	3256.724	1526.012	1526.012	606.831	940.873	985.679	736.078	850	484.698	1139.487	135.441
10/1/2010	3358.312	1679.156	3256.724	3256.724	1526.013	1526.013	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/4/2010	3358.312	1679.156	3256.724	3256.724	1526.013	1526.013	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/5/2010	3358.312	1679.156	3256.724	3256.724	1526.013	1526.013	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/6/2010	3358.312	1679.156	3256.724	3256.724	1526.013	1526.013	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/7/2010	3358.312	1679.156	3256.724	3256.724	1526.013	1526.013	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/8/2010	3358.312	1679.156	3256.724	3256.724	1526.037	1526.037	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/11/2010	3358.312	1679.156	3256.724	3256.724	1526.037	1526.037	606.831	940.873	N/A	N/A	850	484.698	N/A	135.441
10/12/2010	3358.312	1679.156	3256.724	N/A	1526.037	1526.037	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/13/2010	3358.312	1679.156	3256.724	3256.724	1526.037	1526.037	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/14/2010	3358.312	1679.156	3256.724	3256.724	1526.037	1526.037	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/15/2010	3358.312	1679.156	3256.724	3256.724	1526.037	1526.048	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/18/2010	3358.312	1679.156	3256.724	3256.724	1526.048	1526.049	606.831	940.873	985.679	736.207	850	484.698	1130.845	135.441
10/19/2010	3358.312	1679.156	3256.724	3256.724	1526.049	1526.049	606.831	940.873	985.679	736.207	850	484.698	1130.956	135.441
10/20/2010	3358.312	1679.156	3256.724	3256.724	1526.07	1526.07	606.831	940.873	985.679	736.207	850	484.698	1130.956	135.441
10/21/2010	3358.312	1679.156	3256.724	3256.724	1526.11	1526.08	606.831	940.873	985.679	736.207	850	484.698	1130.956	135.441
10/22/2010	3358.312	1679.156	3256.724	3256.724	1526.11	1526.11	606.831	940.873	985.679	736.207	850	484.698	1130.956	135.441
10/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/25/2010	3358.312	1679.156	3256.724	3256.724	1526.11	1526.11	606.831	940.873	985.679	736.207	850	484.698	1130.956	135.441
10/26/2010	3358.312	1679.156	3256.724	3256.724	1526.112	1526.112	606.831	940.873	985.679	736.207	850	484.698	1130.956	135.441
10/27/2010	3358.312	1679.156	3256.724	3256.724	1526.122	1526.122	606.831	940.873	985.679	736.207	850	484.698	1130.956	135.441
10/28/2010	3358.312	1679.156	3256.724	3256.724	1526.122	1526.122	606.831	940.873	985.679	736.207	850	484.698	1130.956	135.441
10/29/2010	3358.312	1679.156	3256.724	3256.724	1526.122	1526.122	435.759	940.873	985.679	736.207	850	484.698	1130.956	135.46
10/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/1/2010	3358.312	1679.156	3256.724	3256.724	1526.129	1526.129	435.759	940.873	986.246	736.302	850	484.698	1130.956	135.46

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
11/2/2010	3358.312	1679.156	3256.724	N/A	1526.129	1526.129	435.759	940.873	986.246	736.302	850	484.698	1130.956	135.46
11/3/2010	3358.312	1679.156	3256.724	3256.724	1526.135	1526.135	435.759	940.873	986.246	736.302	850	486.198	1130.956	135.46
11/4/2010	3358.312	1679.156	3256.724	3256.724	1526.135	1526.135	435.759	940.873	986.246	736.302	850	486.198	1130.956	135.46
11/5/2010	3358.312	1679.156	3256.724	3256.724	1526.14	1526.14	435.759	940.873	986.246	736.302	850	486.198	1130.956	135.46
11/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/8/2010	3358.312	1679.156	3256.724	3256.724	1526.144	1526.144	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/9/2010	3358.312	1679.156	3256.724	3256.724	1526.144	1526.144	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/10/2010	3358.312	1679.156	3256.724	3256.724	1526.197	1526.197	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/11/2010	3358.312	1679.156	3256.724	3256.724	1526.197	1526.197	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/12/2010	3358.312	1679.156	3256.724	3256.724	1526.197	1526.198	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/15/2010	3358.312	1679.156	3256.724	N/A	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/16/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/17/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/18/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/19/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/22/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/23/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/24/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/25/2010	3358.312	N/A	N/A	3256.724	N/A	1526.211	435.759	N/A	986.246	736.302	N/A	N/A	1130.956	N/A
11/26/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/29/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
11/30/2010	3358.312	1679.156	3256.724	3256.724	1526.211	1526.211	435.759	941.759	986.246	736.302	850	486.198	1130.956	135.46
12/1/2010	3358.312	1679.156	3256.724	3256.724	1526.232	1526.232	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/2/2010	3358.312	1679.156	3256.724	3256.724	1526.232	1526.232	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/3/2010	3358.312	1679.156	3256.724	3256.724	1526.232	1526.232	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/6/2010	3358.312	1679.156	3256.724	3256.724	1526.232	1526.233	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/7/2010	3358.312	1679.156	3256.724	3256.724	1526.232	1526.233	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/8/2010	3358.312	1679.156	3256.724	3256.724	1526.286	1526.286	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/9/2010	3358.312	1679.156	3256.724	3256.724	1526.286	1526.286	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/10/2010	3358.312	1679.156	3256.724	3256.724	1526.286	1526.286	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/13/2010	3358.312	1679.156	3256.724	3256.724	1526.286	1526.286	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/14/2010	3358.312	1679.156	3256.724	3256.724	1526.286	1526.286	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/15/2010	3358.312	1679.156	3256.724	3256.724	1526.296	1526.296	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/16/2010	3358.312	1679.156	3256.724	3256.724	1526.296	1526.296	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/17/2010	3358.312	1679.156	3256.724	3256.724	1526.296	1526.296	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/20/2010	3358.312	1679.156	3256.724	3256.724	1526.298	1526.298	435.759	941.759	996.047	736.326	850	486.198	1131.279	135.46
12/21/2010	3358.312	1679.156	3256.724	3256.724	1526.298	1526.298	435.759	941.759	996.047	736.326	850	493.065	1131.279	135.46
12/22/2010	3358.312	1679.156	3256.724	3256.724	1526.3	1526.3	435.759	941.759	996.047	736.326	850	493.065	1131.279	135.46
12/23/2010	3358.312	1679.156	3256.724	3256.724	1526.3	1526.3	435.759	941.759	996.047	736.326	850	493.065	1131.279	135.46
12/24/2010	3358.312	N/A	N/A	N/A	N/A	1526.304	435.759	N/A	996.047	736.326	N/A	N/A	1131.279	N/A
12/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2010	3358.312	1679.156	3256.724	3256.724	1526.304	N/A	N/A	941.759	N/A	N/A	850	493.065	N/A	135.46
12/28/2010	3358.312	1679.156	3256.724	3256.724	1526.304	N/A	N/A	941.759	N/A	N/A	850	493.065	N/A	135.46
12/29/2010	3358.312	1679.156	3256.724	3256.724	1526.304	1526.304	435.759	941.759	996.047	736.326	850	493.065	1131.279	135.46
12/30/2010	3358.312	1679.156	3256.724	3256.724	1526.304	1526.304	435.759	941.759	996.047	736.326	850	493.065	1131.279	135.46
12/31/2010	3358.312	1679.156	3256.724	N/A	1526.304	1526.304	435.759	941.759	996.047	736.326	850	493.065	1131.279	135.46
1/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
1/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2011	3358.312	1679.156	3256.724	3256.724	1526.304	N/A	N/A	941.759	N/A	N/A	850	493.065	N/A	135.46
1/4/2011	3358.312	1679.156	3256.724	3256.724	1526.305	1526.305	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/5/2011	3358.312	1679.156	3256.724	3256.724	1526.305	1526.305	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/6/2011	3358.312	1679.156	3256.724	3256.724	1526.305	1526.305	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/7/2011	3358.312	1679.156	3256.724	3256.724	1526.305	1526.305	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2011	3358.312	1679.156	3256.724	3256.724	1526.305	1526.305	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/11/2011	3358.312	1679.156	3256.724	3256.724	1526.305	1526.305	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/12/2011	3358.312	1679.156	3256.724	3256.724	1526.305	1526.305	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/13/2011	3358.312	1679.156	3256.724	3256.724	1526.305	1526.305	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/14/2011	3358.312	1679.156	3256.724	3256.724	1526.305	1526.305	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2011	3358.312	N/A	N/A	3256.724	N/A	1526.305	435.759	N/A	998.023	797.914	N/A	N/A	1132.87	N/A
1/18/2011	3358.312	1679.156	3256.724	3256.724	1526.427	1526.427	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/19/2011	3358.312	1679.156	3256.724	3256.724	1526.427	1526.427	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/20/2011	3358.312	1679.156	3256.724	3256.724	1526.427	1526.427	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/21/2011	3358.312	1679.156	3256.724	3256.724	1526.427	1526.427	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2011	3358.312	1679.156	3256.724	3256.724	1526.427	1526.427	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/25/2011	3358.312	1679.156	3256.724	N/A	1526.427	1526.427	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/26/2011	N/A	1679.156	3256.724	3256.724	1526.428	1526.428	N/A	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/27/2011	3358.312	1679.156	3256.724	3256.724	1526.428	1526.428	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/28/2011	3358.312	1679.156	3256.724	3256.724	1526.46	1526.46	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
1/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2011	3358.312	1679.156	3256.724	3256.724	1526.46	1526.46	435.759	941.759	998.023	797.914	850	493.065	1132.87	135.46
2/1/2011	3358.312	1679.156	3256.724	3256.724	1526.46	1526.46	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/2/2011	3358.312	1679.156	3256.724	3256.724	1526.46	1526.46	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/3/2011	3358.312	1679.156	3256.724	3256.724	1526.46	1526.46	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/4/2011	3358.312	1679.156	3256.724	3256.724	1526.46	1526.462	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2011	3358.312	1679.156	3256.724	3256.724	1526.462	1526.462	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/8/2011	3358.312	1679.156	3256.724	3256.724	1526.462	1526.462	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/9/2011	3358.312	1679.156	3256.724	3256.724	1526.462	1526.462	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/10/2011	3358.312	1679.156	3256.724	3256.724	1526.506	1526.506	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/11/2011	3358.312	1679.156	3256.724	3256.724	1526.506	1526.506	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2011	3358.312	1679.156	3256.724	3256.724	1526.027	1526.027	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/15/2011	3358.312	1679.156	3256.724	3256.724	1526.027	1526.027	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/16/2011	3358.312	1679.156	3256.724	3256.724	1526.028	1526.028	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.46
2/17/2011	3358.312	1679.156	3256.724	3256.724	1525.48	1525.48	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.462
2/18/2011	3358.312	1679.156	3256.724	3256.724	1525.48	1525.48	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.462
2/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2011	3358.312	N/A	N/A	3256.724	N/A	1524.936	435.759	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/22/2011	3358.312	1679.156	3256.724	3256.724	1524.936	1524.936	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.462
2/23/2011	3358.312	1679.156	3256.724	3256.724	1524.688	1524.688	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.462
2/24/2011	3358.312	1679.156	3256.724	3256.724	1524.688	1524.688	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.462
2/25/2011	3358.312	1679.156	3256.724	3256.724	1523.978	1523.983	435.759	941.759	998.5	798.374	850	493.065	1133.293	135.462
2/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2011	3358.312	1679.156	3256.724	3256.724	1523.59	1523.59	435.759	941.759	998.5	798.374	850	486.565	1133.293	135.462
3/1/2011	3358.312	1679.156	3256.724	3256.724	1522.718	1522.718	435.759	941.759	998.55	798.377	850	486.565	1133.753	135.462
3/2/2011	3358.312	1679.156	3256.724	3256.724	1522.261	1522.261	435.759	941.759	998.55	798.377	850	486.565	1133.753	135.462
3/3/2011	3358.312	1679.156	3256.724	3256.724	1521.838	1521.838	435.759	941.759	998.55	798.377	850	486.565	1133.753	135.462

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
3/4/2011	3358.312	1679.156	3256.724	3256.724	1521.383	1521.838	435.759	941.759	998.55	798.377	850	486.565	1133.753	135.462
3/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2011	3358.312	1679.156	3256.724	N/A	1520.927	1521.383	435.759	941.759	998.55	798.377	850	486.565	1133.753	135.462
3/8/2011	3358.312	1679.156	3256.724	N/A	1520.487	1520.487	435.759	941.759	998.55	798.377	850	486.565	1133.753	135.462
3/9/2011	3358.312	1679.156	3256.724	3256.724	1520.487	1520.487	435.759	941.759	998.55	798.377	850	486.565	1133.753	135.462
3/10/2011	3358.312	1679.156	3256.724	3256.724	1519.594	1519.594	435.759	941.759	998.55	798.377	850	486.565	1133.753	135.462
3/11/2011	3358.312	1679.156	3256.724	3256.724	1519.155	1519.155	435.759	941.759	998.55	798.377	850	486.565	1133.753	135.462
3/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2011	3358.312	1679.156	3256.724	3256.724	1519.155	1519.155	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/15/2011	3358.312	1679.156	3256.724	3256.724	1518.354	1518.354	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/16/2011	3358.312	1679.156	3256.724	3256.724	1517.554	1517.554	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/17/2011	3358.312	1679.156	3256.724	3256.724	1517.554	1517.554	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/18/2011	3358.312	1679.156	3256.724	3256.724	1517.554	1517.554	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2011	3358.312	1679.156	3256.724	3256.724	1517.554	1517.554	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/22/2011	3358.312	1679.156	3256.724	3256.724	1517.025	1517.025	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/23/2011	3358.312	1679.156	3256.724	3256.724	1515.675	1515.675	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/24/2011	3358.312	1679.156	3256.724	3256.724	1515.475	1515.475	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/25/2011	3358.312	1679.156	3256.724	3256.724	1515.478	1515.478	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2011	3358.312	1679.156	3256.724	3256.724	1515.478	1515.478	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/29/2011	3358.312	1679.156	3256.724	3256.724	1514.659	1515.478	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/30/2011	3358.312	1679.156	3256.724	3256.724	1514.259	1514.259	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
3/31/2011	3358.312	1679.156	3256.724	3256.724	1514.259	1514.259	435.759	946.498	998.55	798.377	850	486.565	1133.753	135.462
4/1/2011	3358.312	1679.156	3256.724	3256.724	1513.759	1513.759	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.462
4/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2011	3358.312	1679.156	3256.724	3256.724	1513.509	1513.509	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/5/2011	3358.312	1679.156	3256.724	3256.724	1513.509	1513.509	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/6/2011	3358.312	1679.156	3256.724	3256.724	1513.509	1513.509	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/7/2011	3358.312	1679.156	3256.724	3256.724	1512.922	1512.922	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/8/2011	3358.312	1679.156	3256.724	3256.724	1512.922	1512.922	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2011	3358.312	1679.156	3256.724	3256.724	1512.922	1512.922	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/12/2011	3358.312	1679.156	3256.724	3256.724	1511.843	1511.843	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/13/2011	3358.312	1679.156	3256.724	3256.724	1511.635	1511.635	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/14/2011	3358.312	1679.156	3256.724	3256.724	1511.135	1511.635	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/15/2011	3358.312	1679.156	3256.724	3256.724	1511.135	1511.135	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2011	3358.312	1679.156	3256.724	3256.724	1511.135	1511.135	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/19/2011	3358.312	1679.156	3256.724	3256.724	1511.135	1511.135	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/20/2011	3358.312	1679.156	3256.724	3256.724	1511.135	1511.135	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/21/2011	3358.312	1679.156	3256.724	N/A	1511.135	1511.135	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2011	N/A	1679.156	3256.724	3256.724	1511.135	N/A	N/A	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/26/2011	N/A	1609.093	3256.724	3256.724	1510.885	1510.885	N/A	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/27/2011	3218.185	1609.093	3256.724	3256.724	1509.369	1509.369	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/28/2011	3218.185	1609.093	3256.724	3256.724	1509.39	1509.39	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.643
4/29/2011	3218.185	1609.093	3256.724	3256.724	1509.39	N/A	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.649
4/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2011	3218.185	1609.093	3256.724	3256.724	1509.39	N/A	435.759	946.498	998.85	798.427	850	486.565	1135.081	135.649
5/3/2011	3218.185	1609.093	3256.724	3256.724	1509.39	1509.39	435.759	946.498	999.167	798.789	850	486.565	1135.355	135.649

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
5/4/2011	3218.185	1609.093	3256.724	3256.724	1508.69	1508.69	435.759	946.498	999.167	798.789	850	486.565	1135.355	135.649
5/5/2011	3218.185	1609.093	3256.724	3256.724	1509.13	1509.13	435.759	946.498	999.167	798.789	850	486.565	1135.355	135.649
5/6/2011	3218.185	1609.093	3256.724	3256.724	1507.688	1507.688	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/7/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2011	3218.185	1609.093	3256.724	3256.724	1506.941	1506.941	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/10/2011	3218.185	1609.093	3256.724	3256.724	1506.941	1506.941	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/11/2011	3218.185	1609.093	3256.724	3256.724	1506.141	1506.141	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/12/2011	3218.185	1609.093	3256.724	3256.724	1506.141	1506.141	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/13/2011	3218.185	1609.093	3256.724	3256.724	1506.141	1505.341	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/14/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2011	3218.185	1609.093	3256.724	3256.724	1505.341	1505.341	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/17/2011	3218.185	1609.093	3256.724	3256.724	1504.841	1504.841	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/18/2011	3218.185	1609.093	3256.724	3256.724	1504.591	1504.591	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/19/2011	3218.185	1609.093	3256.724	3256.724	1504.591	1504.591	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/20/2011	3218.185	1609.093	3256.724	3256.724	1504.591	1504.591	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/21/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2011	3218.185	1609.093	3256.724	3256.724	1504.591	1504.591	435.759	947.315	N/A	N/A	850	486.565	N/A	135.649
5/24/2011	3218.185	1609.093	3256.724	3256.724	1504.591	1504.591	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/25/2011	3218.185	1609.093	3256.724	3256.724	1504.191	1504.191	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/26/2011	3218.185	1609.093	3256.724	3256.724	1504.191	1504.191	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/27/2011	3218.185	1609.093	3256.724	3256.724	1504.191	1500.671	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
5/28/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2011	3218.185	N/A	N/A	3256.724	N/A	N/A	435.759	N/A	999.167	798.789	N/A	N/A	1135.355	N/A
5/31/2011	3218.185	1609.093	3256.724	3256.725	1504.191	1500.671	435.759	947.315	999.167	798.789	850	486.565	1135.355	135.649
6/1/2011	3218.185	1609.093	3256.724	3256.725	1500.678	1500.678	435.759	947.315	999.429	798.964	850	486.565	1135.644	135.649
6/2/2011	3218.185	1609.093	3256.724	3256.725	1500.678	1500.678	435.759	947.315	999.429	798.964	850	486.565	1135.644	135.649
6/3/2011	3218.185	1609.093	3256.724	3256.725	1500.678	1500.678	435.759	947.315	999.429	798.964	850	486.565	1135.644	135.649
6/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2011	3218.185	1609.093	3256.724	3256.725	1500.278	1500.278	435.759	947.315	999.429	798.964	850	487.086	1135.644	135.649
6/7/2011	3218.185	1609.093	3256.724	3256.725	1500.278	1500.278	435.759	947.315	999.429	798.964	850	487.086	1135.644	135.649
6/8/2011	3218.185	1609.093	3256.724	3256.724	1499.378	1499.378	435.759	947.315	999.429	798.964	850	487.086	1135.644	135.649
6/9/2011	3218.185	1609.093	3256.724	3256.724	1499.378	1499.378	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/10/2011	3218.185	1609.093	3256.724	3256.724	1499.378	1499.378	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2011	N/A	1609.093	3256.724	3256.724	1499.378	1499.378	N/A	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/14/2011	3218.185	1609.093	3256.724	3256.724	1499.378	1499.378	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/15/2011	3218.185	1609.093	3256.724	3256.724	1498.978	1498.978	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/16/2011	3218.185	1609.093	3256.724	3256.724	1497.878	1497.878	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/17/2011	3218.185	1609.093	3256.724	3256.724	1497.878	1497.878	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2011	3218.185	1609.093	3256.724	3256.724	1497.878	1497.878	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/21/2011	3218.185	1609.093	3256.724	3256.724	1497.478	1497.478	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/22/2011	3218.185	1609.093	3256.724	3256.724	1497.178	1497.178	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/23/2011	3218.185	1609.093	3256.724	N/A	1497.178	1497.178	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/24/2011	3218.185	1609.093	3265.725	3256.725	1497.178	1497.178	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2011	3218.185	1609.093	3265.725	3256.725	1497.178	1497.178	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/28/2011	3218.185	1609.093	3265.725	3256.725	1492.439	1497.178	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/29/2011	3218.185	1609.093	3265.725	3256.724	1492.439	1492.439	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
6/30/2011	3218.185	1609.093	3265.725	3256.724	1492.439	1492.439	435.759	947.315	999.429	798.964	850	487.086	1135.644	146.006
7/1/2011	3218.185	1609.093	3265.725	3256.725	1491.798	1491.798	435.759	947.315	N/A	N/A	850	487.086	N/A	146.006
7/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
7/4/2011	3218.185	N/A	3265.725	3256.725	N/A	1491.798	435.759	N/A	999.429	798.964	850	N/A	1135.644	N/A
7/5/2011	3220.5	1610.25	3265.725	3256.725	1491.798	1491.194	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/6/2011	3220.5	1610.25	3265.725	3256.725	1490.582	1490.582	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/7/2011	3220.5	1610.25	3265.725	3256.725	1490.582	1490.581	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/8/2011	3220.5	1610.25	3265.725	3256.724	1490.581	1490.581	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2011	3220.5	1610.25	3265.725	3256.725	1489.588	1489.588	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/12/2011	3220.5	1610.25	3265.725	3256.725	1489.588	1489.588	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/13/2011	3220.5	1610.25	3265.725	3256.725	1489.588	1489.588	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/14/2011	3220.5	1610.25	3265.725	3256.725	1489.588	1489.588	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/15/2011	3220.5	1610.25	3265.725	3256.725	1489.588	1489.588	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2011	3220.5	1610.25	3265.725	3256.725	1489.588	1489.588	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/19/2011	3220.5	1610.25	3265.725	3256.725	1489.213	1489.213	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/20/2011	3220.5	1610.25	3265.725	3256.725	1488.863	1488.863	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/21/2011	3220.5	1610.25	3265.725	3256.725	1488.863	1488.863	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/22/2011	3220.5	1610.25	3265.725	3256.725	1488.533	1488.533	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2011	3220.5	1610.25	3265.725	3256.725	1488.533	1488.533	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/26/2011	3220.5	1610.25	3256.725	3256.725	1488.217	1488.217	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/27/2011	3220.5	1610.25	3256.725	3256.725	1488.217	1488.217	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.006
7/28/2011	3220.5	1610.25	3256.725	3256.725	1487.877	1487.877	435.759	947.315	999.437	799.497	850	487.086	1136.016	146.017
7/29/2011	3220.5	1610.25	3256.725	3256.725	1485.019	1485.019	435.759	947.315	999.437	799.497	850	487.575	1136.016	146.017
7/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/31/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2011	3220.5	1610.25	3256.725	3256.725	1484.284	1484.284	435.759	947.315	N/A	N/A	850	487.575	N/A	146.017
8/2/2011	3220.5	1610.25	3256.725	3256.725	1484.284	1484.284	435.759	947.315	999.438	807.607	850	487.575	1136.049	146.017
8/3/2011	3220.5	1610.25	3256.725	3256.725	1483.664	1483.664	435.759	947.315	999.438	807.607	850	487.575	1136.049	146.017
8/4/2011	3220.5	1610.25	3256.725	3256.725	1483.664	1483.664	435.759	947.315	999.438	807.607	850	487.575	1136.049	146.017
8/5/2011	3220.5	1610.25	3256.725	3256.725	1482.764	1482.764	435.759	947.315	999.438	807.607	850	487.575	1136.049	146.017
8/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/7/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2011	3220.5	1610.25	3256.725	3256.725	1481.764	1481.764	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/9/2011	3220.5	1610.25	3256.725	3256.725	1481.764	1481.764	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/10/2011	3220.5	1610.25	3256.725	3256.725	1481.064	1481.064	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/11/2011	3220.5	1610.25	3256.725	3256.725	1478.934	1478.934	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/12/2011	3220.5	1610.25	3256.725	3256.725	1478.934	1478.934	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/14/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2011	3220.5	1610.25	3256.725	3256.725	1478.934	1478.934	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/16/2011	3220.5	1610.25	3256.725	3256.725	1478.934	1478.934	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/17/2011	3220.5	1610.25	3256.725	3256.725	1478.934	1478.934	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/18/2011	3220.5	1610.25	3256.725	3256.725	1478.484	1478.484	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/19/2011	3220.5	1610.25	3256.725	3256.725	1478.484	1478.484	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/21/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2011	3220.5	1610.25	3256.725	3256.725	1475.26	1475.26	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/23/2011	3220.5	1610.25	3256.725	3256.725	1474.76	1474.76	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/24/2011	3224.289	1610.25	3256.725	3256.725	1474.76	1474.76	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/25/2011	3224.289	1610.25	3256.725	3256.725	1473.514	1473.514	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/26/2011	3224.289	1610.25	3256.725	3256.725	1473.514	1473.514	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/28/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2011	3224.289	1610.25	3256.725	3256.725	1473.514	N/A	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/30/2011	3224.289	1610.25	3256.725	3256.725	1473.514	1473.514	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
8/31/2011	3224.289	1610.25	3256.725	3256.725	1473.476	1473.476	435.759	947.88	999.438	807.607	845.432	487.575	1136.049	146.017
9/1/2011	3224.289	1610.25	3256.725	3256.725	1472.534	1472.534	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/2/2011	3224.289	1610.25	3256.725	3256.725	1471.834	1471.834	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
9/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2011	3224.289	N/A	N/A	3256.725	N/A	1471.134	435.759	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/6/2011	3224.289	1612.144	3256.725	3256.725	1470.334	1470.334	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/7/2011	3224.289	1612.144	3256.725	N/A	1470.334	1470.334	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/8/2011	3224.289	1612.144	3256.725	3256.725	1468.838	1468.838	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/9/2011	3224.289	1612.144	3256.725	3256.725	1468.838	1468.838	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2011	3224.289	1612.144	3256.725	3256.725	1468.838	1468.838	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/13/2011	3224.289	1612.144	3256.725	3256.725	1468.088	1468.088	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/14/2011	3224.289	1612.144	3256.725	3256.725	1467.588	1467.588	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/15/2011	3224.289	1612.144	3256.725	3256.725	1466.988	1466.988	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/16/2011	3224.289	1612.144	3256.725	3256.725	1466.488	1466.488	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2011	3224.289	1612.144	3256.725	3256.725	1465.304	1465.304	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/20/2011	3224.289	1612.144	3256.725	3256.725	1464.704	1464.704	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/21/2011	3224.289	1612.144	3256.725	3256.725	1464.154	1464.154	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/22/2011	3224.289	1612.144	3256.725	3256.725	1464.157	1464.157	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/23/2011	3224.289	1612.144	3256.725	3256.725	1464.157	1464.157	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2011	3224.289	1612.144	3256.725	3256.725	1463.557	1463.557	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/27/2011	3224.289	1612.144	3256.725	3256.725	1463.157	1463.157	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/28/2011	3224.289	1612.144	3256.725	3256.725	1462.707	1462.707	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/29/2011	3224.289	1612.144	3256.725	3256.725	1462.207	1462.207	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
9/30/2011	3224.289	1612.144	3256.725	3256.725	1461.707	1461.707	435.759	947.88	999.452	807.878	845.432	487.575	1136.48	146.017
10/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2011	3224.289	1612.144	3256.725	3256.725	1461.057	1461.057	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/4/2011	3224.289	1612.144	3256.725	3256.725	1460.407	1460.407	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/5/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/6/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/7/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	N/A	N/A	845.432	487.575	N/A	146.017
10/11/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/12/2011	3224.289	1612.144	3256.725	N/A	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/13/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/14/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/18/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/19/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/20/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/21/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/25/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/26/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	487.575	1136.48	146.017
10/27/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	488.214	1136.48	146.017
10/28/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	488.214	1136.48	146.017
10/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.546	808.944	845.432	488.214	1136.48	146.017
11/1/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.795	808.944	845.432	488.214	1137.355	143.012
11/2/2011	3224.289	1612.144	3256.725	N/A	1459.707	1459.707	435.759	947.88	999.795	808.944	845.432	488.214	1137.355	143.012

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
11/3/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.88	999.795	808.944	845.432	488.214	1137.355	143.012
11/4/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.911	999.795	808.944	845.432	488.214	1137.355	143.012
11/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.911	999.795	808.944	845.432	488.214	1137.355	143.012
11/8/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.911	999.795	808.944	845.432	488.214	1137.355	143.012
11/9/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/10/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/11/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2011	3224.289	1612.144	3256.725	3256.725	1459.707	1459.707	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/15/2011	3224.289	1612.144	3256.725	N/A	1449.102	1449.102	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/16/2011	3224.289	1612.144	3256.725	3256.725	1448.552	1448.552	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/17/2011	3224.289	1612.144	3256.725	3256.725	1448.002	1448.002	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/18/2011	3224.289	1612.144	3256.725	3256.725	1447.452	1447.452	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2011	3224.289	1612.144	3256.725	3256.725	1447.452	1447.452	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/22/2011	3224.289	1612.144	3256.725	3256.725	1447.002	1447.002	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/23/2011	3224.289	1612.144	3256.725	3256.725	1446.502	1446.502	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/24/2011	3224.289	N/A	N/A	3256.725	N/A	1446.502	435.759	N/A	999.795	808.944	N/A	N/A	1137.355	N/A
11/25/2011	3224.289	1612.144	3256.725	3256.725	1446.502	1446.502	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2011	3224.289	1612.144	3256.725	3256.725	1445.057	1444.606	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/29/2011	3224.289	1612.144	3256.725	3256.725	1444.606	1444.606	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
11/30/2011	3224.289	1612.144	3256.725	3256.725	1443.942	1443.942	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
12/1/2011	3224.289	1612.144	3256.725	3256.725	1443.943	1443.943	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
12/2/2011	3224.289	1612.144	3256.725	3256.725	1443.943	1443.943	435.759	947.911	999.795	808.944	840.98	488.214	1137.355	143.012
12/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2011	3224.289	1612.144	3256.725	3256.725	1443.543	1443.543	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/6/2011	3224.289	1612.144	3256.725	3256.725	1443.493	1443.493	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/7/2011	3224.289	1612.144	3256.725	3256.725	1442.993	1442.993	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/8/2011	3224.289	1612.144	3256.725	3256.725	1441.34	1441.34	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/9/2011	3224.289	1612.144	3256.725	3256.725	1441.34	1441.34	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2011	3224.289	1612.144	3256.725	3256.725	1441.34	1441.34	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/13/2011	3224.289	1612.144	3256.725	3256.725	1440.84	1440.84	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/14/2011	3224.289	1612.144	3256.725	3256.725	1440.34	1440.34	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/15/2011	3224.289	1612.144	3256.725	3256.725	1440.34	1440.34	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/16/2011	3224.289	1612.144	3256.725	3256.725	1438.342	1438.342	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2011	3224.289	1612.144	3256.725	3256.725	1438.342	1438.342	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/20/2011	3224.484	1612.242	3256.725	3256.725	1437.942	1437.942	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/21/2011	3224.484	1612.242	3256.725	3256.725	1437.542	1437.542	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/22/2011	3224.484	1612.242	3256.725	3256.725	1436.942	1436.942	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/23/2011	3224.484	1612.242	3256.725	3256.725	1436.942	1436.942	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2011	N/A	N/A	N/A	3256.725	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2011	N/A	1612.242	3256.725	3256.725	1436.942	N/A	N/A	947.911	N/A	N/A	840.98	488.214	N/A	143.012
12/28/2011	3224.484	1612.242	3256.725	3256.725	1436.942	1436.942	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/29/2011	3224.484	1612.242	3256.725	3256.725	1436.942	1436.942	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/30/2011	3224.484	1612.242	3256.725	N/A	1436.942	1436.942	435.759	947.911	1000.098	809.73	840.98	488.214	1137.423	143.012
12/31/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
1/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2440.196	N/A	N/A	N/A
1/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/4/2010	342.097	392.937	156.581	274.89	274.89	392.669	733.287	536.93	368.554	610.049	2440.196	112.123	57.065	57.065
1/5/2010	342.097	392.937	156.581	274.89	274.89	392.669	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/6/2010	342.097	392.937	156.581	274.89	274.89	392.669	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/7/2010	342.097	392.937	156.581	274.89	274.89	392.669	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/8/2010	342.097	392.937	156.581	274.89	274.89	392.669	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/11/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/12/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/13/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/14/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/15/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/18/2010	342.097	392.937	156.581	N/A	274.89	392.711	733.287	536.93	368.554	N/A	2440.196	112.123	69.986	N/A
1/19/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/20/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/21/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/22/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/25/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/26/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	N/A	112.123	69.986	69.986
1/27/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/28/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/29/2010	342.097	392.937	156.581	274.89	274.89	392.711	733.287	536.93	368.554	610.049	2440.196	112.123	69.986	69.986
1/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/1/2010	342.187	392.949	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/2/2010	342.187	392.949	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/3/2010	342.187	392.949	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/4/2010	342.187	392.949	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/5/2010	342.187	392.949	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/8/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/9/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/10/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/11/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/12/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/15/2010	N/A	N/A	N/A	N/A	274.89	N/A	N/A	N/A	N/A	N/A	2440.196	N/A	N/A	N/A
2/16/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/17/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/18/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/19/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/22/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/23/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/24/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/25/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/26/2010	342.187	402.225	156.596	274.89	274.89	392.839	733.411	537.136	368.887	610.049	2440.196	113.857	69.986	69.986
2/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/1/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/2/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
3/3/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/4/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/5/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/8/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/9/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/10/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/11/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/12/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/15/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/16/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/17/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/18/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/19/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/22/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/23/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/24/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/25/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/26/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/29/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/30/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
3/31/2010	342.284	402.396	156.698	274.89	274.89	392.846	733.481	537.972	368.929	610.049	2440.196	113.857	70.04	70.04
4/1/2010	342.308	402.396	156.705	274.89	N/A	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/5/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	N/A	113.857	70.04	70.04
4/6/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/7/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/8/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/9/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/12/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/13/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/14/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/15/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/16/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/19/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/20/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/21/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/22/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/23/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/26/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	N/A	113.857	70.04	70.04
4/27/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/28/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/29/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
4/30/2010	342.308	402.396	156.705	274.89	274.89	392.855	740.553	538.142	370.542	610.049	2440.196	113.857	70.04	70.04
5/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
5/3/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/4/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/5/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/6/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/7/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/8/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/10/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/11/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/12/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/13/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/14/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/15/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/17/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/18/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/19/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/20/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/21/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/22/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/24/2010	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	2440.196	N/A	N/A	70.04
5/25/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/26/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/27/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/28/2010	342.547	402.963	156.74	274.89	274.89	392.967	740.558	538.173	370.922	610.049	2440.196	114.018	70.04	70.04
5/29/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/31/2010	342.547	402.963	156.74	N/A	274.89	392.967	740.558	538.173	370.922	N/A	2440.196	114.018	70.04	N/A
6/1/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/2/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/3/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/4/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/7/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/8/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/9/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/10/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/11/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/14/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	N/A	114.022	70.04	70.04
6/15/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/16/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/17/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/18/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/21/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/22/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/23/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/24/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/25/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/28/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/29/2010	342.655	402.979	156.826	274.89	N/A	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
6/30/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04
7/1/2010	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	2440.196	N/A	N/A	70.04
7/2/2010	342.655	402.979	156.826	274.89	274.89	392.976	740.56	538.35	370.985	610.049	2440.196	114.022	70.04	70.04

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
7/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/5/2010	342.655	402.979	156.826	N/A	274.89	392.976	740.56	538.35	370.985	N/A	2440.196	114.022	70.04	N/A
7/6/2010	342.778	402.998	156.826	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/7/2010	342.778	402.998	156.826	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/8/2010	342.778	402.998	156.826	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/9/2010	342.778	402.998	156.826	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/12/2010	342.778	402.998	156.826	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/13/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/14/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/15/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/16/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/19/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/20/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/21/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/22/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/23/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/26/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/27/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/28/2010	342.778	402.998	167.037	274.89	N/A	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/29/2010	342.778	402.998	167.037	274.89	N/A	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/30/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
7/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/2/2010	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	2440.196	N/A	N/A	70.04
8/3/2010	342.778	402.998	167.037	274.89	274.89	392.981	740.767	540.212	371.47	610.049	2440.196	114.022	70.04	70.04
8/4/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/5/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/6/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/9/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/10/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/11/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/12/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/13/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/16/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/17/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/18/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/19/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/20/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/23/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/24/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/25/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/26/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/27/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/30/2010	343.88	402.998	167.258	274.89	N/A	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
8/31/2010	343.88	402.998	167.258	274.89	274.89	393.026	741.023	547.127	371.824	610.049	2440.196	114.104	70.04	70.04
9/1/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
9/2/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/3/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/6/2010	N/A	N/A	N/A	N/A	274.89	N/A	N/A	N/A	N/A	N/A	2440.196	N/A	N/A	N/A
9/7/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/8/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/9/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/10/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/13/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/14/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/15/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/16/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/17/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/20/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/21/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/22/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/23/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/24/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/27/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/28/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/29/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
9/30/2010	343.95	402.998	167.331	274.89	274.89	393.026	741.023	547.127	371.851	610.049	2440.196	114.104	70.04	70.04
10/1/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/4/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/5/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/6/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/7/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/8/2010	344.481	403.185	167.435	274.89	N/A	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/11/2010	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	2440.196	N/A	N/A	70.04
10/12/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/13/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/14/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/15/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/18/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/19/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/20/2010	344.481	403.185	167.435	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/21/2010	344.481	403.185	167.703	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/22/2010	344.481	403.185	167.703	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/25/2010	344.481	403.185	167.703	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/26/2010	344.481	403.185	167.703	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/27/2010	344.481	403.185	167.703	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/28/2010	344.481	403.185	167.703	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/29/2010	344.481	403.185	167.703	274.89	274.89	393.052	741.036	547.401	372.518	610.049	2440.196	114.434	70.04	70.04
10/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/1/2010	345.198	403.344	167.703	274.89	N/A	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
11/2/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/3/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/4/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/5/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/8/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/9/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/10/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/11/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/12/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/15/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/16/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/17/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/18/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/19/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/22/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/23/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/24/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/25/2010	345.198	403.344	167.703	N/A	274.89	393.459	741.11	547.673	372.743	N/A	2440.196	114.434	70.04	N/A
11/26/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/29/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
11/30/2010	345.198	403.344	167.703	274.89	274.89	393.459	741.11	547.673	372.743	610.049	2440.196	114.434	70.04	70.04
12/1/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/2/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/3/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/6/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/7/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/8/2010	346.363	403.344	167.873	274.89	N/A	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/9/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/10/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/13/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/14/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/15/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/16/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/17/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/20/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/21/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/22/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/23/2010	346.363	403.344	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/24/2010	346.363	403.344	167.873	N/A	274.89	393.494	741.126	547.706	372.777	N/A	2440.196	114.434	91.836	N/A
12/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2010	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	N/A	N/A	N/A	91.836
12/28/2010	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	N/A	N/A	N/A	91.836
12/29/2010	346.363	430.785	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/30/2010	346.363	430.785	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
12/31/2010	346.363	430.785	167.873	274.89	274.89	393.494	741.126	547.706	372.777	610.049	2440.196	114.434	91.836	91.836
1/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
1/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2011	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	N/A	N/A	N/A	91.836
1/4/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/5/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/6/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/7/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/11/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/12/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/13/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/14/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2011	347.942	430.785	168.391	N/A	274.89	393.709	741.263	548.027	372.809	N/A	2440.196	114.494	91.961	N/A
1/18/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/19/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/20/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/21/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/25/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/26/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	N/A	114.494	91.961	91.961
1/27/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/28/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
1/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2011	347.942	430.785	168.391	274.89	274.89	393.709	741.263	548.027	372.809	610.049	2440.196	114.494	91.961	91.961
2/1/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/2/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/3/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/4/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/8/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/9/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/10/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/11/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/15/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/16/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/17/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/18/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2011	N/A	N/A	N/A	N/A	274.89	N/A	N/A	N/A	N/A	N/A	2440.196	N/A	N/A	N/A
2/22/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/23/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.187	372.849	610.049	2440.196	114.494	91.961	91.961
2/24/2011	352.785	430.878	168.712	274.89	274.89	394.351	741.362	548.244	372.849	610.049	2440.196	114.494	91.961	91.961
2/25/2011	352.785	430.878	168.882	274.89	274.89	394.351	741.362	548.244	372.849	610.049	2440.196	114.494	91.961	91.961
2/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2011	352.785	430.878	168.882	274.89	274.89	394.351	741.362	548.244	372.849	610.049	2440.196	114.494	91.961	91.961
3/1/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/2/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/3/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
3/4/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/8/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/9/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/10/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/11/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/15/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/16/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/17/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	114.57	92.036	92.036
3/18/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
3/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
3/22/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
3/23/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
3/24/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
3/25/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
3/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
3/29/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
3/30/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
3/31/2011	352.803	430.895	168.882	274.89	274.89	394.388	741.514	548.244	374.568	610.049	2440.196	126.224	92.036	92.036
4/1/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/5/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/6/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/7/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/8/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/12/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/13/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/14/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/15/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/19/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/20/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/21/2011	352.812	430.895	168.903	274.89	N/A	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	N/A	126.224	92.036	92.036
4/26/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	N/A	126.224	92.036	92.036
4/27/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/28/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/29/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
4/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2011	352.812	430.895	168.903	274.89	274.89	394.54	741.942	548.372	374.644	610.049	2440.196	126.224	92.036	92.036
5/3/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
5/4/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/5/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/6/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/7/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/10/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/11/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/12/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/13/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/14/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/17/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/18/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/19/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/20/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/21/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2011	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	2440.196	N/A	N/A	92.162
5/24/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/25/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/26/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/27/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
5/28/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2011	353.229	430.895	168.946	N/A	274.89	394.7	744.859	548.499	374.735	N/A	2440.196	126.224	92.162	N/A
5/31/2011	353.229	430.895	168.946	274.89	274.89	394.7	744.859	548.499	374.735	610.049	2440.196	126.224	92.162	92.162
6/1/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/2/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/3/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/7/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/8/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/9/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/10/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	N/A	126.259	92.162	92.162
6/14/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/15/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/16/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/17/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/21/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/22/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/23/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/24/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/28/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/29/2011	353.244	430.895	169.027	274.89	N/A	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
6/30/2011	353.244	430.895	169.027	274.89	274.89	394.703	744.859	548.948	374.752	610.049	2440.196	126.259	92.162	92.162
7/1/2011	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	2440.196	N/A	N/A	92.162
7/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
7/4/2011	353.244	430.895	169.027	N/A	274.89	394.703	744.859	548.948	374.752	N/A	2440.196	126.259	92.162	N/A
7/5/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/6/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/7/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/8/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/12/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/13/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/14/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/15/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/19/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/20/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/21/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/22/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/26/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/27/2011	353.292	430.895	169.051	274.89	274.89	394.709	745.065	549.085	374.966	610.049	2440.196	126.259	92.162	92.162
7/28/2011	353.292	430.895	169.051	274.89	N/A	394.709	745.065	549.085	374.966	610.049	2440.196	126.756	92.162	92.162
7/29/2011	353.292	430.895	169.051	274.89	N/A	394.709	745.065	549.085	374.966	610.049	2440.196	126.756	92.162	92.162
7/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/31/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2011	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	2440.196	N/A	N/A	92.162
8/2/2011	353.296	431.524	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/3/2011	353.296	431.524	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/4/2011	353.296	431.524	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/5/2011	353.296	431.524	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/7/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2011	353.296	431.524	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/9/2011	353.296	431.524	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/10/2011	353.296	431.524	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/11/2011	353.296	431.524	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/12/2011	353.296	431.524	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/14/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/16/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/17/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/18/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/19/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/21/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/23/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/24/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/25/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/26/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/28/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/30/2011	353.296	476.301	169.132	274.89	N/A	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
8/31/2011	353.296	476.301	169.132	274.89	274.89	394.709	745.563	549.085	375.135	610.049	2440.196	126.756	92.162	92.162
9/1/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	126.756	92.162	92.162
9/2/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	126.756	92.162	92.162

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
9/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2011	N/A	N/A	N/A	N/A	274.89	N/A	N/A	N/A	N/A	N/A	2440.196	N/A	N/A	N/A
9/6/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	126.756	92.162	92.162
9/7/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	126.756	92.162	92.162
9/8/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	126.756	92.162	92.162
9/9/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/13/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/14/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/15/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/16/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/20/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/21/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/22/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/23/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.306	92.162	92.162
9/27/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.695	92.162	92.162
9/28/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.695	92.162	92.162
9/29/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	549.31	375.279	610.049	2440.196	127.695	92.162	92.162
9/30/2011	353.296	476.301	169.208	274.89	274.89	394.712	745.563	550.726	375.279	610.049	2440.196	127.695	92.162	92.162
10/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/4/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/5/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/6/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/7/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2011	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	2440.196	N/A	N/A	92.162
10/11/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/12/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/13/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/14/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/18/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/19/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/20/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/21/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/25/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/26/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/27/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/28/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
10/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2011	353.302	476.286	169.228	274.89	274.89	394.713	745.592	550.726	375.448	610.049	2440.196	127.695	92.162	92.162
11/1/2011	353.495	476.301	169.352	274.89	N/A	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/2/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162

Workpaper 1: Top 20 Metal Mining Companies by Market Capitalization: Outstanding Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT	EQY_SH_OUT
11/3/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/4/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/8/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/9/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/10/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/11/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/15/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/16/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/17/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/18/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/22/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/23/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/24/2011	353.495	476.301	169.352	N/A	274.89	394.715	745.656	551.512	375.747	N/A	2440.196	127.74	92.162	N/A
11/25/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/29/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
11/30/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
12/1/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	127.74	92.162	92.162
12/2/2011	353.495	476.301	169.352	274.89	274.89	394.715	745.656	551.512	375.747	610.049	2440.196	136.94	92.162	92.162
12/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/6/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/7/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/8/2011	353.495	476.301	170.681	274.89	N/A	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/9/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/13/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/14/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/15/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/16/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/20/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/21/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/22/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/23/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2011	N/A	N/A	N/A	N/A	274.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2011	N/A	N/A	N/A	274.89	274.89	N/A	N/A	N/A	N/A	610.049	N/A	N/A	N/A	92.162
12/28/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/29/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/30/2011	353.495	476.301	170.681	274.89	274.89	394.718	745.656	551.512	375.846	610.049	2440.196	138.324	92.162	92.162
12/31/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
1/1/2010	3243.449	N/A	N/A	N/A	N/A	N/A	435.583	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/2/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/4/2010	3059.458			1247		1403.865	435.583	850.912	981.924	727.779	171.116	479.649	695.032	129.332
1/5/2010	3059.458			1247		1403.865	435.583	850.912	981.924	727.779	171.116	479.649	695.032	129.332
1/6/2010	3059.458			1247		1403.946	435.583	850.912	981.924	727.779	171.116	479.649	695.032	129.332
1/7/2010	3059.458			1247		1403.964	435.583	850.92	981.924	727.779	171.116	479.649	695.032	129.332
1/8/2010	3059.458			1247		1403.968	435.58	850.92	981.924	727.779	171.116	479.649	695.032	129.331
1/9/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/11/2010	3059.458			1247		1403.968	435.58	850.92	981.924	727.779	171.116	479.649	695.032	129.331
1/12/2010	3059.458			1247		1403.976	435.58	850.92	981.924	727.779	171.116	479.649	695.032	129.331
1/13/2010	3059.458			1247		1403.987	435.58	850.92	981.924	727.779	171.116	479.649	695.032	129.331
1/14/2010	3059.458			1247		1403.987	435.58	850.92	981.924	727.779	171.116	479.649	695.032	129.331
1/15/2010	3059.458			1247		1404.073	435.58	850.92	981.924	727.804	171.116	479.649	695.032	129.331
1/16/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/18/2010	3059.458			1247		1404.073	435.58	N/A	981.924	727.804	N/A	N/A	695.032	N/A
1/19/2010	3059.458			1247		1404.086	435.58	850.92	981.924	727.804	171.116	479.641	695.032	129.331
1/20/2010	3059.458			1247		1404.086	435.58	850.92	981.924	727.804	171.116	479.641	695.032	129.331
1/21/2010	3059.458			1247		1404.086	435.58	850.92	981.924	727.804	171.116	479.641	695.032	129.331
1/22/2010	3059.458			1247		1404.099	435.58	850.92	981.924	727.804	171.116	479.641	695.032	129.331
1/23/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/25/2010	3059.458			N/A		1404.099	435.58	850.92	981.924	727.804	171.116	479.641	695.032	129.331
1/26/2010	N/A			1247		1404.106	N/A	850.92	981.924	727.787	171.116	479.636	695.032	129.331
1/27/2010	3059.458			1247		1404.106	435.58	850.92	981.924	727.787	171.116	479.636	695.032	129.331
1/28/2010	3059.458			1247		1404.128	435.58	850.92	981.924	727.787	171.116	479.636	695.032	129.331
1/29/2010	3059.458			1247		1404.131	435.58	850.92	981.924	727.787	171.116	479.636	695.032	137.226
1/30/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/1/2010	3059.458			1247		1404.136	435.58	850.92	982.178	728.011	171.116	479.636	695.168	137.226
2/2/2010	3059.458			1247		1404.136	435.58	850.92	982.178	728.011	171.116	479.636	695.168	137.226
2/3/2010	3243.449			1247		1404.136	435.58	850.92	982.178	728.011	171.116	479.636	695.168	137.226
2/4/2010	3243.449			1247		1404.136	435.58	850.92	982.178	728.011	171.116	479.636	695.168	137.226
2/5/2010	3243.449			1247		1404.146	435.58	851.571	982.178	728.011	171.116	479.636	695.168	137.226
2/6/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/8/2010	3243.449			1247		1404.146	435.58	851.429	982.178	728.011	171.116	479.636	695.168	137.226
2/9/2010	3243.449			1247		1404.146	435.58	851.571	982.178	728.011	171.116	479.636	695.168	137.226
2/10/2010	3243.449			1247		1404.146	435.58	851.571	982.178	728.011	171.116	479.636	695.168	137.226
2/11/2010	3243.449			1247		1404.183	435.58	851.571	982.178	728.011	171.116	479.636	695.168	137.226
2/12/2010	3243.402			1247		1404.189	435.579	851.571	982.177	728.011	171.116	479.636	695.132	137.226
2/13/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/15/2010	3243.402			N/A		1404.411	435.579	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/16/2010	3243.402			N/A		1404.411	435.579	851.571	982.177	728.011	171.116	479.636	695.132	137.226
2/17/2010	3243.395			1247		1404.474	435.579	851.571	982.177	728.011	171.116	479.636	695.132	137.226
2/18/2010	3243.395			1247		1404.531	435.579	851.47	982.177	728.011	171.116	479.632	695.132	133.58
2/19/2010	3243.395			1247		1404.531	435.579	851.47	982.177	728.011	171.116	479.632	695.132	133.58
2/20/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/22/2010	3252.106			1247		1404.589	435.579	851.461	982.177	728.011	171.116	479.632	695.132	133.58
2/23/2010	3252.106			1247		1404.589	435.579	851.461	982.177	728.011	171.116	479.632	695.132	133.58
2/24/2010	3252.106			1247		1404.623	435.579	851.461	982.177	728.011	171.116	479.632	695.132	133.58
2/25/2010	3252.106			1247		1404.671	435.579	851.461	982.177	728.011	171.116	479.632	695.132	133.58
2/26/2010	3252.106			1247		1404.721	435.579	851.461	982.177	728.011	171.116	479.632	695.132	133.58
2/27/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/1/2010	3252.106			1247		1404.736	435.579	851.461	982.205	728.217	171.116	479.632	695.28	133.58
3/2/2010	3252.106			1247		1404.777	435.579	852.836	982.205	728.217	171.116	479.632	695.28	133.58

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
3/3/2010	3252.106			1247		1404.821	435.579	852.836	982.205	728.217	171.116	482.27	695.28	133.58
3/4/2010	3252.106			1247		1404.963	435.579	852.836	982.205	728.217	171.116	482.27	695.28	133.58
3/5/2010	3252.106			1247		1404.989	435.576	852.836	982.205	728.217	171.116	482.27	695.28	133.58
3/6/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/8/2010	3252.106			1247		1405.01	435.574	852.836	982.205	728.217	171.116	482.132	695.28	133.58
3/9/2010	3252.106			1247		1405.027	435.574	852.836	982.205	728.217	171.116	482.132	695.28	133.506
3/10/2010	3252.254			1247		1405.027	435.574	852.836	982.205	728.217	171.116	482.132	695.28	133.506
3/11/2010	3252.254			1247		1405.288	435.573	852.837	982.205	728.217	171.116	482.132	695.28	133.442
3/12/2010	3252.254			1247		1405.311	435.573	852.837	982.205	728.217	171.116	482.132	695.28	133.442
3/13/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/15/2010	3252.254			1247		1405.353	435.571	852.837	982.205	728.207	171.116	482.132	695.258	133.399
3/16/2010	3252.254			1247		1405.387	435.571	852.837	982.205	728.207	171.116	482.127	695.258	133.399
3/17/2010	3252.254			1247		1405.387	435.571	852.837	982.205	728.207	171.118	482.127	695.258	133.399
3/18/2010	3252.254			1247		1405.454	435.571	852.837	982.205	728.207	171.118	482.127	695.258	133.408
3/19/2010	3252.254			1247		1405.454	435.571	852.837	982.205	728.207	171.118	482.127	695.258	133.408
3/20/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/22/2010	3252.254			1247		1405.473	435.571	852.837	982.205	728.207	171.118	482.127	695.258	133.408
3/23/2010	3252.254			1247		1405.493	435.571	852.837	982.205	728.207	171.118	482.087	695.258	133.408
3/24/2010	3252.254			1247		1405.493	435.582	852.837	982.185	728.207	171.118	482.087	695.258	133.403
3/25/2010	3252.254			1247		1405.58	435.577	852.837	982.185	728.207	171.118	482.087	695.258	133.413
3/26/2010	3252.254			1247		1405.599	435.577	852.837	982.185	728.207	171.118	482.087	695.269	133.625
3/27/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/29/2010	3252.254			1247		1405.599	435.577	852.837	982.185	728.207	171.118	482.087	695.269	133.625
3/30/2010	3252.254			1247		1405.615	435.577	852.837	982.185	728.207	171.118	482.087	695.269	133.625
3/31/2010	3252.245			1247		1405.647	435.564	852.837	982.185	728.207	171.118	482.087	695.269	133.625
4/1/2010	3252.245			1247		1405.65	435.564	852.837	982.249	728.279	171.118	482.087	695.708	133.625
4/2/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/5/2010	N/A			1247		N/A	N/A	852.837	982.249	728.279	171.118	482.087	695.708	133.625
4/6/2010	3252.229			1247		1405.65	435.564	852.837	982.249	728.279	171.118	482.087	695.708	133.625
4/7/2010	3252.229			1247		1405.691	435.564	852.837	982.249	728.284	171.118	482.087	695.708	133.625
4/8/2010	3252.229			1247		1405.701	435.564	852.837	982.249	728.284	171.118	482.087	695.708	133.625
4/9/2010	3252.229			1247		1405.701	435.564	852.834	982.249	728.284	171.118	482.087	695.708	133.625
4/10/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/12/2010	3252.229			1247		1405.701	435.564	852.834	982.249	728.284	171.118	482.087	695.708	133.625
4/13/2010	3252.229			1247		1405.701	435.564	852.834	982.249	728.284	171.118	482.087	695.708	133.625
4/14/2010	3252.229			1247		1405.759	435.564	852.834	982.249	728.258	171.118	482.087	695.708	133.625
4/15/2010	3252.229			1247		1405.763	435.564	852.834	982.249	728.258	171.118	482.087	695.708	133.625
4/16/2010	3252.229			1247		1405.763	435.564	852.834	982.249	728.284	171.118	482.087	695.708	133.625
4/17/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/19/2010	3252.229			1247		1405.769	435.564	852.834	982.249	728.284	171.118	482.087	695.708	133.625
4/20/2010	3252.229			1247		1405.769	435.564	852.834	982.185	728.284	171.118	482.087	695.708	133.625
4/21/2010	3252.229			N/A		1405.804	435.564	852.834	982.185	728.284	171.118	482.087	695.672	133.625
4/22/2010	3252.229			1247		1405.828	435.564	852.834	982.185	728.267	171.118	482.087	695.672	133.625
4/23/2010	3252.229			1247		1405.828	435.564	852.834	982.161	728.267	171.118	482.087	695.69	133.625
4/24/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/26/2010	N/A			1247		1405.828	N/A	852.834	982.161	728.267	171.118	482.087	695.579	133.625
4/27/2010	3252.229			1247		1405.832	435.564	852.834	982.161	728.267	171.118	482.087	695.549	133.625
4/28/2010	3252.229			1247		1405.832	435.564	852.81	982.157	728.267	171.118	482.515	695.549	133.625
4/29/2010	3252.229			1247		1405.832	435.564	852.81	982.157	728.267	171.118	482.515	695.543	133.63
4/30/2010	3252.229			1247		1405.832	435.564	852.81	982.157	728.267	171.118	482.515	695.543	133.63
5/1/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
5/3/2010	3252.229			1247		N/A	435.564	852.81	982.256	728.31	171.118	482.515	695.769	133.63
5/4/2010	3252.229			1247		1405.834	435.564	852.81	982.256	728.31	171.118	482.515	695.769	133.63
5/5/2010	3252.229			1247		1405.839	435.564	852.81	982.256	728.31	171.118	482.515	695.769	133.63
5/6/2010	3252.229			1247		1405.841	435.564	852.81	982.256	728.31	171.118	482.49	695.769	133.63
5/7/2010	3252.229			1247		1405.841	435.564	852.728	982.256	728.31	171.118	482.496	695.769	133.63
5/8/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/10/2010	3252.229			1247		1405.841	435.564	856.893	982.256	728.31	171.118	482.496	695.769	133.63
5/11/2010	3252.229			1247		1405.841	435.564	856.893	982.256	728.31	171.105	482.496	695.769	133.63
5/12/2010	3252.229			1247		1405.842	435.564	856.893	982.256	728.31	171.105	482.496	695.769	133.632
5/13/2010	3252.229			1247		1405.842	435.564	856.893	982.256	728.31	171.105	482.497	695.769	133.632
5/14/2010	3252.229			1247		1405.842	435.564	856.893	982.256	728.31	171.105	482.497	695.769	133.626
5/15/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/17/2010	3252.229			1247		1405.842	435.564	856.893	982.256	728.31	171.105	482.494	695.769	133.62
5/18/2010	3252.229			1247		1405.842	435.564	856.893	982.256	728.31	171.105	482.494	695.769	133.62
5/19/2010	3252.229			1247		1405.842	435.564	856.893	982.256	728.31	171.105	482.494	695.769	133.62
5/20/2010	3252.229			1247		1405.842	435.564	856.893	982.256	728.31	171.105	482.494	695.769	133.62
5/21/2010	3252.229			1247		1405.85	435.564	856.893	982.256	728.31	171.105	482.494	695.768	133.62
5/22/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/24/2010	3252.229			1247		1405.85	435.564	856.893	N/A	N/A	171.105	482.494	N/A	133.62
5/25/2010	3252.229			1247		1405.85	435.564	856.893	982.256	728.31	171.105	482.494	695.768	133.62
5/26/2010	3252.229			1247		1405.85	435.564	856.893	982.256	728.31	171.105	482.494	695.768	133.62
5/27/2010	3252.229			1247		1405.865	435.564	856.893	982.256	728.31	171.105	482.494	695.768	133.621
5/28/2010	3252.229			1247		1405.865	435.564	856.893	982.256	728.31	171.105	482.494	695.768	133.621
5/29/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/31/2010	3252.229			1247		N/A	435.564	N/A	982.256	728.31	N/A	N/A	695.768	N/A
6/1/2010	3252.229			1247		1405.875	435.564	856.893	982.311	728.351	171.105	482.494	700.442	133.621
6/2/2010	3252.229			1247		1405.875	435.564	856.893	982.311	728.351	171.105	482.494	700.442	133.621
6/3/2010	3252.229			N/A		1405.875	435.564	856.893	982.311	728.351	171.105	482.494	700.445	133.621
6/4/2010	3252.229			1247		1405.882	435.564	856.893	982.311	728.351	171.105	482.494	700.445	133.621
6/5/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/7/2010	3252.229			1247		1405.884	435.564	856.893	982.311	728.351	171.106	482.494	700.445	133.621
6/8/2010	3252.229			1247		1405.884	435.564	856.893	982.311	728.351	171.106	482.494	700.445	133.621
6/9/2010	3252.229			1247		1405.884	435.564	856.893	982.311	728.351	171.106	482.494	700.445	133.621
6/10/2010	3252.229			1247		1405.884	435.564	856.893	982.311	728.351	171.106	482.494	700.445	133.621
6/11/2010	3252.229			1247		1405.884	435.564	856.893	982.311	728.351	171.106	482.494	700.445	133.621
6/12/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/14/2010	N/A			1247		1405.884	N/A	856.839	982.311	728.351	171.106	482.494	700.455	133.621
6/15/2010	3252.229			1247		1405.903	435.564	856.87	982.311	728.351	171.106	482.494	700.455	133.621
6/16/2010	3252.229			1247		1405.903	435.563	856.87	982.311	728.351	171.106	482.494	700.455	133.621
6/17/2010	3252.229			1247		1405.903	435.563	856.87	982.311	728.351	171.106	482.494	700.448	133.621
6/18/2010	3252.229			1247		1405.909	435.563	856.87	982.311	728.351	171.106	482.494	700.448	133.621
6/19/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/21/2010	3252.229			1247		1405.909	435.563	856.87	982.311	728.349	171.106	482.494	700.448	133.621
6/22/2010	3252.229			1247		1405.909	435.563	856.87	982.311	728.35	171.106	482.494	700.448	133.621
6/23/2010	3252.229			1247		1405.914	435.563	856.87	982.336	728.343	171.106	482.494	700.448	133.621
6/24/2010	3252.229			1247		1405.914	435.563	856.87	982.236	728.284	171.106	482.494	700.448	133.621
6/25/2010	3252.229			1247		1405.914	435.563	856.87	982.236	728.21	171.106	482.494	700.448	133.621
6/26/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/28/2010	3252.229			1247		1405.914	435.563	856.87	982.236	728.205	171.106	482.495	700.448	133.621
6/29/2010	3252.229			1247		1405.914	435.563	856.87	982.236	728.205	171.106	482.495	700.448	133.621
6/30/2010	3252.229			1247		1405.914	435.563	856.87	982.236	728.205	171.106	482.495	700.448	133.621
7/1/2010	3252.229			1247		1405.925	435.563	856.87	N/A	N/A	171.106	482.495	N/A	133.621
7/2/2010	3252.229			1247		1405.925	435.563	856.87	982.236	728.216	171.106	482.495	700.435	133.621

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
7/3/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/4/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/5/2010	3252.229			1247		1405.927	435.562	N/A	982.236	728.216	N/A	N/A	700.435	N/A
7/6/2010	3252.229			1247		1405.927	435.562	856.87	982.922	729.574	171.106	482.495	701.548	133.621
7/7/2010	3252.229			1247		1405.927	435.562	856.862	982.922	729.574	171.106	482.495	701.548	133.621
7/8/2010	3252.229			1247		1405.927	435.562	856.862	982.972	729.574	171.106	482.495	701.548	133.621
7/9/2010	3252.229			N/A		1405.927	435.562	856.862	982.972	729.569	171.106	482.495	701.548	133.621
7/10/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/12/2010	3252.229			1247		1405.927	435.562	856.862	982.972	729.574	171.106	482.495	701.548	133.621
7/13/2010	3252.229			1247		1405.927	435.562	856.862	982.972	729.574	171.106	482.495	701.548	133.621
7/14/2010	3252.229			1247		1405.927	435.562	856.862	982.972	729.574	171.106	482.495	701.548	133.621
7/15/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.106	482.495	701.548	133.621
7/16/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.106	482.495	701.548	133.621
7/17/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/19/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.106	482.495	701.548	133.621
7/20/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.106	482.495	701.548	133.621
7/21/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.106	482.495	701.548	133.621
7/22/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.106	482.495	701.548	133.621
7/23/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.114	482.495	701.548	133.621
7/24/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/26/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.114	482.495	701.548	133.621
7/27/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.114	482.495	701.548	133.621
7/28/2010	3252.229			1247		1405.93	435.562	856.862	982.972	729.584	171.114	482.495	701.548	133.621
7/29/2010	3252.229			1247		1405.93	435.562	856.801	982.972	729.584	171.114	483.735	701.548	133.63
7/30/2010	3252.229			1247		1405.93	435.562	856.801	982.972	729.584	171.114	483.735	701.548	133.63
7/31/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/2/2010	3252.229			1247		1405.942	435.562	856.801	N/A	N/A	171.114	483.735	N/A	133.63
8/3/2010	3252.229			1247		1405.942	435.562	856.801	982.972	729.584	171.114	483.735	701.548	133.63
8/4/2010	3252.229			1247		1405.942	435.562	856.801	983.223	730.355	171.114	483.735	702.787	133.63
8/5/2010	3252.229			1247		1405.942	435.562	856.801	983.223	730.355	171.114	483.735	702.787	133.63
8/6/2010	3252.229			1247		1405.942	435.562	856.801	983.223	730.355	171.114	483.735	702.787	133.63
8/7/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/9/2010	3252.229			1247		1405.942	435.562	932.378	983.223	730.355	171.114	483.735	702.787	133.63
8/10/2010	3252.229			1247		1405.943	435.562	932.378	983.177	730.355	171.114	483.735	702.787	133.633
8/11/2010	3252.229			1247		1405.945	435.582	932.378	983.177	730.355	171.114	483.735	702.787	133.633
8/12/2010	3252.229			1247		1405.945	435.582	932.378	983.177	730.355	171.114	483.735	702.787	133.633
8/13/2010	3251.979			1247		1405.945	435.582	932.378	983.177	730.355	171.113	483.735	702.787	133.643
8/14/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/16/2010	3251.979			1247		1405.945	435.582	932.378	983.177	730.355	171.113	483.735	702.787	133.643
8/17/2010	3251.979			1247		1405.945	435.582	932.682	983.177	730.355	171.113	483.735	702.787	133.643
8/18/2010	3251.979			1247		1405.945	435.582	932.682	983.177	730.355	171.113	483.735	702.787	133.643
8/19/2010	3251.979			1247		1405.945	435.582	932.682	983.177	730.355	171.113	483.735	702.772	133.643
8/20/2010	3251.979			1247		1405.945	435.582	932.682	983.177	730.355	171.113	483.735	702.767	133.643
8/21/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/23/2010	3251.979			1247		1405.945	435.582	932.682	983.177	730.355	171.113	483.735	702.767	133.643
8/24/2010	3251.979			1247		1405.945	435.582	932.682	983.177	730.355	171.113	483.735	702.767	133.643
8/25/2010	3251.979			1247		1405.946	435.582	932.682	983.177	730.355	171.113	483.735	702.767	133.643
8/26/2010	3251.979			1247		1405.946	435.582	932.682	983.223	730.355	171.113	483.735	702.767	133.643
8/27/2010	3251.979			1247		1405.946	435.582	932.682	983.223	730.355	171.113	483.735	702.767	133.643
8/28/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/30/2010	3251.979			1247		N/A	435.582	932.682	983.223	730.355	171.113	483.735	702.767	133.643
8/31/2010	3251.979			1247		1405.946	456.217	932.682	983.394	730.355	171.113	483.735	702.767	133.643
9/1/2010	3251.979			1247		1405.946	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.643

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
9/2/2010	3251.979			1247		1405.946	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.643
9/3/2010	3251.979			1247		1405.948	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.643
9/4/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/6/2010	3251.979			1247		1405.954	456.217	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/7/2010	3251.979			N/A		1405.954	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.643
9/8/2010	3251.979			1247		1405.956	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.643
9/9/2010	3251.979			1247		1405.956	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.643
9/10/2010	3251.979			1247		1405.96	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.643
9/11/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/13/2010	3251.979			1247		1405.961	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.643
9/14/2010	3251.979			1247		1405.961	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.645
9/15/2010	3251.375			1247		1405.975	456.217	932.682	983.395	730.385	171.113	483.735	702.78	133.645
9/16/2010	3251.375			1247		1405.975	456.217	932.682	983.395	730.385	171.113	483.735	702.779	133.645
9/17/2010	3251.375			1247		1405.975	456.217	932.682	983.395	730.385	171.113	483.735	702.779	133.645
9/18/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/20/2010	3251.375			1247		1405.975	456.217	932.682	983.395	730.385	171.113	483.737	702.779	133.645
9/21/2010	3251.375			1247		1405.982	456.217	932.682	983.395	730.385	171.113	483.737	702.779	133.645
9/22/2010	3251.375			1247		1405.982	456.217	932.682	983.395	730.385	171.113	483.737	702.779	133.645
9/23/2010	3251.276			1247		1405.982	456.217	932.682	983.395	730.385	171.113	483.737	713.391	133.645
9/24/2010	3251.276			1247		1405.984	456.217	932.682	983.537	730.385	171.113	483.737	713.373	133.645
9/25/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/27/2010	3251.276			1247		1405.984	456.217	932.682	983.537	730.385	171.113	483.737	713.373	133.645
9/28/2010	3251.276			1247		1405.985	456.217	932.682	983.537	730.385	171.113	483.737	1138.374	133.645
9/29/2010	3251.276			1247		1405.995	456.217	932.682	983.537	730.385	171.113	483.737	1138.281	133.645
9/30/2010	3251.276			1247		1405.995	456.217	932.682	983.537	730.385	171.113	483.737	1138.28	133.645
10/1/2010	3251.276			1247		1405.995	456.217	932.682	983.537	730.514	171.113	483.737	1129.638	133.645
10/2/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/4/2010	3251.276			1247		1405.995	456.217	932.682	983.539	730.514	171.113	483.737	1129.638	133.645
10/5/2010	3251.276			1247		1405.995	456.217	932.682	983.539	730.514	171.113	483.737	1129.638	133.644
10/6/2010	3251.276			1247		1405.995	456.217	932.689	983.539	730.514	171.114	483.737	1129.638	133.644
10/7/2010	3356.559			1247		1405.995	456.217	932.689	983.539	730.514	171.114	483.737	1129.638	133.644
10/8/2010	3356.69			1247		1406.019	456.217	932.689	983.539	730.514	171.114	483.737	1129.638	133.644
10/9/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/11/2010	3356.69			1247		1406.019	456.217	932.689	N/A	N/A	171.114	483.737	N/A	133.644
10/12/2010	3356.69			N/A		1406.019	456.217	932.689	983.539	730.514	171.114	483.737	1129.638	133.644
10/13/2010	3356.69			1247		1406.019	456.217	932.689	983.539	730.514	171.114	483.737	1129.638	133.638
10/14/2010	3356.69			1247		1406.019	456.217	932.689	983.539	730.514	171.114	483.737	1129.638	133.638
10/15/2010	3356.69			1247		1406.03	456.217	932.689	983.539	730.514	171.113	483.737	1129.638	133.638
10/16/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/18/2010	3356.69			1247		1406.031	456.217	932.689	983.539	730.514	171.113	483.737	1129.638	133.638
10/19/2010	3356.69			1247		1406.031	456.217	932.689	983.539	730.514	171.113	483.737	1129.748	133.638
10/20/2010	3356.69			1247		1406.052	456.217	932.689	983.539	730.514	171.113	483.737	1129.748	133.638
10/21/2010	3356.69			1247		1406.062	456.217	932.689	983.539	730.514	171.113	483.737	1129.748	133.638
10/22/2010	3356.69			1247		1406.092	456.217	932.689	983.539	730.514	171.113	483.737	1129.834	133.638
10/23/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/25/2010	3356.69			1247		1406.092	456.217	932.689	983.539	730.514	171.113	483.737	1129.834	133.638
10/26/2010	3356.69			1247		1406.095	456.217	932.689	983.539	730.514	171.113	483.737	1129.834	133.638
10/27/2010	3356.69			1247		1406.104	456.217	932.689	983.539	730.514	171.113	483.737	1129.834	133.638
10/28/2010	3356.69			1247		1406.104	456.217	932.689	983.539	730.514	171.113	483.737	1129.834	133.638
10/29/2010	3356.69			1247		1406.104	285.15	932.634	983.539	730.514	171.113	483.737	1129.834	133.656
10/30/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/1/2010	3356.69			1247		1406.112	285.15	932.634	984.106	730.609	171.113	483.737	1129.834	133.656

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
11/2/2010	3356.69			N/A		1406.112	285.15	932.634	984.106	730.609	171.113	483.737	1129.834	133.656
11/3/2010	3356.69			1247		1406.118	285.15	932.634	984.106	730.609	171.113	485.237	1129.834	133.649
11/4/2010	3356.69			1247		1406.118	285.15	933.016	984.106	730.609	171.113	485.238	1129.834	133.679
11/5/2010	3356.69			1247		1406.122	285.15	933.016	984.106	730.609	171.113	485.238	1129.834	133.686
11/6/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/8/2010	3356.69			1247		1406.126	285.15	933.902	984.106	730.609	171.113	485.238	1129.834	133.687
11/9/2010	3356.69			1247		1406.126	285.15	933.9	984.106	730.609	171.113	485.238	1129.834	133.69
11/10/2010	3356.69			1247		1406.179	285.155	933.9	984.106	730.609	171.113	485.238	1129.834	133.691
11/11/2010	3356.69			1247		1406.179	285.155	933.9	984.106	730.609	171.113	485.238	1129.405	133.691
11/12/2010	3356.69			1247		1406.18	285.155	933.9	984.106	730.611	171.113	485.238	1129.405	133.691
11/13/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/15/2010	3356.69			N/A		1406.193	285.155	933.899	984.106	730.611	171.113	485.238	1129.405	133.704
11/16/2010	3356.69			1247		1406.193	285.155	933.643	984.106	730.611	171.113	485.238	1129.405	133.704
11/17/2010	3356.69			1247		1406.193	285.155	933.643	984.106	730.611	171.113	485.238	1129.405	133.704
11/18/2010	3356.69			1247		1406.193	285.155	933.643	984.606	730.619	171.113	485.238	1129.405	133.704
11/19/2010	3356.69			1247		1406.193	285.155	933.643	984.606	730.619	171.113	485.238	1129.405	133.704
11/20/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/22/2010	3356.69			1247		1406.193	285.155	933.643	984.606	730.619	171.113	485.238	1129.405	133.704
11/23/2010	3356.69			1247		1406.193	285.155	933.643	984.606	730.619	171.113	485.238	1129.405	133.704
11/24/2010	3356.69			1247		1406.193	285.155	933.643	984.606	730.619	171.113	485.238	1129.405	133.704
11/25/2010	3356.688			1247		1406.193	285.155	N/A	984.606	730.619	N/A	N/A	1129.405	N/A
11/26/2010	3356.688			1247		1406.193	285.155	933.643	984.606	730.619	171.113	485.238	1129.405	133.704
11/27/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/29/2010	3356.688			1247		1406.193	285.155	933.643	984.606	730.619	171.113	485.238	1129.405	133.704
11/30/2010	3356.688			1247		1406.193	285.155	933.643	984.606	730.619	171.113	485.238	1129.405	133.704
12/1/2010	3356.688			1247		1406.214	285.155	933.643	994.408	730.645	171.113	485.238	1127.523	133.704
12/2/2010	3356.688			1247		1406.214	285.155	933.643	994.408	730.645	171.113	485.238	1127.515	133.704
12/3/2010	3356.688			1247		1406.214	285.155	933.643	994.408	730.645	171.113	485.238	1127.515	133.704
12/4/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/6/2010	3356.688			1247		1406.215	285.155	933.643	994.408	730.645	171.113	485.238	1127.515	133.704
12/7/2010	3356.688			1247		1406.215	285.155	933.643	994.408	730.645	171.113	485.238	1127.515	133.704
12/8/2010	3356.688			1247		1406.269	285.153	933.643	994.408	730.645	171.113	485.239	1127.515	133.71
12/9/2010	3356.636			1247		1406.269	285.153	933.643	994.408	730.645	171.113	485.239	1127.515	133.718
12/10/2010	3356.636			1247		1406.269	285.153	933.643	994.408	730.645	171.113	485.239	1127.515	133.718
12/11/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/13/2010	3356.636			1247		1406.269	285.153	933.643	994.408	730.645	171.113	485.239	1127.515	133.718
12/14/2010	3356.636			1247		1406.269	285.153	932.879	994.408	730.645	171.113	485.239	1127.511	133.719
12/15/2010	3356.636			1247		1406.278	285.153	932.879	994.408	730.645	171.113	485.239	1127.506	133.719
12/16/2010	3356.636			1247		1406.278	285.153	932.879	994.408	730.645	171.113	485.239	1127.506	133.719
12/17/2010	3356.636			1247		1406.278	285.153	932.879	994.408	730.645	171.113	485.239	1127.506	133.719
12/18/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/20/2010	3356.636			1247		1406.28	285.149	932.879	994.408	730.645	171.113	485.239	1127.506	133.719
12/21/2010	3356.636			1247		1406.28	285.149	932.879	994.408	730.645	171.113	492.106	1127.506	133.719
12/22/2010	3356.636			1247		1406.282	285.149	932.879	994.408	730.645	171.113	492.107	1127.506	133.719
12/23/2010	3356.636			1247		1406.282	285.149	932.879	994.408	730.645	171.113	492.107	1127.506	133.719
12/24/2010	3356.636			N/A		1406.286	285.149	N/A	994.408	730.645	N/A	N/A	1127.506	N/A
12/25/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2010	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2010	N/A			1247		N/A	N/A	932.879	N/A	N/A	171.214	492.107	N/A	133.719
12/28/2010	N/A			1247		N/A	N/A	932.879	N/A	N/A	171.214	492.107	N/A	133.719
12/29/2010	3356.636			1247		1406.286	285.149	932.879	994.408	730.645	171.265	492.107	1127.506	133.719
12/30/2010	3356.636			1247		1406.286	285.149	932.879	994.408	730.645	171.366	492.107	1127.506	133.719
12/31/2010	3356.636			N/A		1406.286	285.149	932.879	994.408	730.645	171.366	492.107	1127.506	133.719
1/1/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
1/2/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2011	N/A			1247		N/A	N/A	932.879	N/A	N/A	171.441	492.107	N/A	133.719
1/4/2011	3356.636			1247		1406.287	285.149	932.879	996.383	792.233	171.517	492.107	1129.098	133.719
1/5/2011	3356.635			1247		1406.287	285.149	932.183	996.383	792.233	171.517	492.107	1129.098	133.719
1/6/2011	3356.635			1247		1406.287	285.148	932.183	996.383	792.233	171.517	492.107	1129.098	133.719
1/7/2011	3356.635			1247		1406.287	285.148	932.183	996.383	792.233	171.517	492.107	1129.098	133.712
1/8/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/9/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2011	3356.635			1247		1406.287	285.148	932.183	996.383	792.233	171.517	492.107	1129.098	133.712
1/11/2011	3356.635			1247		1406.287	285.148	932.183	996.383	792.233	171.517	492.107	1129.098	133.712
1/12/2011	3356.635			1247		1406.287	285.148	932.183	996.383	792.233	171.517	492.107	1129.098	133.711
1/13/2011	3356.635			1247		1406.287	285.148	932.183	996.383	792.233	171.517	492.107	1129.098	133.711
1/14/2011	3356.635			1247		1406.287	285.148	932.183	996.383	792.233	171.517	492.107	1129.098	133.711
1/15/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/16/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2011	3356.635			1247		1406.287	285.148	N/A	996.383	792.233	N/A	N/A	1129.098	N/A
1/18/2011	3356.635			1247		1406.409	285.148	932.183	996.383	792.233	171.517	492.107	1129.098	133.711
1/19/2011	3356.635			1247		1406.409	285.148	932.183	996.383	792.233	171.517	492.107	1129.098	133.711
1/20/2011	3356.635			1247		1406.409	285.146	932.183	996.383	792.233	171.517	492.107	1129.098	133.711
1/21/2011	3356.635			1247		1406.409	285.146	932.183	996.383	792.233	171.517	492.107	1129.098	133.781
1/22/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/23/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2011	3356.635			1247		1406.409	285.146	932.183	996.383	792.233	171.517	492.107	1129.098	133.781
1/25/2011	3356.635			N/A		1406.409	285.146	932.183	996.383	792.233	171.517	492.107	1129.098	133.782
1/26/2011	N/A			1247		1406.41	N/A	932.183	996.383	792.233	171.517	492.107	1129.098	133.782
1/27/2011	3356.635			1247		1406.41	285.146	932.236	996.383	792.233	171.517	492.107	1129.098	133.782
1/28/2011	3356.635			1247		1406.442	285.146	932.236	996.383	792.233	171.517	492.107	1129.098	133.782
1/29/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/30/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2011	3356.635			1247		1406.442	285.146	932.369	996.383	792.233	171.517	492.107	1129.098	133.782
2/1/2011	3356.635			1247		1406.442	285.146	932.355	996.86	792.693	171.517	492.107	1129.52	133.782
2/2/2011	3356.635			1247		1406.442	285.146	932.355	996.86	792.693	171.517	492.107	1129.52	133.782
2/3/2011	3356.635			1247		1406.442	285.146	932.355	996.86	792.693	171.517	492.107	1129.52	133.782
2/4/2011	3356.635			1247		1406.444	285.146	932.355	996.86	792.693	171.517	492.107	1129.52	133.782
2/5/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/6/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2011	3356.635			1247		1406.444	285.146	932.596	996.86	792.693	171.517	492.107	1129.52	133.782
2/8/2011	3356.635			1247		1406.444	285.146	932.596	996.86	792.693	171.517	492.107	1129.52	134.139
2/9/2011	3356.635			1247		1406.444	285.146	933.36	996.86	792.693	171.517	492.107	1129.52	134.139
2/10/2011	3356.635			1247		1406.488	285.146	933.36	996.86	792.693	171.517	492.107	1129.52	134.139
2/11/2011	3356.635			1247		1406.488	285.146	933.36	996.86	792.693	171.517	492.107	1129.52	134.139
2/12/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/13/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2011	3356.635			1247		1406.009	285.146	933.36	996.86	792.695	171.517	492.107	1129.52	134.139
2/15/2011	3356.635			1247		1406.009	285.146	933.36	996.86	792.695	171.517	492.107	1129.52	134.139
2/16/2011	3356.635			1247		1405.659	285.146	933.36	996.86	792.695	171.517	492.107	1129.52	134.139
2/17/2011	3356.635			1247		1405.111	285.143	933.346	996.86	792.695	171.517	492.107	1129.52	134.142
2/18/2011	3356.635			1247		1405.111	285.143	933.346	996.86	792.695	171.517	492.107	1129.52	134.142
2/19/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/20/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2011	3356.635			1247		1404.567	264.508	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/22/2011	3356.635			1247		1404.567	264.502	933.346	996.86	792.695	171.517	492.107	1129.52	134.142
2/23/2011	3356.635			1247		1404.365	264.502	933.346	996.86	792.695	171.517	492.107	1129.52	134.142
2/24/2011	3356.635			1247		1404.365	264.502	933.346	996.86	792.695	171.517	492.107	1129.52	134.142
2/25/2011	3356.635			1247		1403.661	264.502	933.346	996.86	792.695	171.517	492.107	1129.52	134.142
2/26/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/27/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2011	3356.632			1247		1403.268	264.502	933.346	996.86	792.695	171.517	485.606	1129.52	134.142
3/1/2011	3356.727			1247		1402.396	264.502	933.346	996.91	792.698	171.517	485.606	1129.98	134.142
3/2/2011	3356.727			1247		1401.939	264.502	933.346	996.91	792.698	171.517	485.597	1129.98	134.142
3/3/2011	3356.727			1247		1401.516	264.502	933.346	996.91	792.698	171.517	485.591	1129.98	134.041

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
3/4/2011	3356.727			1247		1401.516	264.502	933.346	996.91	792.698	171.517	485.586	1129.98	134.035
3/5/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/6/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2011	3356.727			N/A		1401.061	264.502	933.346	996.91	792.698	171.517	485.555	1129.98	134.035
3/8/2011	3356.727			N/A		1400.165	264.502	933.346	996.91	792.698	171.517	485.555	1129.98	134.035
3/9/2011	3356.727			1247		1400.165	264.502	933.346	996.91	792.698	171.517	485.555	1129.98	134.034
3/10/2011	3356.727			1247		1399.272	264.502	933.346	996.91	792.698	171.517	485.555	1129.98	134.034
3/11/2011	3356.727			1247		1398.834	264.502	933.346	996.91	792.698	171.517	485.555	1129.98	134.034
3/12/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/13/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2011	3356.727			1247		1398.834	264.502	938.085	996.91	792.698	171.517	485.555	1129.98	134.034
3/15/2011	3356.727			1247		1398.033	264.502	938.061	996.91	792.698	171.517	485.555	1129.98	134.034
3/16/2011	3356.727			1247		1397.233	264.502	938.061	996.91	792.698	171.517	485.545	1129.98	134.044
3/17/2011	3356.727			1247		1397.233	264.502	938.061	996.91	792.698	171.517	485.545	1129.98	134.044
3/18/2011	3356.727			1247		1397.233	264.502	938.061	996.91	792.698	171.517	485.545	1129.98	134.044
3/19/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/20/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2011	3356.727			1247		1397.233	264.502	938.061	996.91	792.698	171.517	485.541	1129.98	134.044
3/22/2011	3356.727			1247		1396.357	264.502	938.061	996.91	792.706	171.517	485.542	1129.98	134.009
3/23/2011	3356.727			1247		1395.007	264.502	938.061	996.91	792.706	171.517	485.542	1129.98	134.009
3/24/2011	3356.727			1247		1394.807	264.502	938.061	996.91	792.706	171.517	485.542	1129.98	134.009
3/25/2011	3356.726			1247		1394.81	264.502	938.061	996.91	793.216	171.517	485.542	1129.98	134.009
3/26/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/27/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2011	3356.726			1247		1394.81	264.502	938.061	996.91	793.216	171.517	485.542	1129.98	134.009
3/29/2011	3356.726			1247		1394.81	264.502	938.061	996.91	793.216	171.517	485.542	1129.982	134.009
3/30/2011	3356.726			1247		1393.591	264.502	938.061	996.91	793.216	171.517	485.542	1129.982	134.009
3/31/2011	3356.726			1247		1393.591	264.502	938.061	996.91	793.216	171.517	485.542	1129.982	134.009
4/1/2011	3356.726			1247		1393.091	264.502	938.061	997.21	793.265	171.517	485.542	1131.309	134.009
4/2/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2011	3356.725			1247		1392.842	264.502	938.061	997.21	793.265	171.517	485.542	1131.309	134.19
4/5/2011	3356.725			1247		1392.842	264.502	938.061	997.21	793.265	171.517	485.542	1131.309	134.19
4/6/2011	3356.725			1247		1392.842	264.502	938.059	997.21	793.265	171.517	485.542	1131.309	134.19
4/7/2011	3356.725			1247		1392.254	264.502	938.059	997.21	793.265	171.517	485.542	1131.304	134.19
4/8/2011	3356.725			1247		1392.254	264.502	938.059	997.21	793.265	171.517	485.542	1131.304	134.19
4/9/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/10/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2011	3356.725			1247		1392.254	264.502	938.059	997.23	793.265	171.517	485.538	1131.284	134.19
4/12/2011	3356.725			1247.326		1391.175	264.502	938.059	997.286	793.265	171.517	485.538	1131.284	134.19
4/13/2011	3356.725			1247.326		1390.969	264.502	938.059	997.286	793.268	171.517	485.538	1131.284	134.19
4/14/2011	3356.725			1247.326		1390.969	264.502	938.059	997.238	793.268	171.517	485.538	1131.284	134.19
4/15/2011	3356.725			1247.326		1390.469	264.509	938.059	997.238	793.184	171.517	485.538	1111.339	134.19
4/16/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/17/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2011	3356.725			1247.326		1390.467	264.485	938.059	997.238	793.184	171.517	485.538	1131.339	134.19
4/19/2011	3356.725			1247.326		1390.467	264.485	938.059	997.238	793.184	171.517	485.538	1131.339	134.19
4/20/2011	3356.725			1247.326		1390.467	264.485	938.059	997.238	793.18	171.517	485.538	1131.339	134.19
4/21/2011	3356.725			N/A		1390.467	264.485	938.059	997.238	793.177	171.517	485.538	1131.339	134.19
4/22/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/23/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/24/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2011	N/A			1247.326		N/A	N/A	938.059	997.238	793.172	171.517	485.538	1131.339	134.19
4/26/2011	N/A			1247.326		1390.217	N/A	938.059	997.238	793.169	171.517	485.538	1131.339	134.19
4/27/2011	3216.598			1247.326		1388.701	264.485	938.059	997.238	793.169	171.517	485.538	1131.339	134.19
4/28/2011	3216.598			1247.326		1388.721	264.485	938.059	997.237	793.168	171.517	485.538	1131.339	134.19
4/29/2011	3216.598			1247.326		N/A	264.485	938.059	997.237	793.168	171.517	485.538	1131.339	134.195
4/30/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/1/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2011	3216.598			1247.326		N/A	264.485	938.059	997.237	793.168	171.517	485.538	1131.339	134.195
5/3/2011	3216.598			1247.326		1388.721	264.485	938.059	997.554	793.53	171.502	485.538	1131.613	134.195

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Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
5/4/2011	3216.598			1247.326		1388.021	264.483	938.059	997.554	793.53	171.502	485.538	1131.613	134.195
5/5/2011	3216.598			1247.326		1388.461	264.483	938.059	997.554	793.53	171.502	485.538	1131.613	134.195
5/6/2011	3216.598			1247.326		1387.019	264.483	938.876	997.554	793.53	171.502	485.538	1131.613	134.195
5/7/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/8/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2011	3216.598			1247.326		1386.272	264.483	938.876	997.554	793.53	171.502	485.52	1131.613	134.195
5/10/2011	3216.598			1247.326		1386.272	264.483	938.876	997.554	793.53	171.502	485.52	1131.613	134.195
5/11/2011	3216.598			1247.326		1385.472	264.483	938.875	997.554	793.53	171.502	485.517	1131.613	134.195
5/12/2011	3216.598			1247.326		1385.472	264.483	938.875	997.554	793.53	171.502	485.514	1131.612	134.195
5/13/2011	3216.598			1247.326		1384.672	264.483	938.9	997.554	793.53	171.502	485.514	1131.611	134.195
5/14/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/15/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2011	3216.598			1247.326		1384.672	264.483	938.888	997.554	793.53	171.502	485.514	1131.61	134.195
5/17/2011	3216.598			1247.326		1384.172	264.483	938.888	997.324	793.53	171.502	485.514	1131.605	134.195
5/18/2011	3216.598			1247.326		1383.922	264.483	938.888	997.288	793.53	171.502	485.514	1131.605	134.195
5/19/2011	3216.598			1247.326		1383.922	264.483	938.888	997.288	793.53	171.502	485.514	1131.605	134.195
5/20/2011	3216.598			1247.326		1383.922	264.483	938.888	997.288	793.53	171.502	485.514	1131.605	134.195
5/21/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/22/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2011	3216.598			1247.326		1383.922	264.483	938.888	N/A	N/A	171.502	485.514	N/A	134.195
5/24/2011	3216.598			1247.326		1383.922	264.483	938.888	997.288	793.53	171.502	485.514	1131.605	134.195
5/25/2011	3216.598			1247.326		1383.522	264.483	938.888	997.288	793.53	171.502	485.514	1131.605	134.195
5/26/2011	3216.598			1247.326		1383.522	264.483	938.888	997.288	793.53	171.502	485.514	1131.605	134.196
5/27/2011	3216.598			1247.326		1380.002	264.483	938.888	997.288	793.53	171.502	485.514	1131.605	134.196
5/28/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/29/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2011	3216.598			1247.326		N/A	264.483	N/A	997.288	793.53	N/A	N/A	1131.605	N/A
5/31/2011	3216.598			1247.326		1380.002	264.483	938.888	997.288	793.53	171.502	485.514	1131.605	134.196
6/1/2011	3216.598			1247.326		1380.01	264.483	938.888	997.55	793.706	171.502	485.514	1131.895	134.196
6/2/2011	3216.598			1247.326		1380.01	264.483	938.888	997.55	793.706	171.502	485.514	1131.895	134.188
6/3/2011	3216.598			1247.326		1380.01	264.483	938.84	997.55	793.706	171.502	485.514	1131.895	134.188
6/4/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/5/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2011	3216.598			1247.326		1379.61	264.483	938.84	997.55	793.706	171.502	486.035	1131.895	134.188
6/7/2011	3216.598			1247.326		1379.61	264.483	938.84	997.55	793.706	171.502	486.035	1131.895	134.188
6/8/2011	3216.598			1247.326		1378.71	264.483	938.84	997.55	793.706	171.502	486.035	1131.895	134.188
6/9/2011	3216.598			1247.326		1378.71	264.483	938.84	997.55	793.706	171.502	486.035	1131.895	144.545
6/10/2011	3216.598			1247.326		1378.71	264.483	938.84	997.55	793.706	171.502	486.035	1131.895	144.545
6/11/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/12/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2011	N/A			1247.326		1378.71	N/A	938.84	997.55	793.706	171.502	486.035	1131.895	144.545
6/14/2011	3216.598			1247.326		1378.715	264.483	938.84	997.55	793.706	171.502	486.035	1131.895	144.545
6/15/2011	3216.598			1247.326		1378.315	264.477	938.84	997.55	793.706	171.502	486.035	1131.895	144.545
6/16/2011	3216.598			1247.326		1377.215	264.477	938.84	997.55	793.706	171.502	486.035	1131.895	144.549
6/17/2011	3216.598			1247.326		1377.215	264.477	938.84	997.55	793.706	171.502	486.035	1131.895	144.549
6/18/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/19/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2011	3216.598			1247.326		1377.215	264.477	938.84	997.55	793.706	206.468	486.035	1131.895	144.553
6/21/2011	3216.598			1247.326		1376.815	264.477	938.84	997.55	793.706	206.468	486.035	1131.895	144.553
6/22/2011	3216.598			1247.326		1376.515	264.477	938.84	997.55	793.706	206.468	486.035	1131.895	144.553
6/23/2011	3216.598			N/A		1376.515	264.477	938.84	997.55	793.697	206.468	486.035	1131.895	144.553
6/24/2011	3216.61			1247.326		1376.515	264.502	938.84	997.55	793.697	206.468	486.035	1131.895	144.553
6/25/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/26/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2011	3216.61			1247.326		1376.515	264.502	938.84	997.55	793.697	206.468	486.035	1131.895	144.553
6/28/2011	3216.61			1247.326		1376.515	264.502	938.84	997.55	793.697	206.468	486.035	1131.895	144.553
6/29/2011	3216.61			1247.326		1371.776	264.502	938.84	997.55	793.697	206.468	486.035	1131.895	144.553
6/30/2011	3216.61			1247.326		1371.776	264.502	938.84	997.55	793.697	206.468	486.035	1131.895	144.553
7/1/2011	3216.61			1247.326		1371.135	264.502	938.84	N/A	N/A	206.468	486.035	N/A	144.553
7/2/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/3/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
7/4/2011	3216.61			1247.326		1371.135	264.502	N/A	997.55	793.697	N/A	N/A	1131.895	N/A
7/5/2011	3218.925			1247.326		1370.53	264.502	938.84	997.558	794.23	206.468	486.035	1132.266	144.553
7/6/2011	3218.925			1247.326		1369.918	264.502	938.84	997.558	794.23	206.468	486.035	1132.266	144.553
7/7/2011	3218.925			1247.326		1369.918	264.502	938.838	997.558	794.23	206.468	486.035	1132.266	144.553
7/8/2011	3218.925			1247.326		1369.918	264.502	938.838	997.558	794.23	206.468	486.035	1132.266	144.553
7/9/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/10/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2011	3218.925			1247.326		1368.925	264.502	938.838	997.558	794.23	171.502	486.035	1132.266	144.553
7/12/2011	3218.925			1247.326		1368.925	264.502	938.838	997.558	794.23	171.502	486.035	1132.266	144.553
7/13/2011	3218.925			1247.326		1368.925	264.502	938.838	997.558	794.221	171.502	486.035	1132.335	144.553
7/14/2011	3218.925			1247.326		1368.925	264.502	938.838	997.558	794.221	171.502	486.035	1132.306	144.552
7/15/2011	3218.925			1247.326		1368.925	264.502	938.838	997.558	794.221	171.502	486.035	1132.265	144.552
7/16/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/17/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2011	3218.925			1247.326		1368.925	264.502	938.838	997.558	794.191	171.502	486.035	1132.241	144.552
7/19/2011	3218.925			1247.326		1368.55	264.502	938.838	997.558	794.2	171.502	486.035	1132.212	144.552
7/20/2011	3218.925			1247.326		1368.2	264.502	938.838	997.558	794.2	171.502	486.035	1132.212	144.552
7/21/2011	3218.925			1247.326		1368.2	264.502	938.838	997.558	794.2	171.502	486.035	1132.212	144.552
7/22/2011	3218.675			1247.326		1367.87	264.502	938.838	997.558	794.2	171.502	486.035	1132.212	144.546
7/23/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/24/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2011	3218.675			1247.326		1367.87	264.502	938.838	997.558	794.2	171.502	486.035	1132.212	144.546
7/26/2011	3218.675			1247.326		1367.554	264.502	938.838	997.558	794.2	171.502	486.035	1132.216	144.546
7/27/2011	3218.675			1247.326		1367.554	264.502	938.838	997.558	794.2	171.502	486.035	1132.216	144.546
7/28/2011	3218.675			1247.326		1367.214	264.502	938.798	997.558	794.2	171.502	486.035	1132.216	144.557
7/29/2011	3218.675			1247.326		1364.356	264.502	938.798	997.558	794.2	171.502	486.524	1132.216	144.557
7/30/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/31/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2011	3218.675			1247.326		1363.621	264.502	938.798	N/A	N/A	171.502	486.524	N/A	144.557
8/2/2011	3218.675			1247.326		1363.621	264.502	938.798	997.559	802.31	171.502	486.524	1132.249	144.557
8/3/2011	3218.675			1247.326		1363.001	264.502	938.798	997.559	802.31	171.502	486.524	1132.249	144.556
8/4/2011	3218.675			1247.326		1363.001	264.502	938.798	997.559	802.31	171.502	486.524	1132.249	144.556
8/5/2011	3218.675			1247.326		1362.101	264.502	938.798	997.559	802.31	171.502	486.524	1133.742	144.556
8/6/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/7/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2011	3218.675			1247.326		1361.101	264.502	939.363	997.559	802.31	171.502	486.524	1133.742	144.555
8/9/2011	3218.675			1247.326		1361.101	264.502	939.363	997.559	802.31	166.885	486.524	1133.742	144.555
8/10/2011	3218.675			1247.326		1360.401	264.502	939.363	997.559	802.32	166.885	486.524	1133.742	144.555
8/11/2011	3218.675			1247.326		1358.271	264.502	939.652	997.559	802.32	166.885	486.524	1133.742	144.555
8/12/2011	3218.675			1247.326		1358.271	264.502	939.652	997.559	802.32	166.885	486.524	1133.742	144.555
8/13/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/14/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2011	3218.675			1247.326		1358.271	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.555
8/16/2011	3218.675			1247.326		1358.271	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.555
8/17/2011	3218.675			1247.326		1358.271	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.555
8/18/2011	3218.675			1247.326		1357.821	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.555
8/19/2011	3218.675			1247.326		1357.821	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.555
8/20/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/21/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2011	3218.675			1247.326		1354.596	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.552
8/23/2011	3218.675			1247.326		1354.096	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.552
8/24/2011	3222.464			1247.326		1354.096	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.552
8/25/2011	3222.464			1247.326		1352.85	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.552
8/26/2011	3220.161			1247.326		1352.85	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.552
8/27/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/28/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2011	3220.161			1247.326		N/A	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.552
8/30/2011	3219.682			1247.326		1352.85	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.552
8/31/2011	3219.47			1247.326		1352.812	264.502	939.664	997.559	802.32	166.885	486.524	1133.742	144.552
9/1/2011	3219.47			1247.326		1351.871	264.502	939.664	997.573	802.591	166.885	486.524	1134.173	144.552
9/2/2011	3219.47			1247.326		1351.171	264.502	939.664	997.573	802.591	166.885	486.524	1134.173	144.552

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
9/3/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/4/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2011	3219.47			1247.326		1350.471	264.496	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/6/2011	3219.47			1247.326		1349.671	264.496	939.664	997.573	802.591	166.885	486.524	1134.173	144.552
9/7/2011	3219.47			N/A		1349.671	264.496	939.664	997.573	802.591	166.885	486.524	1134.173	144.552
9/8/2011	3219.47			1247.326		1348.174	264.496	939.664	997.573	802.591	166.885	486.524	1134.173	144.552
9/9/2011	3219.47			1247.326		1348.174	264.496	939.664	997.573	802.591	166.885	486.524	1134.173	144.552
9/10/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/11/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2011	3219.47			1247.326		1348.174	264.49	939.664	997.573	802.591	166.885	486.524	1134.173	144.969
9/13/2011	3219.47			1247.326		1347.424	264.49	939.664	997.573	802.591	166.885	486.524	1134.173	144.97
9/14/2011	3219.47			1247.326		1346.924	264.49	939.664	997.573	802.591	166.885	486.524	1134.173	144.97
9/15/2011	3219.47			1247.326		1346.324	264.49	939.664	997.573	802.591	166.885	486.524	1134.173	144.972
9/16/2011	3219.47			1247.326		1345.824	264.49	939.664	997.573	802.591	166.885	486.524	1134.173	144.972
9/17/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/18/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2011	3219.47			1247.326		1344.64	264.49	939.664	997.573	802.591	166.885	486.524	1134.173	145.003
9/20/2011	3219.47			1247.326		1344.04	264.49	939.664	997.573	802.591	166.885	486.524	1134.173	145.012
9/21/2011	3219.47			1247.326		1343.49	264.49	939.664	997.573	802.591	166.885	486.524	1134.169	145.012
9/22/2011	3219.47			1247.326		1343.493	264.49	939.664	997.573	802.591	166.885	486.524	1134.139	145.012
9/23/2011	3219.47			1247.326		1343.493	264.49	939.664	997.573	802.591	166.885	486.524	1134.139	145.012
9/24/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/25/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2011	3219.47			1247.326		1342.893	264.49	939.664	997.573	802.591	166.885	486.524	1134.139	145.032
9/27/2011	3219.47			1247.326		1342.493	264.49	939.664	997.573	802.591	166.885	486.524	1134.139	145.032
9/28/2011	3219.47			1247.326		1342.043	264.49	939.664	997.573	802.591	166.885	486.524	1134.139	145.032
9/29/2011	3219.47			1247.326		1341.543	264.49	939.664	997.573	802.591	166.885	486.524	1134.135	145.032
9/30/2011	3219.47			1247.326		1213.298	264.49	939.664	997.573	802.591	166.885	486.524	1134.135	145.032
10/1/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/2/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2011	3219.47			1247.326		1212.648	264.49	939.664	997.667	803.657	166.885	486.524	1134.135	145.032
10/4/2011	3219.47			1247.326		1211.998	264.49	939.664	997.667	803.657	166.885	486.524	1134.135	145.032
10/5/2011	3219.47			1247.326		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/6/2011	3219.47			1247.326		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/7/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/8/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/9/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2011	3219.47			1273.379		1211.298	264.49	939.661	N/A	N/A	166.885	486.524	N/A	145.032
10/11/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/12/2011	3219.47			N/A		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/13/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/14/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/15/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/16/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.031
10/18/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.031
10/19/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/20/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/21/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/22/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/23/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2011	3219.47			1273.379		1211.298	264.49	939.661	997.667	803.657	166.885	486.524	1134.135	145.032
10/25/2011	3219.47			1273.379		1211.298	264.49	939.661	997.553	803.657	166.885	486.524	1134.135	145.032
10/26/2011	3219.47			1273.379		1211.298	264.49	939.661	997.553	803.657	166.885	486.524	1134.135	145.032
10/27/2011	3219.47			1273.379		1211.298	264.49	939.661	997.553	803.657	166.885	487.164	1134.135	145.032
10/28/2011	3219.47			1273.379		1211.298	264.49	939.661	997.553	803.657	166.885	487.164	1134.135	145.032
10/29/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/30/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2011	3219.47			1273.379		1211.298	264.49	939.661	997.553	803.657	166.885	487.164	1134.135	145.032
11/1/2011	3219.47			1273.379		1211.298	264.49	939.661	997.802	803.657	166.888	487.162	1135.01	142.027
11/2/2011	3219.47			N/A		1211.298	264.49	939.661	997.802	803.657	166.888	487.162	1135.01	142.027

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
11/3/2011	3219.47			1273.379		1211.298	264.49	939.661	997.802	803.587	166.888	487.163	1135.219	142.027
11/4/2011	3219.47			1273.379		1211.298	264.49	939.661	997.802	803.587	166.888	487.163	1135.219	142.027
11/5/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/6/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2011	3219.47			1273.379		1211.298	264.49	939.691	997.802	803.587	166.888	487.163	1135.219	142.027
11/8/2011	3219.47			1273.379		1211.298	264.49	939.691	997.802	803.587	166.888	487.163	1135.219	142.027
11/9/2011	3219.47			1273.379		1211.298	264.49	939.691	997.802	803.587	166.888	487.163	1135.219	142.027
11/10/2011	3219.47			1273.379		1211.298	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
11/11/2011	3219.47			1273.379		1211.298	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
11/12/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/13/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2011	3219.47			1273.379		1211.298	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
11/15/2011	3219.47			N/A		1200.693	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
11/16/2011	3219.47			1273.379		1200.143	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
11/17/2011	3219.47			1273.379		1199.593	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
11/18/2011	3219.47			1273.379		1199.043	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
11/19/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/20/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2011	3219.47			1273.379		1199.043	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
11/22/2011	3219.47			1273.379		1198.593	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
11/23/2011	3219.47			1273.379		1198.093	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.028
11/24/2011	3219.47			1273.379		1198.093	264.49	N/A	997.802	803.587	N/A	N/A	1135.219	N/A
11/25/2011	3219.47			1273.379		1198.093	264.49	939.691	997.802	803.587	162.387	487.163	1135.219	142.028
11/26/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/27/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2011	3219.47			1273.379		1196.198	435.563	939.691	997.802	803.587	162.387	487.163	1135.219	142.028
11/29/2011	3219.47			1273.379		1196.198	435.563	939.691	997.802	803.587	162.387	487.163	1135.219	142.028
11/30/2011	3219.47			1273.379		1195.533	435.563	939.691	997.802	803.587	162.387	487.163	1135.219	142.028
12/1/2011	3219.47			1273.379		1195.535	435.563	939.691	997.802	803.587	162.387	487.163	1135.219	142.028
12/2/2011	3219.47			1273.379		1195.535	435.563	939.691	997.802	803.587	162.387	487.163	1135.219	142.027
12/3/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/4/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2011	3219.47			1273.379		1195.135	435.563	939.691	998.105	804.373	162.387	487.163	1135.287	142.027
12/6/2011	3219.47			1273.379		1195.085	435.563	939.691	998.105	804.373	162.387	487.163	1135.287	142.027
12/7/2011	3219.47			1273.379		1194.585	435.563	939.691	998.105	804.373	162.387	487.163	1135.287	142.027
12/8/2011	3219.47			1273.379		1192.932	435.56	939.691	998.105	804.373	162.387	487.138	1135.287	142.028
12/9/2011	3219.47			1273.379		1192.932	435.56	939.691	998.105	804.373	162.387	487.138	1135.287	142.028
12/10/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/11/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2011	3219.47			1273.379		1192.932	435.56	939.691	998.105	804.373	162.387	487.138	1135.287	142.028
12/13/2011	3219.47			1273.379		1192.432	435.56	939.691	998.105	804.373	162.387	487.138	1135.287	142.028
12/14/2011	3219.47			1273.379		1191.932	435.56	939.691	998.105	804.373	162.387	487.128	1135.287	142.028
12/15/2011	3219.47			1273.379		1191.932	435.56	939.691	998.105	804.373	162.387	487.128	1135.287	142.028
12/16/2011	3219.47			1273.379		1189.933	435.559	939.691	998.105	804.373	162.387	487.128	1135.287	142.028
12/17/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/18/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2011	3219.47			1273.379		1189.933	435.543	939.691	998.105	804.373	162.387	487.128	1135.287	142.028
12/20/2011	3219.665			1273.379		1189.533	435.543	939.691	998.105	804.373	162.387	487.128	1135.287	142.028
12/21/2011	3219.665			1273.379		1189.133	435.543	939.691	998.105	804.373	162.387	487.128	1135.287	142.028
12/22/2011	3219.665			1273.379		1188.533	435.543	939.691	997.78	804.373	162.387	487.128	1135.287	142.028
12/23/2011	3219.665			1273.379		1188.533	435.543	939.691	997.78	804.373	162.387	487.128	1135.287	142.028
12/24/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/25/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2011	N/A			1273.379		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2011	N/A			1273.379		N/A	N/A	939.691	N/A	N/A	162.387	487.128	N/A	142.028
12/28/2011	3219.665			1273.379		1188.533	435.543	939.691	997.78	804.373	162.387	487.128	1135.287	142.028
12/29/2011	3219.665			1273.379		1188.533	435.543	939.691	997.78	804.373	162.387	487.128	1135.287	142.028
12/30/2011	3219.665			N/A		1188.533	435.543	939.691	997.78	804.373	162.387	487.128	1135.287	142.028
12/31/2011	N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
1/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2438.036	N/A	N/A	N/A
1/2/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/3/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/4/2010	341.189	382.262	156.271		214.414	391.913	730.961	508.478	366.765		2438.036	106.431	42.805	N/A
1/5/2010	341.189	382.262	156.271		214.414	391.913	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/6/2010	341.189	382.262	156.271		214.414	391.913	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/7/2010	341.189	382.262	156.254		214.414	391.913	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/8/2010	341.189	382.262	156.254		214.414	391.913	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/9/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/10/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/11/2010	341.189	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/12/2010	341.189	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/13/2010	341.189	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/14/2010	341.189	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/15/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/16/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/17/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/18/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/19/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/20/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/21/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/22/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.726	N/A
1/23/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/24/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/25/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.732	N/A
1/26/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		N/A	106.431	55.732	N/A
1/27/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.732	N/A
1/28/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.732	N/A
1/29/2010	341.239	382.262	156.254		214.414	391.956	730.961	508.478	366.765		2438.036	106.431	55.732	N/A
1/30/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/31/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/1/2010	341.329	382.275	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/2/2010	341.329	382.275	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/3/2010	341.329	382.275	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/4/2010	341.329	382.275	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/5/2010	341.329	382.275	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/6/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/7/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/8/2010	341.329	391.55	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/9/2010	341.329	391.55	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/10/2010	341.329	391.55	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/11/2010	341.329	391.55	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/12/2010	341.329	391.55	156.27		214.414	392.083	731.086	508.685	367.099		2438.036	108.165	55.732	N/A
2/13/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/14/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/15/2010	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2438.036	N/A	N/A	N/A
2/16/2010	341.329	391.55	156.27		214.414	392.064	731.086	508.65	367.099		2438.227	108.165	55.732	N/A
2/17/2010	341.329	391.55	156.27		214.414	392.063	731.086	508.65	367.099		2438.227	108.165	55.732	N/A
2/18/2010	341.329	391.55	156.27		214.414	392.063	731.086	508.65	367.099		2438.227	108.165	55.732	N/A
2/19/2010	341.329	391.55	156.27		214.414	392.063	731.086	508.65	367.099		2438.227	108.165	55.732	N/A
2/20/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/21/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/22/2010	341.329	391.55	156.27		214.414	392.063	731.086	508.65	367.099		2438.227	108.165	55.732	N/A
2/23/2010	341.329	391.55	156.27		214.414	392.063	731.086	508.65	367.099		2438.227	108.165	55.732	N/A
2/24/2010	341.329	391.55	156.27		214.414	392.063	731.086	508.65	367.099		2438.227	108.165	55.732	N/A
2/25/2010	341.329	391.55	156.27		214.414	392.063	731.086	508.65	367.099		2438.227	108.165	55.732	N/A
2/26/2010	341.329	391.55	156.27		214.414	392.063	731.086	508.65	367.099		2438.227	108.165	55.732	N/A
2/27/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/28/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/1/2010	341.427	391.721	156.357		214.414	392.07	731.464	509.486	367.138		2438.227	108.165	55.786	N/A
3/2/2010	341.427	391.721	156.357		214.414	392.07	731.464	509.486	367.138		2438.227	108.165	55.786	N/A

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
3/3/2010	341.427	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/4/2010	341.427	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/5/2010	341.427	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/6/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/7/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/8/2010	341.427	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/9/2010	341.427	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/10/2010	341.427	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/11/2010	341.427	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/12/2010	341.427	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/13/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/14/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/15/2010	341.423	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/16/2010	341.423	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/17/2010	341.423	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/18/2010	341.423	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/19/2010	341.423	391.721	156.357		214.414	392.07	731.464	533.253	367.138		2438.227	108.165	55.786	N/A
3/20/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/21/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/22/2010	341.423	391.721	156.357		214.414	392.07	731.464	533.253	367.136		2438.227	108.165	55.786	N/A
3/23/2010	341.423	391.721	156.357		214.414	392.07	731.464	533.253	367.135		2438.227	108.165	55.786	N/A
3/24/2010	341.423	391.721	156.353		214.414	392.07	731.464	533.253	367.135		2438.227	108.165	55.786	N/A
3/25/2010	341.423	391.721	156.353		214.414	392.07	731.464	533.253	367.135		2438.227	108.165	55.786	N/A
3/26/2010	341.423	391.721	156.353		214.414	392.066	731.464	533.245	367.174		2438.227	108.165	55.786	N/A
3/27/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/28/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/29/2010	341.423	391.721	156.353		214.414	392.066	731.464	533.245	367.174		2438.227	108.165	55.786	N/A
3/30/2010	341.423	391.721	156.353		214.414	392.066	731.464	533.245	367.174		2438.227	108.165	55.786	N/A
3/31/2010	341.423	391.721	156.353		214.414	392.066	731.464	533.245	367.174		2438.227	108.165	55.786	N/A
4/1/2010	341.447	391.721	156.36		N/A	392.076	738.536	533.416	368.786		2438.221	108.165	55.786	N/A
4/2/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/3/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/4/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/5/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.786		N/A	108.165	55.786	N/A
4/6/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.786		2438.221	108.165	55.786	N/A
4/7/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.786		2438.221	108.165	55.786	N/A
4/8/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.786		2438.221	108.165	55.786	N/A
4/9/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.786		2438.221	108.165	55.786	N/A
4/10/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/11/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/12/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.784		2438.221	108.165	55.786	N/A
4/13/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.784		2438.221	108.165	55.786	N/A
4/14/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.784		2438.221	108.165	55.786	N/A
4/15/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.78		2438.221	108.165	55.786	N/A
4/16/2010	341.447	391.721	156.36		214.414	392.076	738.536	533.416	368.778		2438.221	108.165	55.786	N/A
4/17/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/18/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/19/2010	341.447	391.721	156.36		214.414	392.076	738.164	533.416	368.778		2438.221	108.165	55.786	N/A
4/20/2010	341.447	391.721	156.36		214.414	392.076	738.164	533.416	368.78		2438.221	108.165	55.786	N/A
4/21/2010	341.444	391.721	156.36		214.414	392.076	738.164	533.416	368.78		2438.221	108.165	55.786	N/A
4/22/2010	341.429	391.721	156.36		214.414	392.076	738.164	533.416	368.757		2438.221	108.165	55.786	N/A
4/23/2010	341.429	391.721	156.36		214.414	392.04	738.164	533.416	368.757		2438.221	108.165	55.786	N/A
4/24/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/25/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/26/2010	341.429	391.721	156.36		214.414	392.036	738.164	533.416	368.757		N/A	108.165	55.786	N/A
4/27/2010	341.429	391.471	156.36		214.414	392.035	738.164	533.416	368.757		2438.221	108.165	55.786	N/A
4/28/2010	341.429	391.471	156.36		214.414	392.035	738.164	533.416	368.757		2438.221	108.165	55.786	N/A
4/29/2010	341.429	391.471	156.36		214.414	392.035	738.164	533.416	368.757		2438.221	108.165	55.786	N/A
4/30/2010	341.429	391.471	156.36		214.414	392.035	738.164	533.416	368.757		2438.221	108.165	55.786	N/A
5/1/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/2/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
5/3/2010	341.687	392.038	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/4/2010	341.687	392.038	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/5/2010	341.687	392.038	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/6/2010	341.687	392.038	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/7/2010	341.687	392.038	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/8/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/9/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/10/2010	341.687	392.038	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/11/2010	341.687	392.038	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/12/2010	341.687	392.038	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/13/2010	341.687	392.038	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/14/2010	341.687	392.067	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/15/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/16/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/17/2010	341.687	392.067	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/18/2010	341.687	392.067	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/19/2010	341.687	392.347	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/20/2010	341.687	392.347	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/21/2010	341.687	392.347	156.395		214.414	392.147	738.169	533.446	369.137		2438.221	108.325	55.786	N/A
5/22/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/23/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/24/2010	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2438.221	N/A	N/A	N/A
5/25/2010	341.687	392.272	156.395		214.414	392.147	738.169	533.446	369.129		2438.221	108.325	55.786	N/A
5/26/2010	341.687	392.272	156.395		214.414	392.147	738.169	533.446	369.129		2438.221	108.325	55.786	N/A
5/27/2010	341.687	392.277	156.395		214.414	392.146	738.169	533.446	369.127		2438.221	108.325	55.786	N/A
5/28/2010	341.687	392.277	156.395		214.414	392.146	738.169	533.446	369.127		2438.221	108.325	55.786	N/A
5/29/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/30/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/31/2010	341.687	392.277	156.395		214.414	392.146	738.169	533.446	369.127		2438.221	108.325	55.786	N/A
6/1/2010	341.796	392.294	156.481		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/2/2010	341.796	392.294	156.481		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/3/2010	341.796	392.294	156.481		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/4/2010	341.796	392.294	156.481		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/5/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/6/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/7/2010	341.796	392.294	156.481		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/8/2010	341.796	392.294	156.481		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/9/2010	341.796	392.294	156.477		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/10/2010	341.796	392.294	156.477		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/11/2010	341.796	392.319	156.477		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/12/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/13/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/14/2010	341.796	392.319	156.477		214.414	392.155	738.171	533.623	369.19		N/A	108.329	55.786	N/A
6/15/2010	341.796	392.319	156.477		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/16/2010	341.796	392.319	156.477		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/17/2010	341.796	392.319	156.477		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/18/2010	341.796	392.319	156.477		214.414	392.155	738.171	533.623	369.19		2438.221	108.329	55.786	N/A
6/19/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/20/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/21/2010	341.796	392.319	156.477		214.414	392.155	738.176	533.623	369.19		2438.221	108.329	55.786	N/A
6/22/2010	341.796	392.319	156.477		214.414	392.155	738.176	533.623	369.19		2438.221	108.329	55.786	N/A
6/23/2010	341.796	392.319	156.477		214.414	392.155	738.176	533.623	369.19		2438.221	108.329	55.786	N/A
6/24/2010	341.796	392.319	156.477		214.414	392.155	738.175	533.623	369.19		2438.221	108.329	55.786	N/A
6/25/2010	341.796	392.319	156.477		214.414	392.155	738.175	533.625	365.173		2438.221	108.329	55.786	N/A
6/26/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/27/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/28/2010	341.796	392.319	156.477		214.414	392.155	738.175	533.625	365.165		2438.221	108.329	55.786	N/A
6/29/2010	341.796	392.319	156.477		N/A	392.155	738.175	533.625	365.165		2438.221	108.329	55.786	N/A
6/30/2010	341.796	392.319	156.477		214.414	392.155	738.175	533.625	365.165		2438.221	108.329	55.786	N/A
7/1/2010	N/A	N/A	N/A		214.414	N/A	N/A	535.49	N/A		2438.221	N/A	N/A	N/A
7/2/2010	341.771	392.319	156.477		214.414	392.155	738.175	535.49	365.165		2438.221	108.329	55.786	N/A

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
7/3/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/4/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/5/2010	341.771	392.319	156.477		214.414	392.155	738.175	535.49	365.165		2438.221	108.329	55.786	N/A
7/6/2010	341.893	392.337	156.477		214.414	392.161	738.382	535.49	365.651		2438.221	108.329	55.786	N/A
7/7/2010	341.893	392.337	156.477		214.414	392.161	738.382	535.49	365.651		2438.221	108.329	55.786	N/A
7/8/2010	341.907	392.337	156.477		214.414	392.161	738.382	535.49	365.651		2438.221	108.329	55.786	N/A
7/9/2010	341.907	392.337	156.477		214.414	392.161	738.382	535.49	365.937		2438.221	108.329	55.786	N/A
7/10/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/11/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/12/2010	341.907	392.337	156.477		214.414	392.161	737.807	535.49	365.937		2316.063	108.329	55.786	N/A
7/13/2010	341.907	392.337	166.689		214.414	392.161	737.807	535.49	365.937		2316.063	108.329	55.786	N/A
7/14/2010	341.942	392.337	166.689		214.414	392.161	737.367	535.49	365.937		2316.063	108.329	55.786	N/A
7/15/2010	341.942	392.337	166.689		214.414	392.161	737.354	535.49	365.937		2316.063	108.329	55.786	N/A
7/16/2010	341.942	392.337	166.689		214.414	392.161	737.354	535.49	366.13		2316.063	108.329	55.786	N/A
7/17/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/18/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/19/2010	341.942	392.337	166.689		214.414	392.161	737.354	535.49	366.129		2316.063	108.329	55.786	N/A
7/20/2010	341.942	392.35	166.688		214.414	392.161	737.354	535.49	366.128		2316.063	108.329	55.786	N/A
7/21/2010	341.942	392.35	166.685		214.414	392.161	737.354	535.49	366.123		2316.063	108.329	55.786	N/A
7/22/2010	341.942	392.35	166.685		214.414	392.161	737.358	535.49	366.123		2316.063	108.329	55.786	N/A
7/23/2010	341.942	392.342	166.685		214.414	392.161	737.358	535.49	366.123		2316.063	108.329	55.786	N/A
7/24/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/25/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/26/2010	341.942	392.342	166.685		214.414	392.161	737.358	535.49	366.123		2316.063	108.329	55.786	N/A
7/27/2010	341.942	392.342	166.685		214.414	392.161	737.358	535.49	366.123		2316.063	108.329	55.786	N/A
7/28/2010	341.942	392.342	166.685		N/A	392.161	737.358	535.49	366.123		2316.063	108.329	55.786	N/A
7/29/2010	341.942	392.342	166.685		N/A	392.161	737.358	535.49	366.123		2316.063	108.329	55.786	N/A
7/30/2010	341.942	392.342	166.685		214.414	392.161	737.358	535.49	366.123		2316.063	108.329	55.786	N/A
7/31/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/1/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/2/2010	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2316.063	N/A	N/A	N/A
8/3/2010	341.942	392.342	166.685		214.414	392.161	737.358	535.49	366.123		2316.063	108.329	55.786	N/A
8/4/2010	343.044	392.342	166.906		214.414	392.205	737.614	542.405	366.477		2316.063	108.411	55.786	N/A
8/5/2010	343.044	392.342	166.906		214.414	392.205	737.614	542.405	366.477		2316.063	108.411	55.786	N/A
8/6/2010	343.044	392.342	166.906		214.414	392.205	737.614	542.405	366.477		2316.063	108.411	55.786	N/A
8/7/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/8/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/9/2010	343.044	392.342	166.906		214.414	392.205	737.614	542.405	366.477		2320.172	108.411	55.786	N/A
8/10/2010	343.044	392.342	166.906		214.414	392.205	737.614	542.405	366.477		2320.172	108.411	55.786	N/A
8/11/2010	343.044	392.342	166.906		214.414	392.205	737.614	542.405	366.477		2320.172	108.411	55.786	N/A
8/12/2010	343.044	392.342	166.906		214.414	392.205	737.614	542.405	366.477		2320.172	108.411	55.786	N/A
8/13/2010	343.044	392.342	166.906		214.414	392.205	737.614	542.405	366.477		2320.172	108.411	55.786	N/A
8/14/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/15/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/16/2010	343.044	392.342	166.906		214.414	392.205	737.574	542.405	366.477		2320.172	108.411	55.786	N/A
8/17/2010	343.044	392.342	166.904		214.414	392.205	737.572	542.405	366.477		2320.172	108.411	55.786	N/A
8/18/2010	343.044	392.342	166.904		214.414	392.205	737.572	542.405	366.477		2320.172	108.411	55.786	N/A
8/19/2010	343.044	392.342	166.908		214.414	392.205	737.572	542.405	366.475		2320.172	108.411	55.786	N/A
8/20/2010	343.044	392.342	166.908		214.414	392.205	737.572	542.405	366.475		2320.172	108.411	55.786	N/A
8/21/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/22/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/23/2010	343.044	392.342	166.908		214.414	392.184	737.572	542.405	366.475		2310.984	108.411	55.786	N/A
8/24/2010	343.044	392.342	166.908		214.414	392.205	737.572	542.405	366.475		2310.984	108.411	55.786	N/A
8/25/2010	343.044	392.337	166.908		214.414	392.205	737.572	542.405	366.475		2310.984	108.411	55.786	N/A
8/26/2010	343.044	392.337	166.908		214.414	392.205	737.572	542.405	366.475		2310.984	108.411	55.786	N/A
8/27/2010	343.044	392.337	166.908		214.414	392.205	737.572	542.405	366.475		2310.984	108.411	55.786	N/A
8/28/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/29/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/30/2010	343.044	392.337	166.908		N/A	392.205	737.572	542.405	366.475		2310.984	108.411	55.786	N/A
8/31/2010	343.044	392.337	166.908		214.414	392.205	737.572	542.405	366.475		2310.984	108.411	55.786	N/A
9/1/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
9/2/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/3/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/4/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/5/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/6/2010	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2310.984	N/A	N/A	N/A
9/7/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/8/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/9/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/10/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/11/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/12/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/13/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/14/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/15/2010	343.113	392.337	166.981		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/16/2010	343.113	392.337	166.969		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/17/2010	343.113	392.337	166.969		214.414	392.205	737.572	542.405	366.502		2310.984	108.411	55.786	N/A
9/18/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/19/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/20/2010	343.113	392.337	166.969		214.414	392.207	737.572	542.405	366.702		2309.883	108.411	55.786	N/A
9/21/2010	343.193	392.337	166.969		214.414	392.207	737.572	542.432	366.702		2309.883	108.411	55.786	N/A
9/22/2010	343.173	392.337	166.969		214.414	392.207	737.572	542.432	366.702		2309.883	108.411	55.786	N/A
9/23/2010	343.154	392.337	166.969		214.414	392.207	737.572	542.425	366.702		2309.883	108.411	55.786	N/A
9/24/2010	343.174	392.337	166.971		214.414	391.829	737.572	542.432	366.702		2309.883	108.411	55.786	N/A
9/25/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/26/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/27/2010	343.174	392.378	166.971		214.414	391.829	737.572	542.432	366.67		2309.883	108.411	55.786	N/A
9/28/2010	343.174	392.378	166.971		214.414	391.829	737.572	542.432	366.67		2309.883	108.411	55.786	N/A
9/29/2010	343.174	392.378	166.971		214.414	391.829	737.572	542.432	366.67		2309.883	108.411	55.786	N/A
9/30/2010	343.174	392.378	166.971		214.414	391.829	737.572	542.432	366.67		2309.883	108.411	55.786	N/A
10/1/2010	343.706	392.564	167.074		214.414	391.854	737.585	542.706	367.337		2309.883	108.741	55.786	N/A
10/2/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/3/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/4/2010	343.706	392.564	167.074		214.414	391.854	737.585	542.706	367.335		2309.883	108.741	55.786	N/A
10/5/2010	343.706	392.564	167.074		214.414	391.854	737.585	542.706	367.335		2309.883	108.741	55.786	N/A
10/6/2010	343.706	392.564	167.074		214.414	391.854	737.585	542.706	367.335		2309.883	108.741	55.786	N/A
10/7/2010	343.706	392.564	167.074		214.414	391.854	737.585	542.706	367.335		2309.883	108.741	55.786	N/A
10/8/2010	343.706	392.564	167.074		N/A	391.854	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/9/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/10/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/11/2010	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2309.883	N/A	N/A	N/A
10/12/2010	343.706	392.564	167.074		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/13/2010	343.706	392.564	167.074		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/14/2010	343.706	392.564	167.074		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/15/2010	343.706	392.564	167.074		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/16/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/17/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/18/2010	343.706	392.564	167.073		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/19/2010	343.706	392.564	167.072		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/20/2010	343.706	392.564	167.072		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/21/2010	343.706	392.564	167.34		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/22/2010	343.706	392.564	167.34		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/23/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/24/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/25/2010	343.706	392.564	167.34		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/26/2010	343.706	392.564	167.34		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/27/2010	343.706	392.564	167.34		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/28/2010	343.706	392.564	167.34		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/29/2010	343.706	392.564	167.34		214.414	391.856	737.585	542.706	367.334		2309.883	108.741	55.786	N/A
10/30/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/31/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/1/2010	344.422	392.724	167.34		N/A	392.263	737.66	542.979	367.559		2309.883	108.741	55.786	N/A

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
11/2/2010	344.422	392.724	167.34		214.414	392.263	737.66	542.979	367.559		2309.883	108.741	55.786	N/A
11/3/2010	344.422	392.724	167.34		214.414	392.263	737.66	542.979	367.559		2309.883	108.741	55.786	N/A
11/4/2010	344.422	392.724	167.34		214.414	392.263	737.66	542.979	367.559		2309.883	108.741	55.786	N/A
11/5/2010	344.422	392.724	167.34		214.414	392.263	737.66	542.979	367.548		2309.883	108.741	55.786	N/A
11/6/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/7/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/8/2010	344.422	392.724	167.34		214.414	392.263	737.66	542.979	367.548		2309.883	108.741	55.786	N/A
11/9/2010	344.422	392.724	167.34		214.414	392.263	737.66	542.979	367.548		2309.883	108.741	55.786	N/A
11/10/2010	344.422	392.724	167.34		214.414	392.263	737.66	542.979	367.548		2309.883	108.741	55.786	N/A
11/11/2010	344.422	392.724	167.341		214.414	392.263	737.66	542.979	367.548		2309.883	108.741	55.786	N/A
11/12/2010	344.422	392.724	167.341		214.414	392.263	737.66	542.979	367.548		2309.883	108.741	55.786	N/A
11/13/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/14/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/15/2010	344.422	392.724	167.341		214.414	392.263	737.66	542.979	367.548		2309.883	108.741	55.786	N/A
11/16/2010	344.422	392.724	167.341		214.414	392.263	737.66	542.979	367.548		2309.883	108.741	55.786	N/A
11/17/2010	344.422	392.724	167.341		214.414	392.263	737.66	542.979	367.548		2309.883	108.741	55.786	N/A
11/18/2010	344.422	392.724	167.341		214.414	392.262	737.66	542.979	367.548		2309.883	108.741	52.808	N/A
11/19/2010	344.422	392.724	167.341		214.414	392.262	737.66	542.979	367.548		2309.883	108.741	52.808	N/A
11/20/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/21/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/22/2010	344.422	392.724	167.341		214.414	392.262	737.66	542.979	367.548		2309.883	108.741	52.808	N/A
11/23/2010	344.422	392.724	167.341		214.414	392.262	737.66	542.979	367.548		2309.883	108.741	52.808	N/A
11/24/2010	344.422	392.724	167.341		214.414	392.262	737.66	542.979	367.548		2309.883	108.741	52.808	N/A
11/25/2010	344.422	392.724	167.341		214.414	392.262	737.66	542.979	367.548		2309.883	108.741	52.808	N/A
11/26/2010	344.422	392.724	167.341		214.414	392.262	737.66	542.979	367.548		2309.883	108.741	52.808	N/A
11/27/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/28/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/29/2010	344.422	392.724	167.341		214.414	392.262	737.66	542.979	367.548		2309.883	108.741	52.808	N/A
11/30/2010	344.422	392.724	167.348		214.414	392.261	737.66	542.979	367.548		2309.883	108.741	52.808	N/A
12/1/2010	345.588	392.724	167.518		214.414	392.297	737.675	543.011	367.518		2309.883	108.741	74.604	N/A
12/2/2010	345.588	392.724	167.519		214.414	392.297	737.667	543.011	367.518		2309.883	108.741	74.374	N/A
12/3/2010	345.588	392.724	167.509		214.414	392.297	737.536	543.011	367.518		2309.883	108.741	74.374	N/A
12/4/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/5/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/6/2010	345.588	392.724	167.509		214.414	392.297	737.536	543.011	367.518		2309.883	108.741	74.374	N/A
12/7/2010	345.588	392.724	167.509		214.414	392.297	737.536	543.011	367.518		2309.883	108.741	74.374	N/A
12/8/2010	345.588	392.724	167.509		N/A	392.297	737.536	543.011	367.518		2309.883	108.741	74.374	N/A
12/9/2010	345.588	392.724	167.509		214.414	392.297	737.536	543.011	367.518		2309.883	108.741	74.374	N/A
12/10/2010	345.588	392.724	167.509		214.414	392.297	737.536	543.011	367.518		2309.883	108.741	74.374	N/A
12/11/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/12/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/13/2010	345.588	392.724	167.509		214.414	392.297	737.536	543.011	367.518		2309.883	108.741	74.374	N/A
12/14/2010	345.588	392.724	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/15/2010	345.578	392.724	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/16/2010	345.578	392.724	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/17/2010	345.578	392.724	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/18/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/19/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/20/2010	345.578	392.724	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/21/2010	345.578	392.724	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/22/2010	345.578	392.795	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/23/2010	345.578	392.795	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/24/2010	345.578	392.795	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/25/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/26/2010	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/27/2010	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/28/2010	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/29/2010	345.578	420.236	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/30/2010	345.578	420.236	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
12/31/2010	345.578	420.236	167.509		214.414	392.297	737.536	543.011	367.577		2309.883	108.741	74.374	N/A
1/1/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
1/2/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/3/2011	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/4/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/5/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/6/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/7/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/8/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/9/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/10/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/11/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/12/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/13/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/14/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/15/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/16/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/17/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/18/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/19/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/20/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/21/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/22/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/23/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/24/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/25/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/26/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		N/A	108.801	74.499	N/A
1/27/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/28/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
1/29/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/30/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1/31/2011	347.197	420.236	168.026		214.414	392.511	737.674	543.332	367.605		2309.883	108.801	74.499	N/A
2/1/2011	352.04	420.329	168.347		214.414	393.154	737.773	543.492	367.645		2309.883	108.801	74.499	N/A
2/2/2011	352.04	420.329	168.347		214.414	393.154	737.773	543.492	367.645		2309.883	108.801	74.499	N/A
2/3/2011	352.04	420.329	168.347		214.414	393.154	737.773	543.492	359.88		2309.883	108.801	74.499	N/A
2/4/2011	352.04	420.329	168.347		214.414	393.154	737.773	543.492	359.88		2309.883	108.801	74.499	N/A
2/5/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/6/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/7/2011	352.04	420.329	168.347		214.414	393.154	737.773	543.492	359.88		2309.883	108.801	74.499	N/A
2/8/2011	352.04	420.329	168.347		214.414	393.154	737.773	543.492	359.88		2309.883	108.801	74.499	N/A
2/9/2011	352.04	420.329	168.347		214.414	393.154	737.773	543.492	359.88		2309.883	108.801	74.499	N/A
2/10/2011	352.04	420.329	168.347		214.414	393.154	737.83	543.492	359.88		2309.883	108.801	74.499	N/A
2/11/2011	352.04	420.329	168.347		214.414	393.154	737.83	543.492	359.88		2309.883	108.801	74.499	N/A
2/12/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/13/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/14/2011	352.04	420.329	168.347		214.414	393.154	737.827	543.488	359.88		2309.883	108.801	74.499	N/A
2/15/2011	352.04	420.329	168.347		214.414	393.154	737.827	543.488	359.88		2309.883	108.801	74.499	N/A
2/16/2011	352.04	420.329	168.347		214.414	393.154	737.827	543.488	359.88		2309.883	108.801	74.499	N/A
2/17/2011	352.04	420.329	168.347		214.414	393.154	737.827	543.488	359.88		2309.883	108.801	74.499	N/A
2/18/2011	352.04	420.329	168.347		214.414	393.154	737.827	543.488	359.88		2309.775	108.801	74.499	N/A
2/19/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/20/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/21/2011	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2309.775	N/A	N/A	N/A
2/22/2011	352.04	420.329	168.347		214.414	393.154	737.827	543.488	359.88		2309.775	108.801	74.499	N/A
2/23/2011	352.04	420.329	168.347		214.414	393.154	737.827	543.488	359.88		2309.775	108.801	74.499	N/A
2/24/2011	352.04	420.329	168.347		214.414	393.154	737.827	543.546	359.88		2309.775	108.801	74.499	N/A
2/25/2011	352.04	420.329	168.518		214.414	393.154	737.827	543.546	359.88		2309.775	108.801	74.499	N/A
2/26/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/27/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
2/28/2011	352.04	420.329	168.518		214.414	393.154	737.827	543.546	359.88		2309.76	108.801	74.499	N/A
3/1/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/2/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/3/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
3/4/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/5/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/6/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/7/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/8/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/9/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/10/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/11/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/12/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/13/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/14/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/15/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/16/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/17/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	108.877	74.575	N/A
3/18/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	127.018	74.575	N/A
3/19/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/20/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/21/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	127.018	74.594	N/A
3/22/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	127.018	74.594	N/A
3/23/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	127.018	74.594	N/A
3/24/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	127.018	74.594	N/A
3/25/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	127.018	74.594	N/A
3/26/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/27/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
3/28/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	127.018	74.594	N/A
3/29/2011	352.058	420.346	168.518		214.414	393.191	737.979	543.527	361.599		2309.76	127.018	74.615	N/A
3/30/2011	352.058	420.346	168.518		214.414	393.306	737.979	543.527	361.599		2309.76	127.018	74.634	N/A
3/31/2011	352.058	420.346	168.518		214.414	393.306	737.979	543.527	361.599		2309.76	127.018	74.634	N/A
4/1/2011	352.067	420.346	168.539		214.414	393.458	738.407	543.655	361.675		2309.76	120.531	74.634	N/A
4/2/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/3/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/4/2011	352.067	420.346	168.539		214.414	393.463	738.407	543.658	361.675		2309.76	120.531	74.634	N/A
4/5/2011	352.067	420.346	168.539		214.414	393.463	738.407	543.658	361.663		2309.76	120.531	74.634	N/A
4/6/2011	352.067	420.346	168.528		214.414	393.463	738.507	543.658	361.666		2309.76	120.531	74.634	N/A
4/7/2011	352.067	420.346	168.523		214.414	393.463	738.507	543.658	361.666		2309.76	120.531	74.634	N/A
4/8/2011	352.067	420.346	168.523		214.414	393.463	738.507	543.658	361.666		2309.76	120.531	74.634	N/A
4/9/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/10/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/11/2011	352.067	420.346	168.523		214.414	393.463	738.507	543.658	361.666		2312.468	120.531	74.634	N/A
4/12/2011	352.067	420.446	168.523		214.414	393.454	738.507	543.658	361.666		2312.468	120.531	74.634	N/A
4/13/2011	352.067	420.463	168.523		214.414	393.454	738.492	543.658	361.666		2312.468	120.531	74.634	N/A
4/14/2011	352.067	420.463	168.523		214.414	393.454	738.574	543.658	361.678		2312.468	120.531	74.634	N/A
4/15/2011	352.067	420.463	168.512		214.414	393.454	738.568	543.658	361.678		2312.468	120.531	74.634	N/A
4/16/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/17/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/18/2011	352.067	420.463	168.508		214.414	393.454	738.499	543.658	361.675		2312.468	120.531	74.634	N/A
4/19/2011	352.061	420.463	168.508		214.414	393.454	738.499	543.658	361.674		2312.468	120.531	74.634	N/A
4/20/2011	352.062	420.463	168.504		214.414	393.454	738.499	543.658	361.674		2312.468	120.531	74.634	N/A
4/21/2011	352.062	420.528	168.511		N/A	393.495	738.499	543.658	361.674		2312.468	120.531	74.634	N/A
4/22/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/23/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/24/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
4/25/2011	352.062	420.528	168.506		214.414	393.495	738.499	543.658	361.674		N/A	120.531	74.634	N/A
4/26/2011	352.062	420.528	168.504		214.414	393.494	738.499	543.658	361.705		N/A	120.531	74.634	N/A
4/27/2011	352.062	420.528	168.504		214.414	393.494	738.499	543.658	361.705		2312.468	120.531	74.634	N/A
4/28/2011	352.062	420.528	168.504		214.414	393.494	738.499	543.658	361.705		2312.468	120.531	74.634	N/A
4/29/2011	352.062	420.528	168.504		214.414	393.494	738.499	543.658	361.705		2312.468	120.531	74.634	N/A
4/30/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/1/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/2/2011	352.062	420.528	168.504		214.414	393.494	738.499	543.658	361.705		2312.468	120.531	74.634	N/A
5/3/2011	352.479	420.528	168.546		214.414	393.654	741.416	543.784	361.796		2312.421	120.531	74.76	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
5/4/2011	352.479	420.528	168.546		214.414	393.654	741.416	543.784	361.796		2312.421	120.531	74.76	N/A
5/5/2011	352.479	420.528	168.546		214.414	393.654	741.416	543.784	361.796		2312.421	120.531	74.76	N/A
5/6/2011	352.479	420.528	168.546		214.414	393.654	741.416	543.784	361.779		2312.421	120.531	74.76	N/A
5/7/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/8/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/9/2011	352.479	420.528	168.544		214.414	393.654	741.416	543.784	361.779		2312.421	120.531	74.76	N/A
5/10/2011	352.479	420.528	168.544		214.414	393.654	741.416	543.784	361.779		2312.421	120.531	74.76	N/A
5/11/2011	352.479	420.532	168.544		214.414	393.654	741.416	543.784	361.779		2312.421	120.531	74.76	N/A
5/12/2011	352.479	420.532	168.544		214.414	393.648	741.416	543.784	361.779		2312.421	120.531	74.76	N/A
5/13/2011	352.479	420.532	168.544		214.414	393.648	741.416	543.784	361.779		2312.421	120.531	74.76	N/A
5/14/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/15/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/16/2011	352.479	420.532	168.544		214.414	393.648	741.416	543.784	361.779		2312.421	120.531	74.76	N/A
5/17/2011	352.479	420.532	168.544		214.414	393.648	741.261	543.784	361.779		2312.421	120.531	74.76	N/A
5/18/2011	352.479	420.532	168.544		214.414	393.648	741.226	543.784	361.779		2312.421	120.531	74.76	N/A
5/19/2011	352.479	420.532	168.544		214.414	393.648	741.226	543.784	361.779		2312.421	120.531	74.76	N/A
5/20/2011	352.479	420.532	168.544		214.414	393.648	741.226	543.784	361.779		2312.421	120.531	74.76	N/A
5/21/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/22/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/23/2011	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2312.421	N/A	N/A	N/A
5/24/2011	352.479	420.532	168.544		214.414	393.648	741.156	543.784	361.779		2312.421	120.531	74.76	N/A
5/25/2011	352.479	420.532	168.544		214.414	393.648	741.156	543.784	361.779		2312.421	120.531	74.76	N/A
5/26/2011	352.479	420.532	168.544		214.414	393.648	741.156	543.784	361.779		2312.421	120.531	74.76	N/A
5/27/2011	352.479	420.532	168.544		214.414	393.648	741.156	543.784	361.779		2312.421	120.531	74.76	N/A
5/28/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/29/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
5/30/2011	352.479	420.532	168.544		214.414	393.648	741.156	543.784	361.779		2312.421	120.531	74.76	N/A
5/31/2011	352.479	420.532	168.544		214.414	393.648	741.156	543.784	361.779		2312.421	120.531	74.76	N/A
6/1/2011	352.494	420.532	168.626		214.414	393.651	741.156	544.233	361.795		2312.421	120.566	74.76	N/A
6/2/2011	352.494	420.532	168.626		214.414	393.651	741.156	544.233	361.795		2312.421	120.566	74.76	N/A
6/3/2011	352.494	420.532	168.626		214.414	393.651	741.156	544.233	361.795		2312.421	120.566	74.76	N/A
6/4/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/5/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/6/2011	352.494	420.532	168.626		214.414	393.651	741.156	544.233	361.795		2312.421	120.566	74.76	N/A
6/7/2011	352.494	420.532	168.626		214.414	393.651	741.156	544.233	361.795		2312.421	120.566	74.76	N/A
6/8/2011	352.494	420.532	168.626		214.414	393.651	741.156	544.233	361.795		2312.421	120.566	74.76	N/A
6/9/2011	352.486	420.532	168.626		214.414	393.651	741.156	544.233	361.795		2312.421	120.566	74.76	N/A
6/10/2011	352.486	420.532	168.626		214.414	393.651	741.156	544.233	361.795		2312.421	120.566	74.76	N/A
6/11/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/12/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/13/2011	352.486	420.532	168.626		214.414	393.651	741.156	544.233	361.795		N/A	120.566	74.76	N/A
6/14/2011	352.486	420.532	168.623		214.414	393.651	741.151	544.233	361.795		2312.421	120.566	74.76	N/A
6/15/2011	352.486	420.532	168.622		214.414	393.651	741.151	544.233	361.795		2312.421	120.566	74.76	N/A
6/16/2011	352.486	420.532	168.622		214.414	393.651	741.151	544.233	361.795		2312.421	120.566	74.76	N/A
6/17/2011	352.486	420.532	168.622		214.414	393.651	741.151	544.233	361.795		2312.421	120.566	74.76	N/A
6/18/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/19/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/20/2011	352.486	420.532	168.622		214.414	393.651	741.151	548.293	361.795		2312.421	120.566	74.76	N/A
6/21/2011	352.486	420.532	168.622		214.414	393.651	741.151	548.293	361.795		2312.421	120.566	74.76	N/A
6/22/2011	352.486	420.532	168.622		214.414	393.651	741.151	548.293	361.795		2312.421	120.566	74.76	N/A
6/23/2011	352.486	420.532	168.622		214.414	393.651	741.151	548.293	361.795		2312.421	120.566	74.76	N/A
6/24/2011	352.486	420.532	168.622		214.414	393.652	741.151	548.293	361.795		2312.421	120.566	74.76	N/A
6/25/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/26/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
6/27/2011	352.486	420.532	168.622		214.414	393.652	741.151	548.217	361.795		2312.421	120.566	74.661	N/A
6/28/2011	352.486	420.532	168.622		214.414	393.652	741.151	548.217	361.795		2312.421	120.838	74.922	N/A
6/29/2011	352.486	420.532	168.622		N/A	393.652	741.151	548.217	361.795		2312.421	120.838	74.922	N/A
6/30/2011	352.486	420.532	168.622		214.414	393.652	741.151	548.217	361.795		2312.421	120.838	74.922	N/A
7/1/2011	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2312.421	N/A	N/A	N/A
7/2/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/3/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
7/4/2011	352.486	420.532	168.622		214.414	393.652	741.151	548.217	361.795		2312.421	120.838	74.922	N/A
7/5/2011	352.533	420.532	168.646		214.414	393.659	741.357	548.354	362.01		2312.421	120.838	74.922	N/A
7/6/2011	352.533	420.532	168.646		214.414	393.659	741.357	548.354	362.01		2312.421	120.838	74.922	N/A
7/7/2011	352.533	420.532	168.646		214.414	393.659	741.357	548.354	362.01		2312.421	120.838	74.922	N/A
7/8/2011	352.533	420.532	168.646		214.414	393.659	741.357	548.354	362.01		2312.421	120.838	74.922	N/A
7/9/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/10/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/11/2011	352.533	420.532	168.646		214.414	393.659	741.357	548.354	362.01		2312.421	120.838	74.922	N/A
7/12/2011	352.533	420.532	168.646		214.414	393.659	741.357	548.354	362.01		2312.421	120.838	74.922	N/A
7/13/2011	352.529	420.532	168.646		214.414	393.659	741.357	548.354	362.01		2312.421	120.838	74.922	N/A
7/14/2011	352.529	420.532	168.646		214.414	393.659	741.357	548.354	362.01		2312.421	120.838	74.922	N/A
7/15/2011	352.529	420.532	168.646		214.414	393.663	741.357	548.354	362.01		2312.421	120.838	74.922	N/A
7/16/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/17/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/18/2011	352.529	420.532	168.646		214.414	393.668	741.357	548.356	362.006		2312.421	120.838	74.922	N/A
7/19/2011	352.529	420.532	168.646		214.414	393.668	741.357	548.356	362.005		2312.421	120.838	74.922	N/A
7/20/2011	352.529	420.532	168.646		214.414	393.624	741.357	548.356	362.005		2312.421	120.838	74.922	N/A
7/21/2011	352.529	420.532	168.646		214.414	393.618	741.357	548.356	362.005		2312.421	120.838	74.922	N/A
7/22/2011	352.529	420.532	168.646		214.414	393.618	741.357	548.356	362.005		2312.421	120.838	74.922	N/A
7/23/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/24/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/25/2011	352.529	420.532	168.646		214.414	393.618	741.357	548.356	362.005		2312.421	120.838	74.922	N/A
7/26/2011	352.529	420.532	168.646		214.414	393.618	741.357	548.356	362.005		2312.421	120.838	74.922	N/A
7/27/2011	352.502	420.532	168.646		214.414	393.608	741.357	548.356	362.005		2312.421	120.838	74.922	N/A
7/28/2011	352.502	420.532	168.646		N/A	393.608	741.357	548.356	362.005		2312.421	121.335	74.922	N/A
7/29/2011	352.502	420.532	168.646		N/A	393.608	741.357	548.356	362.005		2313.654	121.335	74.922	N/A
7/30/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
7/31/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/1/2011	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2313.654	N/A	N/A	N/A
8/2/2011	352.506	421.161	168.707		214.414	393.608	741.859	548.356	362.166		2313.654	121.335	74.922	N/A
8/3/2011	352.506	421.161	168.706		214.414	393.608	741.859	548.356	362.166		2313.654	121.335	74.922	N/A
8/4/2011	352.53	421.161	168.706		214.414	393.608	741.544	548.356	362.166		2313.654	121.335	74.922	N/A
8/5/2011	352.53	421.161	168.706		214.414	393.608	741.544	548.356	362.166		2313.654	121.335	74.922	N/A
8/6/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/7/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/8/2011	352.53	421.161	168.706		214.414	393.608	741.548	548.356	362.166		2313.654	121.335	74.922	N/A
8/9/2011	352.53	421.41	168.706		214.414	393.608	741.628	548.356	362.166		2313.654	121.335	74.922	N/A
8/10/2011	352.53	421.411	168.706		214.414	393.608	741.906	548.356	362.166		2313.654	121.335	74.922	N/A
8/11/2011	352.53	421.411	168.706		214.414	393.608	741.906	548.356	362.166		2313.654	121.335	74.922	N/A
8/12/2011	352.53	421.411	168.706		214.414	393.608	741.906	548.356	362.166		2313.654	121.335	74.922	N/A
8/13/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/14/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/15/2011	352.53	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2313.654	121.335	74.922	N/A
8/16/2011	352.53	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2313.654	121.335	74.922	N/A
8/17/2011	352.53	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2313.654	121.335	74.922	N/A
8/18/2011	352.534	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2313.654	121.335	74.922	N/A
8/19/2011	352.534	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2313.654	121.335	74.922	N/A
8/20/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/21/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/22/2011	352.534	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2313.654	121.335	74.922	N/A
8/23/2011	352.534	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2313.654	121.335	74.922	N/A
8/24/2011	352.534	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2313.654	121.335	74.922	N/A
8/25/2011	352.534	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2313.654	121.335	74.922	N/A
8/26/2011	352.534	466.188	168.706		214.414	393.608	741.964	548.356	362.166		2309.936	121.335	74.922	N/A
8/27/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/28/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
8/29/2011	352.534	466.188	168.706		214.414	393.607	741.964	548.356	362.166		2309.936	121.335	74.922	N/A
8/30/2011	352.534	466.188	168.706		N/A	393.607	741.964	548.356	362.166		2309.936	121.335	74.922	N/A
8/31/2011	352.534	466.188	168.706		214.414	393.607	741.964	548.356	362.166		2309.936	121.335	74.922	N/A
9/1/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.335	74.922	N/A
9/2/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.335	74.922	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
9/3/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/4/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/5/2011	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2309.936	N/A	N/A	N/A
9/6/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.335	74.922	N/A
9/7/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.335	74.922	N/A
9/8/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.335	74.922	N/A
9/9/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.885	74.922	N/A
9/10/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/11/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/12/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.885	74.922	N/A
9/13/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.885	74.922	N/A
9/14/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.885	74.922	N/A
9/15/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.885	74.922	N/A
9/16/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.885	74.922	N/A
9/17/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/18/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/19/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.885	74.922	N/A
9/20/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.885	74.922	N/A
9/21/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.31		2309.936	121.885	74.922	N/A
9/22/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.306		2309.936	121.885	74.922	N/A
9/23/2011	352.534	466.188	168.781		214.414	393.61	741.964	548.581	362.305		2309.936	121.885	74.922	N/A
9/24/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/25/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
9/26/2011	352.532	466.188	168.781		214.414	393.61	741.964	548.581	362.304		2309.936	121.885	74.922	N/A
9/27/2011	352.532	466.188	168.781		214.414	393.61	741.964	548.581	362.304		2309.936	122.274	74.922	N/A
9/28/2011	352.532	466.188	168.803		214.414	393.61	741.964	548.581	362.304		2309.936	122.274	74.922	N/A
9/29/2011	352.532	466.188	168.803		214.414	393.609	741.964	548.581	362.303		2309.936	122.274	74.922	N/A
9/30/2011	352.532	466.188	168.803		214.414	393.609	741.964	549.997	362.302		2309.936	122.274	74.922	N/A
10/1/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/2/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/3/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/4/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/5/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/6/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/7/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/8/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/9/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/10/2011	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		2309.936	N/A	N/A	N/A
10/11/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/12/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/13/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/14/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/15/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/16/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/17/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/18/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/19/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/20/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/21/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/22/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/23/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/24/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.997	362.471		2309.936	122.274	74.922	N/A
10/25/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.949	362.471		2309.936	122.274	74.922	N/A
10/26/2011	352.539	466.173	168.823		214.414	393.61	741.993	549.949	362.471		2309.936	122.274	74.922	N/A
10/27/2011	352.539	466.173	168.802		214.414	393.61	741.993	549.949	362.471		2309.936	122.274	74.922	N/A
10/28/2011	352.539	466.173	168.802		214.414	393.61	741.993	549.949	363.041		2309.936	122.274	74.922	N/A
10/29/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/30/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
10/31/2011	352.539	466.173	168.802		214.414	393.61	741.993	549.949	363.041		2309.936	122.274	74.922	N/A
11/1/2011	352.732	466.175	168.926		N/A	393.612	742.056	550.735	363.34		2309.936	122.319	74.922	N/A
11/2/2011	352.732	466.175	168.926		214.414	393.612	742.056	550.735	363.34		2309.936	122.634	74.922	N/A

Workpaper 2: Top 20 Metal Mining Companies by Market Capitalization: Float Shares

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT	EQY_FLOAT
11/3/2011	352.732	466.175	168.926		214.414	393.612	742.056	550.735	363.34		2309.936	122.634	74.922	N/A
11/4/2011	352.732	466.175	168.926		214.414	393.61	742.056	550.735	363.34		2309.936	122.634	75.135	N/A
11/5/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/6/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/7/2011	352.732	466.175	168.926		214.414	393.61	742.056	550.735	363.34		2309.936	122.634	75.135	N/A
11/8/2011	352.732	466.175	168.926		214.414	393.61	742.056	550.735	363.34		2309.936	122.634	75.135	N/A
11/9/2011	352.732	466.175	168.926		214.414	393.61	742.056	550.735	363.34		2309.936	122.634	75.135	N/A
11/10/2011	352.732	466.175	168.926		214.414	393.61	742.056	550.735	363.34		2309.936	122.634	75.135	N/A
11/11/2011	352.73	466.175	168.926		214.414	393.61	742.056	550.735	363.34		2311.348	122.634	75.135	N/A
11/12/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/13/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/14/2011	352.73	466.175	168.926		214.414	393.61	742.056	550.735	363.34		2311.348	122.634	75.135	N/A
11/15/2011	352.73	466.175	168.926		214.414	393.61	742.056	550.735	363.34		2311.348	122.634	75.135	N/A
11/16/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.34		2311.348	122.634	75.135	N/A
11/17/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.34		2311.348	122.634	75.135	N/A
11/18/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.34		2311.348	122.634	75.135	N/A
11/19/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/20/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/21/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.34		2311.348	122.634	75.135	N/A
11/22/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.34		2311.348	122.634	75.135	N/A
11/23/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.34		2311.348	122.634	75.135	N/A
11/24/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.34		2311.348	122.634	75.135	N/A
11/25/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.339		2311.348	122.634	75.135	N/A
11/26/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/27/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
11/28/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.662		2311.348	122.634	75.135	N/A
11/29/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.662		2311.348	122.634	75.135	N/A
11/30/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.662		2311.348	122.634	75.135	N/A
12/1/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.662		2311.348	122.634	75.135	N/A
12/2/2011	352.73	466.175	168.926		214.414	393.61	742.026	550.735	363.662		2311.348	131.834	75.135	N/A
12/3/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/4/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/5/2011	352.73	466.175	170.255		214.414	393.612	742.026	550.735	363.761		2311.348	133.218	75.135	N/A
12/6/2011	352.73	466.175	170.255		214.414	393.612	742.026	550.735	363.761		2311.348	133.218	75.135	N/A
12/7/2011	352.73	466.175	170.255		214.414	393.612	742.026	550.735	363.761		2311.348	133.218	75.135	N/A
12/8/2011	352.73	466.175	170.255		N/A	393.612	742.026	550.735	363.761		2311.348	133.218	75.135	N/A
12/9/2011	352.73	466.175	170.255		214.414	393.612	742.026	550.735	363.761		2311.348	133.218	75.135	N/A
12/10/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/11/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/12/2011	352.73	466.175	170.255		214.414	393.612	742.026	550.735	363.761		2311.348	133.218	75.135	N/A
12/13/2011	352.73	466.175	170.255		214.414	391.008	742.026	550.735	363.761		2311.348	133.218	75.135	N/A
12/14/2011	352.73	466.175	170.255		214.414	391.008	742.026	550.735	363.761		2311.348	133.218	75.135	N/A
12/15/2011	352.73	466.175	170.255		214.414	391.008	742.917	550.735	363.761		2311.348	133.218	75.135	N/A
12/16/2011	352.73	466.175	170.255		214.414	391.008	742.917	550.735	363.761		2311.348	133.218	75.135	N/A
12/17/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/18/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/19/2011	352.73	466.175	170.255		214.414	391.008	742.917	550.735	363.761		2311.348	133.218	75.135	N/A
12/20/2011	352.73	466.175	170.255		214.414	391.008	742.917	550.735	363.761		2311.348	133.218	75.135	N/A
12/21/2011	352.73	466.175	170.245		214.414	391.008	742.917	550.735	363.761		2311.348	133.218	75.135	N/A
12/22/2011	352.73	466.175	170.245		214.414	391.008	742.917	550.735	363.761		2311.348	133.218	75.135	N/A
12/23/2011	352.73	466.175	170.245		214.414	391.008	742.917	550.735	363.761		2311.348	133.218	75.135	N/A
12/24/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/25/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/26/2011	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/27/2011	N/A	N/A	N/A		214.414	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
12/28/2011	352.73	466.175	170.245		214.414	390.989	742.917	550.735	363.761		2311.348	133.218	75.135	N/A
12/29/2011	352.73	466.175	170.245		214.414	390.989	742.917	550.735	363.761		2311.348	133.218	75.135	N/A
12/30/2011	352.73	466.175	170.245		214.414	390.989	742.917	550.731	363.761		2311.348	133.218	75.135	N/A
12/31/2011	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A

Workpaper 3: Top 20 Metal Mining Companies by Market Capitalization: Trading Volume

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
1/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/4/2010	3690914	3016534	19384514	2464600	2104408	4867764	791923	18085248	5679229	3019988	2829684	5626515	3754299	2749522
1/5/2010	9084478	4145451	24200174	3051500	2278032	5193158	2125651	17314760	4871854	3333558	2294034	7190443	4771917	2086813
1/6/2010	6495634	3485611	24190872	2759900	2730700	5847458	2712791	30693692	4756660	3936604	3068941	8019170	3616169	3854443
1/7/2010	6626376	3030058	16064827	2564400	1920304	5562087	2616772	19504914	4170987	2625701	2245782	7622878	3683559	2707238
1/8/2010	4585041	2237252	14727124	2461600	2155716	4336514	1414667	21313058	4273065	2190687	2154953	5954003	3094646	4280529
1/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/11/2010	9193095	3589524	16856232	2857300	2133208	5896107	2333659	30931048	3760914	3368389	2639446	6423134	4569190	4115208
1/12/2010	8960305	3816543	22897664	2645200	2462284	6258099	1946103	34168746	5204587	4091037	3268752	8458633	5509409	4647309
1/13/2010	13042818	3538724	21610087	2651700	2668616	5154574	2420675	24561022	5198134	4279282	3688338	5555123	4194588	3670816
1/14/2010	10230632	3371044	19893536	1611100	3236460	5970935	1886892	18690694	4595268	4664236	3431946	5054943	3333870	3080813
1/15/2010	14108402	2898328	22851798	2227700	2349840	11685651	2456294	25939854	4789121	3447874	4175096	9045212	4902424	3593764
1/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/18/2010	12424930	N/A	N/A	1109800	N/A	2886600	1950869	N/A	1577428	1225436	N/A	N/A	2163897	N/A
1/19/2010	13952519	3748442	15052669	1897600	2364540	3937442	1778725	22957364	4164396	2935189	3621709	6408356	3163406	4687077
1/20/2010	12799694	4628161	28517148	3139300	3983268	7954538	1787821	34635112	9661048	7104955	4811482	12143008	7310753	4375373
1/21/2010	14798484	7065673	30627353	3633600	5188984	12501000	4304665	68718850	8438986	6202170	6334808	15471996	5835970	8930196
1/22/2010	18088772	5541558	37258274	3527900	6468608	12881851	4581745	60624004	7830194	5559538	8091148	13060094	5710255	7379982
1/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/25/2010	12569838	3084686	18854455	N/A	2730888	7711117	2433481	32663314	5338682	3854293	2748041	8406513	3549081	4260439
1/26/2010	N/A	3991595	37366669	4392500	3770252	9263721	N/A	43120120	6421202	4545570	4316893	8377188	4734547	5667340
1/27/2010	18017494	5354660	35027786	3325800	3215828	8257676	5592346	48950624	6713719	4556467	4835701	8942994	5501474	5805561
1/28/2010	21444774	6603888	27672116	2421100	3309588	10192099	4324219	63514392	6539875	4916824	9589843	10200021	6772064	4333587
1/29/2010	25457854	6006303	28253440	3404300	4304896	9168909	7036722	51178596	7379967	5900835	6338002	8932085	5545461	6848717
1/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/1/2010	17111579	5376795	22629726	2694700	4365732	6715225	4690298	48838364	5713140	4833464	5268494	11549130	4768739	5412937
2/2/2010	12662672	8624858	23324531	2534400	4472456	10496975	3232580	51279348	5508905	4756272	5303224	8717878	6420041	5088045
2/3/2010	16162776	3861035	19603127	2893000	2982344	8361757	2581549	46258152	5235840	3889043	8003015	10952316	4512297	8061629
2/4/2010	9567073	7767167	36700897	4266600	4406644	8805059	2419006	53759974	9767356	7926320	7638150	12670896	6263477	5971532
2/5/2010	16910635	6573442	47144678	3850000	8060624	12634295	5476084	74929134	11337889	9441524	6886446	17170527	7298817	6416328
2/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/8/2010	12221521	3448647	28775368	4466700	5919012	7651230	2794147	47861134	5399401	6001706	5825769	10295327	5246895	3504899
2/9/2010	12601513	5458233	29381388	4223700	5420244	7911405	3690334	50452112	8172662	6787877	5250889	12685295	5625017	5729304
2/10/2010	17683183	4916783	27706342	2721800	4997168	8648172	4121053	38632460	5733264	5322676	3866859	8631381	4797118	5551597
2/11/2010	8883083	5345067	51091637	8241000	4990924	11170294	2880983	45868116	5906018	5831261	5134655	11210828	5252915	5384021
2/12/2010	12013735	4347138	27707751	3518400	4702076	13999236	5185488	43072422	5880932	5006388	5496420	8135994	4632039	5455839
2/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/15/2010	7062814	N/A	N/A	N/A	N/A	4657872	2223334	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/16/2010	9088997	3953587	26889632	N/A	3568212	7791486	2553991	34526136	5398213	4616790	5770161	11204730	3814467	5727791
2/17/2010	11796429	4913818	24890151	2952300	3466184	6851112	2923888	32810498	6140713	4641052	1707991	12085639	3760767	5190091
2/18/2010	11186881	5079857	25590355	2443500	2699588	5898834	2184621	37814110	7621424	4428094	1685707	10412373	6590615	10515864
2/19/2010	16665631	5608376	24685945	1560700	4122920	9612334	3104006	30231666	7742580	4096071	1523228	8568056	5373398	10466249
2/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/22/2010	12243302	4319967	18177356	2043800	3026352	6250424	3034674	24431370	4108105	3345914	2271355	6266156	3584266	6670985
2/23/2010	10023951	8903912	23592737	3743800	2966664	7897255	2433062	35792250	5225289	4886842	2192776	8062011	4256636	7025590
2/24/2010	24783521	6862570	19156433	2654300	2976528	6075518	6408137	34098044	6145004	3401937	2646559	8617990	3940665	6860945
2/25/2010	15108727	5848437	25148190	2787900	6192560	7352087	3494536	42680004	8191005	4945158	3082068	16562640	5489878	6952443
2/26/2010	19057550	4525504	20848801	5728900	3211732	6933497	4895300	26174874	6004257	3456328	2347954	7766901	3744908	4489865
2/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/1/2010	19663693	4312557	17444717	2151600	3556532	5693935	1892364	30079948	7935059	3036835	2979741	8046995	3067931	6219948
3/2/2010	10837537	4458658	32171292	3730600	4032736	5941758	3110313	36974258	7654041	4403519	3230482	11242864	3283032	6926151

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Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
3/3/2010	11442711	4762741	24244282	2704500	3776200	7322410	3737877	34051164	6283256	4478755	2466135	7712943	2596641	7471468
3/4/2010	10259889	4119268	28032159	3334500	3376752	4897251	2302355	26125244	5223302	4969205	1706361	10462876	3579390	7449596
3/5/2010	10394167	5393133	30990228	4205300	3476864	6908623	2841318	30802866	4636163	3896622	2172673	7408535	3505911	5899727
3/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/8/2010	13647386	3661754	22312155	2729200	2087440	4855877	2377810	22422056	4713088	3850511	1872833	5587457	3680592	3723081
3/9/2010	12653860	3339483	24546414	4156100	2185580	6727511	2534713	25760782	6198082	3937709	1918532	6958060	3869709	4834013
3/10/2010	10937000	4564719	26759273	3487100	2666332	5541185	4097493	30962426	7101630	4271004	2893010	9014498	5090814	4934219
3/11/2010	9026116	2634050	21950897	2349500	2669272	7091653	2730707	25456836	5189455	3338182	1840457	6469052	6690266	3942735
3/12/2010	6593273	2164759	22845826	2271900	2575624	7340827	2164635	20682228	5725130	4725330	3123884	5657199	4211072	10258811
3/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/15/2010	10098082	2284827	16559228	1518900	2101268	4478916	2444610	23129350	3904374	2979795	1913539	6028877	3070058	4151655
3/16/2010	10525345	3478879	26225277	2251600	2175144	4569458	1978466	25943720	5528619	4197779	2287812	8537209	4290177	8835628
3/17/2010	10764863	4057879	25427328	2202800	2986080	7482734	2734670	23940884	5812444	3320006	2140478	6066074	3915215	5925780
3/18/2010	15204466	3535044	21914064	1805900	3527972	5803204	2485041	23425986	4708224	4344292	1580820	6426544	2949048	4663794
3/19/2010	7450447	3010407	21863779	1380700	3300744	10027393	1447471	31220788	12743404	8324681	2068265	7829637	7191901	5766479
3/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/22/2010	8693038	3013097	22304802	1668900	3216332	5830902	1382336	28119686	4886895	4404086	2213341	6020221	2567727	5011597
3/23/2010	18910047	3925713	47995744	3324000	4039148	7633730	2030187	25381356	5756463	3996507	2856948	6236295	3611450	7465883
3/24/2010	14586742	3163339	26588589	1903700	3598036	6330897	2820509	21932878	7948260	5422075	2351668	8788492	7841785	10190167
3/25/2010	23290544	4281854	28579890	2549500	4421252	5511085	3766265	27005318	6053874	4739567	2255318	9640853	5073313	9404154
3/26/2010	34760579	3330318	24859480	2345700	3072308	5079539	7983820	23499090	5643849	5798779	1832279	6884232	5402540	8478360
3/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/29/2010	24285063	4699214	23305422	2057000	3172460	5003474	1985081	34642078	4365058	2889551	2062235	6441843	3779341	5930148
3/30/2010	24430799	3438271	32744493	2888400	2451356	5860958	2414955	27982430	3239098	3366773	1623850	6863646	2970457	6540264
3/31/2010	19028861	3898886	27207700	4071200	3404268	5347916	2815096	16523692	4605578	3376965	1783111	5626278	4387750	4504702
4/1/2010	10479766	3395740	25038676	1873200	2412692	5914419	1998556	27576858	5333005	5112914	2907132	7787120	6222228	5753319
4/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/5/2010	N/A	2369912	18580534	1752100	1523944	N/A	N/A	21971142	4279159	2776853	2876028	5517498	3042213	4650606
4/6/2010	11035638	3361831	18418348	1572300	2313756	4792646	2075023	21882250	3794307	3319586	3534791	6919120	4131517	5622274
4/7/2010	9183208	5759863	34861923	2897900	2352420	4112451	1520492	26694096	9884948	6455467	2299139	9056720	7046749	5883697
4/8/2010	15037546	2632185	30518061	4601600	3252708	6238756	2274265	21002482	3544682	3908644	1855257	6433217	2907038	5189958
4/9/2010	7343693	2569169	30469865	2959100	1953672	4322684	1775805	19510946	4209100	4209312	2115347	7150821	4692185	5841302
4/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/12/2010	7696057	2140920	18789312	2614600	1909628	3487648	1690073	20832150	4016575	3600063	2307449	5685134	3046199	3813319
4/13/2010	11758132	2780851	21318316	2053100	1814988	5326665	1697188	20832082	3936396	2805815	1903943	5534827	2495368	3881327
4/14/2010	15565626	2237133	20753205	2778400	1560920	4678512	2517037	16484448	4312541	2813345	2535492	4762692	2809862	4601474
4/15/2010	13141256	3066168	22401222	2515200	2247008	4543368	2738993	13882224	3855940	3430603	2088709	4097098	2785495	4467999
4/16/2010	11839469	4345980	32396629	3315500	3695428	9182369	2062499	29738122	6586919	4785199	2684519	10960751	4623754	7642255
4/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/19/2010	15445248	3724170	31872255	4380600	2461728	5473641	2202066	27290746	4678220	3795153	3662252	6581659	2838561	6431471
4/20/2010	14072009	4199800	20964034	2946500	1980684	5478930	1768081	19251064	5242560	2827180	3239364	5646139	5032335	4483446
4/21/2010	26944698	4004916	24667590	N/A	3577692	8434577	2835998	50825638	4106871	4114155	3586054	5226668	3982685	6118443
4/22/2010	21781589	3688274	25312634	4202300	3220864	7566528	5224397	32160812	4975238	4467417	3132781	5450065	5141980	5615530
4/23/2010	13917148	4004712	18893868	3471200	2197976	5544366	4226619	26857614	4546035	3832819	2986596	4942841	4834334	6433862
4/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/26/2010	N/A	2724158	19167760	1814300	1877548	6644981	N/A	19469176	2622123	2541367	2773117	4323387	3543309	3821353
4/27/2010	17620034	5925825	45593499	4842500	3228660	7704019	6928486	38102656	6659818	6057317	3181159	10748561	4570690	6632369
4/28/2010	20451701	6121186	43769591	4647100	4453184	11448368	7149686	26555520	10514685	7162982	3311938	11715055	9176333	6299687
4/29/2010	23796263	3913809	36015172	3482000	3317780	7734150	4554867	27937450	7923404	5723120	2568279	9362881	7107264	17512411
4/30/2010	30914306	7131043	25748917	4270700	4270148	12274313	8086043	24539156	10322435	6427546	2484216	7933201	5814024	7435736
5/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 3: Top 20 Metal Mining Companies by Market Capitalization: Trading Volume

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
5/3/2010	24551024	8427253	25847476	3412300	10977403	N/A	7095942	35179112	4697932	3772175	4161213	7583777	4191831	12121010
5/4/2010	20592819	9830104	53226200	6609100	9478295	17769540	7503910	43727576	6896711	6153030	5519050	8715101	5383916	17614857
5/5/2010	26805956	6884217	50093192	6144800	6318697	15324559	7645900	45515696	7290332	4706158	4481841	10603197	11747680	21667150
5/6/2010	27259405	11326573	61205523	6966800	6402866	9462828	7584675	54964644	14124480	12335425	6238012	16843068	11944667	14864001
5/7/2010	28054715	7517553	53358586	4771400	8191080	15726088	8252014	63805644	11292913	7984314	5423164	16301738	7246010	13512963
5/8/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/10/2010	29773650	7782220	44726741	4805100	5557558	12784810	6972690	39497926	6541868	5231929	4561594	10687379	6784994	8334397
5/11/2010	22310887	5912298	31993062	1733500	5228962	8045432	5455789	37039724	10885399	8563800	4518880	17785425	9517744	14706318
5/12/2010	18702472	6510575	20818190	1797500	3134068	10539575	4687183	55752638	9615568	6811470	2434880	13758568	8191907	13025507
5/13/2010	17987361	4497542	22442971	2268600	2977642	7385378	4502269	29492622	5578843	4272456	1956800	10199960	6524465	8588347
5/14/2010	13821448	6945705	43650818	3241300	3916512	9705443	2061024	30753884	8295225	5228510	3669589	13359985	5663741	8902684
5/15/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/17/2010	25764872	6111759	39815576	3465400	3923294	10017014	5533956	39626378	5612938	3890039	3224964	9074256	4897892	9393363
5/18/2010	24604086	6495028	37522627	3669200	4327600	6925509	4982314	38023610	7613403	4705163	3235243	11705290	5256640	8552244
5/19/2010	31760338	7457596	57204302	7068500	5637707	14057037	5747439	41650726	9255198	6167886	5517586	13686086	7049308	13425997
5/20/2010	28047625	10637950	62823266	6138200	10362586	16015018	6859450	56704090	7553403	6166772	6120944	16628853	8693288	11772265
5/21/2010	23028031	8439737	56836918	3876700	7947314	15653801	9390834	53914960	4987281	3670259	5488139	10800258	4226026	11543262
5/22/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/24/2010	21743350	5032375	38511799	2659000	3844299	9320210	8406686	31874424	N/A	N/A	3153439	7595675	N/A	7851797
5/25/2010	17032072	6438130	44407634	4546000	6132536	9063561	4219803	44195124	6317362	4603441	4044884	12299869	4122060	14727090
5/26/2010	18365360	9038224	55254871	5566600	7172680	14925959	4703540	36054362	5337469	3704220	4032471	8085935	2779492	15355371
5/27/2010	25337437	6514873	47420771	5082700	4318545	9288079	6891349	30262358	4518824	3889580	3155101	7712260	4231682	9782571
5/28/2010	35646559	3763809	34815921	4416900	3099519	8686966	12592117	23569548	3401396	2402786	2652259	6980964	2560020	7069435
5/29/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/31/2010	12993976	N/A	N/A	4781200	N/A	N/A	2253791	N/A	2440361	551898	N/A	N/A	663129	N/A
6/1/2010	10528007	3787194	44229499	3592000	3752842	6875081	1938927	26210086	5845774	3591084	2592114	11191574	2968253	6722879
6/2/2010	14385856	3881936	27977489	2078600	3585793	6894410	2411623	23718490	3697438	2411115	3005161	7099778	2042889	5592446
6/3/2010	10795980	5693721	38718022	N/A	3812185	7158934	2551070	33413306	4133419	3030861	2706376	6485480	4125044	6158439
6/4/2010	13922763	8604952	37171525	4768500	4336299	9774445	2649615	29964012	5486372	3185342	3428675	8098436	3464166	9701795
6/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/7/2010	19460662	4651813	32013382	2834500	3889038	9041320	4325025	44684780	6284868	5303687	4237516	8728146	4782699	6845751
6/8/2010	17569701	5839732	31510451	1960900	4000617	7574349	3330921	44870816	6919429	5431094	4374144	11666123	5378420	8141833
6/9/2010	11328240	7072509	33586794	3271400	3937936	6489441	2191486	32164570	5603178	3793091	3847989	9134689	3960595	8969658
6/10/2010	13403812	5831422	29587307	2595300	3676742	9434385	2451123	27765524	4077720	2821278	3915184	7368181	3621328	8387210
6/11/2010	16448113	3204689	19244459	1917400	2956970	9379649	3293891	22103124	4107810	1977585	2800672	4793833	3259647	5818075
6/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/14/2010	N/A	4259268	34472407	2529300	3243364	4731221	N/A	23436962	5235971	4062613	2864151	7453118	3747317	6695687
6/15/2010	24920382	3289872	21694072	1905500	2720301	4718847	2287088	19944122	4371549	2878936	2232013	7307174	3236151	5062606
6/16/2010	20387024	3545029	30929266	4213600	2651213	5793472	4221335	18942210	3661810	2560449	2469199	11104530	3550293	4280428
6/17/2010	15402306	4122615	24529603	2763400	2780911	7126344	3048262	22532132	5822886	2851607	2210587	10187894	4393052	5880053
6/18/2010	12414653	3344435	19563100	3562300	1997105	8689484	2858632	19767826	11996715	6253648	1756904	11941145	6977645	4382085
6/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/21/2010	21467352	5165517	32052594	3209000	4227386	8156657	3674638	39983614	6032227	3200038	3643372	9978448	3259651	8188613
6/22/2010	16587990	4649235	23175476	3258100	3472228	5199279	2955100	26933354	3808171	2436092	2029082	6333505	2301447	4753014
6/23/2010	10486833	6116062	21421998	2161700	3623882	8128197	2678828	29363628	4415614	3668243	2500203	8806694	3165602	5883226
6/24/2010	21905083	4625758	19864710	2461700	2470426	6077673	3402313	24659326	4498344	2978483	2843306	9650124	3287890	4888919
6/25/2010	28371939	6024406	20075550	2003600	2710144	5063349	9848235	34030802	5902603	3461132	2962887	12203890	3701492	8185350
6/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/28/2010	9793674	3196124	20777701	2372200	2390580	4001962	2665480	28062618	5716964	4172100	1987953	12337954	3381069	3526238
6/29/2010	15775917	6047034	40853698	4002500	3650799	8753011	2730132	28816868	5673693	6225698	2776855	11602624	4298409	11436656
6/30/2010	15436166	7109554	26940274	3231600	4312529	8489640	5268055	27172810	5694771	4335755	2015164	11125675	3912125	6962940
7/1/2010	17937257	5656675	32755887	3238800	5107416	7984726	6559615	36092426	N/A	N/A	3025989	14453729	N/A	8920399
7/2/2010	11784225	3195104	19833422	2986200	2999721	7142766	3106296	20194806	5880154	3640934	1960195	6293402	3526092	5719513

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Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
7/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/5/2010	9272194	N/A	N/A	1315100	N/A	1843296	1639721	N/A	691477	585198	N/A	N/A	546719	N/A
7/6/2010	11108646	4476456	26196203	3854600	3443329	4917608	3751326	25543686	4095008	5476461	2715210	9416998	4082986	10905487
7/7/2010	15072110	3744721	35569943	2440200	3395152	4944140	3156685	28124830	3978031	3609234	3034897	8446128	3466388	9119830
7/8/2010	13219402	3313600	22723785	2510400	4213409	4959427	2662751	25789522	6635786	4730054	3287331	8286895	4353866	7425702
7/9/2010	9909941	2832043	17974954	N/A	2138897	6981798	3039918	23762766	4193422	2780469	1785266	8343895	4089078	5752407
7/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/12/2010	6537853	4020044	21520470	2001500	2156228	5080449	1886230	33962466	3706299	3180914	2168894	6303208	2207017	7400983
7/13/2010	10918696	3924094	24190743	2186400	2221105	4505689	3293644	23331612	5746635	3855679	2882938	6789127	3278453	6722388
7/14/2010	7427161	2342171	19535847	1666300	1786405	5481046	2516828	21064530	3594614	2764641	2012924	5525063	2823360	5514587
7/15/2010	10373169	4184778	20353426	2183500	2951724	5816012	2548134	22157136	4107075	4534296	2589655	7640608	3818064	4579267
7/16/2010	7910892	3826586	25386558	2713700	3198459	8834660	2269756	27888188	3981346	3219976	2596174	7821925	5323622	5171260
7/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/19/2010	8022899	2811945	16299016	1670500	2210710	4198460	2539769	17759102	3772398	3096519	1751920	10812086	3523305	5124616
7/20/2010	15538789	4574755	47202663	6196500	4243707	8884500	5114610	33666602	3530513	3208807	3247582	7606570	5530506	8560082
7/21/2010	22217826	5143011	36566839	4008400	3962835	6524086	3208974	45624000	3718189	2590199	4397026	6348845	2274155	9231420
7/22/2010	13896411	4842088	22824645	2916800	2410961	5731412	2799302	37877254	3008004	3121891	4107085	6284142	6833340	7923059
7/23/2010	12628334	4723089	21353365	1912000	3606476	5418488	3283735	29995636	3757254	2357217	7501735	5927799	4183944	6328963
7/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/26/2010	15558739	2924660	13307939	1479800	2516367	6879762	2936345	19804742	4122049	3276447	3783061	6309545	3821091	5539335
7/27/2010	32808534	4848809	16764440	2522600	3309228	7484216	2701041	26548368	5372824	4267625	3057480	14341887	7020289	6922555
7/28/2010	30316036	4598912	18777190	2592900	2230915	5453511	4547250	23515722	5649635	3616642	2391218	10937129	8542902	5087098
7/29/2010	22118387	3595129	23464948	3998700	2879120	4153748	4350593	23600784	5623411	3853837	2717865	6128827	15867275	6870479
7/30/2010	29108121	3636736	21401129	3436400	2659535	5460305	6384173	22315274	3938674	2972840	2638278	5195286	3430216	4542100
7/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/2/2010	18399272	4511235	25045912	3750800	2445125	5437867	1489978	26051150	N/A	N/A	2464579	6438691	N/A	6485739
8/3/2010	21215529	2780544	18929464	2261200	2094413	3655896	4743489	18139696	5871160	4959849	2535258	6005004	44209091	4772158
8/4/2010	19991931	2253939	17734931	2690600	2245651	3991139	3297424	20310318	6092363	4681667	2471404	7184651	22564139	5856867
8/5/2010	25907880	2849247	14528165	1577200	2348190	4921833	3221577	19315982	4598057	3164527	1842916	5252308	11618658	3444493
8/6/2010	20680245	3558085	15012613	1603300	2614824	6690838	2303112	23551924	6232362	3184069	3483530	5924916	10610017	6175102
8/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/9/2010	24222646	2382523	10449208	1363500	1819153	4264000	2141573	10717692	2170190	2240632	1866270	3674156	6221717	5368958
8/10/2010	34525465	3866587	19362283	2632900	2402605	4477995	3018179	20427412	3582060	2252167	2091388	5022399	11030174	5345749
8/11/2010	23689317	3956072	21380307	2712000	2336831	5526550	3458076	23780078	4971220	3568419	2589783	5594567	10582423	5177476
8/12/2010	14814150	2240807	15193279	2206700	2558194	5218982	3030589	18915886	5583097	3624802	1644029	6823467	14118922	4635764
8/13/2010	14472369	2026374	11216873	2056900	1879671	5649976	4006003	12844472	3866471	2970524	1640517	4437500	10766028	3813003
8/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/16/2010	13187740	2191710	14270776	1705500	1681949	2762416	1994070	12699886	3188153	2845104	1569318	3540832	10119773	4978780
8/17/2010	13360188	8030603	17055101	2575800	2525263	9175102	2341992	19486238	3551987	3021097	1779078	4983985	9930780	6386893
8/18/2010	46275168	5680196	16163648	3115300	1956441	6319235	6159300	13784942	3773644	4647102	1809324	6197276	12942649	4754406
8/19/2010	28567294	3643998	16251588	2331000	3073723	6505753	3363360	19736748	3472643	3928532	1519815	5396600	18641774	5770276
8/20/2010	13310066	2724023	17275222	2766200	1731647	5781425	3248829	19833160	2333770	3260374	1310252	4290796	7376627	4118860
8/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/23/2010	10388321	3351851	23479266	3855000	2592138	3554943	2228114	12744376	2625425	2251505	1409739	3697415	8788377	3286365
8/24/2010	13146764	4984983	17845345	2612400	4539316	7086576	3447230	30523194	4251574	3460569	3410977	7954569	15932828	4846181
8/25/2010	17309664	4279224	20998047	3624000	2666207	7155509	4585906	26793578	4964533	3377561	3756712	7060069	12996604	5247568
8/26/2010	20384936	3619529	14907615	2688000	2267939	4944775	3793997	24106276	7121955	3833745	1879550	5594507	8652719	3715855
8/27/2010	26611470	4777792	18634772	3217800	2137934	3553991	4893823	27353238	4770757	4231394	3543021	6290222	9206613	4194545
8/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/30/2010	15439161	2231662	13023870	2222900	1918335	N/A	2217326	16498130	2948655	2331813	1412953	3885999	6083070	4444651
8/31/2010	19638344	3673785	16834330	2698800	2998405	6469242	3528081	24602692	6480930	5619523	2343492	7704453	28289487	5554022
9/1/2010	15374043	4477261	27776413	3302400	3913613	8302202	4016314	30596838	6280943	4361961	2498286	8179321	13626748	5612229

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Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
9/2/2010	10622951	2343877	15095463	1865300	2145913	5924590	3431362	19184446	4278171	2303247	1464342	5216345	18639087	3872171
9/3/2010	10392363	2732253	17232965	2355800	2230825	4829396	2169424	21550774	5840791	6558030	2076968	4535371	20408976	4236816
9/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/6/2010	11417293	N/A	N/A	668200	N/A	2751291	2631462	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/7/2010	11811110	3937669	17938356	N/A	2658312	5612089	2768311	19606982	3929735	5488525	1642876	5205348	9003968	3987029
9/8/2010	10978881	2043370	14812949	1794900	1867359	6889188	2448351	20212184	4841052	5132775	2423480	4655372	10818525	4613988
9/9/2010	11711651	2935437	14497983	1704500	2299331	7947493	2832574	19120628	5892521	4859783	1899331	4849557	9799084	4322742
9/10/2010	8059673	2189332	10529424	1692500	1602727	3454597	2627813	14906498	4300703	3740795	1457396	3276634	12362509	2367782
9/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/13/2010	14009820	4261912	21007645	2101100	1717296	4601412	3979915	20101942	3133582	2498752	1825027	4162926	6493021	2814538
9/14/2010	18491922	3670914	18583936	2848700	1880295	5544244	2762715	18036682	5857387	6126687	1473176	12097668	11293244	9325429
9/15/2010	15082545	3789352	16199629	2847100	1290134	5359611	2911792	19965252	4757839	3996636	1240081	6726173	27982516	4549969
9/16/2010	22727935	2639806	15343235	2819600	1890813	5457232	3869609	15422494	5179586	3931552	982056	6283884	28103694	3057106
9/17/2010	11350887	2862668	19400704	2577500	1577992	9858976	3874516	14114664	7616598	7074089	1613891	6149788	27893066	6427883
9/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/20/2010	8107353	3074093	17798461	2419100	1760472	4311784	2837611	21618816	4353271	4039762	1407684	4626347	18273364	6412378
9/21/2010	10945703	3030893	22280671	3159600	3326389	4746818	3596950	22772286	6294341	4994635	1939162	9347013	56406810	6449508
9/22/2010	11982820	3611057	32275373	4531000	3463870	7565974	3805696	21377092	6054455	3677502	1659494	7501136	20929723	6770044
9/23/2010	9631997	2188783	30419461	4924900	2449611	4825491	2993171	23057134	3961808	2958062	1893837	5909388	13950644	3562652
9/24/2010	18144478	2353418	33684973	5616300	2472765	8381800	6548866	19509446	4617077	3580785	2053238	5448912	18314431	3892720
9/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/27/2010	13438137	1318391	26195279	3151100	1677204	3656188	2713875	13941594	4043523	2419759	1409755	4877314	7959656	3311657
9/28/2010	9229142	3213205	26102038	2966300	3025566	5679952	2026517	21403122	5725112	5395000	2178233	8573511	11478246	3267456
9/29/2010	15038742	2504628	21839338	3570600	2224905	4895299	2208022	19222190	4608714	3906785	1196590	6368873	10532802	3959011
9/30/2010	16998716	4187638	21772733	3965500	2420187	5187784	2992376	21663258	7732622	6891884	1985924	7981441	13568802	4004880
10/1/2010	12423568	3641181	23829228	3685100	2354609	3311780	2024878	31267370	5830130	3811387	2181261	4770148	7667343	5801819
10/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/4/2010	8918035	3375857	21494149	2912400	1911670	4161161	1955994	23298058	4541350	3712810	2121578	4473758	7033019	4359787
10/5/2010	11749397	3823057	25309147	2919600	4287533	5849135	2557671	26483512	5452446	6364366	2637014	9491212	22807748	4529190
10/6/2010	15738284	3822527	21454524	3969600	2704469	7748864	3409989	27311434	5303412	6801895	3066447	5567236	16193519	3556628
10/7/2010	13000547	3944551	21667868	4498600	2874358	5105795	2729938	26890340	7848284	7206585	3423750	10353701	11732551	2924612
10/8/2010	7567811	3171770	20068222	3228800	2703242	5154513	1749865	27166142	5244830	3310890	2767337	6188000	8844058	6130745
10/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/11/2010	10654640	1859031	11217277	1392000	2442185	4442625	3551736	15020538	N/A	N/A	1019782	6232618	N/A	3411415
10/12/2010	12348878	3159291	17800799	N/A	1297716	4868736	3416913	21154830	4127627	3403639	1379067	5990715	9677770	4447516
10/13/2010	11013455	3468312	21230847	4192100	2003024	7595215	3484707	30389018	7580570	4934851	3358228	10258605	17808368	3952111
10/14/2010	10702732	4380191	24725500	3320500	2913061	10634545	4096068	30962470	4930067	3593433	4408182	7103114	9360959	3117154
10/15/2010	8107831	4279021	24667744	2104800	2350842	5903443	3623515	25348020	5474828	4287767	3820109	7891140	9107287	3447993
10/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/18/2010	8551987	2575452	15567442	2406100	2533984	4338080	2274670	19361012	3583490	2289048	1939173	5375203	6640316	3937876
10/19/2010	15271145	5130842	25406462	3367600	3796114	8127398	3741066	29131454	7645236	5082251	2627446	9397217	13376536	6526079
10/20/2010	13830284	4074321	26413101	3358800	2308635	6708467	4253129	21121978	4258582	3105921	3072712	5108787	8984364	4397530
10/21/2010	10533264	3177119	24791689	4178900	2773761	6178687	2785317	35780328	4623614	4260858	2712723	8737668	8751366	4553372
10/22/2010	10042803	2324930	14620053	4016300	1928432	3735726	2291740	21004630	2613827	2374395	1678586	5845772	5627807	3097184
10/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/25/2010	12748606	3161367	16462936	3292400	2063049	4646905	2954543	20126452	3733000	2676219	1159192	6353792	5000222	3273039
10/26/2010	14601202	2820707	17443460	3250800	1900149	4523144	3193272	21036030	3591478	2918448	1416996	5407909	5026980	4180952
10/27/2010	9307582	3387845	21385640	4706900	3838504	6503953	4124225	23457696	5665684	4339307	1608283	8503909	10028802	4157121
10/28/2010	13787905	3723704	26764270	4600500	2161635	3917709	3974135	20010062	6113630	6734087	1472766	6302930	8814572	3673183
10/29/2010	27044516	2137852	20340333	4218500	1629185	4841880	7425424	16754868	4992935	3945893	1769110	5248704	5430358	5259301
10/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/1/2010	8295741	1842715	18077038	3023200	1487818	3392898	1398735	17685610	3224393	2689347	1904527	5188411	4582306	3701530

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Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
11/2/2010	5105555	1973992	16532004	N/A	1363958	3447181	978627	21242420	4185314	3281921	2081393	9118451	5005861	2242264
11/3/2010	9559515	3475837	23447945	3970700	1430063	4438563	1277115	23248504	5781693	5262532	1795587	9250382	7096651	3340056
11/4/2010	26282989	6978296	28524396	3326000	3016699	8050928	3225027	34476366	7374493	4871783	3556421	8652224	10839095	4989579
11/5/2010	17844820	4344017	19489235	3241700	1870913	6159460	4200851	27415764	4870793	3047944	2640375	7576869	7772413	3785116
11/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/8/2010	10596594	3051886	13863664	2264000	2332581	3828903	3702348	14847838	6018350	4397662	1918060	6700566	7206685	2835634
11/9/2010	12615444	3603674	24064996	3115400	2799858	6448024	3133560	39251504	11081890	6757892	2705165	12398077	9715400	3665442
11/10/2010	12352119	3262221	24661235	2558600	2921526	5404710	3548718	28546632	5774474	4843225	2006583	9321679	7243351	3736525
11/11/2010	12546159	2922487	19574676	2349000	2421634	5038861	3021583	27276124	3257707	2829946	2820838	5452773	5698462	2789431
11/12/2010	13008687	2901320	21750375	2718900	2373336	6311961	3122732	32590674	5707502	3987816	3603580	6020695	7220254	4267075
11/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/15/2010	10892512	4157893	12761991	N/A	1720259	3883690	2506852	19377100	4057027	2411459	2192625	4911844	5641492	2654867
11/16/2010	12386712	4498704	28176776	3617400	4741817	8060489	2178147	44261052	6228936	4734824	4346994	10443732	9621435	4744400
11/17/2010	15044756	2682294	18521278	1991200	2515407	5157044	4404833	22600192	3243902	2475655	2028634	5866026	4527901	3099426
11/18/2010	12265004	2337335	20024470	2741200	2467728	5019899	2508135	22936772	2894084	3101072	2136367	5991809	3594112	2733416
11/19/2010	9438924	2583026	16161123	3227300	2682928	5976237	2631033	22309942	2832475	2491006	1602480	5766154	4809000	3838791
11/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/22/2010	7762872	2459083	19372429	2938500	2178923	3412086	2072688	19816602	2088898	2638605	2049160	5580405	4835501	2799202
11/23/2010	12043348	3928026	21917659	3550200	2257465	6364836	2338384	22065974	5150595	3469458	3256446	6446333	6418791	2593438
11/24/2010	13362278	2731577	14879036	2139800	1172423	5202046	3820517	15945736	2991071	2727963	2234458	5007879	4513723	2577636
11/25/2010	8785565	N/A	N/A	859700	N/A	3075867	2342097	N/A	844027	738554	N/A	N/A	684200	N/A
11/26/2010	22258558	1954733	7613571	2194000	706190	3420126	4557501	9738314	3386127	2219711	783402	3723236	2626186	1120600
11/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/29/2010	9606703	3714389	17882271	3615500	3552634	5427120	2053101	26026508	3409825	2448777	2089897	9758467	7222667	2594610
11/30/2010	12892267	3596763	23606713	4567500	3370616	5404806	3026609	25585654	6402718	6246359	2187876	8228956	13127431	3373277
12/1/2010	8727303	4210805	17984286	2670900	3374755	6536238	2415121	21430398	3420464	4478180	2149672	8669540	9487505	3407727
12/2/2010	12734712	3295073	18442046	2704000	3734352	6186547	2598255	22373240	4812103	3750112	2018185	5690592	5663288	4867964
12/3/2010	7607234	2079162	16814627	2396900	2590841	4971666	2393797	17267168	6324563	5764214	1364620	5974469	8176834	4270329
12/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/6/2010	7040636	1763769	14833825	1445000	1613352	4522570	1999456	22998958	5267972	5404142	1866040	5602208	7882509	2874705
12/7/2010	9481493	3470218	19703212	2037600	3116828	6480952	3182331	25411242	5325115	5493488	3124270	9312709	9322691	3052984
12/8/2010	8632284	4142176	17722916	3076600	3604561	5791730	2866775	27089712	4899245	23305310	2081249	7334212	7608894	2551159
12/9/2010	17346582	3308743	17794643	2353500	2958069	6080639	2289714	19816174	3248694	11935767	1502904	6956472	5357342	2129866
12/10/2010	10354374	1958031	13263297	2137900	1287487	3911434	3293151	17374422	3577275	4856285	1313362	5711031	10338067	3218499
12/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/13/2010	8957205	2889484	18619399	2873100	2143721	2934738	1870679	20016086	3315220	4681545	2261733	6067046	10144818	4691904
12/14/2010	5813798	1859267	15510065	2008800	1960798	3421178	1162275	17135464	4782603	6642105	1715743	6496117	7276073	2995345
12/15/2010	11686676	2216642	14977240	2557800	1808138	3576342	3347045	19768340	4377218	5075533	1441904	4690175	6523576	2421815
12/16/2010	11309443	2715914	14835083	2255300	2442242	3759999	3549032	16601460	5428637	5814865	1595103	6947747	6532572	2497811
12/17/2010	6219796	2459512	14959843	2958000	2626258	8887866	5024499	20292160	7381069	8957439	1695947	8014164	16459789	3032967
12/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/20/2010	8722136	1420669	14661080	2233300	1293203	2180556	1801526	13788634	3246888	3955429	988045	5085140	3863197	3457858
12/21/2010	9113079	2189409	13361693	2573900	1581829	3007591	1851081	11555204	2126634	2577314	2152206	3118989	5292622	2293690
12/22/2010	6650763	1139640	12422317	1769400	1411841	2992722	1856303	11501288	2151903	2390219	1095584	3050092	3989560	1705159
12/23/2010	8766912	1896045	8075796	1462500	1027055	2122798	1735063	11462934	2017976	2039985	1218306	3283479	3148377	1331223
12/24/2010	27371178	N/A	N/A	N/A	N/A	330394	6254606	N/A	198304	264091	N/A	N/A	300007	N/A
12/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2010	N/A	1558406	12379472	3117100	580031	N/A	N/A	11185962	N/A	N/A	733455	2648240	N/A	1315328
12/28/2010	N/A	1092956	13190476	2410500	567942	N/A	N/A	8352756	N/A	N/A	894283	4429102	N/A	1525853
12/29/2010	7347160	1178890	12951764	2686100	909713	1902549	1463175	7734456	2294426	1926580	824489	3195322	2856745	1354035
12/30/2010	3573975	1059265	14592022	3518200	1284628	1607362	812445	8241080	1945742	1571115	844701	2843345	3046786	1768873
12/31/2010	3164090	825569	8089630	N/A	961850	1275856	937603	6979270	1902531	2077374	1171927	2669341	2129876	1353406
1/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 3: Top 20 Metal Mining Companies by Market Capitalization: Trading Volume

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
1/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2011	N/A	1119474	20409309	5125200	1725648	N/A	N/A	16921026	N/A	N/A	1620766	6081333	N/A	4182807
1/4/2011	7948178	3146523	24546438	4129000	1970287	4042861	1384876	29239846	4066645	4998602	2355963	11589596	8810832	7372519
1/5/2011	10027235	3006741	18539806	3303200	2410354	6040162	1805480	20456422	7253982	5442500	1836062	8811869	8216813	4017427
1/6/2011	7935821	2641888	21172265	3046500	1945701	3087908	1702247	19214402	5796551	5947788	1650571	12008328	6633580	2946616
1/7/2011	7505740	2672727	21428981	2776500	1943772	4571235	2209393	20672820	4389945	5015146	2357642	9066957	7782464	3687142
1/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2011	4557498	1537736	17872435	2834500	1964402	3454985	1286276	16848574	3269421	3671522	2468397	6708958	6576735	2399388
1/11/2011	6334145	3106048	20665039	2798100	2116109	4201074	1863818	17197206	3284155	5006334	2271417	5643220	7026085	3712508
1/12/2011	8780993	3013780	29275934	4920500	2392478	4820580	2008762	17112136	4305427	5524919	1433354	9290422	7154256	8349122
1/13/2011	8389270	2398692	24366684	3475900	2083156	4159731	2283605	17093994	8671050	5402888	1425884	6962717	7016970	3333337
1/14/2011	7881351	1708435	16825143	2805600	2270369	4478057	1862360	18427790	11832879	9201320	2083175	10878951	7110646	4319076
1/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2011	8865561	N/A	N/A	1496800	N/A	3023963	2848600	N/A	1199039	1804256	N/A	N/A	1957370	N/A
1/18/2011	6186111	1869555	18847428	2556200	1781990	4807906	1712777	12333442	3883155	5495728	1592095	7646404	5553085	3448905
1/19/2011	8761773	3153454	18853757	2699900	2392896	4896898	1885127	18815580	3899215	4481111	1677004	8052123	7630122	3810648
1/20/2011	10066872	4201674	32129366	4442200	3873398	7804735	4045301	35536086	7104184	6351698	2625400	10674176	12600623	5203716
1/21/2011	13556796	2618702	17762661	1926400	2132714	5627101	3505637	25509302	5939446	6993526	1689697	8440653	12417705	4216480
1/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2011	9456284	2887853	17614974	1773400	2801664	5120895	2105814	20703524	4342220	4548153	1375191	6872994	6607536	3199046
1/25/2011	9393711	3309676	19645898	N/A	3555166	4928235	2242380	31685386	6320180	5151948	1993949	8553430	9652312	4457732
1/26/2011	N/A	2597565	23491648	2722800	3750419	6523152	N/A	26181026	6342038	5305933	1793646	9069214	9636094	5147100
1/27/2011	11233267	1841399	17585399	2264200	3510132	6256293	2479554	27221034	5971422	4776323	1409451	8245370	7171151	3366010
1/28/2011	20441025	3725198	34416070	3778400	3425928	6035545	4043373	21904794	7361139	7310615	1778819	10469656	11369222	2878469
1/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2011	10494520	2787027	21242005	2218500	3492371	5972245	3398393	21846120	4461785	4883958	1577288	8082705	6410998	2699028
2/1/2011	13188350	3281497	19074116	2214600	2900282	5976239	2071190	24430018	4415965	4560660	2679854	6310546	7464063	3452586
2/2/2011	14318341	4069269	19363866	2493900	4337924	6001951	2861287	16916593	3835759	3293947	2146715	5074194	4353938	2977951
2/3/2011	14094486	3224652	18908424	2003400	2774330	4129273	3708493	14769562	6091895	3786808	2017349	8865963	9491792	2963464
2/4/2011	12958476	3067713	24021771	2423800	2357615	3644349	3456001	12886982	3999136	4016446	1487535	7498426	11337122	3339998
2/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2011	7987733	4180426	15549488	2344700	3429296	6257593	2150203	17369541	3640891	3779652	1646434	4318651	6471240	2259551
2/8/2011	11471130	3199019	19624958	2980000	5798323	7349098	2643477	15324469	5471753	5679154	1725010	5796099	7915261	2160900
2/9/2011	11150671	2570029	21643266	2208800	5035859	5158492	4124318	18149102	4380011	6272762	1653098	5448154	8399271	3788511
2/10/2011	8288361	2225412	21128093	3723000	4095158	8742831	2016918	14835689	3965426	4503687	1906238	6036661	8505882	2499643
2/11/2011	7472144	1741939	18433583	3494200	2612846	4599784	2980196	12348855	4518633	3144098	1265694	4960142	7815276	2395918
2/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2011	8811046	2620869	20780755	2416300	3019186	4980542	2629002	18232891	4034122	2349611	1664568	3801407	5542654	4150436
2/15/2011	10176967	2461321	17756767	2527500	3571446	4592673	2795423	14092300	4909630	3504095	1713412	4948082	8261421	2837576
2/16/2011	17002700	3270998	16792856	2935600	2884934	5410902	2663344	14346567	4069831	3120033	1462237	4581198	6811207	3842795
2/17/2011	9144588	2650235	24088369	2944100	3431027	6214282	1548788	12770848	4409539	3019753	2319808	4240618	14665996	9744601
2/18/2011	7568130	4667333	21286637	2302100	3803153	6621522	1542694	19549770	6159637	4247502	1530674	7724785	11188628	4637091
2/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2011	11795873	N/A	N/A	784400	N/A	4551120	2899684	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/22/2011	37282663	5359878	28364781	4505300	4419931	4986992	3646906	27564048	5562698	4139064	3038975	6974706	15322148	5447575
2/23/2011	35072519	7768444	22684801	3257700	5183938	5214571	4422109	23350061	5176756	5265246	2467369	8096658	12198320	5254532
2/24/2011	29197305	4799165	20591902	3546600	4620749	9294727	2744850	21900721	3509441	3902199	1992792	19107565	9857863	4614438
2/25/2011	21276708	3448328	20151567	2717400	2457665	4046477	6203754	15065437	3433230	5211955	1511253	9810816	5706387	3507215
2/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2011	7876791	4719830	16140821	2655700	3726998	4855160	1489237	12975428	4461063	4087983	1960783	6338770	10974299	3928192
3/1/2011	11107654	3898993	17282442	2476300	2908865	3543360	2830521	15315683	5409829	7201811	2343487	8569063	14453227	4380833
3/2/2011	8895088	3727721	15870981	2395300	2895397	5361647	3559326	11867635	4748819	4600131	1403752	9317157	12667470	3435026
3/3/2011	8442356	3379407	14947284	2094700	3195444	5170521	1740400	14694961	5662480	4798223	1592554	13254516	13275267	4176514

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Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
3/4/2011	8504288	2463959	15330818	2751200	2460673	3847919	2169548	16109311	3521026	4596455	1199603	8285879	9232091	2782061
3/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2011	17770932	3590947	25040553	N/A	3810385	5471231	1914876	18794883	3788629	3401257	1900972	7477619	8959315	4539618
3/8/2011	9310234	3805097	17093131	N/A	4770886	8259423	2589335	21301525	3999836	3773401	1825244	10470751	5967244	3048038
3/9/2011	11286508	3271787	20026344	2633900	3181565	5917212	4230444	29057485	4846700	3497948	2324278	10259572	7599088	6338994
3/10/2011	15402941	5507872	30803937	5874800	5676902	10634605	5658876	35918995	4645477	3721048	3243132	8478578	7398570	7928714
3/11/2011	14228068	2996823	24429900	3898100	5711324	6972754	5483208	22210653	2792356	2399694	2451782	6283920	3918682	5363736
3/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2011	12642137	3435071	15525540	2889200	2743414	4869695	4520685	20558391	2040764	1979024	1474545	5917700	4083384	3550478
3/15/2011	13214333	5008367	24767734	4641400	4138001	8640269	4131665	44583524	4650311	4755191	3400353	8903236	5875487	7936043
3/16/2011	13644009	7811799	33383380	4309900	4715401	6826179	3317452	31747655	5587463	3394187	2585505	10144546	10339927	5993724
3/17/2011	20945128	3947158	24035091	5094900	3955113	5922626	5672727	22466803	4217400	2777883	2140643	7011356	6968367	6389347
3/18/2011	13984928	3809791	19740692	3075000	2645921	9472875	4132239	20586291	8296227	5333178	2102923	9400214	10896735	5570658
3/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2011	7092380	3098229	18923795	2177300	2681574	4241002	2630289	16322071	2829762	2935919	2293570	6884795	10615895	3996619
3/22/2011	10773870	3500289	18934297	3172300	2073005	6610865	2873291	15964803	3618140	2648335	1731900	9117221	11561141	3630601
3/23/2011	10140108	4285690	18359944	2795000	3513544	4526994	2928575	27179823	5121468	4665370	3759048	9615589	14285759	3503377
3/24/2011	10210634	3918839	26093922	3495100	3236749	4679163	2507708	21340335	4768502	5393206	2097451	9190526	15204796	3733946
3/25/2011	21413396	3632274	16688902	2191500	3648043	4541529	6898850	14656410	3107990	4071881	2399797	6122764	5672697	3283984
3/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2011	6959213	2995289	17048218	1974000	3681935	2683329	1110101	17726431	2668844	2306599	2232068	5255041	7108752	2685666
3/29/2011	10542012	2687752	24699882	2657800	2951893	5534398	2571498	17503364	2812177	3178000	1747192	7717574	11397354	2959821
3/30/2011	13261095	3210420	24613661	4917100	4014702	5617007	3652615	18454891	2977372	3886911	3786743	5850780	9784871	2875368
3/31/2011	20487594	3495508	19815706	3938700	2691732	5799970	4179324	15981446	3407076	3420183	2880435	5305718	7097599	2875586
4/1/2011	12273261	3336321	21846715	1924400	3362146	3843466	2024049	15269263	4323697	3504392	2046349	5227870	8944632	2904972
4/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2011	14040967	2281817	22937529	4231300	2061383	4320290	2593165	13293152	2002758	1936225	2819680	5396802	4805355	2570367
4/5/2011	17169450	2702014	21138400	4681300	2126742	3669612	2045282	17434485	7325800	8139035	4000270	10501735	10419639	2985479
4/6/2011	21472967	4458621	29406912	4530000	2898598	4164634	2449278	18808091	6244759	7371331	2925575	8357505	7497907	2799494
4/7/2011	15582452	4173938	18940952	3410300	2510579	4324021	2299230	17413288	4568187	5107101	4617922	13160449	5970846	3877639
4/8/2011	20530275	3638733	17047170	2728400	3246622	3882452	2912658	16921659	4522872	5799278	2378484	8052545	12027092	3274297
4/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2011	52464022	6458830	21198736	2686100	2881830	3287767	5842817	18350084	4251176	4387837	2790979	7781198	9640031	3542224
4/12/2011	32194484	6935409	23440287	2917400	3595239	6094319	3557909	20290638	4314953	4650227	3641769	6910955	9519175	4774859
4/13/2011	26952716	7431260	26549893	3711900	3036537	4384116	3693499	21406705	4140074	4224170	3762702	5914257	14037461	3559552
4/14/2011	20410086	5617751	22531094	3970800	3817876	6015543	3126774	19123293	3505380	4081540	5220434	6912910	6782368	3060664
4/15/2011	15595862	4644817	12848933	2349700	2760919	4497527	3012298	23194905	3367027	4257087	4731151	7180673	21248899	2979193
4/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2011	22206025	5512658	17347296	2240500	4637292	4710939	1897610	22058859	3983064	4141159	3438488	7820038	9251269	4244354
4/19/2011	15107712	4756400	16045511	2741100	2565032	2565508	4365766	21867543	3149992	3644990	6042340	6914819	10343962	2342490
4/20/2011	12527750	3577745	16820382	2899000	3081842	3608862	2841280	29036637	3577696	4992522	3506092	7336130	6290745	2236563
4/21/2011	13448005	2534545	11266727	N/A	2550795	3541632	2784676	16073239	5098602	5622766	1734805	6271849	5488913	1458583
4/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2011	N/A	1345680	13588227	3013500	1003525	N/A	N/A	15228651	13119157	5354377	1617290	5009122	6990822	2022871
4/26/2011	N/A	2578948	12158764	3457500	2023484	2798420	N/A	16678906	12529429	5567370	3110026	5683245	5543992	2606700
4/27/2011	24292293	4079162	17661240	3607700	2730814	3870654	2973773	21262411	11465403	5863696	2561492	6612831	11242968	3629450
4/28/2011	16095857	2284608	18067601	3965100	2251038	3349673	2645859	18228124	7942856	4799508	3033655	5830464	8743516	3364094
4/29/2011	28902173	3405995	14735822	3894000	1452444	N/A	5450697	12927571	7213392	5012691	4158910	9239270	4828014	5320191
4/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2011	13325473	2963980	15443683	4343600	1488992	N/A	2222685	16643276	6715057	6297476	2905237	7428487	9585583	5016617
5/3/2011	14800593	3154506	22279363	2770300	5349966	5652816	2006208	24204203	7131376	7584342	4048322	8233356	8611488	3695921

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Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
5/4/2011	13019367	3652944	35584993	5824800	4295161	8309807	2880257	29917810	6834579	5887421	3688141	7915678	11015651	6229842
5/5/2011	8245821	7384601	24856061	5351600	4424434	6067859	2992189	26317179	6772095	6114787	3501736	8629937	11407208	4446895
5/6/2011	15228307	4527368	21859188	3751400	3509218	6941767	5264470	18847519	5832931	5430638	3805256	8572437	9583382	4068468
5/7/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2011	9587531	3022448	16107158	2739500	3212023	5161034	2526449	16256852	3372267	3423241	2587631	4755667	4704715	3345730
5/10/2011	10017488	2815596	13661157	2491600	3305554	5029027	2295121	15418037	3737802	3712172	1923493	4115562	5549892	3440980
5/11/2011	10893982	6348328	25072033	3436100	4127911	6219591	3850913	30287711	8405573	7546363	2445020	6849224	8460771	4301978
5/12/2011	13532025	7175630	25868581	2978900	4225328	6293688	2858336	26880698	6367990	6375247	3565850	6351369	8242065	4245347
5/13/2011	11823113	4695981	24554177	2413400	3871907	5086576	1895673	20217622	5273844	4397911	2358317	5803127	7837951	4227491
5/14/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2011	10725822	4785345	23684361	3120700	3420060	5575804	2421076	24513863	5307061	6004964	1959362	7114089	6303675	4835890
5/17/2011	11372703	4009568	20870470	2039600	4015101	5356029	2578991	34665045	6301825	4724361	3247546	5575215	7802811	3796557
5/18/2011	9078094	3836252	17972266	2929900	3420455	5333657	2892544	28789187	4873036	4437273	3496967	4313809	6555516	3369002
5/19/2011	14952044	7014958	19604946	2827800	4461436	6578910	2593875	20681772	4065448	4093257	2187107	3450355	8098125	2654409
5/20/2011	16265228	4508489	20090183	4137300	4152217	5596307	2352735	24763507	4373391	4584655	2178515	5754105	6757326	2822171
5/21/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2011	12617469	4361420	16164552	1946400	3946829	5652483	3011976	20253696	N/A	N/A	2280379	6863121	N/A	3772472
5/24/2011	11342748	2514056	17407992	1954000	2633801	4248588	2218095	22219348	4829378	5359334	2011321	5834386	5531067	3107913
5/25/2011	13439251	3643928	15957092	2144900	2708486	5466366	2398596	24765727	3692891	3587859	2015294	5317597	7683926	2483946
5/26/2011	14182750	3170654	15391834	2887100	3511865	4854168	3729842	20944533	2352156	2344483	1730728	4295459	5217423	2488610
5/27/2011	19604004	2608478	16684475	3257500	3285000	4927732	4261905	17442798	4143234	2894421	2813951	4289048	22797178	2248927
5/28/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2011	6443768	N/A	N/A	673600	N/A	N/A	1640891	N/A	547992	496976	N/A	N/A	2523744	N/A
5/31/2011	11747188	2542105	21325945	4046900	2310541	5126920	2725601	24328388	4994197	4438651	6643219	7166362	12721669	2773396
6/1/2011	9416103	3082010	15165529	3220600	3932143	5045294	2325948	25257393	3991459	3986935	7721363	7174610	8789657	3996868
6/2/2011	12509794	2993708	17746664	4084800	4286485	5300144	2718888	20880606	4694935	4186566	6095465	5844302	8695564	3417128
6/3/2011	9865862	2624353	17976024	5056700	3466642	5199692	2550109	18871166	3368278	3376265	4435239	5436498	9035149	2904125
6/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2011	7962415	2209679	10441102	2082400	2611062	3247663	1842908	20565169	3717434	4356698	11926046	10883876	5578337	2653526
6/7/2011	13516534	2797222	15629076	3343900	3573014	4614213	1993825	15046065	2447885	3756901	6976819	6180937	4770174	5697127
6/8/2011	13575530	3278587	11279796	2191700	2763456	5220582	3191270	18164771	3703031	4830672	5677909	6779095	10657862	13798096
6/9/2011	9698110	2455304	10910899	1946000	3122257	4875359	2327906	16478014	4408537	5143045	4613805	4888371	9434108	5247078
6/10/2011	8454877	3421664	13073567	2067400	3217259	4334614	1970143	17510240	2944878	2624547	3096306	5473976	7477024	4428445
6/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2011	N/A	3076608	13054544	3344000	2751576	2356395	N/A	17505405	2685553	3331293	2797422	4455948	6688392	4108820
6/14/2011	11960789	2494762	13011163	4345300	3016574	4443151	2582914	19839223	2852695	2574224	3744931	5547381	6631683	3464821
6/15/2011	10888154	4321924	15952079	4126000	3965239	6368781	2460534	23594973	3031289	3629384	3322107	7162507	8161884	4164197
6/16/2011	21020014	3442915	17517395	3237600	3224242	6300950	4937364	22441099	3209872	3643599	3215804	6326919	11405079	4790024
6/17/2011	25196266	2644049	15181535	3128400	2352903	9269501	3498215	17353515	6157598	5166685	2788477	7435660	7698745	3560158
6/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2011	15942610	3168345	11598556	2337800	2776511	4361789	2432956	18384123	2353334	3035106	1704294	4053601	3443372	2951066
6/21/2011	12179293	3192870	14742109	2865900	2621801	4526334	2111499	17231766	3116984	2542429	2716536	5319497	6199358	3195986
6/22/2011	12943170	2059803	14656280	3203000	3816234	4428100	2869741	15314593	4705802	3575948	1757399	7213257	12832800	2489039
6/23/2011	12508896	4857953	10847757	N/A	2516091	4032344	2576173	21665836	3924822	2837994	3330246	5654970	6234229	5111809
6/24/2011	27415131	3126487	9782906	2101600	2537509	5050289	5198389	17761542	2866508	2599851	2198547	8958281	4112589	4199185
6/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2011	8405885	3090958	11782662	3458100	2097766	2700201	1901220	14099199	2581008	2341758	1508801	3889015	3739785	3607071
6/28/2011	11617218	4236536	11344316	2683700	1868118	3861584	2341607	19064374	3030435	2937025	1778495	4177589	5059103	3156314
6/29/2011	12185327	3931381	13860338	3373100	2308813	4528190	2099532	24496493	3245027	2930272	2308352	6259170	5595742	2884801
6/30/2011	11117361	3056744	12366050	3531000	2535933	4570391	2928601	24254545	3939869	2930294	2810012	4098105	5168351	3337105
7/1/2011	7857148	3048505	24872049	6468800	2994336	4895095	1946588	17078362	N/A	N/A	2113730	4597322	N/A	2682971
7/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMO	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
7/4/2011	7805327	N/A	N/A	1449000	N/A	2577119	2099029	N/A	822189	608511	N/A	N/A	1638084	N/A
7/5/2011	8270038	2563417	14465977	3899000	2104152	4383107	2212044	15681447	5308107	3803384	1568063	5187051	12208672	2806487
7/6/2011	9135332	2764642	13847655	2063700	2364392	4015475	2780691	13639727	3475447	3608797	2425218	6132772	5891913	2592413
7/7/2011	9840254	2938853	15794413	3451600	2072133	4937629	1379974	23578267	3731725	3302150	4571133	6651539	6353233	3254474
7/8/2011	7870080	3593220	13078992	3491600	2525571	4116376	2025062	17862877	3358016	2917180	5927899	4143512	6256692	3021019
7/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2011	7585518	2259574	14646653	2998600	2306619	4302401	1899900	19938939	2697034	3410790	4099905	4344731	6971195	2827225
7/12/2011	10371443	2784948	15600173	2343100	2534735	5631228	3428011	18354090	4888209	4650499	2874999	7191282	7431904	2105239
7/13/2011	10254763	2760327	17284394	2948600	2149194	5660382	4491349	17646843	4477478	6006791	4686822	8484590	10137063	3408328
7/14/2011	9654212	4232241	16819032	3968600	2232071	3727269	3583072	16546159	2943828	3473012	3755883	5473654	10875445	2593237
7/15/2011	14497235	3139086	12485492	3286800	1935068	4410015	2440103	13701252	2245272	3237844	3061631	5183517	8771229	2519101
7/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2011	8672543	3315052	12924824	3002500	2491292	2695787	2031470	14718808	4599954	3585604	4005517	7506803	8504188	3418793
7/19/2011	11382110	3102669	15945882	2623300	3989969	3635987	1645908	12831640	4837135	5507702	2218609	5554891	10877412	3082839
7/20/2011	12130842	2573023	16411447	3916700	2326598	3186236	2398959	14065473	3448007	4339763	1804883	4750441	4875963	2761066
7/21/2011	9517462	3717198	16117523	3390000	2581402	5792465	1984882	18472126	4244124	5588821	3472608	5245426	7509669	1933550
7/22/2011	12973117	2183114	10112435	4043800	1349094	2991417	1798032	11620523	2614566	2545258	1485412	4160361	3149028	2333839
7/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2011	7716275	2332037	9961541	3093600	1315812	1877020	1768207	9495182	3010716	2967907	1876380	5580074	6188727	2378479
7/26/2011	12343030	2514900	12355749	2979100	2132429	2788881	2409546	15922004	2310385	3577275	2441406	4511079	9054363	4151419
7/27/2011	10397163	3834939	18363406	4458000	2413268	3345556	2082792	13723410	3809233	5755284	2556724	7818780	9671135	2757810
7/28/2011	15667469	2964944	13116244	4661000	2691012	3650238	3454693	11705141	4518386	12567587	2123005	6053864	7619752	5264483
7/29/2011	28797192	2746574	28621476	9085300	2570637	4062693	6567997	15667347	2968020	5330064	2955960	10221978	5234739	3925973
7/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/31/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2011	8989427	4478329	17712076	4596300	2964294	4551953	2344088	12944614	N/A	N/A	2914318	6534213	N/A	3239469
8/2/2011	13072808	4805467	18400362	3557700	3830238	6152285	3185936	14370727	5193126	3961316	4399738	7399227	6674927	2965067
8/3/2011	19395475	5622133	32569020	6212100	2901138	5087341	3810574	19390377	6153921	4550666	2930987	9131560	14404347	3513466
8/4/2011	18254624	7939958	39833041	8633500	6919555	7844682	3043211	27265598	8761898	6453476	4760788	13339707	13906648	5527517
8/5/2011	29756283	9187433	48190711	8408300	7703107	9755252	6947437	31105121	6396252	7147701	6131515	12901961	9075175	6339785
8/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/7/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2011	24869204	8623263	45646572	8578400	8013631	9789343	6614253	33132437	9156923	7432167	5633579	16853161	10876408	6108004
8/9/2011	31666065	10067326	31540976	9322000	7778689	12661855	8796556	33417719	8392426	7976882	6042493	15344535	13739382	6511647
8/10/2011	18686618	8585419	32131196	5832000	7912520	10137120	5075230	25774606	9672677	7320047	4343651	15746845	12551132	5394711
8/11/2011	15909488	7039438	26730782	5560000	3716802	7784218	5044855	19402938	8191811	5775702	4051888	12421789	19615469	4974922
8/12/2011	10914600	3677894	19736793	4954000	3571295	6910638	4367190	15402257	3885444	3870211	2608576	8705919	5881699	4496505
8/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/14/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2011	14063907	4421515	17237973	3791000	2551379	2916037	3071872	13995209	4392014	3526929	3429272	7209299	7193552	4025656
8/16/2011	11811442	3796056	18828924	4978500	3322973	4083052	2787895	17518705	3698641	2896647	3489506	6993101	6102893	3892399
8/17/2011	13639587	3906123	16656091	5513400	2176851	3798173	2579178	14402069	3868149	3159399	3255337	4389961	8925130	2560285
8/18/2011	12707236	5938455	25348062	6514100	3427050	6395942	2581994	29785096	5230109	4600857	4990334	8281117	9102276	4700754
8/19/2011	14683034	5314768	20265147	7414200	3389574	8047073	4481650	20170067	7353566	5459137	2236896	9001517	12405366	4454055
8/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/21/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2011	14384642	5210998	14284605	4024700	3306793	4089568	4465755	16110613	4896493	5624939	1830443	10457095	8735815	2992945
8/23/2011	14318317	4822690	14343737	5478000	3143450	5079729	4307294	15531683	6526144	6625732	2169498	10680397	8988706	3047114
8/24/2011	13205316	3569591	12761296	3626300	3423008	4103926	3408869	15997580	8982455	8351701	2138931	11702982	7887448	3317727
8/25/2011	12074978	4029398	16844862	5012500	2571367	5366403	3617143	14762426	4793413	4064475	1628407	7778992	6706151	2754062
8/26/2011	26336226	4661851	18420628	3931500	2201975	3817599	6617446	14705424	4970490	3190710	1832989	5934598	6192690	3288114
8/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/28/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2011	10527921	2424640	13793711	7142000	1681003	N/A	2263365	10591501	3440587	2526644	1971045	4953077	6351203	3388114
8/30/2011	12209113	4069941	12206074	3676900	2822197	5249490	6099909	14132727	3817404	2888359	2488963	7469433	8169708	3459142
8/31/2011	11262629	3624042	14595056	5172700	3078366	6087649	2758103	21418827	5041476	3686814	2739614	9886534	7213784	4530972
9/1/2011	11560794	2720712	19380414	6445500	2254744	4094682	3096738	14531017	5830770	5140022	1645424	6029620	9099347	2818517
9/2/2011	12893886	3835393	12054663	3537700	2327238	3966739	2466057	15233138	5837561	5979048	2243432	10163582	8336750	3339962

Workpaper 3: Top 20 Metal Mining Companies by Market Capitalization: Trading Volume

Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
9/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2011	14317376	N/A	N/A	1331200	N/A	3981249	2318466	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/6/2011	21476428	4848126	15820791	4854400	3215974	5084367	3834670	14869974	7301547	5160806	2177693	10385339	11687308	5327882
9/7/2011	18944758	2953171	14203245	N/A	2275757	5208048	3164761	15874852	5593690	3886076	1847388	10033263	6529113	4079214
9/8/2011	15603436	3568830	16292945	4397100	3269796	4427659	3314146	13767826	7345598	3778962	1815454	9301451	6436664	2972017
9/9/2011	11962574	3967962	15870149	3806200	3202885	4735703	2163522	25664079	4846747	4791056	2280814	8227525	6624275	3463997
9/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2011	12604156	3673916	16611479	2949400	3184518	4827098	3274440	19427363	6335855	5656083	2232056	8063175	7168923	2930863
9/13/2011	14317376	3582732	14489752	2863700	2657295	4874390	3154688	12887743	4978998	5331206	1708233	8357084	8604333	2227589
9/14/2011	15532426	3291687	16985697	3920500	3507514	4893703	3656131	16771652	4636809	4401938	2441056	7624875	6690002	2458811
9/15/2011	16428335	2856893	16706228	3923300	2438794	5196129	3431043	12126605	4285056	5213821	1667171	6348751	7349960	2162618
9/16/2011	8957068	2344746	14053817	2514300	1893576	8061759	4370790	15301723	8863570	7702356	3176631	7531737	10371349	2918432
9/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2011	8709561	3997122	16599088	3663100	3226275	4390387	2261291	18532995	4823343	4799326	2309548	7749131	4295427	2994674
9/20/2011	11694649	3085109	14286606	3273500	3304063	4226627	2867686	25605991	5430958	6785280	2810756	15164463	7342819	4559973
9/21/2011	13882036	6048433	26637323	7739600	7475674	7432913	3508602	40989902	7517631	4898431	3828073	8670003	8422126	8766627
9/22/2011	14451962	9960593	35131379	7136000	12315929	12314707	6511947	49670902	10807101	6462553	5465185	10167390	14866450	8949155
9/23/2011	18798749	5732569	23332528	7642100	4277656	9170718	8714605	23086439	7450779	7087397	2818997	11923646	11723162	6043819
9/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2011	13800006	4848354	24470134	5004400	6442795	8018948	5183672	29015527	7336554	6097686	3159494	7919558	10658024	4182257
9/27/2011	15150245	5928101	27791531	5031100	6003538	6235636	4240401	28422244	5636064	4997258	3307402	8549602	10778581	4193007
9/28/2011	15723565	5080675	22731224	3564400	4834183	5868157	5730070	30046167	4482956	4609715	3576396	6453034	7452848	6550467
9/29/2011	13288846	5792739	29766145	4589000	5225700	6165275	4243929	39714087	4724547	3605677	2595312	5997065	8477069	6213996
9/30/2011	27690668	4205430	32490504	5508500	4392339	6524534	10616492	24985308	4361453	4580922	2891753	8535488	5616993	5601744
10/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2011	7198772	4202108	32553202	4797500	6918979	5766611	3051993	32601010	5315895	3530433	3066942	7315291	6515382	6242549
10/4/2011	14449584	8570410	30853363	7173200	8460691	8296274	4249953	39433664	5537685	5550107	4766945	10506273	10567619	8411504
10/5/2011	18467980	6925189	20395397	4405500	7108349	6461843	5814528	38255797	3616722	3701363	4861028	7451691	9588022	6564380
10/6/2011	14678425	6369699	26126642	4861400	8323941	8989324	4498617	52406389	4398188	5256529	3301933	5781333	8421869	6082947
10/7/2011	14765309	5080045	15808137	3039400	8753045	5914510	4620943	49848823	3117389	3083513	2831218	4934971	4822630	4819776
10/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2011	12713248	3163257	16918053	4213600	5126615	3992924	3922114	31158830	N/A	N/A	2266714	3755414	N/A	4462171
10/11/2011	11596807	4039470	17313900	3570300	4569680	4033254	5092317	22564061	2542048	2269374	2121617	4110575	8792991	3885994
10/12/2011	11990991	5071419	18825321	N/A	4265316	5192785	4272268	29881420	3241711	2714810	2726412	5504950	4605282	5102770
10/13/2011	19942802	3702167	18851617	4136800	4233253	4870962	6341859	25347185	3953636	2485768	2148175	4835003	4436923	3231248
10/14/2011	12350978	3208648	15806300	5005700	3232303	4256921	2870860	21093343	2797670	1924127	1745737	6443319	7221827	3141123
10/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2011	9415803	3417071	24740576	4543500	4180312	4754710	2904927	23556538	1845873	2102470	2176675	5442267	2868347	4682583
10/18/2011	15677675	5181346	22926659	4686100	8077344	8384450	5503630	27248877	4015383	3335838	1972971	7289187	5457673	6233306
10/19/2011	17212727	5075819	31573776	7489400	7070664	6325571	5986597	28014201	6528473	5424189	1780339	7377685	7129903	5106126
10/20/2011	14983545	4883231	22439370	5136200	5418503	8007682	6967760	31063905	6041320	4288589	2140815	7925216	7679769	5885124
10/21/2011	10568607	3135418	15212592	3779100	3812660	4246624	4028328	27928627	3743980	2781495	1725531	6311241	7583216	3755141
10/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2011	11366686	5597142	29686240	6203000	6760832	5559619	3404665	30743042	4530161	3148841	2694621	5471560	4869401	4137732
10/25/2011	13866400	3711571	25593165	4833000	4732662	5315506	3815620	22847418	5280376	4518649	2969570	8665235	7601447	3963545
10/26/2011	8720719	4519907	23563687	4559800	4099395	4276821	4770441	23479061	4547541	5556369	2605639	8985051	6971647	5034939
10/27/2011	13116170	7068570	40339120	9034300	6832635	8023322	4968583	41725177	6151863	3774950	4757959	8631088	7746212	10192366
10/28/2011	24629415	4099825	16660892	3842300	3324293	5756330	8281329	23513338	6668699	4978777	2961342	9502050	5316752	6632209
10/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2011	13341513	5090857	19749753	3778900	4589657	5214977	2930011	21928096	4058967	3668685	3013810	8035672	4941877	6385331
11/1/2011	11095907	5007512	25456468	6762900	7418823	6798217	2306947	33850993	7415687	5778871	3112411	8750604	9722513	7075070
11/2/2011	13155422	5796494	14874887	N/A	3991157	7382428	3215865	20147283	6941328	5679292	2657656	8788859	9619829	4549032

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Ticker	BHP AU Equity	BHP US Equity	VALE US Equity	VALE3 BZ Equity	RIO US Equity	RIO LN Equity	RIO AU Equity	FCX US Equity	ABX CN Equity	G CN Equity	SCCO US Equity	NEM US Equity	K CN Equity	CLF US Equity
Name	BHP Billiton Ltd	BHP Billiton Ltd	VALE SA-SP ADR	VALE SA	RIO TINTO PLC-SP(	RIO TINTO PLC	RIO TINTO LTD	FREEPORT-MCMOI	BARRICK GOLD CO	GOLDCORP INC	SOUTHERN COPPE	NEWMONT MININ	KINROSS GOLD CO	CLIFFS NATURAL R
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
11/3/2011	11382002	6692767	22210609	6829900	6330150	6795132	3297267	20135166	5387037	4614775	4009614	11366870	8123393	4801475
11/4/2011	12426902	3833234	17318949	4547100	3322812	5004904	4881323	18410645	3834130	3708536	2525344	5986445	7339797	3645008
11/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2011	9983433	2114448	13460557	3221500	3605990	4560127	4371941	18883452	4851230	5962225	1969293	9090043	10118133	3523773
11/8/2011	9029002	4079592	12250927	2736400	4156389	4549531	3302142	19281900	4663091	3775338	3144343	7452346	9547877	3563781
11/9/2011	12074522	4196008	20018815	3420400	5045628	6144591	6489833	28791771	13560294	4933161	3727221	8701111	9281724	4555913
11/10/2011	15755019	3266121	12879771	2313600	3675815	5605606	5126363	18077814	4021887	3410613	2278669	5117301	8283002	3796643
11/11/2011	10728459	2472645	10136361	2132000	3134296	4239570	2810933	16292425	3421956	3289823	2340749	4322369	6140927	3220362
11/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2011	15737197	2609807	8507639	1371200	2945678	4079209	3863915	18143223	2946742	2855289	1726327	3419697	4975601	2543766
11/15/2011	12750921	3583085	12728279	N/A	3620743	4425561	3156201	16245410	3296201	2376282	2137212	3366576	4678232	6664541
11/16/2011	12283745	3373927	11811450	3237400	3332759	4317970	2762710	21112929	3478795	2989339	3119034	4592883	4601793	4047196
11/17/2011	12522958	4214772	20126030	4275200	4751139	5353344	2973597	22555745	5085768	6010342	3001607	5742471	7916985	5826490
11/18/2011	10323913	2753211	18742688	2208200	3006007	5274683	4518627	17325719	4548921	3582884	1915536	3974960	6451934	2858870
11/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2011	8920859	3610147	19259540	13561000	4924603	6979989	3220804	18506016	4855171	2624355	2219655	5980764	10248916	3257343
11/22/2011	12497662	2899202	16204401	4090400	4204929	6687385	5361465	16247314	4985756	3066522	2139933	4696212	12446440	3029299
11/23/2011	14591336	3368316	19122862	3883300	3611148	5559458	6032102	15463703	4617245	4063220	2834376	3986893	9031603	3581215
11/24/2011	14441007	N/A	N/A	1067100	N/A	3688105	4006739	N/A	894409	489543	N/A	N/A	1422316	N/A
11/25/2011	18092773	1986598	16521386	3844100	2363945	3698491	6007023	7460872	2508344	2055743	1222643	2484678	5872282	1566790
11/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2011	9613018	3222238	17802489	2990500	3620743	5363824	3259276	14915486	5075241	4234242	2685503	4604861	3739910	2804157
11/29/2011	12541931	2087141	17959961	3811500	2923160	4172399	3381043	14939760	5369165	2889108	1776211	4483509	8990546	2178949
11/30/2011	13459764	5883331	23271374	7805100	5354682	11441344	4090538	24146600	6922445	6107532	4550011	7430112	8657299	4375705
12/1/2011	16701675	3636771	14125577	5273300	3646957	5756776	5104254	13731015	5391565	3777483	1588504	5525073	7354337	3071962
12/2/2011	11511958	3308741	15700153	3420700	4621177	5891054	3651713	15038009	3038985	4166883	2269311	5815001	9572960	3377802
12/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2011	11899811	2604369	15158680	2918500	4419024	3821448	2981082	16206129	4932210	3070138	1763421	6388536	7804506	4893536
12/6/2011	10766649	3307364	12073310	3131900	2273405	4969877	2839363	14806746	3820435	4140212	2457608	6040141	5076629	4404375
12/7/2011	8989207	3000978	30693577	6762800	3208912	4174811	2059199	13454918	3419765	2658358	1773138	4873892	5581895	3110625
12/8/2011	8967366	3387273	21097357	4456700	4191311	4110238	2337011	16676685	3240411	3423988	2947397	5731564	6782573	3632295
12/9/2011	10878650	3310722	18219088	2904400	3282515	5235486	4193386	15372511	3509151	2894775	2397276	3682196	4023023	3116436
12/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2011	10343090	2786690	18346250	3145000	4018534	4677926	3241315	13059106	5642141	4019650	2742827	6737949	7025090	2401442
12/13/2011	10546581	3719835	16693602	3279300	5135925	5796925	3972312	18335316	6134741	5198732	4654812	6314294	7063197	3097078
12/14/2011	10149446	4851520	15170817	4428600	4899568	7871587	3373067	19760072	9640792	6393212	2898687	9998185	8977394	3172881
12/15/2011	16919146	2896614	13116902	4479400	3502034	5937372	4668015	18750814	4322796	3753825	2149159	6743758	5538608	2670494
12/16/2011	11304309	3492460	16943602	4421300	4267057	7523607	3015706	18736840	8188074	6662663	3736526	8354879	8366630	2981310
12/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2011	11670244	2473166	12032801	2883900	3343474	3736255	3665010	13551803	5911102	4976140	2206367	6391908	5388824	4280424
12/20/2011	8754710	2948273	12958514	4091100	3180424	4392224	3446150	12511023	5731896	3228392	1791671	5240469	9113307	3300516
12/21/2011	13474551	2659118	11924302	3540700	2680345	2961207	3591252	12047589	4507161	4749684	2200940	4734751	6297154	2390059
12/22/2011	8359310	2750511	10389420	2527400	2428569	3048751	3018368	12259020	4212911	3655082	1714185	6233330	4167949	2463116
12/23/2011	17980899	793567	9165006	2134100	1068765	1083214	6816495	7191868	1825621	1616679	1348585	2985150	3594698	1521762
12/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2011	N/A	N/A	N/A	517700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2011	N/A	1109734	9656098	4246300	947974	N/A	N/A	7648128	N/A	N/A	1044659	2000085	N/A	1285612
12/28/2011	7269007	1908061	11248119	3873300	1876649	1814084	1493532	13156425	3171705	2582742	1587488	5789327	3267200	2382433
12/29/2011	5281338	1626786	8288510	3507800	2411449	1309831	1246850	9556105	2968616	2120352	1486280	5365926	4099473	2666947
12/30/2011	3580828	1334705	5101149	N/A	1734445	813920	1027450	8837982	3033517	2278610	1428671	3315579	4206991	1908263
12/31/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
1/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/4/2010	2609954	2591670	829747	954806	1878	673054	6666473	3114635	3830691	501607	8278822	306841	28400	4000
1/5/2010	2364706	2559435	894274	1687936	3095	1087810	10037693	4326295	3663198	594724	12898919	644624	82751	15500
1/6/2010	2524999	4229535	856984	1359179	1846	1435175	11262496	4953342	4316030	471620	9079858	492734	127921	14100
1/7/2010	2019172	2229420	1188985	1001690	170	1657374	6035783	4592564	4853842	378511	23519976	443489	95105	18500
1/8/2010	1674348	5326405	1021910	1007290	361	1245694	7194675	5432704	6667879	225300	17469638	400638	145635	17100
1/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/11/2010	2664890	4764775	794841	973715	425	1105212	8842409	5312706	4800817	873210	20810124	450394	103900	11400
1/12/2010	4370389	3538125	692291	977404	4995	942584	11074265	5642681	3736399	702994	20572480	613636	64040	22200
1/13/2010	2706089	2058720	689237	877612	96	2239899	14083963	3819336	4032795	627071	17108091	508069	43350	10300
1/14/2010	3162292	2945265	1295134	510120	2454	1672097	11044229	3178163	3846777	287849	11800683	223477	22510	5700
1/15/2010	1476312	3681980	615701	908238	6795	1547999	7564161	3650987	3577970	660631	10762923	309476	137395	34200
1/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/18/2010	659091	1415160	156811	N/A	3944	476572	2446033	1422800	1064820	N/A	10621593	175550	47222	N/A
1/19/2010	1654807	2850125	726809	1154925	36411	1947979	6068078	5167608	2770126	346888	8652441	385578	232425	5700
1/20/2010	2729486	5975420	2147394	1674007	370	1393696	10407615	8928489	7644097	511434	17879022	734301	50675	16400
1/21/2010	4372186	2450335	1714597	2491539	73669	1886511	10721063	8082426	6897117	691850	22050717	863277	199543	8900
1/22/2010	5022254	3261560	1032533	1336086	50	1853785	10447810	10308245	4896817	518731	18997628	535536	225150	4200
1/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/25/2010	2153278	1725465	905524	1271597	1063	1010964	7282590	3696080	2922432	357307	12413909	221087	84630	400
1/26/2010	3913643	3887740	2036085	857356	170	1584868	8231244	7626034	3463334	322029	N/A	330584	121188	29200
1/27/2010	2730410	4127495	1025478	1345929	N/A	1837921	9332483	4275888	4775382	425783	25161659	399704	174920	64700
1/28/2010	3099613	4264385	1163775	1316724	906	1351008	8673855	6473075	5018105	351799	11228053	691510	202670	27300
1/29/2010	3372200	3449790	817971	1550613	550	2302881	8727662	6305403	4014884	1163128	28785617	278827	123634	500
1/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/1/2010	3319208	4654455	2037178	1201936	970	1336583	11087596	6316545	6700481	520934	30228036	614474	109100	18450
2/2/2010	3406258	4143430	1611109	1286813	1150	1699658	9010720	6538461	6139020	514450	13440721	545902	127590	29900
2/3/2010	2614727	4939540	866987	696018	1980	1710825	7650863	5236625	5199248	274491	11183830	177388	35250	10700
2/4/2010	4441880	4508775	934769	1509436	1278	2017769	8980497	7940619	5962077	402754	9359553	523238	86882	18600
2/5/2010	6265766	5595775	1290288	2516213	1646	1990097	11318823	6608858	7488717	541421	17414304	461026	82000	10100
2/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/8/2010	4246455	4442300	1008943	1184071	410	1504411	9196506	4523901	5246404	281779	17966371	291260	26110	13300
2/9/2010	3691834	3925585	1186988	1322144	179	1706766	8695831	7144284	5815331	374941	24627388	369025	142175	6600
2/10/2010	2815539	3026320	745304	920388	4758	1373754	6587089	5611403	4448247	253868	17252789	247434	75980	19900
2/11/2010	3403529	2265920	1047773	1138435	3280	1497742	8478245	4585323	4597113	506730	10365087	281861	172150	150700
2/12/2010	3474652	4272460	792461	1158686	184	1361487	6976867	4208942	5120037	548361	15031105	421242	16550	500
2/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/15/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10571696	N/A	N/A	N/A
2/16/2010	2147444	4778340	744725	929362	8	1018140	7687352	3618578	3345509	478465	19402998	531830	28650	12900
2/17/2010	2849221	2539460	845996	935342	10	1241136	9148352	3525324	4947443	454514	17870271	271395	24348	13500
2/18/2010	1770571	5976855	1483237	1785355	67	2048973	8612496	3837868	4342601	205170	12521215	294291	11207	4400
2/19/2010	2745607	2408840	1470943	848083	200	1514136	5263005	4074635	2950186	171382	17705956	136892	24467	8300
2/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/22/2010	1798812	4629775	695725	1223914	120	1476803	4986284	3395856	3621840	235066	20457805	117254	24500	10900
2/23/2010	2925636	3496070	1215608	1262532	1500	1832835	6274460	2809515	3461136	199011	52534418	409082	16364	6600
2/24/2010	3707831	2899565	659195	819294	12	1224683	5606662	5861165	3429457	202892	30711146	223146	182000	4700
2/25/2010	2899595	1977565	1159289	1059952	N/A	2239630	8825673	8698916	4572610	544594	32934225	484452	88610	200
2/26/2010	5853992	3478310	714417	1095484	2500	1387657	5085209	3291841	4235943	243624	27458646	303777	34387	1100
2/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/1/2010	9248296	3593910	547497	852653	3100	2181418	6252261	4762025	5006349	320799	15252559	223463	72129	44500
3/2/2010	4052009	2327170	828565	1311735	8090	1647120	7110414	4453274	3557733	221769	9199471	450360	353590	29100

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Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
3/3/2010	2565212	2138325	833113	2245493	1040	4682026	7656269	3831192	4309796	200769	14798198	307420	114222	9600
3/4/2010	2109023	2272485	809247	1355956	69	2430573	12305852	3257483	3910886	133845	7840313	274356	117875	14800
3/5/2010	2398284	3839290	803261	1466658	391	1818485	9317794	3185187	4913560	202463	10114731	271610	114100	12600
3/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/8/2010	2885621	3142015	752723	876947	898	1395206	9287921	3707404	4544617	235118	16096954	361451	145475	2500
3/9/2010	1834472	2011840	777749	822353	1200	1606128	9676901	3630869	5752533	249487	17299997	186377	45414	13300
3/10/2010	2807255	2626870	807874	984304	120	2156200	9299136	6641526	4012586	250163	12693990	404596	57184	27500
3/11/2010	1988798	2690650	899793	652265	492	2420643	8120503	2940174	2597534	208700	19050209	660383	110300	34900
3/12/2010	1929823	1464765	809956	728472	N/A	1764161	7412069	2869847	2826506	203534	10154792	406268	72200	43800
3/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/15/2010	1716662	1882650	396673	538401	2465	1295073	5007333	2259539	4203409	323181	13698673	262749	48001	8300
3/16/2010	2522565	6223620	985469	946520	5000	1627631	6255093	3087978	4728911	223623	14532106	772891	26230	3300
3/17/2010	3873269	2375315	809271	852014	6181	1893330	4859339	2553281	2791014	387339	19850838	379799	95000	29300
3/18/2010	2720909	2214230	782718	980073	2301	1157143	5070392	3124985	2709867	244875	22042118	1119215	93811	37700
3/19/2010	2457090	4112655	1374225	1722911	16196	3161219	11906886	9208571	4763398	330797	14676455	410144	26438	13800
3/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/22/2010	2381865	2573430	3269513	1271910	533	873180	4380726	11262808	2504321	239990	13754206	204256	65434	30200
3/23/2010	2799737	2079140	507119	1274477	1991	1117404	5848458	4821769	3075637	233354	15147951	351590	45190	8340
3/24/2010	2567086	4414600	1328650	1621664	N/A	1339961	7336586	5998164	5383715	225146	11178062	726009	25810	2300
3/25/2010	2626548	2809755	984298	1636273	120	1359570	7659728	5278673	3399643	302931	13518986	923208	67036	8900
3/26/2010	2812022	3586740	1116365	1223722	N/A	1641088	7449884	4916623	3429675	205452	20890859	983133	40130	10700
3/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/29/2010	1946019	2287825	622285	748677	166	1152869	4367401	2657198	2157431	203431	11678221	581094	129529	15900
3/30/2010	1709758	9296790	1049031	1246121	260	1075626	5416559	3302380	2437596	223868	9101448	478704	49428	24200
3/31/2010	2654825	3261430	703752	1367918	70294	1774246	6300044	3329379	2349795	170772	13754692	364844	96930	14100
4/1/2010	1586570	2864675	852076	1228392	N/A	2887666	6788097	3124324	3384982	385510	16056674	306861	338177	206400
4/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/5/2010	1776605	1335215	1122375	772929	3323	2118214	5224295	2074435	3202962	231364	N/A	323609	299022	102700
4/6/2010	1967172	4731195	1177294	984116	246	2363327	4579054	3120053	3340371	181548	13134322	680258	408345	51360
4/7/2010	2282609	3395590	2000865	1860993	5167	1933274	9022052	11404934	5365347	224436	19089751	1236087	220744	28500
4/8/2010	2025933	1894440	1070915	1080889	1072	1761200	6049146	4755220	2359351	191778	20550229	694358	59935	7245
4/9/2010	1745348	3145720	888255	840474	182	1429667	6388047	7703865	2477954	199750	23566826	529947	90645	27150
4/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/12/2010	1391707	1196510	675216	947850	30	1648872	6558631	6310995	2575741	159297	20618831	476688	71490	33000
4/13/2010	1828997	5118000	600205	1171417	13851	3553489	4863869	5902369	3817184	343034	31196178	355216	179622	28700
4/14/2010	1558483	3171940	1269133	714744	6933	1872293	5361058	5803302	2756096	213181	19585783	290381	160012	20700
4/15/2010	1638324	2480135	744996	899113	5000	1353207	3716511	4739090	2272794	355708	19888078	206768	509630	6400
4/16/2010	2454456	2605580	900876	1448203	264	1616575	9326799	6089526	4084445	325674	17013482	245975	261891	61800
4/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/19/2010	1769201	2792180	630284	1406309	N/A	1402319	8807533	5330621	2737302	446440	14594138	211859	65249	13600
4/20/2010	1486694	3372595	1653894	1384923	654	2749139	3673262	3097309	3357579	277648	18505028	326581	212452	31200
4/21/2010	1604127	2479885	1247119	867579	682	1581201	6123385	4326932	3649285	140942	14767081	291719	334839	83700
4/22/2010	2119012	3014035	805773	976530	388	1783780	5322121	5180350	3858506	198661	9347111	311426	190310	23500
4/23/2010	2938261	2347895	877937	710741	N/A	1677703	5795910	4478364	3688256	74861	14119252	329537	93286	14000
4/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/26/2010	1413267	3790675	592218	988063	N/A	1830756	4459213	2955619	4113953	235967	N/A	226777	142829	22100
4/27/2010	2938393	3094345	1585079	2142176	50	1835805	12069234	6144442	4762973	681574	29468939	340132	491975	9600
4/28/2010	3345232	6222705	1942516	2246986	N/A	1957754	12989078	8975934	7208476	2492503	31548380	279177	119450	6650
4/29/2010	3277880	5405645	1520499	1090064	14	2613626	6870919	7838650	3572239	913271	15643689	356187	467310	50400
4/30/2010	5280024	3826480	2617103	1155560	2114	4044924	9697715	10533489	5000027	1574543	32251035	482063	161228	37500
5/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 3: Top 20 Metal Mining Companies by Market Capitalization: Trading Volume

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
5/3/2010	3555919	3652565	1412247	555945	3283	2448502	6973556	8323046	5432509	354288	18379673	344005	96319	13650
5/4/2010	4676355	5529390	1939405	1296703	398	2338622	10987404	9185331	5374626	445040	24541822	506384	287748	44700
5/5/2010	4348064	4398035	1243115	1436165	N/A	2509221	8833371	7138196	6091270	464012	38787213	469170	126830	40200
5/6/2010	4646303	9052065	2326477	2226820	350	2769341	17510185	11839136	8423466	970005	53260119	825548	99973	13800
5/7/2010	3848047	6397140	1670113	3141211	1151	2152981	12929188	9084650	5752779	756906	45286474	410568	153550	17200
5/8/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/10/2010	2602176	3579595	1268784	1965578	8866	1787203	6694213	6349979	4019621	896803	26681236	390903	84477	34200
5/11/2010	4427129	7650540	1877398	3320035	5168	2059104	16177154	14452664	7526414	396664	22626421	1090313	295150	29900
5/12/2010	4289920	4480030	1753249	2363380	6612	1851987	10095103	11894043	7663604	284858	14999636	1762123	185588	9700
5/13/2010	5118416	3475260	887407	1448821	5250	1287268	7741768	8077684	4362554	478644	17694906	613106	104550	3400
5/14/2010	4524749	3535150	1543183	1467211	N/A	1314945	12045485	6867059	5431582	392717	19368172	692678	86025	13100
5/15/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/17/2010	3407378	5169730	863904	2201256	4169	1465304	9364324	4814626	3485421	614468	26982406	767339	112292	12200
5/18/2010	3666442	4063410	967335	2145128	10671	1448381	7289048	7608077	3394830	3423907	39298650	492210	143232	9300
5/19/2010	5603633	6145260	1457878	2137226	N/A	2000331	11953053	9398425	5012119	4188998	27594984	642496	117054	18888
5/20/2010	5917151	4846400	1316825	2089223	10280	2078767	11822328	6575183	5473669	1992116	28842673	586185	164328	57400
5/21/2010	4564721	3620665	748721	1203817	128	1799341	5850092	4828467	2775930	739127	23258084	405208	274451	50000
5/22/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/24/2010	N/A	N/A	N/A	962141	150	N/A	N/A	N/A	N/A	351861	16890567	N/A	N/A	N/A
5/25/2010	3093632	9018705	1089285	1804276	1300	1893182	6717471	9209808	2948709	504539	16107055	618290	321668	32500
5/26/2010	2545913	10173720	878076	1475785	250	1091058	5503750	6244041	2721854	483822	23049594	584162	137090	8800
5/27/2010	1290821	6600565	729216	843687	2000	1861150	6618819	4208634	1839448	545969	27411410	388356	131765	4300
5/28/2010	1297055	3520485	386500	1147354	2966	1602764	4402790	6421495	1634636	175085	17989103	243035	53890	700
5/29/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/31/2010	226253	4223155	86846	N/A	2	341260	1846064	591272	297803	N/A	11103928	68296	18017	N/A
6/1/2010	4670976	4444290	585359	1024453	2849	1212354	5491353	4192432	4176394	257802	16983756	453795	346597	5500
6/2/2010	6675522	4000890	802078	1194770	1930	1054875	3954399	17924639	3473587	252686	15762734	269124	22820	5200
6/3/2010	1774311	3500390	824560	1490627	2844	1402648	4825948	4823998	2172757	284259	24196400	405842	56630	4800
6/4/2010	2029024	3130370	938238	1533097	8099	1423307	6073988	4904397	2388061	640418	17659418	539729	117740	11940
6/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/7/2010	2730420	4315400	854174	1218854	782	1230530	9184347	4532628	4519212	261931	15586511	634264	77589	12000
6/8/2010	3330745	7377130	1103351	1404041	754	1748349	9170788	4445205	4000990	328284	19471060	665358	124689	12300
6/9/2010	2511823	9125410	632776	1575593	25801	1588190	5308090	6373357	2646379	285110	22535677	389187	147470	31000
6/10/2010	2653655	4165215	1104322	1429866	N/A	1246884	5000361	6538412	1738227	259572	15607750	245950	190625	4900
6/11/2010	1716665	4037945	705451	900274	501	1150552	8605301	4172969	2390461	250164	11199061	211163	70790	2100
6/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/14/2010	3210512	4045705	801890	848595	900	1102853	6289339	4044595	2897754	175136	N/A	479414	70379	3700
6/15/2010	1788559	7289695	1058691	771071	2466	1078707	6857942	3498809	2384634	208921	13752130	370927	25485	3500
6/16/2010	2409125	4852365	729059	1117289	11095	1180891	3415712	2797490	3362355	90639	13822674	283183	171876	12300
6/17/2010	3182373	3693545	1018356	1484577	N/A	701517	6195934	4840333	3065721	123035	16021550	715756	263906	42300
6/18/2010	2564168	3454055	1693068	2285693	1060	2830874	7765801	6755796	3737564	195640	10445968	995044	272361	13550
6/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/21/2010	4433432	3248645	1034467	1196546	289	948643	5043284	5435567	2308244	275514	13324754	414776	173037	3800
6/22/2010	2009936	2312795	691481	864971	750	820972	5920755	4608240	2069440	263095	14327990	1018830	18741	3600
6/23/2010	1804051	2092465	1012907	860418	1137	1114222	3862468	3305030	3023085	164296	12068798	627890	112894	4000
6/24/2010	1558595	2537550	717847	975328	2785	1058866	4744546	3002476	2277386	262704	13962688	424696	57500	1900
6/25/2010	2597809	4325960	713445	902057	854	1053855	4630610	3352712	2365344	122569	17736900	442983	89060	24000
6/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/28/2010	2858180	4076150	878165	952889	N/A	1175600	4272313	4376898	3485687	101333	14485362	343055	44490	1500
6/29/2010	2871760	5454495	838522	763233	N/A	1676903	4121416	3846011	3044017	384427	13872662	311441	466673	11100
6/30/2010	1838763	4018380	1202117	618700	1857	1207187	3957687	5800023	3734499	174463	17556575	542566	33000	9200
7/1/2010	N/A	N/A	N/A	1049294	1487	N/A	N/A	N/A	N/A	270755	27029058	N/A	N/A	N/A
7/2/2010	2341208	3048545	1148180	488774	N/A	894060	5260542	3922890	2009466	169721	19085040	360001	37860	22700

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Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
7/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/5/2010	330346	639755	95002	N/A	N/A	205313	1046732	486493	280275	N/A	6187592	67786	12320	N/A
7/6/2010	2853259	2859735	1119397	600302	500	4172791	4130900	5836068	3512829	199527	10765289	340621	22823	6700
7/7/2010	2152010	4009730	1235098	522745	1290	1302813	4482161	4192469	3219553	292931	18396156	489314	222172	30600
7/8/2010	2013138	3957020	746110	805094	600	1455246	7942928	3635456	3336007	106214	15264008	280357	8185	5300
7/9/2010	1660408	2562810	1083006	725966	100	1281467	5944659	3546498	2101948	185821	11585964	485202	92460	3000
7/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/12/2010	1391047	2582130	907352	524227	29	1702585	2983363	4507470	1677494	161727	16642589	408835	557850	1600
7/13/2010	1795590	2351010	1266800	973478	1177	2344921	3780400	3994801	2291368	135339	14764893	620678	7340143	7200
7/14/2010	1461691	1951515	838866	481386	569	1455594	5853345	5319290	2722719	221370	38438452	249649	888780	13300
7/15/2010	1793611	2888590	848778	409682	N/A	2116161	6456562	4632807	2398018	144248	20934429	337714	724960	3100
7/16/2010	1640307	1910300	1059853	717131	N/A	1201177	5807881	3971907	3181017	278429	15724178	378455	38781	1500
7/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/19/2010	1962825	881905	1209475	524679	N/A	779351	4775000	4794135	2559949	293623	14141124	1020391	60767	6900
7/20/2010	2078446	4794095	823070	431035	250	1013630	4506651	5265467	4889641	436969	11061061	390704	268453	4600
7/21/2010	1137017	3978425	720836	555172	425	1091491	4166244	3204756	2524198	395396	9755073	247085	234950	300
7/22/2010	1999048	3737930	1326914	749424	502	1623326	3431462	2173540	2151191	410220	6029602	411900	108100	33000
7/23/2010	1513517	3115215	974274	511142	237	1156395	3872371	2948242	1668894	190070	15483828	260026	220590	2300
7/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/26/2010	1206796	1878080	783525	488655	200	1417620	2999012	2771875	2729335	200547	15041712	274143	101834	2400
7/27/2010	1603506	2600180	1248560	1083471	1316	3069885	6475513	5184281	3386669	168393	14926909	467796	47110	1500
7/28/2010	1615585	3354820	732818	916288	N/A	1583983	3578864	4974001	1975732	97959	13674894	441152	12785	1000
7/29/2010	1330152	4914815	1255955	1113846	N/A	1382659	3902563	4709689	3074920	160528	8287008	366066	37310	N/A
7/30/2010	1196374	3091475	708979	1061442	3543	1904545	3797400	3158780	1708832	146675	13208603	221508	6735	800
7/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/2/2010	N/A	N/A	N/A	1754443	2584	N/A	N/A	N/A	N/A	181185	12274630	N/A	N/A	N/A
8/3/2010	1499872	4443405	890502	992644	2584	1221993	5261917	4082965	4244637	159541	18415683	281679	23245	3200
8/4/2010	2092848	1961470	1425804	1186103	N/A	1659740	5701958	5145876	4062205	206962	8801528	467631	424365	13100
8/5/2010	1571154	1637325	606202	759530	300	1577383	6955056	3816395	2643755	227489	11353130	458572	125323	14600
8/6/2010	1561159	1580395	1793104	623235	1726	1435146	9877990	4446784	2937027	150951	8971789	344540	644580	6800
8/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/9/2010	3186774	1165735	1297137	637290	17	624969	7407831	2121335	1316050	120374	16066005	280560	108413	1300
8/10/2010	2452078	1245385	1179552	744344	200	982069	3773475	3599943	2316959	157515	36675903	281514	88700	8200
8/11/2010	1857590	3695700	980583	575520	200	1090932	5612854	3963478	5253813	525657	32958258	242111	426869	10700
8/12/2010	1502285	2597325	1770274	1892235	2900	1701076	4629516	5125584	5650069	497367	51965721	452330	68282	10100
8/13/2010	1737804	1734070	827081	709072	N/A	1477697	2965084	2433748	2684429	504955	50743413	176192	39990	4600
8/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/16/2010	2153165	1445490	726450	454113	5280	1073100	3346045	2374158	3045190	311086	26350014	411325	120295	3600
8/17/2010	2029932	3081825	779101	500100	2888	1793597	3420903	2350616	3194913	308673	24273891	282458	329075	18900
8/18/2010	2336181	2222385	1082989	874610	100964	1199148	5158846	3791602	2737977	384260	33148730	348332	340466	28200
8/19/2010	1756559	1938025	921114	974048	3153	1652289	4586989	3525002	3590633	273578	52108008	236637	279793	1000
8/20/2010	1423073	4500445	832996	651074	30	1543902	3321052	4726235	1650389	158824	31300930	205580	102343	2700
8/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/23/2010	2154513	5197480	525413	473817	544	1343736	7001015	2760817	1999973	423382	20042884	215759	145850	3400
8/24/2010	2149098	2230605	1140420	757051	214	1593275	5716162	4077472	2610593	446582	13559489	207437	226334	12000
8/25/2010	2131191	3010090	1256506	1564223	9206	2230020	5115482	4805570	3472300	213094	28770780	222044	1198400	N/A
8/26/2010	3169846	5110240	1120895	907097	5452	1336870	4393733	4236746	4083296	291207	45212631	428988	682985	43200
8/27/2010	2529176	2645945	868800	1966067	8260	2876262	5646809	4534720	2463112	406581	37116211	496954	360116	4300
8/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/30/2010	2154685	3943480	618681	551457	N/A	2619632	3913129	3643891	2495999	279277	14468040	355103	392096	10600
8/31/2010	4248357	2935740	1119052	1118581	10879	1548070	9739846	5481339	3933501	233810	15714125	439178	142293	8100
9/1/2010	3261906	4394400	865070	1389687	6244	2402640	6322501	5461335	3784713	418617	23377773	417549	393285	7300

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
9/2/2010	2692213	2060740	848003	725286	12350	1605534	5019348	3612466	3383313	207520	20263723	419724	212108	31900
9/3/2010	2521424	2796430	711033	669535	N/A	2635376	5190934	7619361	2963548	556182	48674749	183387	329288	28400
9/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15510338	N/A	N/A	N/A
9/7/2010	2374805	3295525	532950	939858	N/A	1283057	5744335	6087332	3245100	188670	12755834	415230	254578	38700
9/8/2010	2489420	4767485	516549	826392	9012	1256555	5372500	4559000	5623525	164319	30417040	399186	246900	6000
9/9/2010	3218170	2400915	806709	718481	12	819007	4173401	3494766	4877136	492398	21358387	333481	500475	19600
9/10/2010	2122460	1699395	490021	566685	N/A	1188358	3192114	5008227	8402825	113204	13171146	138002	610260	2600
9/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/13/2010	2870708	3614895	677348	796911	30882	969978	3277545	2280400	5572003	293808	14050533	192829	192209	34200
9/14/2010	2415044	2792285	1058749	1321841	36496	1346534	7358083	4487562	6338051	188014	14490697	457509	689089	37200
9/15/2010	2135944	2958760	870803	1069496	161	1001518	4797860	4673895	3244021	377295	33359108	333781	150615	90000
9/16/2010	2357017	2761575	798820	772710	5024	1289673	10070023	2639065	2957176	223417	39762797	662892	240925	9900
9/17/2010	2605875	6377440	2745570	1403188	2833	3286509	8092074	6314995	5214947	169254	31674935	1302826	141048	8000
9/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/20/2010	2793517	3240190	772410	588542	173	1180936	3941946	4709398	2269590	187917	15440723	326922	379682	3200
9/21/2010	3988635	2566750	1074925	751107	N/A	1344716	14784240	8112520	4332242	305268	12976236	582765	318302	40500
9/22/2010	2458955	3244280	978533	489944	3567	1264597	7013889	4767160	3503437	422780	20442711	394440	1024981	33700
9/23/2010	2676908	2973675	1008964	532721	2030	986684	7373757	4065815	2286362	476175	13668828	163625	308608	12900
9/24/2010	2875259	3318455	796137	472915	200	1678447	7037775	6030794	2690121	384470	29237350	601422	729097	7500
9/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/27/2010	1722901	2480220	607787	741675	4163	1246463	5114861	4858636	2601087	218192	14341788	488735	314280	3000
9/28/2010	4121134	5111050	1257326	982420	11700	1177168	11831362	7611415	4515334	297059	17859562	437094	796258	800
9/29/2010	2858724	3984250	1045632	1103546	3290	938176	13150902	3664225	2919607	124459	23948579	203266	1383926	3400
9/30/2010	3194539	4485985	1350711	1518241	45126	1705699	10675292	7543055	4240679	194350	14608116	308748	358821	49200
10/1/2010	2447516	5157430	819270	906133	15466	1200459	7944613	3997773	2622451	139275	9257003	296953	288032	62200
10/2/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/4/2010	2192467	4869130	870037	885273	1631	1137026	5954199	2782537	2254296	205853	4714549	363380	368612	23800
10/5/2010	1756670	5710715	1205885	1226269	11434	1397511	15181572	3857456	3401731	162045	10343833	312420	322198	94510
10/6/2010	2470927	4007795	1435772	758631	5230	2014406	9230061	3738539	3596840	257691	15920321	306891	329635	36400
10/7/2010	2956673	4837490	1319770	994759	9355	1589997	11010582	4893297	3962404	231334	19807302	645454	553452	46800
10/8/2010	2295006	3446640	813841	990405	N/A	1797914	5293030	2750139	1895483	1327455	36097145	573661	328442	21400
10/9/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/11/2010	N/A	N/A	N/A	647717	1013	N/A	N/A	N/A	N/A	457612	54906924	N/A	N/A	N/A
10/12/2010	1318527	4488385	642215	1321072	N/A	2421600	5170087	4320248	2050658	4091687	30868094	435104	960469	69800
10/13/2010	4358411	5195850	1913273	1427188	10955	3023143	13146034	4312538	3667332	259266	21570738	538986	1669456	28800
10/14/2010	2973817	2915410	913796	1208506	495	1858639	5368490	3196742	2332516	222498	20749150	315160	2029023	33000
10/15/2010	2119763	1805030	629654	886065	47	1018640	8880639	3179848	2438190	122767	18017551	345141	393210	14000
10/16/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/18/2010	1475451	2499245	393288	586368	7552	1126028	4727479	1977729	1371177	143776	17442013	285880	547869	13500
10/19/2010	3303457	4749490	1100202	1516877	275	1687603	11427134	5970250	3522623	467035	11190436	501639	1947001	69100
10/20/2010	3231572	4728800	714277	981083	160	975429	12554098	4052101	4942849	310150	19886432	200235	326862	34800
10/21/2010	3114778	4343935	1352546	797079	8000	1107046	8282066	6027996	2978017	376559	14431347	394288	1123625	17700
10/22/2010	1505373	3511990	511187	479080	10400	935441	4208610	6091202	2872623	118221	16638389	369452	224914	14100
10/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/25/2010	1544737	2989290	583809	886766	250	2120036	4895472	4111149	2382284	201961	12859661	393829	226633	20000
10/26/2010	1964502	3119505	623267	628090	410	1206504	6797753	3811240	2367637	121973	15938941	508897	322236	16500
10/27/2010	2067810	4046195	805783	1222760	N/A	971972	5711743	5809745	2646865	184433	13682715	594008	300530	17800
10/28/2010	1286001	1576805	1769877	1111928	2149	991922	8022432	4963013	3658483	438578	23504965	380783	703853	41200
10/29/2010	2176678	2789840	1428655	788299	N/A	1496892	3942606	7466240	3478451	216364	44285697	476282	1224939	50000
10/30/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/1/2010	1934001	2794790	755981	491668	N/A	1541412	3469234	6789434	1989956	116162	12831159	203554	477391	57100

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
11/2/2010	1652642	3956630	787709	789889	N/A	1191209	3156048	6114897	1971578	314285	10114920	301477	368346	39000
11/3/2010	3067163	2129185	1140229	1547808	1735	2444032	8686947	10404330	3046490	155939	9400814	947112	304159	18300
11/4/2010	2760420	3284795	1242885	1559053	N/A	1744702	24653347	9197454	2911131	491539	30410496	826148	444593	53500
11/5/2010	2493809	6341345	994837	951398	580	1557898	11168472	4149207	11750399	216026	30193882	643165	505502	66000
11/6/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/8/2010	3333041	1944610	994082	709121	966	5073103	15458291	4062324	5843784	244863	16705325	676103	256885	62300
11/9/2010	7646180	4233005	2391640	1337253	5549	5909333	13443313	7522800	5922777	324476	23551739	599860	1246960	104700
11/10/2010	4978569	5142155	1117840	955886	45	3142004	8729812	10362273	7438680	163693	15542903	583805	1903523	63210
11/11/2010	2665983	4948280	651664	545401	31700	1504465	7113180	3895951	2790876	148511	20288644	665478	403730	54400
11/12/2010	4155419	3376700	1305195	711032	1545	2500787	12057874	7529215	4000064	274276	22907741	666000	556777	31400
11/13/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/15/2010	2048569	1644370	522699	558911	61215	2055831	5330619	3520468	2417304	171100	12238784	273013	123128	34300
11/16/2010	4193573	4932150	1212334	931935	1500	3414077	9013059	4212086	5357283	311714	19194328	417612	545135	50600
11/17/2010	2586459	1987665	688792	900345	76	1653727	3816167	2715676	2346450	265959	20703270	577195	124209	37300
11/18/2010	2652064	3512495	799388	745469	116950	1660427	3834916	2791915	2132592	321375	17612758	440328	170116	48300
11/19/2010	2143438	2028505	503485	539730	20450	2103163	4158222	2452562	2694784	139739	18043746	219851	116292	28900
11/20/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/22/2010	2636573	2162500	519929	988791	7250	1251162	3570561	2340929	1627353	194200	23205064	220401	159473	32600
11/23/2010	2451897	3158290	801492	816978	150	1381673	6689337	5337210	2937757	282476	25582877	154533	426273	36600
11/24/2010	1932507	3271465	520186	679767	50	2646363	3803396	3475084	2570951	236000	15573825	191883	267909	32900
11/25/2010	409288	902000	62788	N/A	N/A	660112	473893	576652	431950	N/A	12436370	37809	31181	N/A
11/26/2010	1270633	979455	523958	493730	2214	1029584	2762376	6029497	1936407	114795	21233107	161813	221013	15300
11/27/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/29/2010	2081746	1759300	500340	678553	5167	1560662	3892029	2277804	2229176	264137	11832019	297673	134274	27500
11/30/2010	2787608	4061105	1377112	3947962	110200	1791110	9093961	4269996	3223956	264932	14216623	529517	338949	28900
12/1/2010	3000739	6083890	742733	1524133	13889	2268345	9757398	7932493	4025696	219925	10222832	326117	299769	30000
12/2/2010	2681228	3886335	675020	602108	1280	2227038	4450608	4166593	3286810	230347	16859257	179004	540948	83550
12/3/2010	2665539	3947615	1160884	676021	1220	1260658	9532428	3357449	4323743	137439	18215424	2302231	105384	36900
12/4/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/6/2010	3685546	1584365	912575	609589	3703	1960232	6917867	3254883	3310825	121954	13429999	308626	645746	37526
12/7/2010	3941188	5753125	1039825	741139	7188	2090467	10330622	4847329	4280994	173547	9544897	626068	355252	30800
12/8/2010	4525326	4557555	743738	701654	N/A	1920427	7971005	4092940	2460407	163669	29340433	589821	157011	28000
12/9/2010	1641747	4725790	720400	1647978	5057	1568773	4319560	3186485	3112779	146330	18698037	179821	192131	14800
12/10/2010	2191217	8646990	671516	1152468	5208	1241172	3716190	2438539	3398346	193840	40890849	298356	154453	24500
12/11/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/13/2010	1918681	6493605	606542	695482	5007	2578812	3529440	3747739	2050493	628386	13855920	2499727	180406	55800
12/14/2010	1845281	3090310	557907	915521	11170	1841028	5800246	3848180	2248133	704153	23458236	1851147	289859	38900
12/15/2010	3277644	4990965	984403	935959	400	2594637	6132568	4144188	4037208	1173177	50728138	1132125	267404	45200
12/16/2010	3314066	4473365	4389492	1914804	97	2871758	4769021	4191853	3435475	1074185	59553948	506047	133121	28100
12/17/2010	5125602	8097240	2047680	1190603	13833	3927727	6573641	10062765	7964728	581360	45080250	656113	376980	18316
12/18/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/20/2010	1685208	3000870	1088208	848923	161	1565147	2868159	3354103	4197274	314270	32812709	680424	111501	27400
12/21/2010	1357512	4836570	460931	620073	38322	1453967	3047123	2621316	2797827	186768	34700876	531452	124825	18500
12/22/2010	1481546	2881910	531225	608510	N/A	803673	2565682	2175110	2679226	148611	12539367	234440	85564	11600
12/23/2010	1263807	1614510	537001	379799	6	788847	1950528	1158132	2072917	193504	17485248	189705	136362	27800
12/24/2010	91644	143845	60818	N/A	N/A	92881	179746	161534	92634	N/A	44349836	11271	28420	N/A
12/25/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2010	N/A	N/A	N/A	281423	200	N/A	N/A	N/A	N/A	161428	N/A	N/A	N/A	N/A
12/28/2010	N/A	N/A	N/A	437234	550	N/A	N/A	N/A	N/A	131748	N/A	N/A	N/A	N/A
12/29/2010	1281427	1315575	413409	600256	N/A	773450	2374229	2332842	1111755	82468	6411260	356095	227478	86300
12/30/2010	1052599	1997255	343042	485179	10770	804582	1777798	1600557	1659199	178186	12996678	205579	175888	23700
12/31/2010	1036286	594025	368514	477251	78745	603288	1757489	972351	717209	115516	4025919	126119	89858	13800
1/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 3: Top 20 Metal Mining Companies by Market Capitalization: Trading Volume

Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
1/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/3/2011	N/A	N/A	N/A	550552	N/A	N/A	N/A	N/A	N/A	207188	N/A	N/A	N/A	N/A
1/4/2011	3221954	4616435	1349650	764883	637	1641837	4957008	3314028	3164086	379481	14957457	785222	581129	57100
1/5/2011	5154530	7855590	1153595	862364	5010	1197119	7668526	2510657	3615630	735335	31751728	822853	373029	11800
1/6/2011	3435850	6171110	2004454	763499	50152	1717914	5750103	3380330	4740657	348809	18260779	786984	176367	25700
1/7/2011	4607424	3100835	1324391	928856	2485	1924155	6316091	3247276	2787540	256074	15553162	501251	415814	27900
1/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/10/2011	3750635	1830510	972746	845908	150	2168855	4251685	3276975	2347218	1251676	11200974	383490	157519	24800
1/11/2011	2581209	4575655	947202	1488240	200	3319891	5653520	5088742	2327700	509631	30987250	1654565	331336	13300
1/12/2011	2781483	4082090	851043	759537	350	1480870	6031123	7010004	2556332	360267	26447457	523471	136679	26200
1/13/2011	3806412	4543695	1083830	761533	622	1571845	5413008	2854652	2467859	569027	14074691	978444	143166	22400
1/14/2011	5284881	3594255	983995	1232604	N/A	1723965	8740623	4200211	3029828	501746	10370744	1271849	254910	88100
1/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/17/2011	664760	576255	202525	N/A	N/A	316785	2295687	1476447	416849	N/A	13398382	146566	60874	N/A
1/18/2011	2868344	3443425	580513	1734767	N/A	1229241	4363094	3208519	4246314	1581927	17754934	306927	151073	74100
1/19/2011	2561947	2373145	713263	1421961	N/A	1611877	5100684	3939369	2243634	294820	16813112	537991	335619	37250
1/20/2011	3881293	7644155	1673861	1914847	N/A	1831911	5540436	6412289	5275754	521576	13085042	494924	504064	70100
1/21/2011	3152623	3859330	1613821	1760398	1754	2277265	6399997	6410668	4448385	223542	16855557	475964	244704	38300
1/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/24/2011	2839940	5836740	1164156	1551754	14200	1103975	3715045	4524137	2289834	191186	7109135	538358	150731	28300
1/25/2011	6633014	4812560	1093960	1951702	100	1229278	4363581	7996950	2692083	189752	8776316	724172	774269	123700
1/26/2011	4098090	5941645	981619	1855712	695	1379811	6521893	5251242	4260566	183647	N/A	639229	283957	32450
1/27/2011	4163619	5008100	1425214	1593024	318	777347	6076966	3067060	2594782	158231	18999743	410301	143146	15600
1/28/2011	4840671	2402690	1513515	1200218	13176	2611958	7942180	5200156	3023921	170908	25279680	631858	115109	46600
1/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2011	2943861	2826275	1003558	1627709	5494	2312627	5674650	3495121	4983183	205072	13571868	875659	141151	18500
2/1/2011	3325580	7251920	978662	2727302	212	2752095	6209841	7986701	4292846	257896	16246745	2202404	188280	49400
2/2/2011	2216497	4151220	538749	1492831	312	2412665	3291247	2664162	2095140	233608	19741284	582525	124708	23100
2/3/2011	4055780	3524930	1371981	930049	19500	1978791	5846162	3114496	4234977	151366	13386460	1251672	303545	33200
2/4/2011	5576069	5902185	1080891	713599	N/A	1387122	4330765	2872703	2044873	325087	13660515	1148600	277422	42225
2/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/7/2011	2318304	3147375	726773	969100	N/A	1615134	9472486	2138869	1908695	161611	6649927	288217	381114	213700
2/8/2011	2997107	2992290	928413	897333	30	1841635	5876538	5224012	2991175	148872	7900006	577552	526021	50300
2/9/2011	3632172	5230530	600441	1273126	1788	1680511	4932573	3856174	2659471	220046	17263044	860613	391928	21500
2/10/2011	2260306	3952605	618032	2502709	N/A	1383366	3709218	4014015	2809870	356807	20520553	745378	220470	16500
2/11/2011	1849174	2968350	508991	2476395	N/A	691210	5028910	2945499	2405060	205507	19390497	535442	90391	16200
2/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/14/2011	1870705	1943630	616697	750550	N/A	2005672	3501632	3995028	2077981	181744	34822462	230138	132365	33560
2/15/2011	2659508	2907105	882870	1224416	N/A	1294242	4293538	3891841	3634246	145105	18305517	733894	112721	49500
2/16/2011	3462139	2945460	655529	766039	32	1189928	3705118	2925058	1987554	157334	7666862	622122	106648	41800
2/17/2011	2406163	4926200	1905724	618106	5418	1152114	4251299	3694496	3680144	93134	9379835	1525958	206214	51200
2/18/2011	4852674	2783890	1278363	2301919	N/A	2945983	4699620	7237363	3018085	148996	6916825	1836815	577344	49000
2/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/21/2011	N/A	N/A	N/A	N/A	100	N/A	N/A	N/A	N/A	N/A	12916662	N/A	N/A	N/A
2/22/2011	6054289	5295510	1127123	2097908	9443	2238454	5670658	4080487	2264454	319503	13064504	1405001	263658	41700
2/23/2011	5068000	4058750	1361726	1466700	33401	2285383	4821811	5047834	4055257	233742	18491640	1127691	208612	13100
2/24/2011	3774581	4022855	1303581	2137640	N/A	1446768	5432848	2662854	2479942	195971	8639135	954160	176453	15740
2/25/2011	2956584	4886605	852360	663535	4746	1882679	3944066	2536009	2567548	116035	12969788	805302	64186	14600
2/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/28/2011	2731111	5967440	934445	1084096	1018	1902478	3443728	2553790	2241472	167766	3367232	915739	232212	53800
3/1/2011	3727553	5709245	987965	931633	16530	1436687	4210956	3354822	2994020	227613	11881946	702119	730604	78700
3/2/2011	3565472	3209205	660952	1048780	70	1696892	3791357	2565516	2190870	177938	17049282	1163097	1308138	47300
3/3/2011	5531307	5396310	1068981	1012604	100	2262114	3890806	3895523	1827387	208335	13393835	962047	260226	19500

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
3/4/2011	4339724	3514450	756069	566804	4	1544149	6012478	1956877	2134818	360455	10994294	655792	587388	243900
3/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/7/2011	3540260	2613840	1376948	1065744	N/A	2507834	4649054	2743578	2467355	430997	22445212	513615	716914	117700
3/8/2011	5822096	2209740	1156886	1048107	1500	1236919	9639791	2107315	1680164	247972	29455063	679879	1525503	89651
3/9/2011	3955385	3560865	2044812	763221	1914	1473872	4043914	7041619	1996291	147838	17110998	314512	368387	30700
3/10/2011	4433133	5430110	811972	1132696	N/A	1457557	4531563	3661941	2605336	312967	21446421	381149	910445	41450
3/11/2011	3303634	3598165	459611	825557	N/A	925411	4701288	2147623	1489761	145563	30840726	418244	306180	41363
3/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/14/2011	1700242	2938075	397242	527158	N/A	18175872	2179258	1101831	1275783	145147	15065079	671433	182861	58600
3/15/2011	9003096	5381015	1249872	951803	N/A	13280221	4654192	3393881	2235594	325684	20182419	393882	670686	109200
3/16/2011	6337188	5641250	1123007	970394	1420	10106976	8373985	3134923	3127185	224388	23833919	771867	574365	94300
3/17/2011	1751715	5403950	666551	912949	N/A	9394330	3925114	5446028	2058430	146323	36843796	449308	275255	19955
3/18/2011	2586704	6982690	1365084	1482638	13554	8039575	7530405	5226135	3431996	152677	20052396	627070	153960	30100
3/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/21/2011	2158768	3528785	626187	800771	N/A	7138712	4245887	2694337	1830961	197860	7933936	211018	821552	31000
3/22/2011	2278752	2012335	516892	617747	N/A	4503549	4158803	4014880	1313559	87822	15875154	241892	166104	61000
3/23/2011	3674816	3655045	648226	949413	8829	3344940	7209524	3857746	3413115	159768	9177783	917306	240989	53000
3/24/2011	3796384	2155465	985103	2057975	N/A	2857254	4594086	3844734	2307024	208322	14355858	654264	432724	36900
3/25/2011	2963824	1600270	792907	1355556	5	2341460	3915171	3209566	1794233	172723	22929806	613954	225514	44300
3/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/28/2011	2106602	2934480	631535	1524855	785	4425838	3299359	3669308	1617722	134846	9119856	443256	138839	46500
3/29/2011	2119734	2200620	1309782	776458	N/A	4059856	4302368	3390589	1741566	145997	13510649	500245	124525	36900
3/30/2011	1851490	2500265	1144423	1069114	N/A	3050706	4681754	2892137	1767547	406650	14862619	160391	224683	40000
3/31/2011	2855109	2232135	1266508	713687	N/A	2928588	4396964	2491921	1253864	305181	27731057	309375	190961	44800
4/1/2011	3373523	3543915	1412932	1507533	N/A	2654455	6981225	4033919	2857169	237878	14842504	290819	99881	33800
4/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/4/2011	2232006	3886615	711898	852180	N/A	2072779	4228186	1961115	1366239	286835	19041073	285651	941609	30500
4/5/2011	3947525	3313570	1525787	1622236	115	2521633	6245923	4614355	2482858	178368	13555398	628679	325451	51400
4/6/2011	3612938	4886770	1314127	967432	1854	2798120	7891786	4954696	1875555	221296	26961206	419200	613877	32700
4/7/2011	2660485	4649960	803778	1801482	260	3511242	6909067	4321660	1993832	246221	18173072	295707	180850	36800
4/8/2011	3711205	2165960	1281364	1442510	50	2174922	9300879	5594051	1578852	297880	18526641	415366	793209	74150
4/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/11/2011	4680466	3286235	1555736	1640027	100	3265649	6124393	5127079	1755736	216949	11473228	440173	468886	94100
4/12/2011	6221910	4934955	987841	1671679	160	6413578	6250543	2824243	1556449	293747	23119959	744793	237548	70200
4/13/2011	3705387	4544680	999767	1671971	4369	4643009	5303213	3302475	2004586	139309	26444845	346597	370565	40600
4/14/2011	3735701	3192650	789936	3295687	48804	2771641	5483405	3742028	2737959	88458	11588186	362507	1551483	78050
4/15/2011	3781054	2760810	697828	998119	2217	1970724	3908206	2971852	7755747	168652	15548329	501640	630547	141100
4/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/18/2011	4577059	2710515	1281067	1405029	135196	1716443	4872458	3303431	5709305	428365	19396855	366080	516877	56100
4/19/2011	3215504	2925235	1061044	825592	1116	1359591	4446510	2338659	4000100	129453	22766452	430178	227060	32300
4/20/2011	3593326	4798475	862967	2095529	N/A	2335090	6337211	2450292	4914750	92909	14629869	1021664	846444	67900
4/21/2011	3975708	3130090	571202	629808	N/A	1125318	4643962	1451886	3329666	129451	13379858	1339309	289673	29000
4/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/25/2011	5140353	4520895	934212	1146576	33438	771391	5934999	2074496	1758286	71733	N/A	325016	316751	90480
4/26/2011	5437995	2629435	875167	923555	5572	913132	5136769	2555692	2078983	107592	N/A	409402	522134	72100
4/27/2011	4434574	5201745	1394779	2020293	11239	1535866	5916566	2877791	2826054	145276	16589354	313224	783233	54700
4/28/2011	4091192	2080665	1088736	1925982	1614	1236959	5317468	2470170	2385645	138594	14072070	901210	616113	117800
4/29/2011	4754547	2458185	1182453	2118699	1000	1118433	3669262	5059688	2870373	210058	31243285	301484	766914	116000
4/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/2/2011	4978926	1769175	969838	1408912	7300	2536660	5111847	4653243	3160448	253255	25676836	328609	601270	105300
5/3/2011	5502667	3700685	1334044	1551770	400	2046109	5584751	6564152	4050526	469138	19376316	361918	700481	93600

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
5/4/2011	4676975	3214770	1166491	2057254	10600	1683286	7273104	5027722	6687246	106607	35326411	319810	504027	68075
5/5/2011	6476072	3430260	1363192	2287352	350	2077307	7838893	2854539	4259638	172096	18449176	398200	1145275	138000
5/6/2011	4648372	3148765	1092265	2118001	931	1587988	6132700	3617471	3126590	81208	13578223	309237	793219	60100
5/7/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/9/2011	3716892	3008720	618407	652430	1475	1367522	3899264	2334821	2113641	75250	12728557	297127	439445	23800
5/10/2011	3088487	2372630	591414	1041497	10000	1170676	3470531	4027472	2145709	103171	16831859	377475	426418	38250
5/11/2011	5515072	5253635	1092944	1600613	200	2827919	8579541	5395762	3525310	189131	15770269	581165	235779	46600
5/12/2011	5414124	4616510	1187700	1353540	2214	3992045	9623317	5933654	4856169	114983	17297264	476944	291211	39085
5/13/2011	3698521	1932060	704205	1974173	1552	2392823	4013290	4029735	2747128	151202	24575599	181658	237729	19400
5/14/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/16/2011	3643135	5597320	918821	1133895	13432	2006055	4493751	3726912	3493531	147334	11436894	344809	186273	35600
5/17/2011	3649065	7262855	899353	1025884	N/A	5369284	10905832	10020985	2545851	151810	13818217	684838	256691	26500
5/18/2011	2465974	3485055	756418	1162014	5968	2463081	6165885	5630597	2459474	93575	16813581	299739	341805	52700
5/19/2011	1912206	2501735	563761	696788	83	1303818	5001225	3506469	3460127	93087	16908768	319018	530653	29800
5/20/2011	3472405	3736095	678398	1402092	N/A	1797212	9662801	4247619	3891473	82432	7626321	359914	165126	34500
5/21/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/23/2011	N/A	N/A	N/A	828008	25527	N/A	N/A	N/A	N/A	231739	9587930	N/A	N/A	N/A
5/24/2011	3053034	2074955	939309	823580	5000	1508515	6535033	2783873	2595831	99507	10998455	685424	1982974	154400
5/25/2011	3429023	2740325	631702	878344	N/A	1976640	4817831	3140797	2573195	197106	10585913	367259	1470349	126500
5/26/2011	2700562	3742010	473757	840266	2868	1128128	4028381	2202033	1819242	79849	19560145	153283	638544	47200
5/27/2011	2011982	3152130	471759	1895046	5335	1447801	4706920	3095550	2962555	65311	8765558	183565	168051	20100
5/28/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5/30/2011	360996	409190	55491	N/A	N/A	1191849	1262577	574036	279975	N/A	8390101	83837	396271	N/A
5/31/2011	4396041	2282440	682627	2194737	169595	1755929	4888676	6579310	3447057	87044	16844141	468747	1334860	140200
6/1/2011	4032252	3322615	719115	4052315	899	1888600	5467754	3442192	2295645	198224	8508171	547538	894529	82500
6/2/2011	3205149	2692845	529974	2045178	16750	1664279	4691624	3741578	2181998	262085	10303889	346786	1199445	16200
6/3/2011	2321277	2546505	1069653	1578866	613	1240999	2642673	6145065	1210046	105223	11147336	369433	277793	51450
6/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/6/2011	2471510	2789530	788566	6749185	N/A	1448346	4585146	3468792	2219580	101386	6782215	634260	595077	181100
6/7/2011	3636014	2701785	661115	2937366	10500	1146110	5051858	2219840	2670255	94738	20315834	679924	669488	48370
6/8/2011	2686276	2344445	725378	2999089	1505	1924164	5151981	4095377	4870156	124119	13915704	547408	1043502	34720
6/9/2011	2065791	3422080	787103	3088759	N/A	2582847	6644422	2545260	3733228	91345	8987897	728347	902848	50300
6/10/2011	1800933	3437470	494812	1591392	107722	1611367	4158002	3893481	2085264	92249	12746944	238786	421461	63300
6/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/13/2011	4063829	2464710	564441	1072553	200	2082319	2949074	2633420	1302696	120361	N/A	619448	1779996	18500
6/14/2011	3200856	4452820	609422	1044170	N/A	2567781	3973018	2826026	3028170	121079	9503773	337033	835631	7100
6/15/2011	2565338	3813500	751771	1377657	57	1743406	4607121	2347304	1689776	209005	11526407	463101	1567125	10600
6/16/2011	2366986	2702825	2121931	1201055	1096	1929651	4209529	2393917	3164945	190844	24147552	426644	962477	10900
6/17/2011	3193520	3791400	1319987	2745447	8109	3469797	4842367	3494920	3666034	356187	14780205	1059243	2797423	23600
6/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2011	2427871	1605110	794651	1034267	N/A	2227992	2308511	3194008	1783482	134265	9377847	286403	264399	26500
6/21/2011	4002956	3390485	1894040	1443726	15000	1944441	3267107	4586533	2252287	117059	9551316	277920	365933	12500
6/22/2011	3530738	2422020	1464666	881199	20000	1709674	4375490	6713944	8531425	203465	18543541	433196	245071	8600
6/23/2011	2837771	3695745	868504	1904809	65700	2218037	4783180	4596512	4230181	136309	14416791	308325	140586	3700
6/24/2011	2940794	4537225	852579	1029537	36834	1603679	4308048	1734064	2875705	207769	29790454	201942	334682	11100
6/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/27/2011	1863335	2334850	744626	832695	N/A	1427946	3461852	1659312	1793751	195285	19973698	274068	3609157	219050
6/28/2011	2321923	3647550	1160867	611356	16387	899821	5470561	2317908	2251176	193287	15164286	226847	1189086	54000
6/29/2011	3006755	3866335	747954	702190	N/A	1093722	4185771	2476099	3098013	65113	17943054	477004	459810	46200
6/30/2011	2102262	3831515	825269	688246	56780	1184616	3894558	3123564	2270020	118133	24017705	611292	276505	15500
7/1/2011	N/A	N/A	N/A	805433	N/A	N/A	N/A	N/A	N/A	156528	16154048	N/A	N/A	N/A
7/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
7/4/2011	305440	1486550	200512	N/A	55	539675	1988297	595592	378112	N/A	7770444	141785	196856	N/A
7/5/2011	3252549	3789245	1413256	912426	5500	2500917	5732078	4485291	1837907	215501	8015441	456320	632621	39600
7/6/2011	5191192	2786265	906037	1137816	16000	1717730	5963866	8340766	1321678	194417	7395706	339507	600299	49640
7/7/2011	2690034	4106540	1084111	1699654	N/A	1588063	4243329	3526871	1904394	97691	6352513	483875	823972	77100
7/8/2011	2194094	1920340	658044	1644829	41015	1106343	4271682	3473503	1004257	110339	13430143	299404	278791	11500
7/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/11/2011	2610137	3208440	808321	887106	3755	1593046	5490410	2835265	1512801	94231	9693898	749416	167993	67000
7/12/2011	3093700	2844780	1037355	1330349	16476	1855712	4845336	4157030	2799169	184961	22725716	793964	318287	16100
7/13/2011	4418320	2338925	1431794	2333615	168520	1263316	6580781	11502618	2862041	219704	19993863	1413757	908053	27500
7/14/2011	3520471	1883065	633330	1788930	80647	1123464	4877742	6585844	2740114	314306	13782545	747065	184563	17700
7/15/2011	1722445	2299240	445462	1321138	38769	860829	4040875	2764463	2027392	209136	13444017	1075314	437978	14100
7/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/18/2011	3689099	1983105	763810	2545171	2601	994160	4056044	7028366	1362622	98602	10648243	798731	363509	43973
7/19/2011	3197239	2861055	1641672	1323258	250	1053367	6860028	5135023	1763727	159677	6166659	976955	611042	62300
7/20/2011	2309790	1795690	965663	925812	N/A	4285373	10523609	3280884	1205609	193480	14583253	1073641	278544	49200
7/21/2011	2995988	1466560	742726	1209485	N/A	1310960	5951853	3607869	1593561	151262	12916178	539928	592046	8100
7/22/2011	2300478	982885	541872	822102	600	1565841	4725306	2234619	963326	132362	11390743	448394	329432	33200
7/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/25/2011	2084480	2562410	836876	591208	55	2195663	4561487	4719201	757614	109340	5201567	255079	252962	11400
7/26/2011	1549636	1524510	701209	499806	N/A	2975421	6591743	2849352	1303609	155297	11469798	221356	181488	11000
7/27/2011	3265956	2427565	1095995	837330	5323	2511525	4531379	3341193	1296195	294626	9410412	471944	347880	29600
7/28/2011	4108966	1958145	1997056	1040512	N/A	1198080	5146080	3270712	1781516	174212	10715408	556881	493624	10100
7/29/2011	2413676	2368440	1229203	1029427	N/A	1418279	4301493	4846560	1529962	107998	15118430	887749	138899	18900
7/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/31/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/1/2011	N/A	N/A	N/A	1296651	N/A	N/A	N/A	N/A	N/A	127841	9242523	N/A	N/A	N/A
8/2/2011	2205806	4153915	1482183	1012149	300	1751498	6827224	5007628	2296951	182512	25921198	679881	384402	17970
8/3/2011	3280493	4917315	1723092	1118787	N/A	2062146	12894122	6553423	1990806	309463	23052132	1525422	231417	7700
8/4/2011	4386421	5250185	2051035	1091555	404	3333994	14962426	4344038	2301869	338721	19022014	1754178	320069	52200
8/5/2011	5012832	3808550	1961375	994067	144	3141697	9540905	9351388	2319958	381829	44801266	1188477	292216	21200
8/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/7/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/8/2011	4386896	4301000	1987338	2007319	482	4088586	16342364	6161564	3177611	328039	33949876	1478766	401463	16100
8/9/2011	3694947	4620053	1861433	1848201	50	7368192	15131483	5113018	3994886	433270	37558379	1249838	406198	23200
8/10/2011	3532278	3438837	2003963	2106570	40708	4789688	15102250	9090788	3551951	210446	25448455	1395096	374680	20000
8/11/2011	2867415	3793226	1814782	1509107	N/A	3471828	11180481	4799190	7652150	362305	42131540	664544	457907	2000
8/12/2011	2190214	2419382	1287390	772822	N/A	1954055	8051616	3454990	2481098	129439	26449761	531203	319567	16397
8/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/14/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/15/2011	1781116	1561666	1070485	1084875	1492	1624203	3437420	2685871	2141156	174535	35753735	413657	269963	13700
8/16/2011	1658566	2049777	1073584	911925	4644	2523088	7934801	3486219	2500554	210528	23362675	828286	276816	18800
8/17/2011	1249540	2292722	1785666	1778579	2461	1411477	5416599	3311169	2191679	122479	17964109	1355715	1511009	64900
8/18/2011	1955502	7520281	1222139	1386529	25200	1811398	7675817	2796801	2274866	276951	17818160	621690	281370	13500
8/19/2011	4252880	3104825	2240206	2283646	7013	2414715	8149141	9162505	2959579	161727	33777427	517926	229382	15600
8/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/21/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/22/2011	2667844	3131794	2049131	2338936	8668	1338169	6293156	8172783	3266573	228885	23699138	644361	848577	11200
8/23/2011	3709721	4746730	1371455	1553173	515	2107290	12332280	9391065	3159411	124717	17129449	633889	431842	3900
8/24/2011	4119563	2254758	1915262	1226309	292	1916126	11468260	5527178	4350506	103185	16079535	688115	185701	10700
8/25/2011	2128141	3350384	896295	1257127	11943	1662066	7386525	3939244	2501253	89397	15127230	588714	346113	16900
8/26/2011	1829583	1941519	614683	1634583	N/A	2503576	6345352	3347339	2050467	165267	18416050	457011	327208	4700
8/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/28/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/29/2011	1631978	1931265	827427	918293	10149	1113373	4732679	2105479	1113786	168546	10957448	479120	209334	30600
8/30/2011	1571245	2087133	1241114	1028150	N/A	1212772	4361277	2669961	1673195	125007	8705566	600864	915352	22900
8/31/2011	1987831	5560682	1059363	942253	1264	1780073	5584487	3109188	2109986	141028	14352496	568211	138502	16000
9/1/2011	2277479	4687497	1242244	801948	453	2499603	9617142	6287166	2305755	118195	12209939	758954	534855	15800
9/2/2011	2205761	3142383	976103	1225608	12710	1642410	7598390	3433521	1579592	86326	12334274	703318	501639	18500

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Ticker	SLW CN Equity	FM CN Equity	AEM CN Equity	BVN US Equity	BUENAVC1 PE Equ	CCO CN Equity	YRI CN Equity	ELD CN Equity	IMG CN Equity	AWCMY US Equity	AWC AU Equity	FNV CN Equity	BCM CN Equity	BCEKF US Equity
Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
9/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/5/2011	N/A	N/A	N/A	N/A	100	N/A	N/A	N/A	N/A	N/A	12508169	N/A	N/A	N/A
9/6/2011	2337848	3443651	1663086	1274737	1000	1924574	9485802	5780165	2852809	89790	15828384	1071051	542759	13300
9/7/2011	1739297	2635772	690693	1254011	15347	1187932	7454236	3080106	1634115	145320	24349161	1071734	138770	4500
9/8/2011	1786043	3475365	654330	1237579	N/A	1160307	6629704	2410522	2332974	149189	21202814	851171	1148459	14500
9/9/2011	1941006	2732029	937547	934764	850	1776796	8489863	3292062	2585678	169084	8298824	1053689	211744	7600
9/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/12/2011	3613798	3538474	863597	961205	404	2086005	6961753	5277186	1660614	196913	21506236	450640	324391	108000
9/13/2011	3208319	3784751	1599386	873984	37	1469285	7679477	4527733	1734202	155631	13551717	338705	322588	86900
9/14/2011	1764870	2246365	949658	846247	39	1591309	6328447	2760832	1159768	160172	17067017	545172	279523	107000
9/15/2011	2223959	3551251	1473917	1270289	N/A	1854203	8015781	4841871	1954699	145467	15481826	675127	534343	87710
9/16/2011	25696916	4929351	1768734	1016545	2342	2828278	9175227	5320115	3619776	103582	13866329	743888	494772	12200
9/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/19/2011	3834585	3559494	1206295	1052491	6034	1245886	4706674	2429422	1882711	150975	15692778	827484	101933	31900
9/20/2011	3194721	4022716	976589	854241	5230	1478691	8002687	5051727	3626287	374936	18264467	1392253	701530	5300
9/21/2011	4462155	5568927	1032906	1968125	25067	2922755	8081331	3816813	2503324	204893	23360193	574229	432326	22300
9/22/2011	7662348	7873435	2406349	1968403	1110	5128731	9172891	3322651	3263347	957532	35815018	689974	454842	25800
9/23/2011	5917474	9175863	1427514	2118116	300	2116706	11884068	5171605	3027841	1045722	43784714	2545272	385801	36136
9/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/26/2011	4438555	6434372	1780549	1634577	43	2002356	7069715	4818598	3118241	1393713	22446942	1215276	672380	33000
9/27/2011	3633699	8948300	1057888	1256029	172	2980020	7534230	3418265	3017898	423582	19556524	857905	316970	2100
9/28/2011	3082919	5743663	822722	1037979	140	1804348	5129431	2920058	2336814	2083874	25547034	858120	240368	11500
9/29/2011	3700003	4548602	1086742	917003	82419	1892351	4477662	3183490	1868248	280300	35694960	518552	258757	5000
9/30/2011	3718301	4026457	765307	1151479	58698	2587859	4903926	3040618	1901445	531617	31131556	1154685	131796	6900
10/1/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/2/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/3/2011	2204270	3330451	851337	946358	66591	1948397	6181163	2754156	2586087	1530820	12727950	613741	142519	9200
10/4/2011	4639942	6119400	1480156	1767857	98055	2987091	8007162	4250960	3055969	1025061	23905537	1257174	424501	36540
10/5/2011	3258237	4446917	1236181	1156551	N/A	1910541	4796769	3264348	2434954	338805	17117887	2177648	195299	1100
10/6/2011	3033346	7115046	926152	1430934	110	2611770	7080790	2583346	2362266	886743	24076616	876762	146966	11400
10/7/2011	2331360	4873727	979558	1284427	N/A	2169735	4795912	2534166	1011681	711096	18836802	462010	67294	4100
10/8/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/9/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/10/2011	N/A	N/A	N/A	780979	5716	N/A	N/A	N/A	N/A	591857	13405281	N/A	N/A	N/A
10/11/2011	1823184	5258054	1040326	686348	1230	4018471	7638879	2268028	1081898	276902	17442939	629015	198779	23275
10/12/2011	2582428	4896335	791740	537589	7807	1994425	4453506	3320433	1471083	320619	24500355	621294	111798	8700
10/13/2011	2854346	4755472	778630	714532	200	1739014	4369178	2760855	2358384	177299	21636883	400168	52693	3188
10/14/2011	3405155	2452489	929940	438542	N/A	2121413	7903289	5275996	1000908	122736	15363342	330230	261406	5600
10/15/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/16/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2011	1851648	1368814	1071511	820754	150	1506686	6068703	1956407	1154563	231229	13494478	282653	153880	1600
10/18/2011	3929794	3682117	1518330	1547295	N/A	2440862	6119814	2494962	1464868	263008	13386958	495568	209856	900
10/19/2011	2878748	2874514	8191097	819831	1081	2591864	6678261	3602549	3112031	257898	15977499	871705	197926	10820
10/20/2011	3483015	3774934	4280645	777257	529	3142642	6373567	3407172	2048008	139497	13423270	959530	191122	350
10/21/2011	2541497	4130877	3410337	726225	66918	1740602	3721186	2644370	1785797	204619	15586860	743724	90385	4840
10/22/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/23/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/24/2011	2545661	4316629	1532999	999191	86070	1942034	4881424	2870101	1665916	253235	11636709	804595	256438	17250
10/25/2011	4000538	2413395	1861770	853349	1775	2776945	12004858	8152586	2183381	182284	21307951	833517	1678556	19700
10/26/2011	3313840	4190108	1722191	843433	414	2259093	13273360	4888628	2814843	175329	16108047	1734787	573464	900
10/27/2011	4798529	7904225	2553633	1133467	1632	3879615	8865596	3374976	1463826	385426	11878240	669994	1230984	8940
10/28/2011	3713821	3834529	2030680	806299	50	2036135	8749926	3760080	2429342	250808	22327560	825624	324888	7400
10/29/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/30/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10/31/2011	2249148	4977651	1285130	944174	1140	1981210	4022993	3257217	1562529	200582	10466036	467452	185511	6600
11/1/2011	3733496	6778200	2195793	992649	N/A	2788093	6313719	4049912	2151763	222907	6856741	1196793	214452	13200
11/2/2011	2573731	4102121	1543395	920076	20411	1463705	5099169	5104187	2197002	183820	8780047	788298	786914	13530

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Name	SILVER WHEATON	FIRST QUANTUM M	AGNICO EAGLE MI	CIA DE MINAS BUE	CIA DE MINAS BUE	CAMECO CORP	YAMANA GOLD IN	ELDORADO GOLD	IAMGOLD CORP	ALUMINA LTD-SPC	ALUMINA LTD	FRANCO-NEVADA	BEAR CREEK MINI	BEAR CREEK MINI
Field	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
11/3/2011	2842266	4841703	1470932	1109866	2618	1926133	7251849	3610692	2121481	196146	11478422	918383	318226	16480
11/4/2011	2022978	3824154	1235189	779953	12827	2353466	6933919	4751303	2061011	176600	22927793	1070153	200276	700
11/5/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/6/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/7/2011	2395714	3091345	1183801	950834	60135	4217815	8221741	4068648	2156415	186274	7489396	673174	342026	28745
11/8/2011	2101177	3114826	1026733	843835	7411	3210758	7839229	2996662	3101455	137537	9643526	556999	362400	48714
11/9/2011	2896695	6507390	1170283	1256226	100	3561515	5241338	3778845	4484384	318409	8424961	658045	238248	24100
11/10/2011	2936884	11371694	1247752	1477838	25010	2402592	3843451	1972405	2259493	195682	9337314	665657	546618	4400
11/11/2011	1629288	4236609	808174	710117	360	1213641	2425790	1495911	3867401	142404	12620637	480767	135861	5750
11/12/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/14/2011	3130726	2143789	682515	917864	592	1320241	3084906	1862966	1927378	135320	7204212	401682	76977	7700
11/15/2011	2100874	2662734	1021091	910609	50	1972363	3410651	1476870	2029144	146811	8621808	253059	223310	6400
11/16/2011	2334541	7324405	741899	722998	1510	5015436	3016073	1812643	1224729	200250	9375761	351038	522965	5700
11/17/2011	3413702	4138972	1101550	864452	800	1865163	5219684	2962140	3023449	162019	12836710	790492	568226	7300
11/18/2011	2503317	2082692	826380	1232684	920	1541657	3924182	2646346	1823789	104269	12669249	686971	133664	400
11/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/21/2011	3056851	3384604	1607566	872398	30004	2875006	3150075	2285329	1796201	243706	9208757	1300994	247597	19600
11/22/2011	2702915	2420282	1468911	1090271	224	2128054	4230996	3197342	2623748	184865	15761986	1552270	94485	2000
11/23/2011	2140833	3469125	1369819	809785	N/A	2082484	2949281	3667404	1897943	139946	14753643	2011783	246950	3600
11/24/2011	219463	1274811	130271	N/A	N/A	400620	622297	677872	212543	N/A	34569263	110917	7450	N/A
11/25/2011	1124358	1466112	601231	493137	26300	1026535	1888215	1677756	1014384	183398	12656679	633662	94925	N/A
11/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/27/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11/28/2011	3405616	3738032	1782379	1023818	76290	3420924	3220851	3049316	1532570	194006	26999608	751564	263305	59500
11/29/2011	6731276	1910998	910482	746553	6	2301437	2544376	2558762	2621609	92814	19978898	448462	339873	8970
11/30/2011	2101158	5198108	1136821	2410311	21780	2671000	5832002	3016257	3688707	376767	14609081	1344608	413422	18680
12/1/2011	1849463	2494593	921160	1271489	831	2655730	2784356	2366854	1988057	159346	19951778	820294	193046	3700
12/2/2011	2248852	1894582	1035853	1186526	534	2152537	3773632	2062992	2188334	232296	14346320	723736	226758	18892
12/3/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/4/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/5/2011	2107143	3058410	621086	1090818	60	1229762	2834340	3122790	3200859	254326	19966195	1072067	120897	6400
12/6/2011	1855809	2342128	1047331	892303	N/A	1496593	2400211	4273225	2835346	321591	10106668	915337	178777	27800
12/7/2011	1916781	3449428	574985	1073031	34625	2242974	2535337	3376240	3062870	79283	16320845	617359	149882	8350
12/8/2011	2206145	2418248	989998	834662	N/A	1371921	4583315	3662363	1285482	193553	12693691	886935	84588	1600
12/9/2011	1796489	2354046	960493	657493	N/A	1228836	2673842	2657663	1290875	165989	12914310	691362	778761	3100
12/10/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/11/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/12/2011	3741416	3804744	2084406	1313334	N/A	1697589	3001985	4555100	2842335	269079	8244245	782822	121513	500
12/13/2011	3117853	2474005	1049151	1708154	14071	2024209	4196248	3215676	2584703	183642	17023715	1038705	284236	16610
12/14/2011	4605980	4907193	1600461	1678711	100	2582625	5957793	5575383	4752750	210991	14179744	1028007	499709	14550
12/15/2011	3796347	2865768	1149553	1572825	1000	1840502	4497204	2219087	2176669	219492	25644551	639830	327134	5185
12/16/2011	3458921	3928014	2167169	3018241	15572	2751147	6023799	3799856	3485095	242888	13302953	1472591	276517	9450
12/17/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/18/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/19/2011	1802592	1824567	765050	857330	N/A	1777414	4547987	17346002	2207425	454174	12107293	494016	214235	5500
12/20/2011	3861193	2141198	694941	978954	4552	1677205	4066420	9645037	1837788	341738	13597681	1045613	202723	23900
12/21/2011	1772888	2018165	651746	1065033	860	1192767	5315683	4362715	1539856	415641	16846638	779594	261907	12700
12/22/2011	1922072	1515669	778807	749664	220	1946147	3352807	3670368	2550090	296951	8146241	1501529	1864327	36439
12/23/2011	991657	817804	817888	414764	N/A	926134	3089197	4204842	2295796	137776	9752734	455272	231579	26000
12/24/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/25/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/26/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/27/2011	N/A	N/A	N/A	355757	111	N/A	N/A	N/A	N/A	295422	N/A	N/A	N/A	19150
12/28/2011	1723805	1399628	703652	738049	300	973918	3371242	4731372	1014122	279831	6137379	1574167	84837	5626
12/29/2011	2249178	1042340	1219887	707220	N/A	568074	3833000	2454557	1810485	340744	9855903	679409	120865	19600
12/30/2011	1988693	1244312	495145	579249	N/A	780779	2519896	1804086	1214455	318589	3154953	350075	248062	25300
12/31/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Workpaper 4: Peru Mines: Delays Relative to Start Dates Projected at Feasibility Study Stage

Project		Owner	Metals	Original Projected Start of Production	Actual Start of Production/Projected Start of Production in 2011	Calculated Delay (years)
Corihuarmi	[1]	Minera IRL	Gold	2008	Q1 2008	0
Tantahuatay	[2]	Buenaventura	Gold, Silver	Jul-11	Jun-11	-0.08
La Zanja	[3]	Buenaventura	Gold	3Q or 4Q 2005	September 2010 - Community relations caused the delay; opposition to the project developed when environmental and health concerns arose in communities downstream from La Zanja. Opposition against the mine peaked in 2004 when protesters destroyed the exploration camp.	5
Mallay	[4]	Buenaventura	Silver, Lead, Zinc	2011	Feb-12	1
Conga	[5]	Buenaventura/Newmont Mining	Gold, Copper	Production: late 2014 or early 2015.	As of mid-2011, it was expected that production at Conga would begin in mid-2014. However, in late 2011, protests arose over water quality issues. Construction was halted in November 2011.	-0.75
Cerro Corona	[6]	Gold Fields	Gold, Copper	Appears to be early to mid 2007, due to references to an initial six month delay, followed by a delay to end of year 2007.	Sep-08	1.5
Lagunas Norte	[7]	Barrick/Silver Wheaton Corp	Gold, Silver	Q3 2005	Jun-05	-0.25
Pallancata	[8]	Hochschild	Silver, Gold	Q3 2007	Q3 2007	0
Pucamarca	[9]	Minsur	Gold, SIlver	Late 2007 to Early 2008	Production actually began on 1/12/2013, as it was stymied by community relations. In 2011, it was expected that production at Pucamarca would begin in late 2012.	4.5
Antamina	[10]	BHP Billiton/Glencore Canada	Copper, Zinc	Feb-02	Oct-01	-0.33
Cerro Lindo	[11]	Milpo	Lead, Zinc, Copper	Jul-07	2007	0
Tia Maria	[12]	Southern Copper/Newmont Mining	Copper	Q4 2010	The 2011 Southern Copper Annual Report states it was expected that production at Tia Maria would begin in early 2015, following the Peruvian government's rejection of the EIA in 2011 due to community resistance.	4.25
Rio Blanco	[13]	Monterrico Resources (owned by Zijin Mining)	Copper	2011	As of the 2011 Annual Report, the projected production date was 2015. This project was plagued by delays. In 2005, police allegedly shot dead one protester and tortured 30 others after they marched against the mine's construction.	4
Las Bambas	[14]	Xstrata (Glencore) Now Owned by MMG	Copper, Gold, Silver	2014	As of the 2011 Xstrata Annual Report, production at Las Bambas was expected in the second half of 2014.	0
Quellaveco	[15]	Anglo American	Copper	First production: 2014 Full production: 2016	As of the 2011 Anglo American Annual Report, the forecasts had been updated as follows: First Production: 2016 Full Production: 2017 The Annual Report states that "we've slowed down progress while we participate in a multi-stakeholder dialogue and work with the local communities to seek to fully understand their concerns and aspirations."	1.5
Pallca	[16]	Mitsui Mining and Smelting	Zinc	Jan-06	Mar-06	0.17
					Average Delay	1.28
					Average Delay for Project Subject to Community Opposition	3.15

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Workpaper 4: Peru Mines: Delays Relative to Start Dates Projected at Feasibility Study Stage

Project	Owner	Metals	Original Projected Start of Production	Actual Start of Production/Projected Start of Production in 2011	Calculated Delay (years)

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Workpaper 5: Bear Creek Share Price and Market Indices (Scaled to 5/27/2011)

	Market Indices				Bear Creek	Peru Mining Indices			
Date	S&P/TSX Venture Composite Index [A]	S&P/TSX Composite Index [B]	S&P/BVL Peru General Index TR PEN [C]	S&P/TSX Global Mining Index CAD [D]	Bear Creek Mining Corp [E]	Market Weighted Index Return [F]	Market Weighted Peru Mining Index [G]	Equal Weighted Index Return [H]	Equal Weighted Peru Mining Index [I]
5/26/2011	0.98	0.99	1.01	0.99	1.00	2.7%	1.00	1.9%	1.01
5/27/2011	1.00	1.00	1.00	1.00	1.00	0.2%	1.00	-0.7%	1.00
5/30/2011	1.00	1.00	0.94	1.00	0.91	-7.4%	0.93	-4.4%	0.96
5/31/2011	1.01	1.01	0.96	1.01	0.87	0.6%	0.93	-0.8%	0.95
6/1/2011	0.99	0.98	0.90	0.98	0.92	-7.0%	0.87	-5.5%	0.90
6/2/2011	0.98	0.98	0.97	0.98	0.92	5.5%	0.91	2.7%	0.92
6/3/2011	0.98	0.98	0.95	0.97	0.89	-1.9%	0.90	-2.3%	0.90
6/6/2011	0.96	0.96	0.82	0.96	0.84	-15.1%	0.76	-11.6%	0.80
6/7/2011	0.96	0.97	0.88	0.96	0.79	3.8%	0.79	4.5%	0.83
6/8/2011	0.93	0.95	0.91	0.94	0.77	3.4%	0.82	1.5%	0.84
6/9/2011	0.93	0.96	0.93	0.96	0.76	2.2%	0.83	1.5%	0.86
6/10/2011	0.92	0.95	0.92	0.93	0.72	-1.8%	0.82	-3.1%	0.83
6/13/2011	0.91	0.94	0.92	0.92	0.77	-0.5%	0.82	-2.4%	0.81
6/14/2011	0.93	0.96	0.92	0.95	0.83	0.6%	0.82	2.2%	0.83
6/15/2011	0.91	0.94	0.90	0.92	0.82	-0.7%	0.81	-1.2%	0.82
6/16/2011	0.89	0.93	0.88	0.91	0.75	-2.1%	0.80	-3.4%	0.79
6/17/2011	0.90	0.92	0.89	0.91	0.85	0.7%	0.80	-0.4%	0.79
6/20/2011	0.89	0.93	0.88	0.91	0.85	-1.2%	0.79	0.9%	0.79
6/21/2011	0.91	0.95	0.86	0.94	0.87	0.4%	0.80	0.3%	0.80
6/22/2011	0.93	0.95	0.86	0.94	0.91	0.4%	0.80	0.8%	0.80
6/23/2011	0.91	0.94	0.85	0.93	0.88	1.2%	0.81	-1.5%	0.79
6/24/2011	0.90	0.93	0.85	0.92	0.72	-1.3%	0.80	-1.2%	0.78
6/27/2011	0.88	0.93	0.84	0.93	0.53	-1.4%	0.79	-5.1%	0.74
6/28/2011	0.88	0.95	0.84	0.95	0.54	0.7%	0.79	-1.1%	0.73
6/29/2011	0.91	0.96	#N/A	0.96	0.57	1.8%	0.81	6.7%	0.78
6/30/2011	0.92	0.98	0.85	0.98	0.56	0.0%	0.81	-3.3%	0.76
7/1/2011	#N/A	#N/A	0.86	#N/A	#N/A	-0.6%	0.80	1.5%	0.77
7/4/2011	0.93	0.99	0.87	0.99	0.55	0.2%	0.80	0.4%	0.77
7/5/2011	0.93	0.99	0.87	0.99	0.55	-0.4%	0.80	3.1%	0.79
7/6/2011	0.94	0.99	0.87	0.99	0.55	0.4%	0.80	-0.3%	0.79
7/7/2011	0.96	0.99	0.89	1.01	0.55	-0.7%	0.80	1.2%	0.80
7/8/2011	0.96	0.99	0.89	1.00	0.57	1.2%	0.81	0.9%	0.81
7/11/2011	0.93	0.97	0.89	0.97	0.57	-1.8%	0.79	-3.1%	0.78
7/12/2011	0.94	0.97	0.89	0.98	0.57	1.4%	0.80	2.1%	0.80
7/13/2011	0.96	0.99	0.91	1.01	0.57	3.4%	0.83	4.2%	0.83
7/14/2011	0.96	0.98	0.91	0.99	0.57	1.8%	0.84	-0.6%	0.83
7/15/2011	0.98	0.99	0.91	1.00	0.59	2.0%	0.86	1.9%	0.84
7/18/2011	0.97	0.98	0.96	1.00	0.68	3.3%	0.89	2.5%	0.87
7/19/2011	0.98	1.00	0.99	1.01	0.73	1.9%	0.91	-0.5%	0.86
7/20/2011	0.99	1.00	1.00	1.02	0.73	1.5%	0.92	1.5%	0.87
7/21/2011	1.00	1.01	1.00	1.02	0.79	0.6%	0.93	3.7%	0.91
7/22/2011	1.01	1.01	0.99	1.03	0.83	0.0%	0.93	0.2%	0.91
7/25/2011	1.00	1.01	0.99	1.02	0.83	-1.2%	0.92	1.0%	0.92
7/26/2011	1.00	1.00	1.00	1.02	0.78	1.1%	0.93	0.8%	0.92
7/27/2011	0.97	0.98	0.99	0.99	0.70	-2.3%	0.90	-1.6%	0.91
7/28/2011	0.97	0.98	#N/A	0.99	0.69	1.3%	0.92	-1.2%	0.90
7/29/2011	0.96	0.96	#N/A	0.98	0.70	-2.1%	0.90	-1.4%	0.89
8/1/2011	#N/A	#N/A	0.98	#N/A	#N/A	-0.2%	0.89	-0.2%	0.88
8/2/2011	0.96	0.94	0.97	0.96	0.73	0.4%	0.90	-0.3%	0.88
8/3/2011	0.95	0.95	0.97	0.96	0.73	-0.4%	0.90	-1.7%	0.87
8/4/2011	0.88	0.90	0.91	0.88	0.66	-4.5%	0.86	-5.9%	0.82
8/5/2011	0.86	0.88	0.91	0.87	0.64	-0.4%	0.85	-0.5%	0.81
8/8/2011	0.79	0.84	0.84	0.81	0.60	-2.4%	0.83	-9.2%	0.74
8/9/2011	0.80	0.87	0.86	0.87	0.54	3.0%	0.86	2.3%	0.75
8/10/2011	0.82	0.88	0.85	0.86	0.58	-1.7%	0.84	-0.4%	0.75
8/11/2011	0.84	0.90	0.88	0.90	0.57	3.9%	0.88	4.8%	0.79
8/12/2011	0.85	0.90	0.89	0.90	0.55	0.3%	0.88	3.1%	0.81
8/15/2011	0.87	0.92	0.90	0.92	0.58	1.3%	0.89	2.4%	0.83
8/16/2011	0.85	0.91	0.89	0.90	0.56	-3.5%	0.86	-3.1%	0.80
8/17/2011	0.86	0.91	0.90	0.91	0.57	4.0%	0.89	0.9%	0.81
8/18/2011	0.83	0.88	0.88	0.87	0.54	-0.8%	0.88	-1.3%	0.80
8/19/2011	0.83	0.87	0.87	0.87	0.54	2.2%	0.90	-1.9%	0.78
8/22/2011	0.83	0.87	0.87	0.88	0.57	1.0%	0.91	-0.8%	0.78
8/23/2011	0.83	0.89	0.88	0.89	0.55	0.0%	0.91	1.3%	0.79
8/24/2011	0.82	0.89	0.88	0.88	0.54	-0.1%	0.91	0.5%	0.79
8/25/2011	0.82	0.89	0.88	0.88	0.53	2.8%	0.94	0.6%	0.80
8/26/2011	0.83	0.89	0.89	0.91	0.56	0.8%	0.94	3.3%	0.82
8/29/2011	0.84	0.91	0.90	0.92	0.56	0.5%	0.95	0.1%	0.83
8/30/2011	0.86	0.92	#N/A	0.93	0.57	1.8%	0.97	-0.7%	0.82
8/31/2011	0.86	0.93	0.93	0.94	0.58	-0.5%	0.96	0.6%	0.83
9/1/2011	0.86	0.93	0.94	0.93	0.57	0.4%	0.97	1.5%	0.84
9/2/2011	0.86	0.91	0.92	0.92	0.60	-0.1%	0.96	-1.5%	0.82

Workpaper 5: Bear Creek Share Price and Market Indices (Scaled to 5/27/2011)

	Market Indices				Bear Creek	Peru Mining Indices			
Date	S&P/TSX Venture Composite Index [A]	S&P/TSX Composite Index [B]	S&P/BVL Peru General Index TR PEN [C]	S&P/TSX Global Mining Index CAD [D]	Bear Creek Mining Corp [E]	Market Weighted Index Return [F]	Market Weighted Peru Mining Index [G]	Equal Weighted Index Return [H]	Equal Weighted Peru Mining Index [I]
9/5/2011	#N/A	#N/A	0.91	#N/A	#N/A	-2.7%	0.94	-2.3%	0.81
9/6/2011	0.84	0.90	0.90	0.92	0.57	-0.8%	0.93	-1.7%	0.79
9/7/2011	0.84	0.92	0.91	0.94	0.59	-1.4%	0.92	1.8%	0.81
9/8/2011	0.85	0.92	0.91	0.93	0.64	2.1%	0.94	2.2%	0.82
9/9/2011	0.83	0.89	0.90	0.91	0.61	-1.5%	0.92	-0.5%	0.82
9/12/2011	0.82	0.87	0.90	0.89	0.59	-1.8%	0.91	-3.8%	0.79
9/13/2011	0.83	0.88	0.90	0.90	0.64	1.4%	0.92	-1.4%	0.78
9/14/2011	0.82	0.88	0.91	0.89	0.63	-1.7%	0.90	0.1%	0.78
9/15/2011	0.83	0.90	0.92	0.90	0.62	0.2%	0.90	0.9%	0.78
9/16/2011	0.84	0.89	0.93	0.91	0.64	0.4%	0.91	2.8%	0.81
9/19/2011	0.82	0.88	0.91	0.88	0.62	-0.4%	0.90	-3.1%	0.78
9/20/2011	0.81	0.88	0.91	0.88	0.67	2.8%	0.93	3.8%	0.81
9/21/2011	0.79	0.85	0.89	0.85	0.69	0.7%	0.94	-3.5%	0.78
9/22/2011	0.72	0.80	0.84	0.78	0.62	-10.7%	0.84	-6.9%	0.73
9/23/2011	0.70	0.79	0.84	0.76	0.59	-4.4%	0.80	-4.9%	0.69
9/26/2011	0.69	0.81	0.83	0.77	0.58	0.8%	0.81	-1.6%	0.68
9/27/2011	0.72	0.83	0.85	0.79	0.56	0.8%	0.81	8.5%	0.74
9/28/2011	0.68	0.81	0.82	0.75	0.53	-5.0%	0.77	-5.1%	0.70
9/29/2011	0.67	0.81	0.82	0.75	0.54	-0.2%	0.77	-0.4%	0.70
9/30/2011	0.66	0.80	0.81	0.74	0.53	-1.0%	0.76	0.2%	0.70

Notes:
[A]: SPTSXVEN Index scaled to 1 on 05/27/2011.
[B]: SPTSX Index scaled to 1 on 05/27/2011.
[C]: SPBLPGPT Index scaled to 1 on 05/27/2011.
[D]: TXGM Index scaled to 1 on 05/27/2011.
[E]: BCM CN Equity scaled to 1 on 05/27/2011.
[G]: scaled to 1 on 05/27/2011.
[F]: Market Capitalization Weighted Return = Sum of (Market Cap_company i_t-1 x Return_company i_t) / Sum of (Market Cap_company i_t-1). Return from Workpaper 6, Market Cap from Workpa
[G]: Index of returns in [F] scaled to 1 on 05/27/2011.
[H]: Equal Weighted Return = Average Return for companies. If a company had no reported price for t or t-1, its return is not included in the average. Return from Workpaper 6.
[I]: Index of returns in [H] scaled to 1 on 05/27/2011.

Workpaper 6: Peru Mining Index: Constituent Daily Returns

Name	Bear Creek Mining Corp	Estrella Gold Corp	Duran Ventures Inc	Dynacor Gold Mines Inc	Zincore Metals Inc	Standard Tolling Corp	Vena Resources Inc	Panoro Minerals Ltd	Aguila American Gold Ltd	Xiana Mining Inc	Candente Copper Corp	Peruvian Precious Metals Corp	Cia de Minas Buenaventura SAA	Sociedad Minera el Brocal SAA	Montan Mining Corp	Volcan Cia Minera SAA	Cia Minera Atacocha SAA
Ticker	BCM CN Equity	EST CN Equity	DRV CN EQUITY	DNG CN EQUITY	ZNC/H CN EQUITY	TON CN EQUITY	VEM CN EQUITY	PML CN EQUITY	AGL CN EQUITY	XIA CN EQUITY	DNT CN EQUITY	PPX CN EQUITY	BVN US EQUITY	BROCALC1 PE EQUITY	MNY CN EQUITY	VOLCABC1 PE EQUITY	ATACOBC1 PE Equity
5/2/2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
5/3/2011	0.95%	-11.08%	-2.86%	-0.08%	-0.08%	0.00%	-3.79%	-1.29%	-0.08%	-7.40%	-2.12%	-1.43%	-1.36%	2.37%	0.00%	-1.15%	-2.38%
5/4/2011	-4.76%	-0.94%	-8.01%	-5.56%	1.31%	-0.94%	12.40%	7.52%	-3.12%	2.97%	3.19%	8.56%	1.38%	7.76%	5.67%	6.21%	12.74%
5/5/2011	-4.52%	-8.99%	-0.81%	-4.28%	-0.81%	-0.81%	-5.85%	0.31%	-6.38%	-9.60%	-4.11%	-0.81%	-3.60%	2.58%	-13.21%	-1.01%	8.35%
5/6/2011	4.21%	4.54%	-6.11%	1.49%	0.04%	0.04%	14.33%	20.05%	3.61%	13.94%	3.49%	10.05%	3.66%	7.72%	0.00%	7.24%	16.86%
5/9/2011	3.79%	-1.02%	-9.79%	0.05%	0.05%	0.05%	-3.08%	0.05%	1.20%	7.37%	2.72%	-3.36%	1.51%	-1.13%	0.00%	-1.16%	-0.77%
5/10/2011	8.88%	-4.97%	9.62%	-5.25%	-5.09%	6.77%	5.35%	-6.95%	-0.65%	-2.94%	-0.82%	-1.88%	-1.56%	-1.39%	0.49%	-3.92%	-5.68%
5/11/2011	-4.59%	-1.11%	0.04%	-2.23%	3.57%	-10.55%	-12.27%	0.04%	-1.11%	-7.02%	-1.93%	-5.98%	-2.99%	-0.82%	-16.63%	0.46%	-5.33%
5/12/2011	-6.28%	-1.49%	6.31%	-2.65%	1.93%	-0.33%	8.41%	3.65%	-0.33%	-4.12%	-0.33%	7.33%	-2.16%	1.52%	0.00%	7.63%	7.72%
5/13/2011	0.52%	-0.54%	-5.20%	1.83%	-0.54%	4.70%	-0.54%	-0.54%	-0.54%	-3.15%	-1.20%	6.57%	-1.49%	0.77%	0.00%	1.65%	4.19%
5/16/2011	-2.80%	2.03%	-1.95%	0.45%	-2.53%	-0.32%	-6.75%	1.60%	0.84%	-4.36%	-0.32%	-5.86%	1.95%	0.41%	0.00%	-0.68%	-2.28%
5/17/2011	0.52%	-2.71%	-7.06%	-3.48%	-0.42%	0.00%	-5.57%	-0.42%	0.00%	-4.63%	6.31%	0.75%	1.94%	-0.13%	0.00%	-0.98%	-0.95%
5/18/2011	-1.82%	-0.73%	7.63%	-0.34%	-2.97%	0.00%	5.93%	2.35%	0.00%	-2.50%	6.17%	-4.22%	1.20%	0.15%	0.00%	0.35%	2.90%
5/19/2011	3.66%	-0.95%	5.26%	9.87%	1.43%	5.52%	3.70%	-3.47%	-6.91%	6.32%	-2.75%	-0.98%	0.57%	-0.09%	0.00%	-1.27%	-1.74%
5/20/2011	1.44%	-1.47%	9.23%	7.74%	-7.23%	-8.99%	-6.92%	-4.10%	8.68%	8.28%	-0.27%	3.43%	1.08%	-0.33%	0.00%	-0.41%	-2.63%
5/23/2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.22%	-2.24%	0.00%	-2.75%	-1.79%
5/24/2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.88%	1.14%	0.00%	3.32%	1.13%
5/25/2011	-3.98%	0.13%	8.97%	-3.98%	0.13%	0.00%	0.13%	3.91%	0.13%	-9.64%	2.59%	4.90%	2.16%	0.11%	0.00%	1.01%	0.98%
5/26/2011	-0.40%	-0.26%	-0.25%	-0.97%	0.99%	0.00%	6.62%	7.00%	-16.49%	2.44%	7.51%	5.41%	1.64%	3.86%	-0.26%	4.54%	6.15%
5/27/2011	0.31%	0.00%	4.37%	1.75%	1.55%	0.31%	-2.93%	-1.39%	5.88%	1.63%	-1.92%	1.39%	2.28%	-2.42%	-12.23%	-3.67%	-5.16%
5/30/2011	-9.00%	0.00%	0.01%	1.43%	-10.97%	0.00%	-6.66%	-5.16%	7.91%	-1.29%	-7.38%	-6.37%	0.00%	-7.20%	-7.13%	-7.96%	-5.80%
5/31/2011	-3.94%	6.82%	-1.80%	-4.82%	-4.71%	0.00%	4.42%	-1.02%	3.27%	-7.14%	0.82%	-10.64%	0.00%	-3.34%	0.82%	2.03%	4.64%
6/1/2011	5.00%	-0.57%	-4.55%	-4.99%	-3.46%	0.00%	-4.00%	-13.46%	4.16%	-10.52%	-6.06%	-4.40%	-6.69%	-6.33%	0.00%	-8.04%	-8.06%
6/2/2011	0.25%	-2.61%	2.40%	-3.46%	11.53%	0.00%	-2.15%	3.87%	-6.03%	-0.37%	2.87%	4.95%	4.52%	5.53%	0.00%	8.44%	7.87%
6/3/2011	-3.52%	-6.70%	-5.20%	4.22%	-10.47%	-6.56%	2.04%	-2.85%	-0.99%	3.40%	-1.68%	-7.40%	-2.30%	2.71%	0.00%	-2.82%	0.29%
6/6/2011	-5.42%	7.11%	-1.70%	-1.04%	-13.67%	-4.61%	-16.30%	-17.07%	-14.87%	-20.22%	-13.06%	-19.40%	-14.96%	-15.54%	-7.95%	-15.84%	-16.42%
6/7/2011	-6.41%	-4.20%	-6.86%	-7.36%	14.27%	3.46%	6.83%	14.40%	-2.45%	4.28%	5.59%	12.33%	1.17%	9.96%	0.00%	8.58%	8.15%
6/8/2011	-1.82%	-5.17%	-3.48%	-7.90%	2.65%	-0.37%	11.59%	2.95%	-3.30%	-4.06%	-1.76%	11.71%	2.24%	4.49%	0.00%	6.02%	7.13%
6/9/2011	-1.52%	-3.47%	-4.52%	10.37%	-4.09%	0.34%	-3.25%	4.65%	7.94%	-3.52%	2.47%	7.12%	2.60%	5.36%	0.00%	0.11%	0.44%
6/10/2011	-5.04%	-8.21%	-0.34%	2.13%	-1.87%	-9.13%	-4.03%	-5.47%	-0.34%	-6.32%	-3.80%	-2.86%	-1.63%	-2.35%	0.00%	-2.01%	-0.03%
6/13/2011	6.25%	2.77%	-11.94%	-8.14%	-3.20%	-3.30%	-0.08%	-1.17%	0.00%	-10.71%	-0.80%	3.81%	-0.96%	-0.94%	0.00%	1.27%	0.25%
6/14/2011	7.85%	5.28%	6.90%	4.62%	4.33%	11.18%	-2.81%	-0.04%	0.00%	-8.55%	4.74%	6.13%	1.73%	-2.48%	0.00%	-1.40%	0.82%
6/15/2011	-1.16%	2.61%	-4.92%	-5.52%	0.21%	1.66%	-1.33%	3.05%	0.00%	1.26%	-4.78%	-4.86%	-0.27%	-1.82%	0.00%	-1.08%	-0.96%
6/16/2011	-8.28%	-2.85%	-2.17%	-5.59%	-7.96%	-0.29%	-4.28%	0.00%	-12.93%	-0.29%	-1.74%	-3.99%	-2.21%	0.62%	0.00%	-2.98%	-0.80%
6/17/2011	13.02%	0.30%	-1.64%	-1.58%	0.30%	-1.18%	-3.88%	0.00%	10.00%	-4.85%	-4.87%	-2.28%	0.46%	-0.04%	0.00%	1.72%	1.77%
6/20/2011	0.67%	-7.74%	-1.80%	-3.65%	3.50%	4.65%	13.23%	-4.15%	0.16%	13.70%	-2.94%	1.48%	-1.38%	0.02%	0.00%	-1.37%	-0.87%
6/21/2011	2.24%	10.79%	4.75%	2.71%	8.84%	-10.79%	-3.15%	0.72%	0.72%	-8.87%	3.14%	2.03%	2.15%	-2.65%	0.00%	-3.11%	-2.63%
6/22/2011	4.85%	-2.53%	-3.78%	2.02%	6.05%	6.53%	-5.93%	-1.05%	0.07%	13.24%	-2.27%	0.07%	0.40%	-1.46%	0.00%	1.22%	0.13%
6/23/2011	-4.01%	-7.50%	-4.86%	8.54%	-2.29%	-14.41%	-3.01%	-2.02%	-3.81%	26.76%	-0.90%	-4.71%	1.42%	-0.45%	-15.06%	1.96%	-3.85%
6/24/2011	-17.69%	-0.58%	-0.58%	-4.90%	9.36%	4.65%	5.91%	2.85%	-9.62%	-15.04%	-0.58%	0.75%	-1.14%	-2.37%	-8.86%	-1.77%	2.84%
6/27/2011	-26.49%	-1.45%	-14.60%	-4.56%	-16.90%	-10.02%	-4.10%	0.00%	-0.02%	-6.40%	-8.82%	-5.28%	-2.33%	0.54%	-0.02%	1.43%	-4.63%
6/28/2011	0.83%	3.20%	-2.15%	2.20%	-2.84%	0.00%	4.56%	0.00%	-19.76%	9.41%	-4.98%	3.08%	2.33%	-0.37%	-8.82%	-3.01%	1.14%
6/29/2011	6.46%	9.91%	8.95%	-2.44%	4.62%	0.00%	-2.79%	-1.01%	22.46%	5.57%	3.23%	-1.39%	1.74%	0.00%	31.75%	0.00%	0.00%
6/30/2011	-2.11%	-1.93%	7.71%	-2.25%	0.00%	-9.38%	15.68%	0.00%	-13.20%	-11.40%	3.43%	-10.50%	-0.03%	0.00%	-14.81%	0.00%	0.00%
7/1/2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-2.05%	-0.70%	0.00%	2.99%	5.71%
7/4/2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.77%	0.00%	-0.03%	0.00%
7/5/2011	0.20%	1.27%	16.25%	-1.03%	-3.19%	0.00%	-6.31%	0.00%	14.93%	9.93%	-1.80%	5.82%	0.00%	-0.91%	0.00%	-0.46%	0.00%
7/6/2011	-0.39%	-0.39%	-5.64%	-0.39%	12.46%	-0.39%	6.25%	0.00%	-7.61%	-7.19%	-1.28%	-1.78%	0.27%	0.37%	0.00%	0.78%	0.07%
7/7/2011	0.33%	-0.73%	-3.13%	-1.38%	-5.15%	0.59%	6.88%	0.00%	10.03%	-9.22%	4.19%	7.68%	-2.75%	2.50%	0.00%	2.91%	4.54%
7/8/2011	2.67%	2.43%	-5.99%	-1.23%	-0.23%	5.76%	-6.10%	3.21%	-0.23%	-0.23%	16.11%	-2.85%	2.00%	0.08%	0.00%	-0.95%	1.77%
7/11/2011	1.30%	-7.18%	-2.76%	-2.74%	2.27%	12.38%	-0.73%	-1.83%	-10.66%	-14.15%	-2.20%	-8.78%	-1.64%	0.00%	0.00%	-2.09%	-3.36%
7/12/2011	-0.49%	5.84%	-1.82%	-1.80%	-8.58%	-11.43%	0.27%	5.90%	11.41%	15.94%	10.82%	0.27%	1.81%	0.00%	0.00%	0.05%	0.05%
7/13/2011	-0.30%	6.02%	5.01%	7.08%	3.97%	6.42%	4.92%	6.08%	10.79%	-10.17%	2.09%	11.09%	3.36%	2.62%	0.72%	3.53%	3.47%
7/14/2011	0.12%	-3.88%	-0.14%	-1.12%	4.55%	-7.27%	-0.14%	-3.16%	5.05%	-3.16%	-2.82%	1.20%	2.57%	-1.28%	-0.14%	1.73%	-1.63%
7/15/2011	3.17%	3.22%	-3.50%	-1.40%	2.11%	10.28%	-5.43%	0.61%	4.33%	6.90%	-2.86%	-6.01%	2.21%	-0.48%	17.38%	2.98%	0.83%
7/18/2011	14.90%	3.11%	1.45%	-1.68%	13.94%	8.05%	7.79%	9.68%	-5.40%	-0.67%	-0.67%	6.33%	2.60%	4.02%	-14.86%	5.33%	0.99%
7/19/2011	8.44%	-1.41%	1.05%	-4.16%	-0.24%	-13.62%	-2.91%	1.05%	1.05%	1.05%	2.50%	-2.94%	1.40%	6.74%	0.00%	1.88%	0.87%
7/20/2011	-0.28%	10.36%	-1.77%	-4.04%	-3.58%	0.00%	10.56%	0.33%	0.33%	-2.62%	0.33%	0.33%	0.93%	10.32%	0.00%	-0.41%	-0.11%
7/21/2011	8.01%	-0.81%	17.41%	7.17%	0.00%	0.00%	0.33%	2.22%	2.84%	6.41%	3.15%	3.08%	0.05%	8.43%	0.00%	-1.94%	-0.65%
7/22/2011	5.09%	1.79%	-7.73%	5.86%	0.00%	8.55%	-6.02%	-4.18%	-2.92%	5.19%	-1.86%	2.16%	0.05%	2.98%	0.00%	-1.35%	-0.11%
7/25/2011	-0.30%	-4.10%	16.16%	-0.59%	7.39%	-6.28%	8.29%	-1.52%	0.00%	-2.30%	-1.68%	3.02%	-0.50%	-5.64%	0.41%	0.00%	0.00%
7/26/2011	-5.58%	4.85%	5.23%	-2.90%	0.14%	3.71%	1.96%	-1.83%	0.00%	0.14%	0.85%	-4.93%	0.90%	1.05%	0.14%	1.93%	0.00%
7/27/2011	-10.28%	-0.48%	-5.29%	-4.62%	7.28%	0.00%	-4.03%	9.48%	-8.13%	-0.47%	-2.58%	-7.11%	-2.96%	-1.00%	0.00%	-1.55%	-0.88%
7/28/2011	-1.31%	-9.04%	-1.75%	-0.05%	-3.67%	0.00%	3.65%	0.00%	-2.83%	-2.83%	2.82%	-0.05%	1.36%	0.00%	0.00%	0.00%	0.00%
7/29/2011	1.35%	-0.76%	0.95%	-4.00%	-4.48%	-0.76%	-4.31%	0.00%	-0.76%	-0.76%	0.62%	0.65%	-2.17%	0.00%	0.00%	0.00%	0.00%
8/1/2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.22%	0.00%	0.00%	0.00%	0.00%
8/2/2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.13%	-1.00%	0.00%	-0.94%	0.00%
8/3/2011	-0.12%	2.02%	5.11%	-0.32%	-5.57%	-0.32%	-2.28%	0.00%	-7.15%	-0.32%	-5.34%	5.72%	0.15%	-1.98%	-14.56%	-0.91%	0.94%
8/4/2011	-9.23%	-13.67%	-9.70%	7.51%	-8.04%	-11.40%	-7.11%	-7.17%	-1.18%	-11.86%	-13.91%	-6.83%	-4.50%	-2.99%	7.06%	-4.38%	-6.15%
8/5/2011	-3.76%	6.25%	-13.47%	-4.34%	4.16%	-4.14%	1.82%	-1.38%	-0.31%	5.74%	3.16%	-3.33%	-0.23%	-1.04%	0.00%	-0.65%	0.02%
8/8/2011	-5.75%	-10.86%	-1.09%	-4.22%	-16.63%	-16.92%	-13.45%	6.43%	-8.36%	-9.57%	-8.57%	-30.45%	1.07%	-6.04%	0.00%	-9.10%	-9.54%
8/9/2011	-9.58%	8.02%	-8.86%	5.24%	1.51%	-2.56%	2.20%	-11.27%	4.57%	2.94%	3.45%	17.56%	3.82%	0.69%	0.00%	1.85%	5.26%
8/10/2011	6.87%	1.38%	0.11%	-0.92%	13.46%	0.11%	2.44%	0.00%	-2.92%	-15.06%	-0.77%	2.00%	-2.18%	-0.44%	0.00%	-0.78%	-2.41%
8/11/2011	-1.74%	-1.04%	7.37%	-0.83%	0.00%	27.10%	0.21%	0.00%	9.61%	7.37%	-0.67%	11.35%	3.76%	4.87%	-7.50%	4.32%	1.31%
8/12/2011	-3.16%	-7.77%	-0.19%	-0.19%	0.00%	3.65%	-0.19%	-0.19%	2.66%	-0.19%	9.61%	16.44%	-0.71%	2.13%	16.44%	1.75%	3.03%
8/15/2011	4.30%	0.69%	9.64%	1.75%	3.74%	0.69%	5.27%	9.85%	0.00%	4.05%	2.33%	-5.06%	1.82%	0.07%	0.00%	0.07%	-1.89%
8/16/2011	-2.54%	-2.81%	-0.07%	4.09%	0.00%	-0.07%	-6.59%	-10.48%	0.00%	-0.07%	-8.86%	-0.07%	-2.99%	-10.55%	0.00%	-1.69%	0.04%
8/17/2011	0.99%	1.64%	2.27%	0.22%	0.00%	-7.20%	4.89%	-2.11%	-15.53%	0.22%	3.74%	0.00%	3.74%	11.77%	9.34%	2.05%	-3.05%
8/18/2011	-4.12%	-2.26%	-8.81%	-3.85%	0.00%	0.00%	-0.88%	-0.88%	7.52%	-0.88%	-4.24%	0.00%	0.19%	-2.40%	-0.88%	-3.31%	3.23%
8/19/2011	-0.41%	1.79%	6.92%	-1.69%	0.00%	0.00%	-4.09%	0.37%	-21.58%	3.61%	-4.03%	-1.15%	3.69%	0.00%	0.00%	-1.57%	-5.15%

Workpaper 6: Peru Mining Index: Constituent Daily Returns

Name	Bear Creek Mining Corp	Estrella Gold Corp	Duran Ventures Inc	Dynacor Gold Mines Inc	Zincore Metals Inc	Standard Tolling Corp	Vena Resources Inc	Panoro Minerals Ltd	Aguila American Gold Ltd	Xiana Mining Inc	Candente Copper Corp	Peruvian Precious Metals Corp	Cia de Minas Buenaventura SAA	Sociedad Minera el Brocal SAA	Montan Mining Corp	Volcan Cia Minera SAA	Cia Minera Atacocha SAA
Ticker	BCM CN Equity	EST CN Equity	DRV CN EQUITY	DNG CN EQUITY	ZNC/H CN EQUITY	TON CN EQUITY	VEM CN EQUITY	PML CN EQUITY	AGL CN EQUITY	XIA CN EQUITY	DNT CN EQUITY	PPX CN EQUITY	BVN US EQUITY	BROCALC1 PE EQUITY	MNY CN EQUITY	VOLCABC1 PE EQUITY	ATACOBC1 PE Equity
8/22/2011	5.81%	-5.75%	-0.20%	1.90%	-6.64%	0.00%	2.12%	-0.20%	3.79%	-6.44%	-1.12%	-1.74%	0.83%	0.00%	0.00%	1.85%	1.46%
8/23/2011	-3.27%	2.88%	-2.10%	-4.18%	3.39%	4.28%	-2.33%	-0.06%	1.86%	-0.06%	2.72%	3.06%	-0.07%	0.00%	9.93%	-0.02%	-0.02%
8/24/2011	-2.99%	-4.22%	-4.10%	2.22%	-3.26%	0.00%	-2.26%	1.26%	0.00%	6.74%	2.78%	0.00%	0.31%	0.63%	9.17%	-1.78%	-1.04%
8/25/2011	-0.81%	0.00%	-4.11%	-2.92%	3.70%	0.00%	0.24%	3.78%	0.00%	0.24%	-2.39%	0.00%	2.92%	0.00%	0.00%	2.90%	2.11%
8/26/2011	5.28%	0.00%	4.77%	5.66%	-3.13%	0.00%	9.76%	0.22%	19.55%	-6.05%	5.63%	0.21%	-0.13%	1.72%	0.00%	3.17%	2.06%
8/29/2011	0.24%	0.49%	-3.88%	-3.65%	0.49%	0.00%	-3.88%	0.49%	0.00%	3.84%	3.07%	2.06%	0.20%	-0.76%	0.00%	2.10%	1.07%
8/30/2011	1.37%	-0.15%	2.11%	1.99%	-7.04%	0.00%	-0.15%	0.00%	0.00%	-3.37%	-0.99%	-0.15%	1.88%	0.00%	0.00%	0.00%	0.00%
8/31/2011	1.86%	3.31%	2.59%	-0.70%	7.79%	0.36%	-1.92%	0.00%	0.36%	0.36%	-2.17%	-2.73%	-0.49%	0.00%	0.00%	0.00%	0.00%
9/1/2011	-1.32%	5.89%	4.52%	-1.97%	0.00%	0.00%	2.49%	2.30%	-2.78%	3.50%	0.16%	3.34%	0.38%	0.32%	0.00%	0.28%	0.87%
9/2/2011	4.23%	-7.44%	3.41%	2.50%	0.00%	0.00%	-5.24%	0.00%	0.77%	-3.93%	-2.44%	-2.26%	0.57%	-0.52%	0.00%	-2.07%	-1.91%
9/5/2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-1.89%	0.00%	-3.16%	-1.98%
9/6/2011	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.78%	0.00%	-0.57%	-3.68%
9/7/2011	3.05%	1.77%	0.32%	2.54%	3.90%	0.00%	17.44%	0.00%	0.00%	0.31%	4.71%	1.91%	-3.09%	0.81%	-10.83%	2.60%	1.12%
9/8/2011	10.05%	5.85%	0.13%	-2.04%	0.00%	0.00%	-10.30%	0.00%	0.00%	-3.21%	0.13%	3.26%	2.39%	0.91%	25.17%	0.00%	0.00%
9/9/2011	-4.72%	12.35%	-5.06%	1.18%	0.00%	0.00%	-1.02%	8.18%	2.28%	-7.85%	-1.02%	0.48%	-1.42%	-1.63%	-10.92%	-1.77%	-1.03%
9/12/2011	-4.04%	-4.70%	-2.06%	-7.54%	0.00%	0.00%	-4.58%	-13.77%	-3.16%	-3.64%	0.07%	-2.92%	-2.19%	0.00%	0.00%	-0.46%	-1.10%
9/13/2011	7.83%	3.15%	-1.55%	-1.73%	0.00%	0.00%	0.64%	1.88%	-2.72%	-10.98%	-0.21%	-7.11%	1.91%	0.00%	0.00%	-0.06%	-0.05%
9/14/2011	-0.64%	-2.63%	6.46%	-3.80%	-3.31%	0.00%	-0.19%	14.42%	-10.52%	-4.53%	4.88%	-0.19%	-2.74%	0.00%	0.00%	0.70%	3.00%
9/15/2011	-1.89%	-1.94%	-3.61%	5.61%	3.82%	0.00%	0.58%	-2.63%	8.31%	5.15%	1.39%	3.93%	-0.18%	-0.02%	-8.57%	1.40%	0.01%
9/16/2011	2.89%	0.59%	7.15%	-4.20%	5.31%	-4.70%	0.59%	3.91%	-4.80%	0.59%	1.40%	-2.66%	0.02%	0.13%	40.83%	1.37%	-0.01%
9/19/2011	-2.45%	-2.39%	-11.21%	2.59%	-5.55%	-1.12%	3.70%	-7.43%	0.75%	-1.12%	-5.83%	-7.71%	0.49%	-0.26%	-8.18%	-2.62%	-4.13%
9/20/2011	8.20%	-0.17%	-11.52%	1.03%	-6.41%	-0.17%	-0.17%	-2.44%	3.53%	4.17%	-4.33%	42.61%	3.84%	0.34%	30.55%	1.39%	-1.01%
9/21/2011	2.12%	1.79%	6.84%	-1.97%	-0.79%	7.48%	-7.71%	-1.94%	0.00%	-9.06%	-5.97%	-29.31%	2.13%	0.00%	-6.63%	-3.46%	-0.74%
9/22/2011	-10.31%	-11.22%	-7.23%	-11.98%	-4.21%	-17.58%	2.28%	0.00%	0.00%	-7.02%	-7.06%	0.83%	-12.42%	0.00%	-8.68%	-5.90%	0.36%
9/23/2011	-4.65%	3.91%	-5.23%	-13.54%	-12.08%	8.83%	-0.24%	0.00%	0.00%	-23.99%	-0.24%	-3.62%	-5.21%	0.00%	-6.89%	-1.91%	-3.73%
9/26/2011	-1.87%	-13.76%	-0.49%	-2.02%	3.33%	-6.02%	-14.71%	0.00%	0.00%	-0.49%	-1.45%	-0.49%	1.13%	0.00%	13.72%	-0.14%	0.91%
9/27/2011	-2.49%	7.80%	9.57%	3.14%	5.31%	25.44%	18.48%	0.00%	-13.78%	26.94%	8.45%	6.89%	0.05%	0.00%	14.24%	2.48%	3.33%
9/28/2011	-6.20%	3.96%	2.06%	7.29%	6.74%	-2.74%	-14.61%	-7.17%	-4.80%	-20.30%	-10.33%	0.00%	-5.63%	0.00%	-22.51%	-3.43%	-0.09%
9/29/2011	2.88%	-3.96%	-1.22%	-4.04%	-12.74%	0.00%	1.53%	9.62%	-10.41%	11.13%	-1.22%	0.00%	-0.32%	0.00%	5.84%	0.37%	-0.02%
9/30/2011	-1.67%	-1.85%	-9.92%	-1.90%	8.96%	0.00%	2.26%	-3.71%	4.67%	-0.43%	-2.44%	4.63%	-0.50%	0.00%	6.20%	-2.43%	-0.14%

Notes and Sources:
Data from Bloomberg.
Returns calculated as log differences in prices.

Workpaper 7: Peru Mining Index: Constituent Share Prices ($/share)

Name Ticker	Bear Creek Mining Corp BCM CN Equity	Estrella Gold Corp EST CN Equity	Duran Ventures Inc DRV CN EQUITY	Dynacor Gold Mines Inc DNG CN EQUITY	Zincore Metals Inc ZNC/H CN EQUITY	Standard Tolling Corp TON CN EQUITY	Vena Resources Inc VEM CN EQUITY	Panoro Minerals Ltd PML CN EQUITY	Aguila American Gold Ltd AGL CN EQUITY	Xiana Mining Inc XIA CN EQUITY	Candente Copper Corp DNT CN EQUITY	Peruvian Precious Metals Corp PPX CN EQUITY	Cia de Minas Buenaventura SAA BVN US EQUITY	Sociedad Minera el Brocal SAA ROCALC1 PE EQUITY	Montan Mining Corp MNY CN EQUITY	Volcan Cia Minera SAA OLCABC1 PE EQUITY	Cia Minera Atacocha SAA ATACOBC1 PE Equity	Chinalco Mining Corp International 3668 HK Equity
5/2/2011	8.11	1.15	0.38	1.58	2.78	-	0.57	0.44	2.40	8.64	1.41	0.39	41.14	13.81	-	0.78	0.32	-
5/3/2011	8.19	1.02	0.37	1.58	2.78	3.79	0.55	0.43	2.40	8.00	1.38	0.38	40.58	14.14	0.79	0.77	0.31	-
5/4/2011	7.80	1.01	0.34	1.49	2.82	3.75	0.62	0.46	2.32	8.24	1.42	0.42	41.14	15.23	0.83	0.82	0.35	-
5/5/2011	7.45	0.92	0.34	1.43	2.79	3.72	0.58	0.47	2.17	7.45	1.36	0.41	39.66	15.63	0.72	0.81	0.38	-
5/6/2011	7.76	0.96	0.32	1.45	2.79	3.73	0.66	0.56	2.25	8.49	1.41	0.46	41.11	16.83	-	0.87	0.44	-
5/9/2011	8.06	0.95	0.28	1.45	2.80	3.73	0.64	0.56	2.28	9.11	1.45	0.44	41.73	16.64	0.93	0.86	0.44	-
5/10/2011	8.77	0.91	0.31	1.37	2.65	3.98	0.68	0.52	2.26	8.84	1.44	0.43	41.08	16.41	0.94	0.83	0.42	-
5/11/2011	8.37	0.90	0.31	1.34	2.75	3.56	0.59	0.52	2.24	8.22	1.41	0.41	39.85	16.28	0.78	0.83	0.39	-
5/12/2011	7.84	0.88	0.33	1.31	2.80	3.55	0.64	0.54	2.23	7.89	1.40	0.44	38.99	16.52	-	0.90	0.42	-
5/13/2011	7.88	0.88	0.31	1.33	2.79	3.72	0.64	0.54	2.22	7.64	1.39	0.46	38.41	16.65	-	0.91	0.44	-
5/16/2011	7.66	0.89	0.31	1.34	2.72	3.70	0.60	0.55	2.24	7.30	1.38	0.44	39.16	16.72	-	0.91	0.43	-
5/17/2011	7.70	0.87	0.29	1.29	2.70	-	0.56	0.54	-	6.97	1.47	0.44	39.92	16.70	0.72	0.90	0.43	-
5/18/2011	7.56	0.86	0.31	1.29	2.62	3.52	0.60	0.56	2.16	6.79	1.56	0.42	40.40	16.72	-	0.90	0.44	-
5/19/2011	7.84	0.86	0.32	1.41	2.66	3.71	0.62	0.54	2.01	7.22	1.52	0.42	40.63	16.71	0.72	0.89	0.43	-
5/20/2011	7.95	0.84	0.35	1.52	2.47	3.38	0.58	0.51	2.19	7.82	1.51	0.43	41.07	16.65	-	0.88	0.42	-
5/23/2011	-	-	-	-	-	-	-	-	-	-	-	-	40.98	16.28	-	0.86	0.41	-
5/24/2011	7.46	0.87	0.35	1.49	2.45	3.36	0.59	0.54	2.20	8.38	1.51	0.43	41.75	16.46	-	0.89	0.42	-
5/25/2011	7.16	0.87	0.38	1.43	2.46	-	0.59	0.56	2.20	7.57	1.55	0.45	42.65	16.48	0.82	0.90	0.42	-
5/26/2011	7.14	0.87	0.38	1.42	2.48	3.67	0.63	0.60	1.84	7.76	1.67	0.47	43.35	17.12	0.82	0.94	0.45	-
5/27/2011	7.16	-	0.39	1.44	2.52	3.69	0.61	0.59	1.95	7.88	1.64	0.48	44.34	16.71	0.72	0.90	0.42	-
5/30/2011	6.51	0.86	0.39	1.46	2.24	-	0.57	0.56	2.10	7.78	1.51	0.45	-	15.50	0.67	0.83	0.40	-
5/31/2011	6.26	0.92	0.39	1.39	2.14	3.72	0.60	0.56	2.17	7.23	1.53	0.40	44.12	14.98	0.67	0.85	0.42	-
6/1/2011	6.57	0.91	0.37	1.32	2.06	-	0.57	0.48	2.26	6.47	1.43	0.38	41.17	14.04	-	0.78	0.39	-
6/2/2011	6.59	0.89	0.38	1.28	2.30	3.41	0.56	0.50	2.12	6.44	1.48	0.40	43.03	14.81	-	0.85	0.42	-
6/3/2011	6.35	0.83	0.36	1.33	2.06	3.18	0.57	0.49	2.10	6.66	1.45	0.37	42.04	15.21	0.67	0.82	0.42	-
6/6/2011	6.01	0.89	0.35	1.32	1.78	3.04	0.48	0.40	1.79	5.31	1.26	0.30	35.75	12.85	0.61	0.69	0.35	-
6/7/2011	5.62	0.85	0.33	1.22	2.03	3.14	0.51	0.46	1.74	5.54	1.33	0.34	36.17	14.13	-	0.75	0.38	-
6/8/2011	5.52	0.81	0.32	1.12	2.09	3.13	0.57	0.48	1.69	5.32	1.31	0.38	36.98	14.76	0.61	0.80	0.40	-
6/9/2011	5.44	0.78	0.30	1.24	2.00	3.14	0.55	0.50	1.82	5.13	1.34	0.41	37.94	15.56	-	0.80	0.41	-
6/10/2011	5.16	0.72	0.30	1.27	1.96	2.85	0.53	0.47	1.82	4.81	1.29	0.39	37.32	15.19	-	0.78	0.41	-
6/13/2011	5.49	0.74	0.27	1.16	1.90	2.76	0.53	0.46	-	4.29	1.28	0.41	36.96	15.05	0.72	0.79	0.41	-
6/14/2011	5.92	0.77	0.28	1.22	1.98	3.07	0.52	0.46	-	3.92	1.34	0.43	37.60	14.67	-	0.78	0.41	-
6/15/2011	5.85	0.79	0.27	1.15	1.99	3.12	0.51	0.48	1.81	3.97	1.28	0.41	37.50	14.41	-	0.77	0.41	-
6/16/2011	5.36	0.77	0.26	1.09	1.83	3.11	0.49	-	1.57	3.96	1.25	0.40	36.67	14.50	0.61	0.75	0.40	-
6/17/2011	6.06	0.77	0.26	1.07	1.83	3.07	0.47	0.47	1.73	3.77	1.19	0.39	36.84	14.49	-	0.76	0.41	-
6/20/2011	6.10	0.71	0.26	1.03	1.90	3.21	0.53	0.45	1.74	4.29	1.16	0.39	36.33	14.49	-	0.75	0.41	-
6/21/2011	6.24	0.79	0.27	1.06	2.07	2.87	0.51	0.46	1.75	3.91	1.19	0.40	37.11	14.11	-	0.73	0.40	-
6/22/2011	6.54	0.77	0.26	1.08	2.19	3.06	0.48	0.45	1.75	4.42	1.17	0.40	37.26	13.90	0.72	0.74	0.40	-
6/23/2011	6.28	0.71	0.24	1.17	2.14	2.61	0.47	0.44	1.68	5.61	1.16	0.38	37.79	13.84	0.61	0.75	0.38	-
6/24/2011	5.17	0.71	0.24	1.11	2.34	2.74	0.50	0.46	1.52	4.76	1.15	0.39	37.36	13.51	0.56	0.74	0.39	-
6/27/2011	3.80	0.70	0.21	1.06	1.95	2.46	0.48	-	1.52	4.46	1.05	0.36	36.49	13.58	0.56	0.75	0.37	-
6/28/2011	3.83	0.72	0.20	1.09	1.89	-	0.50	0.44	1.22	4.88	1.00	0.38	37.34	13.53	0.51	0.73	0.38	-
6/29/2011	4.08	0.79	0.22	1.06	1.98	2.78	0.48	0.43	1.49	5.15	1.03	0.37	37.99	-	0.67	-	-	-
6/30/2011	3.99	0.78	0.24	1.04	-	2.52	0.56	-	1.30	4.56	1.06	0.33	37.98	13.64	0.57	0.73	0.39	-
7/1/2011	-	-	-	-	-	-	-	-	-	-	-	-	37.20	13.54	-	0.76	0.41	-
7/4/2011	3.95	0.78	0.26	1.07	2.00	-	0.50	-	1.56	4.17	1.09	0.35	-	13.65	-	0.76	-	-
7/5/2011	3.95	0.79	0.30	1.06	1.94	2.34	0.47	0.44	1.80	4.58	1.07	0.37	37.36	13.52	0.68	0.75	0.41	-
7/6/2011	3.94	0.79	0.28	1.06	2.18	2.33	0.50	-	1.66	4.25	1.05	0.37	37.46	13.57	-	0.76	0.41	-
7/7/2011	3.95	0.78	0.27	1.04	2.06	2.35	0.53	0.45	1.82	3.86	1.10	0.40	36.43	13.91	0.63	0.78	0.43	-
7/8/2011	4.06	0.80	0.25	1.03	2.06	2.48	0.50	0.47	1.82	3.85	1.27	0.38	37.16	13.92	-	0.77	0.44	-
7/11/2011	4.11	0.74	0.25	1.00	2.11	2.79	0.50	0.46	1.63	3.30	1.25	0.35	36.55	-	-	0.76	0.42	-
7/12/2011	4.09	0.79	0.24	0.98	1.93	2.47	0.50	0.49	1.81	3.83	1.38	0.35	37.21	14.04	0.62	0.76	0.42	-
7/13/2011	4.08	0.83	0.26	1.05	2.00	2.63	0.52	0.52	2.01	3.44	1.41	0.39	38.46	14.41	0.63	0.78	0.44	-
7/14/2011	4.08	0.80	0.26	1.04	2.09	2.44	0.52	0.50	2.11	3.33	1.37	0.40	39.45	14.22	0.62	0.80	0.43	-
7/15/2011	4.21	0.83	0.25	1.03	2.14	2.69	0.49	0.50	2.20	3.56	1.33	0.37	40.32	14.15	0.73	0.82	0.43	-
7/18/2011	4.84	0.85	0.25	1.01	2.44	2.90	0.53	0.55	2.08	3.54	1.32	0.40	41.37	14.72	0.62	0.86	0.44	-
7/19/2011	5.25	0.84	0.25	0.97	2.43	2.51	0.52	0.56	2.10	3.58	1.36	0.38	41.95	15.71	-	0.88	0.44	-
7/20/2011	5.23	0.93	0.25	0.93	2.34	-	0.57	0.56	2.11	3.48	1.36	0.39	42.34	17.34	0.74	0.88	0.44	-
7/21/2011	5.65	0.92	0.29	1.00	-	2.62	0.57	0.57	2.17	3.71	1.40	0.40	42.36	18.80	-	0.86	0.44	-
7/22/2011	5.94	0.94	0.27	1.05	2.28	2.84	0.54	0.55	2.11	3.90	1.38	0.41	42.38	19.36	0.68	0.85	0.44	-
7/25/2011	5.92	0.90	0.31	1.05	2.44	2.67	0.58	0.54	-	3.81	1.35	0.42	42.17	18.26	0.69	0.85	-	-
7/26/2011	5.59	0.94	0.33	1.02	2.45	2.76	0.59	0.53	2.07	3.81	1.36	0.40	42.55	18.46	0.69	0.86	0.42	-
7/27/2011	5.02	0.94	0.31	0.97	2.63	-	0.57	0.58	1.90	3.80	1.33	0.37	41.29	18.27	-	0.85	0.42	-
7/28/2011	4.95	0.85	0.31	0.97	2.53	2.66	0.59	-	1.84	3.69	1.37	0.37	41.85	-	-	-	-	-
7/29/2011	5.02	0.85	0.31	0.93	2.42	2.64	0.56	0.54	1.83	3.66	1.38	0.37	40.94	-	0.73	-	-	-
8/1/2011	-	-	-	-	-	-	-	-	-	-	-	-	40.85	18.22	-	0.85	0.40	-
8/2/2011	5.22	0.88	0.29	0.95	2.37	2.72	0.53	-	1.90	3.85	1.31	0.34	41.31	18.04	0.73	0.84	0.40	-
8/3/2011	5.22	0.90	0.30	0.94	2.24	2.71	0.52	0.51	1.76	3.84	1.24	0.36	41.37	17.68	0.62	0.83	0.41	-
8/4/2011	4.74	0.78	0.27	1.01	2.06	2.40	0.48	0.48	1.74	3.38	1.07	0.34	39.51	17.15	0.67	0.79	0.38	-
8/5/2011	4.56	0.83	0.24	0.97	2.15	2.30	0.49	0.47	1.74	3.58	1.10	0.33	39.42	16.97	-	0.79	0.38	-
8/8/2011	4.30	0.74	0.23	0.93	1.79	1.91	0.42	0.50	1.59	3.23	1.01	0.23	39.84	15.95	0.61	0.72	0.35	-
8/9/2011	3.88	0.80	0.21	0.98	1.82	1.86	0.43	0.44	1.66	3.33	1.04	0.27	41.36	16.06	-	0.73	0.36	-
8/10/2011	4.15	0.81	0.21	0.97	2.06	1.86	0.44	-	1.62	2.83	1.04	0.27	40.46	15.99	0.66	0.72	0.36	-
8/11/2011	4.08	0.80	0.23	0.96	-	2.37	0.45	0.45	1.77	3.04	1.03	0.30	41.98	16.77	0.61	0.76	0.36	-
8/12/2011	3.95	0.74	0.23	0.96	2.00	2.46	0.44	0.44	1.82	3.03	1.13	0.35	41.68	17.12	0.71	0.77	0.37	-
8/15/2011	4.12	0.74	0.25	0.98	2.08	2.47	0.47	0.49	-	3.15	1.15	0.34	42.44	17.14	-	0.77	0.36	-
8/16/2011	4.02	0.72	0.25	1.02	-	2.47	0.44	0.44	1.78	3.15	1.05	0.34	41.17	15.33	0.56	0.76	0.36	-
8/17/2011	4.06	0.73	0.25	1.02	-	2.29	0.46	0.43	1.50	3.16	1.09	-	42.71	17.13	0.61	0.77	0.35	-
8/18/2011	3.89	0.72	0.23	0.98	-	-	0.45	0.42	1.62	3.13	1.04	0.33	42.79	16.72	0.61	0.75	0.37	-
8/19/2011	3.87	0.73	0.25	0.96	1.89	-	0.44	0.43	1.27	3.24	1.00	0.33	44.37	-	-	0.74	0.35	-
8/22/2011	4.10	0.69	0.25	0.98	1.76	2.09	0.45	0.42	1.32	3.04	0.99	0.32	44.74	-	0.51	0.75	0.35	-
8/23/2011	3.96	0.71	0.24	0.94	1.82	2.18	0.43	0.42	1.34	3.03	1.02	0.33	44.71	16.73	0.56	0.75	0.35	-
8/24/2011	3.84	0.68	0.23	0.96	1.76	-	0.42	0.43	-	3.24	1.05	-	44.85	16.83	0.61	0.74	0.35	-
8/25/2011	3.81	-	0.22	0.93	1.83	1.92	0.43	0.45	1.45	3.25	1.02	0.32	46.16	16.83	-	0.76	0.36	-
8/26/2011	4.02	0.69	0.23	0.99	1.77	-	0.47	0.45	1.73	3.05	1.08	0.33	46.10	17.12	0.51	0.78	0.36	-

Workpaper 7: Peru Mining Index: Constituent Share Prices ($/share)

Name Ticker	Bear Creek Mining Corp BCM CN Equity	Estrella Gold Corp EST CN Equity	Duran Ventures Inc DRV CN EQUITY	Dynacor Gold Mines Inc DNG CN EQUITY	Zincore Metals Inc ZNC/H CN EQUITY	Standard Tolling Corp TON CN EQUITY	Vena Resources Inc VEM CN EQUITY	Panoro Minerals Ltd PML CN EQUITY	Aguila American Gold Ltd AGL CN EQUITY	Xiana Mining Inc XIA CN EQUITY	Candente Copper Corp DNT CN EQUITY	Peruvian Precious Metals Corp PPX CN EQUITY	Cia de Minas Buenaventura SAA BVN US EQUITY	Sociedad Minera el Brocal SAA ROCALC1 PE EQUITY	Montan Mining Corp MNY CN EQUITY	Volcan Cia Minera SAA OLCABC1 PE EQUITY	Cia Minera Atacocha SAA ATACOBC1 PE Equity	Chinalco Mining Corp International 3668 HK Equity
8/29/2011	4.02	0.69	0.22	0.95	1.78	-	0.45	0.45	-	3.17	1.11	0.33	46.19	16.99	-	0.80	0.37	-
8/30/2011	4.08	0.69	0.23	0.97	1.65	1.84	0.45	-	1.73	3.06	1.10	0.33	47.06	-	-	-	-	-
8/31/2011	4.16	0.72	0.24	0.96	1.78	1.84	0.44	0.48	1.74	3.07	1.08	0.32	46.83	16.52	0.51	0.84	0.40	-
9/1/2011	4.10	0.76	0.25	0.94	-	-	0.45	0.49	1.69	3.18	1.08	0.33	47.01	16.57	-	0.84	0.40	-
9/2/2011	4.27	0.70	0.25	0.97	-	1.79	0.43	-	1.70	3.05	1.05	0.33	47.28	16.49	0.51	0.83	0.39	-
9/5/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	16.18	-	0.80	0.38	-
9/6/2011	4.07	0.70	0.25	0.91	1.70	1.73	0.41	0.45	1.51	3.03	1.04	0.32	47.57	16.05	0.45	0.80	0.37	-
9/7/2011	4.19	0.71	0.25	0.93	1.76	-	0.49	-	-	3.04	1.09	0.32	46.10	16.18	0.41	0.82	0.37	-
9/8/2011	4.61	0.75	0.25	0.91	-	2.05	0.44	0.44	1.52	2.94	1.09	0.33	47.20	16.33	0.51	0.82	0.37	-
9/9/2011	4.40	0.84	0.24	0.92	-	-	0.43	0.47	1.56	2.71	1.08	0.34	46.53	16.06	0.45	0.80	0.37	-
9/12/2011	4.22	0.80	0.23	0.85	-	1.72	0.41	0.41	1.51	2.61	1.08	0.33	45.51	-	-	0.80	0.37	-
9/13/2011	4.55	0.83	0.23	0.84	1.94	-	0.41	0.41	1.47	2.32	1.08	0.30	46.38	-	-	0.80	0.37	-
9/14/2011	4.52	0.81	0.24	0.81	1.88	-	0.41	0.47	1.31	2.22	1.13	0.30	45.11	16.04	0.55	0.80	0.38	-
9/15/2011	4.43	0.79	0.23	0.85	1.95	1.73	0.42	0.46	1.42	2.33	1.15	0.31	45.03	16.04	0.51	0.82	0.38	-
9/16/2011	4.56	0.80	0.25	0.82	2.05	1.65	0.42	0.48	1.35	2.35	1.17	0.31	45.04	16.06	0.71	0.83	0.38	-
9/19/2011	4.45	0.78	0.22	0.84	1.94	1.63	0.43	0.44	1.36	2.32	1.10	0.28	45.26	16.02	0.66	0.80	0.36	-
9/20/2011	4.82	0.78	0.20	0.85	1.81	1.63	0.43	0.43	1.41	2.42	1.05	0.40	47.00	16.07	0.86	0.82	0.36	-
9/21/2011	4.92	0.79	0.21	0.83	1.80	1.75	0.40	0.42	-	2.20	0.99	0.28	48.00	-	0.80	0.79	0.36	-
9/22/2011	4.41	0.70	0.19	0.73	1.72	1.45	0.41	-	1.29	2.04	0.92	0.29	42.04	15.13	0.73	0.74	0.36	-
9/23/2011	4.21	0.73	0.18	0.63	1.52	1.57	0.41	-	-	1.55	0.92	0.28	39.85	-	0.68	0.73	0.34	-
9/26/2011	4.13	0.63	0.18	0.62	1.57	1.48	0.35	-	1.28	1.55	0.90	0.28	40.30	-	0.77	0.73	0.35	-
9/27/2011	4.02	0.68	0.20	0.64	1.65	1.85	0.41	0.43	1.10	1.96	0.98	0.29	40.32	-	0.88	0.74	0.36	-
9/28/2011	3.77	0.70	0.21	0.68	1.76	1.80	0.35	0.40	1.05	1.56	0.88	-	38.05	15.17	0.68	0.72	0.36	-
9/29/2011	3.88	0.68	0.20	0.66	1.54	-	0.36	0.44	0.94	1.74	0.87	0.28	37.93	-	0.72	0.72	0.36	-
9/30/2011	3.82	0.66	0.18	0.64	1.67	1.56	0.37	0.42	0.99	1.73	0.85	0.30	37.74	14.93	0.77	0.70	0.36	-

Workpaper 7: Peru Mining Index: Constituent Share Prices ($/share)

Name Ticker	Cia Minera Poderosa SA poderc1 pe equity	Grenville Gold Corp GVG CN EQUITY	New Oroperu Resources Inc ORO CN EQUITY	Nilam Resources Inc NILA US EQUITY	Shougang Hierro Peru S.A.A. SHPC1 PE Equity	Sinchao Metals Corp/Old 66881Z CN EQUITY	Malaga Financial Corp MLGF US EQUITY	Viper Gold Ltd VPR/H CN EQUITY	Lucky Minerals Inc LJ CN EQUITY	Lupaka Gold Corp LPK CN EQUITY	Empresa Siderurgica del ID ERC1 PE EQUITY	AQM Copper Inc AQM CN EQUITY	AM Gold Inc AMG CN EQUITY	Lara Exploration Ltd LRA CN EQUITY	Minera IRL Ltd MIRL LN EQUITY	Hochschild Mining PLC HOC LN EQUITY	Fortuna Silver Mines Inc FVI CN EQUITY	Minera Gold Ltd MIZ AU Equity	Cia Minera Milpo SAA MILPOC1 PE Equity
5/2/2011	-	2.16	-	-	-	-	-	-	-	-	0.47	0.71	-	1.57	-	-	5.02	0.12	1.68
5/3/2011	-	2.63	-	-	-	-	16.50	3.37	-	-	0.47	0.67	-	1.54	1.36	9.73	4.98	0.11	1.68
5/4/2011	-	-	-	-	-	-	-	2.50	-	-	0.52	0.65	-	1.48	1.33	9.58	5.23	0.11	1.79
5/5/2011	-	2.12	-	-	-	-	-	-	-	-	0.53	0.63	-	1.47	1.28	9.24	4.96	0.10	1.80
5/6/2011	-	2.07	-	-	-	-	-	2.48	-	-	0.57	0.63	-	1.48	1.25	9.06	5.23	0.10	1.90
5/9/2011	-	-	-	-	-	-	-	3.11	-	-	0.56	0.65	-	1.54	1.24	9.00	5.45	0.10	1.94
5/10/2011	-	-	0.54	-	-	-	-	2.71	-	-	0.52	0.65	-	1.50	1.26	9.29	5.37	0.10	1.90
5/11/2011	-	-	-	-	-	-	-	-	-	-	0.52	0.60	-	1.42	1.27	8.87	5.16	0.10	1.87
5/12/2011	-	2.08	-	-	-	-	-	3.01	-	-	0.55	0.66	-	1.31	1.24	8.90	5.05	0.09	1.93
5/13/2011	-	2.22	-	-	-	-	16.00	3.20	-	-	0.57	0.64	-	1.27	1.26	8.71	4.89	0.10	1.98
5/16/2011	-	-	0.52	-	-	-	-	-	-	-	0.57	0.60	-	1.23	1.26	8.57	4.87	0.10	1.98
5/17/2011	1.25	-	-	-	-	-	-	-	-	-	0.56	0.61	-	1.21	1.25	8.36	4.68	0.10	1.96
5/18/2011	-	-	0.51	-	-	-	-	-	-	-	0.57	0.66	-	1.26	1.25	8.40	4.84	0.09	1.98
5/19/2011	-	2.06	-	-	-	-	16.50	-	-	-	0.57	0.62	-	1.34	1.25	8.43	4.77	0.10	1.97
5/20/2011	1.25	-	0.51	-	-	-	-	-	-	-	0.55	0.61	-	1.30	1.25	8.51	4.84	0.10	1.97
5/23/2011	-	-	-	-	-	-	-	-	-	-	0.54	-	-	-	1.24	8.17	-	0.10	1.92
5/24/2011	-	2.04	0.51	0.05	-	-	-	2.66	-	-	0.56	0.61	-	1.23	1.25	8.44	4.95	0.10	-
5/25/2011	-	-	-	-	-	-	-	2.66	-	-	0.56	0.62	4.09	1.29	1.26	8.60	5.06	0.10	1.96
5/26/2011	-	-	-	-	-	-	-	-	-	-	0.58	0.67	4.19	1.28	1.25	8.62	5.07	0.11	1.99
5/27/2011	-	2.05	-	0.08	-	-	15.65	-	-	-	0.56	0.69	4.71	1.35	1.26	8.63	5.31	0.11	1.97
5/30/2011	-	2.05	-	-	-	-	-	-	-	-	0.54	0.72	4.51	1.29	-	-	5.18	0.10	1.91
5/31/2011	-	2.06	-	-	-	-	-	-	-	-	0.52	0.67	4.44	1.30	1.25	8.71	5.44	0.11	1.86
6/1/2011	-	-	-	-	-	-	15.51	-	-	-	0.47	0.67	4.47	1.35	1.24	8.70	5.11	0.11	1.77
6/2/2011	-	2.05	-	-	-	-	15.26	-	-	-	0.52	0.70	4.50	1.29	1.20	8.66	4.90	0.10	1.93
6/3/2011	-	-	-	-	-	-	-	-	-	-	0.50	0.68	4.51	1.32	1.14	8.98	4.91	0.11	1.91
6/6/2011	-	-	0.51	-	-	-	-	2.76	-	-	0.43	0.66	4.50	1.29	1.04	8.18	4.64	0.11	1.61
6/7/2011	1.24	1.67	-	-	-	-	15.00	-	-	-	0.47	0.67	4.21	1.29	1.01	8.03	4.74	0.10	1.77
6/8/2011	-	-	0.48	-	-	-	-	-	-	-	0.50	0.70	3.68	1.29	1.04	7.94	4.56	0.10	1.91
6/9/2011	-	-	-	-	-	-	-	2.51	-	-	0.51	0.69	3.49	1.28	1.10	7.99	4.66	0.10	1.97
6/10/2011	-	-	0.48	-	-	-	-	-	-	-	0.50	0.66	4.09	1.28	1.14	7.85	4.55	0.10	1.95
6/13/2011	-	-	-	-	-	-	-	1.94	-	-	0.51	0.66	3.78	1.30	1.12	7.70	4.96	-	1.97
6/14/2011	1.25	-	-	-	-	-	14.75	-	-	-	0.52	0.67	4.34	1.29	1.17	7.78	5.02	0.10	1.98
6/15/2011	1.25	-	0.46	-	-	-	-	-	-	-	0.50	0.66	3.57	1.22	1.15	7.60	5.09	0.09	1.91
6/16/2011	-	-	0.46	-	-	-	-	-	-	-	0.49	0.61	3.81	1.19	1.15	7.45	4.84	0.08	1.82
6/17/2011	-	-	-	-	-	-	14.75	2.04	-	-	0.51	0.68	3.46	1.22	1.15	7.28	4.94	0.08	1.84
6/20/2011	-	1.71	-	-	-	-	-	-	-	-	-	0.66	3.78	1.17	1.12	6.93	4.83	0.07	1.85
6/21/2011	-	1.75	-	-	-	-	-	-	-	-	0.50	0.68	4.06	1.16	1.13	7.18	5.13	0.07	1.81
6/22/2011	-	-	-	-	-	-	-	-	-	-	0.49	0.67	3.65	1.23	1.10	7.09	5.19	0.08	1.82
6/23/2011	-	-	-	-	-	-	-	2.04	-	-	0.48	0.66	3.72	1.20	1.07	6.96	5.22	0.08	1.78
6/24/2011	1.23	-	-	-	-	-	15.25	-	-	-	0.48	0.66	3.55	1.19	1.07	6.88	5.19	0.08	1.81
6/27/2011	-	-	0.48	-	-	-	15.00	-	-	1.52	0.49	0.67	3.65	1.15	1.07	6.83	4.87	0.08	1.83
6/28/2011	-	1.75	0.48	-	-	-	15.00	-	-	0.92	0.49	0.67	3.81	1.25	1.06	7.07	5.01	0.08	1.85
6/29/2011	-	-	-	-	-	-	14.80	-	-	1.08	-	0.67	3.91	1.26	1.06	7.13	5.26	0.08	-
6/30/2011	-	-	-	0.17	-	-	-	2.39	-	1.14	0.49	0.68	3.53	1.32	1.06	7.38	5.23	0.08	1.88
7/1/2011	-	-	-	-	-	-	-	-	-	-	0.50	-	-	-	1.06	7.26	-	0.08	1.89
7/4/2011	-	-	0.52	-	-	-	-	-	-	1.20	0.50	0.68	3.64	1.30	1.05	7.42	5.35	0.08	1.91
7/5/2011	1.24	-	-	-	-	-	-	2.34	-	1.20	0.50	0.69	4.21	1.32	1.07	7.48	5.72	0.09	1.90
7/6/2011	-	1.79	-	-	-	-	-	-	-	1.22	0.49	0.67	4.04	1.35	1.04	7.46	5.96	0.09	1.90
7/7/2011	1.24	-	-	-	-	-	-	2.45	-	1.20	0.50	0.69	3.96	1.46	1.02	7.70	5.93	0.10	1.91
7/8/2011	1.24	1.95	-	-	-	-	-	-	-	1.19	0.50	0.68	3.95	1.44	1.03	7.62	5.88	0.10	1.90
7/11/2011	-	-	-	0.17	-	-	15.00	2.17	-	1.03	0.49	0.67	3.92	1.33	1.11	7.48	5.70	0.09	1.90
7/12/2011	-	-	0.48	-	-	-	15.00	-	-	1.11	0.49	0.68	3.99	1.39	1.12	7.23	6.03	0.09	1.90
7/13/2011	-	-	-	0.17	-	-	14.90	2.29	-	1.15	0.50	0.68	4.07	1.46	1.18	7.63	6.17	0.09	1.91
7/14/2011	-	-	-	0.07	-	-	-	-	-	1.11	0.49	0.70	3.96	1.48	1.22	8.07	6.13	0.10	1.88
7/15/2011	-	-	-	-	-	-	-	-	-	1.15	0.49	0.68	3.77	1.46	1.22	8.01	6.26	0.10	1.85
7/18/2011	-	1.93	-	-	-	-	-	-	-	1.15	0.52	0.73	4.68	1.50	1.25	8.17	6.39	0.11	1.92
7/19/2011	-	-	-	-	-	-	14.85	-	-	1.16	0.53	0.70	4.31	1.53	1.34	8.14	6.22	0.10	1.93
7/20/2011	-	-	-	-	-	-	-	-	-	1.12	0.54	0.69	4.54	1.50	1.35	8.32	6.35	0.10	1.93
7/21/2011	-	-	-	-	-	-	15.00	-	-	1.22	0.54	0.70	4.87	1.51	1.36	8.34	6.42	0.10	1.95
7/22/2011	-	-	-	-	-	-	14.85	-	-	1.21	0.54	0.70	4.85	1.53	1.36	8.40	6.44	0.10	1.95
7/25/2011	-	-	0.49	-	-	-	-	-	-	1.22	0.54	0.69	4.60	1.50	1.38	8.43	6.34	0.10	1.95
7/26/2011	-	-	-	-	-	-	-	2.12	-	1.22	0.54	0.69	4.56	1.49	1.38	8.52	6.19	0.10	1.95
7/27/2011	-	-	-	0.10	-	-	-	-	-	1.28	0.54	0.72	4.16	1.51	1.38	8.26	5.81	0.10	1.93
7/28/2011	-	1.84	-	0.10	-	-	-	-	-	1.39	-	0.71	4.06	1.57	1.38	8.03	5.81	0.10	-
7/29/2011	-	1.83	-	-	-	-	-	-	-	1.36	-	0.69	3.92	1.53	1.39	7.88	5.75	0.10	-
8/1/2011	-	-	-	0.04	-	-	-	-	-	-	0.54	-	-	-	1.38	7.74	-	0.10	1.93
8/2/2011	-	-	-	-	-	-	-	-	-	1.37	0.53	0.68	4.27	1.47	1.38	7.92	6.18	0.09	-
8/3/2011	-	1.82	-	-	-	-	14.38	-	-	1.33	0.54	0.67	4.15	1.50	1.37	8.37	6.19	0.09	1.91
8/4/2011	-	-	-	-	-	-	-	-	-	1.20	0.50	0.67	3.95	1.48	1.34	7.83	5.58	0.09	1.78
8/5/2011	-	-	0.47	-	-	-	14.06	-	-	1.27	0.49	0.66	3.94	1.46	1.30	7.45	5.34	0.08	1.75
8/8/2011	1.17	1.57	-	-	-	-	13.75	-	-	1.21	0.44	0.66	3.54	1.32	1.27	6.94	5.15	0.08	1.61
8/9/2011	1.17	-	-	-	-	-	-	-	-	-	0.45	0.51	3.83	1.37	1.24	7.13	4.99	0.07	1.67
8/10/2011	1.18	-	-	-	-	-	-	-	-	1.07	0.44	0.52	3.69	1.41	1.22	7.04	5.56	0.08	1.65
8/11/2011	-	1.44	0.47	-	-	-	-	-	-	1.15	0.46	0.55	3.59	1.47	1.19	7.40	5.52	0.09	1.71
8/12/2011	-	1.52	0.46	-	-	-	-	-	-	1.15	0.47	0.56	3.84	1.50	1.18	7.50	5.45	0.09	1.74
8/15/2011	-	-	0.47	-	-	-	-	-	-	1.10	0.47	0.58	3.56	1.49	1.23	7.67	5.60	0.10	1.76
8/16/2011	-	-	-	-	-	-	-	-	-	1.12	0.47	0.56	3.71	1.47	1.26	7.50	5.56	0.09	1.70
8/17/2011	-	1.53	0.47	-	-	-	13.60	-	-	1.17	0.47	0.53	3.67	1.49	1.33	7.80	5.68	0.09	1.73
8/18/2011	1.19	1.52	0.46	-	-	-	-	-	-	1.13	0.46	0.47	3.84	1.39	1.29	7.16	5.41	0.09	1.70
8/19/2011	-	-	0.47	-	-	-	-	-	-	1.06	0.46	0.50	3.85	1.47	1.29	7.41	5.50	0.09	-
8/22/2011	-	1.44	-	-	-	-	-	2.02	-	1.13	0.46	0.49	3.74	1.39	1.30	7.55	5.96	0.09	1.69
8/23/2011	-	-	0.47	-	-	-	-	-	-	1.11	0.45	0.49	3.49	-	1.28	7.62	5.62	0.09	1.69
8/24/2011	-	1.44	0.47	-	-	-	-	-	-	0.94	0.45	0.46	3.54	1.37	1.23	7.55	5.33	0.09	1.66
8/25/2011	-	1.27	-	-	-	-	-	-	-	0.96	0.45	0.46	3.70	1.52	1.21	7.49	5.62	0.09	1.62
8/26/2011	-	-	-	-	-	-	-	-	-	1.02	0.46	0.49	3.71	1.68	1.20	7.60	5.67	0.09	1.63

Workpaper 7: Peru Mining Index: Constituent Share Prices ($/share)

Name Ticker	Cia Minera Poderosa SA poderc1 pe equity	Grenville Gold Corp GVG CN EQUITY	New Oroperu Resources Inc ORO CN EQUITY	Nilam Resources Inc NILA US EQUITY	Shougang Hierro Peru S.A.A. SHPC1 PE Equity	Sinchao Metals Corp/Old 66881Z CN EQUITY	Malaga Financial Corp MLGF US EQUITY	Viper Gold Ltd VPR/H CN EQUITY	Lucky Minerals Inc LJ CN EQUITY	Lupaka Gold Corp LPK CN EQUITY	Empresa Siderurgica del iDERC1 PE EQUITY	AQM Copper Inc AQM CN EQUITY	AM Gold Inc AMG CN EQUITY	Lara Exploration Ltd LRA CN EQUITY	Minera IRL Ltd MIRL LN EQUITY	Hochschild Mining PLC HOC LN EQUITY	Fortuna Silver Mines Inc FVI CN EQUITY	Minera Gold Ltd MIZ AU Equity	Cia Minera Milpo SAA MILPOC1 PE Equity
8/29/2011	-	-	-	-	-	-	13.50	1.28	-	1.07	0.46	0.49	3.58	1.64	-	-	5.89	0.09	1.63
8/30/2011	-	1.27	0.47	-	-	-	-	1.48	-	1.03	-	0.46	3.67	1.70	1.21	8.03	6.22	0.10	-
8/31/2011	-	-	-	-	-	-	13.60	1.64	-	1.05	0.48	0.47	3.68	1.65	1.22	8.22	6.11	0.09	1.71
9/1/2011	1.19	1.28	-	-	-	-	13.61	1.49	-	1.06	0.48	0.45	3.84	1.64	1.23	8.25	6.25	0.09	1.71
9/2/2011	1.19	-	0.53	0.10	-	-	13.60	-	-	1.11	0.47	0.44	3.77	1.62	1.26	8.42	6.56	0.09	1.68
9/5/2011	-	-	-	-	-	-	-	-	-	-	0.45	-	-	-	1.24	8.10	-	0.09	1.64
9/6/2011	-	1.26	0.56	0.06	-	-	13.60	-	-	1.08	0.44	0.45	3.48	1.51	1.24	8.12	6.39	0.09	1.58
9/7/2011	-	-	-	-	-	-	-	-	-	1.11	0.44	0.43	3.75	1.51	1.28	8.43	6.48	0.09	-
9/8/2011	-	-	0.56	-	-	-	-	1.98	-	1.22	0.43	0.41	3.95	1.45	1.27	8.79	6.76	0.09	1.59
9/9/2011	-	-	-	-	-	-	-	-	-	1.19	0.43	0.39	3.71	1.45	1.26	8.48	6.55	0.09	1.58
9/12/2011	-	-	-	-	-	-	-	-	-	1.15	0.44	0.38	3.36	1.36	1.25	8.42	6.11	0.09	1.63
9/13/2011	-	-	-	-	-	-	-	-	-	1.11	0.44	0.37	3.23	1.40	1.24	8.24	6.24	0.09	1.64
9/14/2011	-	1.29	-	-	-	-	-	-	-	1.16	0.44	0.34	3.18	1.39	1.24	8.21	6.10	0.09	1.66
9/15/2011	-	1.32	0.51	-	-	-	-	-	-	1.17	0.43	0.36	3.04	1.42	1.24	8.22	6.19	0.09	1.69
9/16/2011	1.19	-	0.51	-	-	-	13.35	-	-	1.07	0.44	0.36	2.91	1.45	1.24	8.24	6.78	0.09	1.69
9/19/2011	-	1.41	-	-	-	-	13.50	-	-	1.06	0.43	0.32	2.62	1.41	1.23	8.17	6.54	0.09	1.62
9/20/2011	-	-	-	-	-	-	13.50	-	-	1.01	0.42	0.33	2.72	1.39	1.24	8.14	6.89	0.08	1.62
9/21/2011	-	1.30	-	-	-	-	-	1.80	-	1.05	0.41	0.32	2.75	1.31	1.23	8.06	7.04	0.08	1.60
9/22/2011	1.17	1.27	0.46	-	-	-	-	1.41	-	0.92	0.39	0.29	2.43	1.27	1.18	7.53	6.03	0.07	1.51
9/23/2011	1.18	1.12	0.45	0.10	-	-	-	1.31	-	0.97	0.39	0.32	2.43	1.20	1.17	7.17	5.51	0.07	-
9/26/2011	1.14	0.85	0.44	-	-	-	13.19	-	-	0.95	0.38	0.29	2.32	1.20	1.15	6.98	5.32	0.07	-
9/27/2011	-	0.93	-	-	-	-	-	-	-	0.98	0.39	0.32	2.50	1.22	1.14	7.21	5.66	0.06	1.56
9/28/2011	-	-	-	-	-	-	-	-	-	-	0.38	0.33	2.44	1.19	1.13	7.05	5.20	0.06	1.50
9/29/2011	-	-	0.44	0.06	-	-	-	1.40	-	0.89	0.37	0.41	1.93	1.15	1.07	6.71	5.18	0.06	1.51
9/30/2011	-	-	-	-	-	-	-	1.44	-	0.91	0.35	0.38	2.21	1.14	1.05	6.40	5.00	0.06	1.51

Notes and Sources:
Data from Bloomberg.
Field: PX_LAST.
Reports missing values as 0s.

Workpaper 8: Peru Mining Index: Constituent Market Capitalization ($ Millions)

Name	Bear Creek Mining Corp	Estrella Gold Corp	Duran Ventures Inc	Dynacor Gold Mines Inc	Zincore Metals Inc	Standard Tolling Corp	Vena Resources Inc	Panoro Minerals Ltd	Aguila American Gold Ltd	Xiana Mining Inc	Candente Copper Corp	Peruvian Precious Metals Corp	Cia de Minas Buenaventura SAA	Sociedad Minera el Brocal SAA	Montan Mining Corp	Volcan Cia Minera SAA	Cia Minera Atacocha SAA
Ticker	BCM CN Equity	EST CN Equity	DRV CN EQUITY	DNG CN EQUITY	ZNC/H CN EQUITY	TON CN EQUITY	VEM CN EQUITY	PML CN EQUITY	AGL CN EQUITY	XIA CN EQUITY	DNT CN EQUITY	PPX CN EQUITY	BVN US EQUITY	BROCALC1 PE EQUITY	MNY CN EQUITY	VOLCABC1 PE EQUITY	ATACOBC1 PE Equity
5/2/2011	747	20	67	55	66	-	35	51	13	32	183	32	11,335	1,497	-	3,725	363
5/3/2011	755	18	67	55	66	8	34	51	13	30	179	37	11,182	1,531	5	3,742	360
5/4/2011	719	18	61	52	66	8	38	54	13	31	185	40	11,335	1,646	5	3,864	400
5/5/2011	686	16	61	50	66	8	36	55	12	28	177	39	10,929	1,687	-	3,806	428
5/6/2011	715	17	57	51	66	8	41	66	12	32	183	43	11,327	1,816	-	4,178	468
5/9/2011	742	16	52	51	66	8	40	66	12	35	188	42	11,498	1,796	5	4,133	466
5/10/2011	808	16	56	48	63	9	42	61	12	34	187	41	11,319	1,772	5	4,063	455
5/11/2011	771	16	57	47	65	8	37	61	12	31	183	39	10,981	1,758	-	4,077	446
5/12/2011	723	15	60	46	66	8	40	63	12	30	183	41	10,744	1,784	-	4,241	448
5/13/2011	727	15	57	47	66	8	40	63	12	29	180	44	10,585	1,797	-	4,302	465
5/16/2011	706	15	56	47	64	-	37	64	-	28	180	42	10,791	1,804	-	4,290	454
5/17/2011	710	15	52	45	64	-	35	64	-	26	191	42	11,000	1,802	-	4,249	448
5/18/2011	697	15	56	45	62	8	37	65	12	26	203	40	11,132	1,805	-	4,264	454
5/19/2011	723	15	59	50	63	8	38	63	11	27	197	40	11,195	1,803	-	4,234	457
5/20/2011	-	-	-	-	-	-	-	-	-	-	-	-	11,316	1,794	-	4,223	453
5/23/2011	-	-	-	-	-	-	-	-	-	-	-	-	11,291	1,755	-	4,162	450
5/24/2011	688	15	63	52	58	-	37	64	12	32	197	41	11,503	1,775	-	4,203	453
5/25/2011	660	15	69	50	58	-	37	66	12	29	202	43	11,751	1,777	5	4,227	455
5/26/2011	658	-	68	50	58	8	39	71	10	29	217	45	11,943	1,849	5	4,329	464
5/27/2011	660	-	71	51	59	-	38	70	11	30	213	46	-	1,804	4	4,238	452
5/30/2011	600	15	71	51	53	-	35	66	11	30	197	43	-	1,679	4	4,048	439
5/31/2011	577	16	70	49	50	-	37	65	12	27	199	38	12,155	1,622	-	4,092	449
6/1/2011	605	16	68	47	49	-	36	57	18	25	187	38	11,344	1,521	-	3,876	428
6/2/2011	607	15	69	45	54	7	35	59	17	25	192	40	11,861	1,602	-	4,044	440
6/3/2011	586	14	66	47	49	7	35	57	16	25	189	37	11,588	1,644	3	3,991	441
6/6/2011	554	15	64	47	42	6	30	47	14	20	164	30	9,854	1,396	-	3,360	406
6/7/2011	518	15	60	43	48	7	32	54	14	21	174	33	9,970	1,535	-	3,585	426
6/8/2011	509	14	58	40	49	7	35	56	13	20	170	37	10,193	1,602	-	3,789	438
6/9/2011	501	14	55	44	47	7	34	59	14	20	175	40	10,458	1,688	-	3,799	440
6/10/2011	476	12	55	45	46	6	33	55	-	18	168	39	10,287	1,650	-	3,764	440
6/13/2011	506	13	49	41	45	6	33	55	-	16	167	40	10,187	1,635	-	3,793	445
6/14/2011	545	13	52	43	47	7	32	55	-	15	175	42	10,364	1,597	-	3,764	446
6/15/2011	539	14	49	41	47	7	31	-	14	15	166	40	10,336	1,569	-	3,738	444
6/16/2011	494	13	48	38	43	7	30	-	12	15	163	39	10,108	1,578	-	3,683	443
6/17/2011	559	13	47	38	43	7	29	56	14	14	155	38	10,154	1,577	-	3,714	446
6/20/2011	562	12	47	36	45	7	33	53	14	16	151	38	10,014	1,580	-	3,689	445
6/21/2011	575	14	49	37	49	6	32	54	14	15	156	39	10,229	1,541	-	3,633	440
6/22/2011	603	13	47	38	52	7	30	53	14	17	152	39	10,270	1,522	4	3,657	441
6/23/2011	579	12	45	42	50	6	29	52	13	21	151	37	10,416	1,517	3	3,689	434
6/24/2011	476	12	44	39	55	6	31	-	12	18	150	38	10,298	1,485	3	3,656	438
6/27/2011	350	12	38	38	46	-	29	-	12	17	137	36	10,058	1,495	3	3,682	431
6/28/2011	353	12	37	39	45	-	31	51	10	19	130	37	10,292	-	3	-	-
6/29/2011	376	14	40	38	-	6	30	-	12	20	134	36	10,471	-	3	-	-
6/30/2011	-	-	-	-	-	-	-	-	-	-	-	-	10,469	1,502	-	3,587	439
7/1/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	1,492	-	3,642	-
7/4/2011	364	14	47	38	47	-	31	-	12	16	142	35	-	1,503	-	3,641	-
7/5/2011	364	14	54	38	53	5	29	-	14	17	139	37	10,298	1,489	-	3,630	428
7/6/2011	363	14	51	38	60	5	31	-	13	16	137	37	10,325	1,494	-	3,650	421
7/7/2011	364	14	50	37	57	5	33	54	14	15	143	40	10,041	1,529	-	3,706	429
7/8/2011	374	14	47	37	56	5	31	56	14	15	166	38	10,243	-	-	3,690	433
7/11/2011	379	13	45	36	58	6	31	55	13	13	162	35	10,074	-	-	3,710	426
7/12/2011	377	14	45	35	53	5	31	58	14	15	180	35	10,256	1,541	3	3,712	426
7/13/2011	376	14	47	37	55	6	32	61	16	13	184	39	10,601	1,580	3	3,778	433
7/14/2011	376	14	47	37	57	5	32	59	17	13	179	39	10,872	1,561	3	3,812	430
7/15/2011	388	14	45	36	59	6	30	60	17	14	173	37	11,111	1,554	4	3,869	431
7/18/2011	446	15	46	36	67	6	33	66	16	13	172	39	11,399	1,615	-	3,979	433
7/19/2011	484	15	46	34	67	-	32	66	16	14	177	38	11,558	1,719	-	4,019	435
7/20/2011	482	16	45	33	-	-	35	66	17	13	177	38	11,665	1,892	-	4,009	435
7/21/2011	521	16	53	35	-	6	35	68	17	14	183	40	11,671	2,052	-	3,970	434
7/22/2011	548	16	49	37	62	6	33	65	-	15	179	40	11,676	2,113	3	-	-
7/25/2011	546	16	57	37	67	6	36	64	-	14	176	42	11,619	2,000	3	3,940	-
7/26/2011	515	16	60	36	67	-	37	63	16	15	178	40	11,723	2,020	-	3,981	427
7/27/2011	463	16	57	34	72	-	35	-	15	14	173	37	11,377	-	-	-	-
7/28/2011	456	15	56	34	69	6	36	-	14	14	178	37	11,531	-	-	-	-
7/29/2011	-	-	-	-	-	-	-	-	-	-	-	-	11,281	-	-	-	-
8/1/2011	-	-	-	-	-	-	-	-	-	-	-	-	11,256	1,995	-	3,931	-
8/2/2011	482	21	52	34	65	6	33	-	15	15	171	34	11,382	1,976	4	3,911	418
8/3/2011	481	21	55	34	61	6	32	71	14	15	162	36	11,399	1,939	3	3,893	420
8/4/2011	437	19	50	36	56	5	30	66	14	13	139	34	10,888	1,877	-	3,806	398
8/5/2011	420	20	43	35	59	5	31	65	14	14	144	33	10,863	1,859	-	3,794	398
8/8/2011	396	18	43	33	49	4	26	69	12	12	132	23	10,978	1,748	-	3,488	363
8/9/2011	358	19	39	35	50	4	27	-	13	13	136	27	11,396	1,759	-	3,525	371
8/10/2011	383	19	39	34	-	4	28	-	13	11	135	27	11,149	1,751	3	3,499	366
8/11/2011	376	19	42	34	-	5	28	61	14	12	134	30	11,567	1,833	3	3,581	378
8/12/2011	364	18	42	34	55	5	28	61	-	12	147	35	11,485	1,874	-	3,613	383
8/15/2011	380	18	46	35	-	5	29	67	-	12	150	33	11,693	1,875	-	3,616	380
8/16/2011	370	17	46	36	-	5	27	60	14	12	137	-	11,344	1,681	3	3,585	380
8/17/2011	374	17	47	36	-	-	29	59	12	12	142	-	11,768	1,874	3	3,622	375
8/18/2011	358	17	43	35	-	-	28	58	13	12	136	33	11,790	-	-	3,562	381
8/19/2011	357	17	45	34	52	-	27	59	10	12	131	33	12,225	-	-	3,530	372

Workpaper 8: Peru Mining Index: Constituent Market Capitalization ($ Millions)

Name	Bear Creek Mining Corp	Estrella Gold Corp	Duran Ventures Inc	Dynacor Gold Mines Inc	Zincore Metals Inc	Standard Tolling Corp	Vena Resources Inc	Panoro Minerals Ltd	Aguila American Gold Ltd	Xiana Mining Inc	Candente Copper Corp	Peruvian Precious Metals Corp	Cia de Minas Buenaventura SAA	Sociedad Minera el Brocal SAA	Montan Mining Corp	Volcan Cia Minera SAA	Cia Minera Atacocha SAA
Ticker	BCM CN Equity	EST CN Equity	DRV CN EQUITY	DNG CN EQUITY	ZNC/H CN EQUITY	TON CN EQUITY	VEM CN EQUITY	PML CN EQUITY	AGL CN EQUITY	XIA CN EQUITY	DNT CN EQUITY	PPX CN EQUITY	BVN US EQUITY	BROCALC1 PE EQUITY	MNY CN EQUITY	VOLCABC1 PE EQUITY	ATACOBC1 PE Equity
8/22/2011	378	16	45	35	48	4	28	59	10	12	129	32	12,327	-	3	3,571	375
8/23/2011	365	17	44	33	50	-	27	59	-	12	133	-	12,318	1,830	3	3,570	365
8/24/2011	354	-	43	34	48	-	26	59	-	12	136	-	12,357	-	-	3,537	364
8/25/2011	351	-	41	33	50	-	27	62	11	12	133	32	12,717	1,841	-	3,590	367
8/26/2011	370	16	43	35	48	-	29	62	-	12	141	32	12,700	1,872	-	3,648	370
8/29/2011	371	16	41	34	49	-	28	-	-	12	145	33	12,725	-	-	-	-
8/30/2011	376	16	42	34	45	4	28	-	14	12	144	33	12,964	-	-	-	-
8/31/2011	383	17	43	34	-	-	27	66	14	12	140	32	12,901	1,810	-	3,802	395
9/1/2011	378	18	45	34	-	-	28	-	13	12	141	33	12,951	1,815	-	3,807	396
9/2/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	1,806	-	3,763	393
9/5/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	1,774	-	3,698	389
9/6/2011	375	17	45	32	46	-	26	-	-	12	136	32	13,104	1,759	2	3,689	384
9/7/2011	386	17	45	33	-	-	30	-	-	12	143	32	12,700	1,772	2	-	-
9/8/2011	425	18	45	32	-	-	27	60	12	11	143	33	13,003	1,788	3	3,830	386
9/9/2011	405	20	43	33	-	-	27	65	12	10	141	34	12,819	-	-	3,794	384
9/12/2011	389	19	42	30	-	-	26	56	12	10	141	33	12,538	-	-	3,783	382
9/13/2011	419	20	42	30	53	-	26	57	11	9	141	30	12,777	-	-	3,781	382
9/14/2011	416	19	44	29	51	-	26	65	10	8	148	30	12,428	1,757	3	3,795	386
9/15/2011	409	19	43	30	53	4	26	64	11	9	150	31	12,406	1,750	3	3,822	386
9/16/2011	420	19	46	29	56	4	26	66	11	9	152	31	12,409	1,756	4	3,849	386
9/19/2011	410	19	41	30	53	3	27	61	11	9	143	28	12,470	1,751	3	3,792	379
9/20/2011	444	19	36	30	50	3	27	60	-	9	137	40	12,948	-	4	3,819	378
9/21/2011	453	19	38	29	49	4	25	-	-	8	129	28	13,223	-	4	3,691	375
9/22/2011	406	17	36	26	47	3	25	-	-	8	120	29	11,585	-	4	3,566	374
9/23/2011	388	18	34	22	41	3	25	-	-	6	120	28	10,983	-	3	3,537	369
9/26/2011	380	15	34	22	43	3	22	-	10	6	118	27	11,107	-	4	3,487	370
9/27/2011	371	16	37	23	45	4	26	60	9	7	128	-	11,112	-	4	3,535	375
9/28/2011	348	17	38	24	48	-	22	55	8	6	115	-	10,488	-	3	3,471	375
9/29/2011	358	16	37	23	42	-	22	61	7	7	113	28	10,455	-	4	3,477	375
9/30/2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes and Sources:
Data from Bloomberg.
Field: CUR_MKT_CAP.
Market Cap in period t is set to 0 if return in period t+1 in Workpaper 6 is 0 or if data is not reported in Bloomberg.

Workpaper 9: Bloomberg Data: Market Index Returns and Silver Prices ($)

TICKER	LBMA Silver Price - Price/US Cents SLVRLN Index	S&P/TSX Composite Index SPTSX Index	S&P/TSX Venture Composite Index SPTSXVEN Index	SI1 COMB Comdty	S&P/BVL Peru General Index TR PEN SPBLPGPT Index	S&P/TSX Global Mining Index CAD TXGM Index
5/2/2011		16,982.00	2,327.22	46.08	6,917.74	137.24
5/3/2011	43.61	16,672.85	2,274.17	42.58	6,888.86	134.07
5/4/2011	40.29	16,418.58	2,218.16	39.38	7,326.26	131.85
5/5/2011	37.84	16,099.50	2,119.65	36.23	7,330.31	127.65
5/6/2011	34.20	16,239.88	2,162.77	35.28	7,797.25	128.48
5/9/2011	38.00	16,380.66	2,196.17	37.11	7,738.75	131.53
5/10/2011	38.40	16,419.03	2,213.55	38.48	7,571.26	131.32
5/11/2011	39.18	16,161.61	2,156.29	35.51	7,417.44	126.83
5/12/2011	32.50	16,072.04	2,128.13	34.79	7,716.82	126.67
5/13/2011	36.20	15,973.54	2,104.56	35.01	7,992.26	124.53
5/16/2011	34.35	15,939.49	2,054.67	34.13	7,997.49	124.89
5/17/2011	34.28	15,932.95	2,017.91	33.49	7,958.36	125.54
5/18/2011	34.59	16,204.10	2,051.02	35.09	8,022.83	127.68
5/19/2011	35.75	16,266.00	2,066.54	34.93	8,002.33	127.14
5/20/2011	34.80	16,257.37	2,091.09	35.08	7,913.73	126.97
5/23/2011	34.70			34.90	7,786.91	126.97
5/24/2011	35.85	16,085.06	2,072.94	36.12	7,914.57	126.33
5/25/2011	37.17	16,292.52	2,098.16	37.64	8,004.55	127.89
5/26/2011	36.95	16,279.81	2,116.33	37.33	8,238.61	129.00
5/27/2011	37.69	16,361.83	2,152.17	37.86	8,125.84	130.63
5/30/2011		16,402.84	2,149.61		7,651.28	130.73
5/31/2011	38.65	16,505.71	2,163.54	38.31	7,786.99	131.63
6/1/2011	37.95	16,087.02	2,123.34	37.69	7,300.32	128.34
6/2/2011	37.22	16,017.86	2,105.90	36.20	7,851.36	127.91
6/3/2011	35.19	16,050.45	2,107.97	36.19	7,689.80	127.13
6/6/2011	36.87	15,770.23	2,060.16	36.78	6,671.15	124.78
6/7/2011	37.41	15,796.80	2,058.01	37.05	7,129.68	125.50
6/8/2011	36.22	15,623.77	1,996.86	36.62	7,413.15	122.88
6/9/2011	37.03	15,762.23	2,010.72	37.42	7,580.23	124.94
6/10/2011	37.38	15,505.51	1,979.74	36.33	7,472.34	121.77
6/13/2011	35.51	15,334.69	1,959.07	34.74	7,468.30	120.53
6/14/2011	34.68	15,689.87	2,009.99	35.41	7,491.99	123.59
6/15/2011	35.26	15,333.10	1,961.77	35.41	7,294.05	119.73
6/16/2011	35.55	15,147.90	1,920.54	35.56	7,180.14	118.59
6/17/2011	35.39	15,118.10	1,934.97	35.75	7,208.19	118.73
6/20/2011	35.58	15,223.55	1,922.13	36.07	7,150.01	119.31
6/21/2011	36.22	15,579.48	1,966.60	36.38	6,968.07	123.05
6/22/2011	35.91	15,588.17	1,992.53	36.74	6,951.21	123.01
6/23/2011	36.01	15,352.67	1,953.24	35.00	6,888.97	121.73
6/24/2011	34.73	15,184.30	1,932.27	34.64	6,881.68	120.52
6/27/2011	34.01	15,249.12	1,893.74	33.59	6,825.68	121.03
6/28/2011	33.96	15,470.37	1,897.39	33.64	6,792.26	123.61
6/29/2011	34.39	15,779.77	1,950.52	34.75		125.87
6/30/2011	35.02	16,028.76	1,976.11	34.81	6,866.76	127.92
7/1/2011	33.85			33.69	6,993.29	
7/4/2011	34.10	16,203.49	2,002.61		7,049.48	129.19

Workpaper 9: Bloomberg Data: Market Index Returns and Silver Prices ($)

TICKER	LBMA Silver Price - Price/US Cents SLVRLN Index	S&P/TSX Composite Index SPTSX Index	S&P/TSX Venture Composite Index SPTSXVEN Index	SI1 COMB Comdty	S&P/BVL Peru General Index TR PEN SPBLPGPT Index	S&P/TSX Global Mining Index CAD TXGM Index
7/5/2011	34.76	16,240.51	2,011.80	35.40	7,044.18	129.56
7/6/2011	35.38	16,150.36	2,026.93	35.91	7,080.07	129.95
7/7/2011	35.86	16,250.09	2,072.10	36.53	7,235.20	131.51
7/8/2011	36.28	16,171.42	2,066.21	36.54	7,260.20	130.87
7/11/2011	36.36	15,822.40	2,010.16	35.69	7,202.55	127.33
7/12/2011	34.91	15,930.75	2,022.48	35.63	7,267.78	128.46
7/13/2011	36.75	16,157.51	2,076.04	38.15	7,374.52	131.33
7/14/2011	39.40	16,048.44	2,075.12	38.69	7,362.94	129.59
7/15/2011	38.17	16,202.78	2,105.05	39.06	7,421.39	130.81
7/18/2011	40.33	16,040.07	2,088.02	40.33	7,775.25	130.48
7/19/2011	40.32	16,305.21	2,098.38	40.21	8,026.15	131.65
7/20/2011	38.59	16,368.77	2,131.07	39.55	8,094.95	132.64
7/21/2011	39.78	16,537.88	2,160.51	38.94	8,105.47	133.33
7/22/2011	39.67	16,537.96	2,171.48	40.11	8,054.51	133.99
7/25/2011	40.78	16,533.98	2,156.12	40.35	8,064.67	133.23
7/26/2011	40.34	16,389.91	2,145.19	40.69	8,152.61	133.26
7/27/2011	40.81	15,989.16	2,095.29	40.55	8,025.98	129.93
7/28/2011	40.19	16,003.92	2,092.26	39.79		129.39
7/29/2011	39.63	15,757.41	2,071.21	40.11		127.68
8/1/2011	39.31			39.31	7,997.00	
8/2/2011	39.73	15,449.42	2,061.25	40.09	7,911.91	125.01
8/3/2011	41.04	15,476.67	2,040.94	41.76	7,844.42	125.02
8/4/2011	41.62	14,774.01	1,901.62	39.43	7,415.47	115.44
8/5/2011	39.24	14,469.40	1,852.98	38.21	7,358.78	113.68
8/8/2011	39.86	13,733.73	1,702.03	39.38	6,835.97	106.43
8/9/2011	38.36	14,223.91	1,728.19	37.88	7,011.90	114.00
8/10/2011	38.31	14,345.95	1,771.46	39.33	6,894.14	112.76
8/11/2011	39.18	14,780.79	1,817.46	38.67	7,172.85	117.24
8/12/2011	38.29	14,755.24	1,837.78	39.11	7,267.15	117.00
8/15/2011	39.18	15,024.97	1,862.24	39.31	7,319.86	120.55
8/16/2011	39.36	14,834.78	1,840.09	39.82	7,214.74	118.13
8/17/2011	40.02	14,927.71	1,856.21	40.35	7,286.66	119.46
8/18/2011	40.32	14,335.13	1,789.81	40.69	7,127.10	114.25
8/19/2011	41.98	14,179.64	1,790.64	42.43	7,065.86	113.65
8/22/2011	43.49	14,225.11	1,788.96	43.33	7,098.14	115.22
8/23/2011	42.88	14,536.26	1,781.92	42.29	7,133.40	116.43
8/24/2011	42.08	14,553.30	1,757.57	39.16	7,138.68	115.30
8/25/2011	39.00	14,518.84	1,765.81	40.75	7,128.64	115.40
8/26/2011	41.06	14,601.00	1,782.63	40.95	7,245.95	118.58
8/29/2011		14,889.48	1,809.40	40.55	7,331.95	120.23
8/30/2011	40.90	15,022.33	1,840.27	41.40		121.48
8/31/2011	41.35	15,237.11	1,855.17	41.70	7,593.88	122.51
9/1/2011	41.47	15,182.63	1,859.86	41.48	7,600.51	121.85
9/2/2011	42.50	14,954.70	1,844.09	43.02	7,491.23	120.63
9/5/2011	42.71				7,360.33	
9/6/2011	41.85	14,733.97	1,808.26	41.82	7,304.85	119.58

Workpaper 9: Bloomberg Data: Market Index Returns and Silver Prices ($)

TICKER	LBMA Silver Price - Price/US Cents SLVRLN Index	S&P/TSX Composite Index SPTSX Index	S&P/TSX Venture Composite Index SPTSXVEN Index	SI1 COMB Comdty	S&P/BVL Peru General Index TR PEN SPBLPGPT Index	S&P/TSX Global Mining Index CAD TXGM Index
9/7/2011	40.98	15,023.94	1,813.42	41.57	7,388.90	122.76
9/8/2011	42.14	15,000.50	1,830.86	42.48	7,367.90	121.86
9/9/2011	41.40	14,499.99	1,793.00	41.57	7,301.14	118.43
9/12/2011	40.81	14,230.77	1,754.48	40.16	7,305.28	116.24
9/13/2011	40.02	14,399.65	1,781.61	41.12	7,316.31	117.24
9/14/2011	41.23	14,477.28	1,770.67	40.47	7,389.12	116.44
9/15/2011	40.34	14,716.71	1,791.53	39.45	7,480.15	117.56
9/16/2011	39.97	14,612.31	1,800.66	40.78	7,533.16	118.26
9/19/2011	40.46	14,340.76	1,755.23	39.11	7,421.87	115.04
9/20/2011	39.18	14,362.26	1,742.17	40.08	7,416.27	115.25
9/21/2011	40.25	13,952.38	1,704.32	40.42	7,226.14	110.42
9/22/2011	37.85	13,144.95	1,557.34	36.54	6,847.43	101.75
9/23/2011	32.90	13,000.07	1,502.86	30.05	6,798.13	99.11
9/26/2011	28.16	13,215.13	1,477.14	29.93	6,745.18	101.11
9/27/2011	33.50	13,550.73	1,542.56	31.50	6,917.73	102.94
9/28/2011	31.04	13,244.83	1,470.76	30.09	6,698.19	98.25
9/29/2011	30.19	13,197.27	1,433.08	30.52	6,657.92	97.67
9/30/2011	30.45	13,075.25	1,412.39	30.08	6,610.32	96.59

Source: Bloomberg.

Workpaper 10: Peru Mining Index: Selection of Constituents

	Company Name	Bloomberg Identifier	Ticker	Included/ Excluded	Reason for Exclusion	Source
1	Alianza Holdings Ltd.	EST CN Equity	TSXV	Included	-	50%+ of assets in Peru
2	Chinalco Mining Corporation International	3668 HK Equity	SEHK	Excluded	Large time difference from TSX/V exchange.	50%+ of assets in Peru
3	Compañía Minera Poderosa S.A.	poderc1 pe equity	BVL	Excluded	Insufficient trading (less than 50% of trading days) during this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
4	Duran Ventures Inc.	DRV CN EQUITY	TSXV	Included	-	50%+ of assets in Peru
5	Dynacor Gold Mines Inc.	DNG CN EQUITY	TSX	Included	-	50%+ of assets in Peru
6	Empresa Siderúrgica del Perú. S.A.A.	SIDERC1 PE EQUITY	BVL	Excluded	Company is not a primarily mining company.	50%+ of assets in Peru
7	Grenville Gold Corporation	GVG CN EQUITY	TSXV	Excluded	Insufficient trading (less than 50% of trading days) during this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
8	New Oroperu Resources Inc.	ORO CN EQUITY	OTCPK	Excluded	Insufficient trading (less than 50% of trading days) during this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
9	Nilam Resources Inc.	NILA US EQUITY	OTCPK	Excluded	Insufficient trading (less than 50% of trading days) during this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
10	Shougang Hierro Peru S.a.a.	SHPC1 PE Equity	BVL	Excluded	Insufficient trading (less than 50% of trading days) during this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
11	Sociedad Minera El Brocal S.A.A.	BROCALC1 PE EQUITY	BVL	Included	-	50%+ of assets in Peru
12	AQM Copper Inc.	AQM CN EQUITY	TSXV	Excluded	Company has active mines or exploratory projects outside of Peru.	50%+ of assets in Peru
13	Zincore Metals Inc.	ZNC/H CN EQUITY	TSXV	Included	-	50%+ of assets in Peru
14	Sinchao Metals Corp.	766881Z CN EQUITY	TSX	Excluded	Insufficient trading (less than 50% of trading days) during this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
15	Malaga Inc.	MLGF US EQUITY	OTCPK	Excluded	Insufficient trading (less than 50% of trading days) during this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
16	Standard Tolling Corp.	TON CN EQUITY	TSXV	Included	-	50%+ of assets in Peru
17	Viper Gold Ltd.	VPR/H CN EQUITY	TSXV	Excluded	Insufficient trading (less than 50% of trading days) during this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
18	AM Gold Inc.	AMG CN EQUITY	TSXV	Excluded	Company has active mines or exploratory projects outside of Peru.	50%+ of assets in Peru
19	Lucky Minerals Inc.	LJ CN EQUITY	TSXV	Excluded	Insufficient trading (less than 50% of trading days) during this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
20	Vena Resources Inc.	VEM CN EQUITY	TSX	Included	-	50%+ of assets in Peru
21	Panoro Minerals Ltd.	PML CN EQUITY	TSXV	Included	-	50%+ of assets in Peru
22	Lara Exploration Ltd.	LRA CN EQUITY	TSXV	Excluded	Company has active mines or exploratory projects outside of Peru.	50%+ of assets in Peru
23	Strait Minerals Inc.	MNY CN EQUITY	TSXV	Included	-	50%+ of assets in Peru
24	Aguila American Gold Limited	AGL CN EQUITY	TSXV	Included	-	50%+ of assets in Peru
25	Xiana Mining Inc.	XIA CN EQUITY	TSXV	Included	-	50%+ of assets in Peru
26	Candente Copper Corp.	DNT CN EQUITY	TSX	Included	-	50%+ of assets in Peru
27	Minera IRL Limited	MIRL LN EQUITY	AIM	Excluded	Large time difference from TSX/V exchange.	50%+ of assets in Peru
28	Peruvian Precious Metals Corp.	PPX CN EQUITY	TSXV	Included	-	50%+ of assets in Peru
29	Hochschild Mining PLC	HOC LN EQUITY	LSE	Excluded	Large time difference from TSX/V exchange.	50%+ of assets in Peru
30	Lupaka Gold Corp.	LPK CN EQUITY	TSXV	Excluded	Company was not publicly traded over this period (5/24/11 - 7/31/11).	50%+ of assets in Peru
31	Sulliden Gold Corporation Ltd.	-	-	Excluded	Company was private.	50%+ of assets in Peru
32	Castrovirreyna Compania Minera S.A.	-	-	Excluded	Company was private.	50%+ of assets in Peru
33	Candelaria Silver Inc.	-	-	Excluded	Company was private.	50%+ of assets in Peru
34	Cuervo Resources Inc.	-	-	Excluded	Company was private.	50%+ of assets in Peru
35	Andean American Gold Corp.	-	-	Excluded	Company was private.	50%+ of assets in Peru
36	Monterrico Metals plc	-	-	Excluded	Company was private.	50%+ of assets in Peru
37	Plexmar Resources Inc.	-	-	Excluded	Company was private.	50%+ of assets in Peru
38	Compania de Minas Buenaventura S.A.A.	BVN US EQUITY	NYSE	Included	-	News Report
39	Volcan Compañía Minera S.A.A.	VOLCABC1 PE EQUITY	BVL	Included	-	50%+ of revenue in Peru
40	Minera Gold Limited	MIZ AU Equity	ASX	Excluded	Large time difference from TSX/V exchange.	50%+ of revenue in Peru
41	Compañía Minera Atacocha S.A.A.	ATACOBC1 PE Equity	BVL	Included	-	50%+ of revenue in Peru
42	Fortuna Silver Mines Inc.	FVI CN EQUITY	TSX	Excluded	Company has active mines or exploratory projects outside of Peru.	50%+ of revenue in Peru
43	Compañía Minera Milpo SAA	MILPOC1 PE Equity	BVL	Excluded	Company has active mines or exploratory projects outside of Peru.	50%+ of revenue in Peru

Sources: S&P Capital IQ, Bloomberg, Reuters.com, Workpaper 8, Workpaper 11 - Workpaper 13.
Selected Management Discussion and Analysis, Form 20-F, Annual Reports, and company websites for the above mining companies. See BR-30 to BR-65.

Notes:

1) The above companies were pulled from S&P Capital IQ if their primary industry classifications were "Metals and Mining" or "Silver," and they had greater than 50% of either assets or revenue from Peru during FY 2011. (Search conducted on 9/2/15).
2) Note that based our review of news following the cancellation of the Santa Ana concession, Compania de Minas Buenaventura S.A.A. has been included in the group of mining companies with assets in Peru.
Nish, Caitlin. "DJ ADR Report: Shares End Higher As European Banks Gain." *Dow Jones Newswires* . 27 May 2011.
3) Companies trading on the New York Stock Exchange and Lima Stock Exchange are not excluded because they are in the same time zone as or one hour behind, respectively, companies on the Toronto Stock Exchange and TSX Venture Exchange.

Workpaper 11: Mining Companies with Mining Assets Exclusively in Peru: Trading Frequency 5/24/2011 - 7/31/2011

Company Name	TICKER	Number of days with data	Percent
Bear Creek Mining Corp	BCM CN Equity	48	98%
Estrella Gold Corp	EST CN Equity	47	96%
Chinalco Mining Corp International	3668 HK Equity	0	0%
Cia Minera Poderosa SA	poderc1 pe equity	7	14%
Duran Ventures Inc	DRV CN EQUITY	48	98%
Dynacor Gold Mines Inc	DNG CN EQUITY	48	98%
Empresa Siderurgica del Peru SAA	SIDERC1 PE EQUITY	45	92%
Grenville Gold Corp	GVG CN EQUITY	14	29%
New Oroperu Resources Inc	ORO CN EQUITY	11	22%
Nilam Resources Inc	NILA US EQUITY	8	16%
Shougang Hierro Peru S.A.A.	SHPC1 PE Equity	0	0%
Sociedad Minera el Brocal SAA	BROCALC1 PE EQUITY	45	92%
AQM Copper Inc	AQM CN EQUITY	48	98%
Zincore Metals Inc	ZNC/H CN EQUITY	46	94%
Sinchao Metals Corp/Old	766881Z CN EQUITY	0	0%
Malaga Financial Corp	MLGF US EQUITY	16	33%
Standard Tolling Corp	TON CN EQUITY	41	84%
Viper Gold Ltd	VPR/H CN EQUITY	13	27%
AM Gold Inc	AMG CN EQUITY	47	96%
Lucky Minerals Inc	LJ CN EQUITY	0	0%
Vena Resources Inc	VEM CN EQUITY	48	98%
Panoro Minerals Ltd	PML CN EQUITY	42	86%
Lara Exploration Ltd	LRA CN EQUITY	48	98%
Montan Mining Corp	MNY CN EQUITY	29	59%
Aguila American Gold Ltd	AGL CN EQUITY	45	92%
Xiana Mining Inc	XIA CN EQUITY	48	98%
Candente Copper Corp	DNT CN EQUITY	48	98%
Minera IRL Ltd	MIRL LN EQUITY	48	98%
Peruvian Precious Metals Corp	PPX CN EQUITY	48	98%
Hochschild Mining PLC	HOC LN EQUITY	48	98%
Lupaka Gold Corp	LPK CN EQUITY	24	49%
Fortuna Silver Mines Inc	FVI CN EQUITY	48	98%
Cia de Minas Buenaventura SAA	BVN US EQUITY	47	96%
Candente Copper Corp	DNT CN Equity	48	98%
Volcan Compania Minera S.A.A.	VOLCABC1 PE EQUITY	46	94%
Minera Gold Ltd	MIZ AU Equity	48	98%
Cia Minera Atacocha SAA	ATACOBC1 PE Equity	44	90%
Cia Minera Milpo SAA	MILPOC1 PE Equity	45	92%

Source: Bloomberg, Workpaper 7

Workpaper 12: CapIQ Data: Mining Companies with 50%+ of Revenue from Peru in FY 2011

Company Name	Exchange:Ticker	Industry Classifications	Number of Geographic Segments: Peru - % of Revenue [FY 2011]	Geographic Segments: Peru - % of Revenue [FY 2011]	Geographic Segments (Details): Peru - % of Revenue [FY 2011]
Castrovirreyna Compania Minera S.A.	-	Metals and Mining (Primary)	1	100.0	Peru: 32.5 (100.0%)
Chinalco Mining Corporation International (SEHK:3668)	SEHK:3668	Metals and Mining (Primary)	1	100.0	Peru: .2 (100.0%)
Compañía Minera Poderosa S.A. (BVL:PODERC1)	BVL:PODERC1	Metals and Mining (Primary)	1	100.0	Peru: 180.9 (100.0%)
Dynacor Gold Mines Inc. (TSX:DNG)	TSX:DNG	Metals and Mining (Primary)	1	100.0	Peru: 74.6 (100.0%)
Empresa Siderúrgica del Perú. S.A.A. (BVL:SIDERC1)	BVL:SIDERC1	Metals and Mining (Primary)	1	100.0	Peru: 585.5 (100.0%)
Minera Gold Limited (ASX:MIZ)	ASX:MIZ	Metals and Mining (Primary)	1	100.0	Peru: 7.6 (100.0%)
Minera IRL Limited (AIM:MIRL)	AIM:MIRL	Metals and Mining (Primary)	1	100.0	Peru: 53.0 (100.0%)
Shougang Hierro Peru S.a.a. (BVL:SHPC1)	BVL:SHPC1	Metals and Mining (Primary)	1	100.0	Peru: 1,135.8 (100.0%)
Sociedad Minera El Brocal S.A.A. (BVL:BROCALC1)	BVL:BROCALC1	Metals and Mining (Primary)	1	100.0	Peru: 264.4 (100.0%)
Compañía Minera Atacocha S.A.A. (BVL:ATACOBC1)	BVL:ATACOBC1	Metals and Mining (Primary)	1	97.8	Peru: 131.9 (97.8%)
Fortuna Silver Mines Inc. (TSX:FVI)	TSX:FVI	Metals and Mining (Primary); Silver (Primary)	1	88.9	Peru: 97.7 (88.9%)
Compañía Minera Milpo SAA (BVL:MILPOC1)	BVL:MILPOC1	Metals and Mining (Primary)	1	80.0	Peru: 590.1 (80.0%)
Volcan Compañía Minera S.A.A. (BVL:VOLCABC1)	BVL:VOLCABC1	Metals and Mining (Primary)	1	78.9	Peru: 979.1 (78.9%)

Source: S&P Capital IQ

Notes: Companies were screened on the following criteria:

1) **Industry Classifications:** Metals and Mining (Primary) **OR** Silver (Primary)

2) **Geographic Segments - Peru** - % of Revenue [FY 2011] **:** is greater than 50 Number of segments is greater than 0

Workpaper 13: CapIQ Data: Mining Companies with 50%+ of Assets from Peru in FY 2011

Company Name	Exchange:Ticker	Industry Classifications	Number of Geographic Segments: Peru - % of Assets [FY 2011]	Geographic Segments: Peru - % of Assets [FY 2011]	Geographic Segments (Details): Peru - % of Assets [FY 2011]
Alianza Holdings Ltd. (TSXV:EST)	TSXV:EST	Metals and Mining (Primary)	1	100.0	Peru: 7.6 (100.0%)
Castrovirreyna Compania Minera S.A.	-	Metals and Mining (Primary)	1	100.0	Peru: 59.0 (100.0%)
Chinalco Mining Corporation International (SEHK:3668)	SEHK:3668	Metals and Mining (Primary)	1	100.0	Peru: 1,690.6
Compañía Minera Poderosa S.A. (BVL:PODERC1)	BVL:PODERC1	Metals and Mining (Primary)	1	100.0	Peru: 187.1 (100.0%)
Duran Ventures Inc. (TSXV:DRV)	TSXV:DRV	Metals and Mining (Primary)	1	100.0	Peru: 1.7 (100.0%)
Dynacor Gold Mines Inc. (TSX:DNG)	TSX:DNG	Metals and Mining (Primary)	1	100.0	Peru: 20.2 (100.0%)
Empresa Siderúrgica del Perú. S.A.A. (BVL:SIDERC1)	BVL:SIDERC1	Metals and Mining (Primary)	1	100.0	Peru: 792.1 (100.0%)
Grenville Gold Corporation (TSXV:GVG)	TSXV:GVG	Metals and Mining (Primary)	1	100.0	Peru: 3.5 (100.0%)
New Oroperu Resources Inc. (OTCPK:NOPU.F)	OTCPK:NOPU.F	Metals and Mining (Primary)	1	100.0	Peru: .7 (100.0%)
Nilam Resources Inc. (OTCPK:NILA)	OTCPK:NILA	Metals and Mining (Primary)	1	100.0	Peru: .1 (100.0%)
Shougang Hierro Peru S.a.a. (BVL:SHPC1)	BVL:SHPC1	Metals and Mining (Primary)	1	100.0	Peru: 1,462.7
Sociedad Minera El Brocal S.A.A. (BVL:BROCALC1)	BVL:BROCALC1	Metals and Mining (Primary)	1	100.0	Peru: 461.5 (100.0%)
AQM Copper Inc. (TSXV:AQM)	TSXV:AQM	Metals and Mining (Primary)	1	99.9	Peru: 23.3 (99.9%)
Zincore Metals Inc. (TSXV:ZNC.H)	TSXV:ZNC.H	Metals and Mining (Primary)	1	99.9	Peru: 29.6 (99.9%)
Cuervo Resources Inc.	-	Metals and Mining (Primary)	1	99.8	Peru: .5 (99.8%)
Sinchao Metals Corp.	-	Metals and Mining (Primary)	1	99.6	Peru: 18.8 (99.6%)
Malaga Inc. (OTCPK:MLGA.F)	OTCPK:MLGA.F	Metals and Mining (Primary)	1	99.3	Peru: 4.6 (99.3%)
Monterrico Metals plc	-	Metals and Mining (Primary)	1	98.4	Peru: 64.4 (98.4%)
Plexmar Resources Inc.	-	Metals and Mining (Primary)	1	97.2	Peru: 6.8 (97.2%)
Standard Tolling Corp. (TSXV:TON)	TSXV:TON	Metals and Mining (Primary)	1	96.8	Peru: 1.5 (96.8%)
Viper Gold Ltd. (TSXV:VPR.H)	TSXV:VPR.H	Metals and Mining (Primary)	1	96.0	Peru: 1.1 (96.0%)
Candelaria Silver Inc.	-	Metals and Mining (Primary); Silver	1	94.9	Peru: .1 (94.9%)
AM Gold Inc (TSXV:AMG)	TSXV:AMG	Metals and Mining (Primary)	1	94.3	Peru: 6.0 (94.3%)
Lucky Minerals Inc. (TSXV:LJ)	TSXV:LJ	Metals and Mining (Primary)	1	80.9	Other: .1 (80.9%)
Vena Resources Inc. (TSX:VEM)	TSX:VEM	Metals and Mining (Primary)	1	79.8	Peru: 11.8 (79.8%)
Panoro Minerals Ltd. (TSXV:PML)	TSXV:PML	Metals and Mining (Primary)	1	77.5	Peru: .2 (77.5%)
Lara Exploration Ltd. (TSXV:LRA)	TSXV:LRA	Metals and Mining (Primary)	1	77.3	Peru: 3.7 (77.3%)
Strait Minerals Inc.	-	Metals and Mining (Primary)	1	77.0	Peru: 2.9 (77.0%)
Aguila American Gold Limited (TSXV:AGL)	TSXV:AGL	Metals and Mining (Primary)	1	69.8	Peru: 1.2 (69.8%)
Sulliden Gold Corporation Ltd.	-	Metals and Mining (Primary)	1	68.2	Peru: 103.2 (68.2%)
Xiana Mining Inc. (TSXV:XIA)	TSXV:XIA	Metals and Mining (Primary)	1	66.4	Peru: 14.0 (66.4%)
Candente Copper Corp. (TSX:DNT)	TSX:DNT	Metals and Mining (Primary)	1	66.1	Peru: 41.6 (66.1%)
Minera IRL Limited (AIM:MIRL)	AIM:MIRL	Metals and Mining (Primary)	1	65.9	Peru: 89.7 (65.9%)
Peruvian Precious Metals Corp. (TSXV:PPX)	TSXV:PPX	Metals and Mining (Primary)	1	64.5	Peru: 12.0 (64.5%)
Andean American Gold Corp.	-	Metals and Mining (Primary)	1	61.4	Peru: 40.2 (61.4%)
Hochschild Mining PLC (LSE:HOC)	LSE:HOC	Metals and Mining (Primary); Silver	1	55.9	Peru: 496.4 (55.9%)
Lupaka Gold Corp. (TSXV:LPK)	TSXV:LPK	Metals and Mining (Primary)	1	55.4	Peru: 16.6 (55.4%)

Source: S&P Capital IQ

Notes: Companies were screened on the following criteria:

1) **Industry Classifications:** Metals and Mining (Primary) **OR** Silver (Primary)

2) **Geographic Segments - Peru** - % of Assets [FY 2011] **:** is greater than 50% Number of segments is greater than 0

Workpaper 14: FTI Silver Price Projections: Real vs. Nominal

Inflation Rate	[A]	2.40%											
Valuation Date	[B]	6/23/2011											
	[C]	7/1/2013	7/1/2014	7/1/2015	7/1/2016	7/1/2017	7/1/2018	7/1/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024
FTI Real Price Projection	[D]	33.20	31.83	30.78	22.21	22.21	22.21	22.21	22.21	22.21	22.21	22.21	22.21
FTI Nominal Price Projection	[E]	34.83	34.19	33.86	25.02	25.62	26.24	26.87	27.51	28.17	28.85	29.54	30.25

Notes and Sources

[A]: FTI Inflation rate (FTI Report, ¶A5.44).

[B]: FTI Valuation Date (FTI Report, ¶1.5).

[C]: Date for nominal price calculations, assumes mid-year convention.

[D]: FTI Real Silver Price Projection (FTI Report, Figure 21).

[E]: [D] * (1 + [A]) ^ (([C] - [B]) / 365.25).

Workpaper 15: Bloomberg Data: Silver Futures Prices

Commodity Description Ticker	SILVER FUTURE Jan13 SIF13 Comdty	SILVER FUTURE Mar13 SIH13 Comdty	SILVER FUTURE Jul13 SIN13 Comdty	SILVER FUTURE Dec13 SIZ13 Comdty	SILVER FUTURE Jul14 SIN14 Comdty	SILVER FUTURE Dec14 SIZ14 Comdty	SILVER FUTURE Jul15 SIN15 Comdty	SILVER FUTURE Dec15 SIZ5 Comdty
6/23/2011	34.88	34.83	34.75	34.64	34.45	34.33	34.13	33.99
6/24/2011	34.54	34.49	34.43	34.41	34.27	34.19	34.02	33.90

Workpaper 16: Pre-Award Interest as of September 24, 2015 Based on FTI Damages Quantum - Alternative Rates

	Damages Amount as of Valuation Date ($M) [1]	Cumulative Pre-Award Interest (%) [2]	Pre-Award Interest Amount ($M) [3]	Total Damages Amount Including Pre-Award Interest ($M) [4]
[A] Peru Cost of Borrowing				
Santa Ana	224.2	2.79%	6.3	230.5
Corani	170.6	2.79%	4.8	175.4
Total			11.0	405.8
[B] Risk Free Rate				
Santa Ana	224.2	0.69%	1.5	225.7
Corani	170.6	0.69%	1.2	171.8
Total			2.7	397.5
[C] FTI Damages				
Santa Ana	224.2	23.65%	53.0	277.2
Corani	170.6	23.65%	40.3	210.9
Total			93.4	488.2
[D] LIBOR + 1%				
Santa Ana	224.2	5.29%	11.9	236.1
Corani	170.6	5.29%	9.0	179.6
Total			20.9	415.7

Sources and Notes:
[1]: FTI Report, Figure 2.
[A][2]: Interest Factor from Workpaper 17 [8] as of 09/24/2015.
[B][2]: Interest Factor from Workpaper 17 [4] as of 09/24/2015.
[C][2]: Interest Factor from Workpaper 17 [10] as of 09/24/2015.
[D][2]: Interest Factor from Workpaper 17 [12] as of 09/24/2015.
[3]: [1] x [2].
[4]: [1] + [3].

Workpaper 17: Pre-Award Interest Factors

Start of Period [1]	End of Period [2]	Days in Interest Period [3]	Risk Free Rate - Treasury [4]	Peru CDS Mid Spread [5]	Peru Borrowing Cost [6]	Risk Free Based Interest Factor - Treasury [7]	Peru Borrowing Cost Based Interest Factor [8]	FTI Borrowing Cost [9]	FTI Interest Factor [10]	LIBOR + 1% [11]	LIBOR Interest Factor [12]
6/24/2011	7/24/2011	30	0.16%	0.50%	0.66%	1.000	1.001	5.00%	1.004	1.19%	1.001
7/24/2011	8/24/2011	31	0.20%	0.46%	0.66%	1.000	1.001	5.00%	1.008	1.19%	1.002
8/24/2011	9/24/2011	31	0.11%	0.84%	0.95%	1.000	1.002	5.00%	1.013	1.22%	1.003
9/24/2011	10/24/2011	30	0.10%	0.84%	0.94%	1.000	1.003	5.00%	1.017	1.24%	1.004
10/24/2011	11/24/2011	31	0.11%	0.64%	0.75%	1.001	1.003	5.00%	1.021	1.24%	1.005
11/24/2011	12/24/2011	30	0.12%	0.75%	0.87%	1.001	1.004	5.00%	1.025	1.26%	1.006
12/24/2011	1/24/2012	31	0.12%	0.75%	0.87%	1.001	1.005	5.00%	1.030	1.29%	1.007
1/24/2012	2/24/2012	31	0.12%	0.74%	0.86%	1.001	1.006	5.00%	1.034	1.28%	1.008
2/24/2012	3/24/2012	29	0.18%	0.60%	0.78%	1.001	1.006	5.00%	1.038	1.24%	1.009
3/24/2012	4/24/2012	31	0.19%	0.49%	0.68%	1.001	1.007	5.00%	1.043	1.24%	1.011
4/24/2012	5/24/2012	30	0.18%	0.52%	0.70%	1.001	1.007	5.00%	1.047	1.24%	1.012
5/24/2012	6/24/2012	31	0.21%	0.65%	0.86%	1.002	1.008	5.00%	1.051	1.24%	1.013
6/24/2012	7/24/2012	30	0.19%	0.65%	0.84%	1.002	1.009	5.00%	1.056	1.25%	1.014
7/24/2012	8/24/2012	31	0.18%	0.59%	0.77%	1.002	1.009	5.00%	1.060	1.24%	1.015
8/24/2012	9/24/2012	31	0.19%	0.41%	0.60%	1.002	1.010	5.00%	1.065	1.23%	1.016
9/24/2012	10/24/2012	30	0.18%	0.18%	0.36%	1.002	1.010	5.00%	1.069	1.22%	1.017
10/24/2012	11/24/2012	31	0.18%	0.30%	0.48%	1.002	1.011	5.00%	1.074	1.21%	1.018
11/24/2012	12/24/2012	30	0.19%	0.29%	0.48%	1.002	1.011	5.00%	1.078	1.21%	1.019
12/24/2012	1/24/2013	31	0.16%	0.28%	0.44%	1.003	1.011	5.00%	1.083	1.21%	1.020
1/24/2013	2/24/2013	31	0.15%	0.27%	0.42%	1.003	1.012	5.00%	1.087	1.20%	1.021
2/24/2013	3/24/2013	28	0.16%	0.28%	0.44%	1.003	1.012	5.00%	1.091	1.20%	1.022
3/24/2013	4/24/2013	31	0.14%	0.28%	0.42%	1.003	1.012	5.00%	1.096	1.20%	1.023
4/24/2013	5/24/2013	30	0.13%	0.26%	0.39%	1.003	1.013	5.00%	1.100	1.20%	1.024
5/24/2013	6/24/2013	31	0.12%	0.39%	0.51%	1.003	1.013	5.00%	1.105	1.19%	1.025
6/24/2013	7/24/2013	30	0.16%	0.77%	0.93%	1.003	1.014	5.00%	1.110	1.20%	1.026
7/24/2013	8/24/2013	31	0.12%	0.67%	0.79%	1.003	1.015	5.00%	1.114	1.19%	1.027
8/24/2013	9/24/2013	31	0.14%	0.67%	0.81%	1.004	1.015	5.00%	1.119	1.18%	1.028
9/24/2013	10/24/2013	30	0.10%	0.68%	0.78%	1.004	1.016	5.00%	1.124	1.18%	1.029
10/24/2013	11/24/2013	31	0.12%	0.66%	0.78%	1.004	1.017	5.00%	1.128	1.17%	1.030
11/24/2013	12/24/2013	30	0.12%	0.61%	0.73%	1.004	1.017	5.00%	1.133	1.17%	1.031
12/24/2013	1/24/2014	31	0.14%	0.56%	0.70%	1.004	1.018	5.00%	1.138	1.17%	1.032
1/24/2014	2/24/2014	31	0.11%	0.59%	0.70%	1.004	1.018	5.00%	1.143	1.16%	1.033
2/24/2014	3/24/2014	28	0.11%	0.38%	0.49%	1.004	1.019	5.00%	1.147	1.15%	1.034
3/24/2014	4/24/2014	31	0.14%	0.38%	0.52%	1.004	1.019	5.00%	1.152	1.15%	1.035
4/24/2014	5/24/2014	30	0.10%	0.30%	0.40%	1.004	1.020	5.00%	1.157	1.15%	1.036
5/24/2014	6/24/2014	31	0.10%	0.25%	0.35%	1.004	1.020	5.00%	1.162	1.15%	1.037
6/24/2014	7/24/2014	30	0.12%	0.16%	0.28%	1.004	1.020	5.00%	1.166	1.15%	1.038
7/24/2014	8/24/2014	31	0.11%	0.18%	0.29%	1.005	1.020	5.00%	1.171	1.15%	1.039
8/24/2014	9/24/2014	31	0.10%	0.20%	0.30%	1.005	1.021	5.00%	1.176	1.16%	1.040

Workpaper 17: Pre-Award Interest Factors

Start of Period [1]	End of Period [2]	Days in Interest Period [3]	Risk Free Rate - Treasury [4]	Peru CDS Mid Spread [5]	Peru Borrowing Cost [6]	Risk Free Based Interest Factor - Treasury [7]	Peru Borrowing Cost Based Interest Factor [8]	FTI Borrowing Cost [9]	FTI Interest Factor [10]	LIBOR + 1% [11]	LIBOR Interest Factor [12]
9/24/2014	10/24/2014	30	0.11%	0.23%	0.34%	1.005	1.021	5.00%	1.181	1.15%	1.041
10/24/2014	11/24/2014	31	0.11%	0.32%	0.43%	1.005	1.021	5.00%	1.186	1.15%	1.043
11/24/2014	12/24/2014	30	0.14%	0.33%	0.47%	1.005	1.022	5.00%	1.191	1.15%	1.044
12/24/2014	1/24/2015	31	0.26%	0.33%	0.59%	1.005	1.022	5.00%	1.196	1.17%	1.045
1/24/2015	2/24/2015	31	0.17%	0.49%	0.66%	1.005	1.023	5.00%	1.201	1.17%	1.046
2/24/2015	3/24/2015	28	0.22%	0.45%	0.67%	1.005	1.023	5.00%	1.206	1.17%	1.047
3/24/2015	4/24/2015	31	0.24%	0.55%	0.79%	1.006	1.024	5.00%	1.211	1.17%	1.048
4/24/2015	5/24/2015	30	0.24%	0.58%	0.82%	1.006	1.025	5.00%	1.216	1.18%	1.049
5/24/2015	6/24/2015	31	0.23%	0.55%	0.78%	1.006	1.025	5.00%	1.221	1.18%	1.050
6/24/2015	7/24/2015	30	0.30%	0.55%	0.85%	1.006	1.026	5.00%	1.226	1.19%	1.051
7/24/2015	8/24/2015	31	0.32%	0.60%	0.92%	1.007	1.027	5.00%	1.231	1.19%	1.052
8/24/2015	9/24/2015	31	0.33%	0.79%	1.12%	1.007	1.028	5.00%	1.237	1.20%	1.053
Average			0.16%	0.49%	0.65%			5.00%		1.20%	

Notes and Sources:
[1]: Monthly as of 6/23/2011.
[2]: Monthly as of 7/23/2011.
[3]: Number of days between [1] and [2] in which interest will accrue at the specified rate.
[4]: Risk Free Base: United States Treasury Constant Maturity - 1 Year at the start of the period (06/24/2011). Source: Workpaper 18.
[5]: One Year Maturity Peru CDS Mid Spread at the start of the period (06/24/2011). Source: Workpaper 18.
[6]: [4] + [5].
[7]: Factor = Factor_t-1 * (1 + [4] * [3] / 365). Prior period factor set at 1 for 06/24/2011.
[8]: Factor = Factor_t-1 * (1 + [6] * [3] / 365). Prior period factor set at 1 for 06/24/2011.
[9]: 5% Average Annual Rate.
[10]: Factor = Factor_t-1 * (1 + [9] * [3] / 365). Prior period factor set at 1 for 06/24/2011.
[11]: One Month USD denominated LIBOR. If data is not available on [1] the next date with reported data is used. Source: Workpaper 18.
[12]: Factor = Factor_t-1 * (1 + [11] * [3] / 360). Prior period factor set at 1 for 06/24/2011. Note that [1], [2], and [3] are slighty different using LIBOR.

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
5/1/2011	77.99	0.22	N/A
5/2/2011	78.77	0.22	N/A
5/3/2011	77.21	0.20	0.21
5/4/2011	66.54	0.19	0.21
5/5/2011	65.72	0.20	0.21
5/6/2011	63.98	0.18	0.20
5/7/2011	63.98	0.18	0.20
5/8/2011	63.98	0.18	0.20
5/9/2011	57.05	0.17	0.20
5/10/2011	57.01	0.19	0.20
5/11/2011	58.49	0.18	0.20
5/12/2011	55.05	0.18	0.20
5/13/2011	54.97	0.19	0.20
5/14/2011	54.97	0.19	0.20
5/15/2011	54.97	0.19	0.20
5/16/2011	50.55	0.18	0.20
5/17/2011	54.37	0.19	0.20
5/18/2011	53.60	0.19	0.20
5/19/2011	52.72	0.19	0.20
5/20/2011	52.99	0.18	0.19
5/21/2011	52.99	0.18	0.19
5/22/2011	52.99	0.18	0.19
5/23/2011	51.05	0.20	0.19
5/24/2011	50.22	0.20	0.19
5/25/2011	45.55	0.18	0.19
5/26/2011	45.52	0.18	0.19
5/27/2011	44.96	0.18	0.19
5/28/2011	44.96	0.18	0.19
5/29/2011	44.96	0.18	0.19
5/30/2011	45.00	0.18	0.19
5/31/2011	47.40	0.18	0.19
6/1/2011	50.60	0.18	0.19
6/2/2011	56.11	0.19	0.19
6/3/2011	55.81	0.18	0.19
6/4/2011	55.81	0.18	0.19
6/5/2011	55.81	0.18	0.19
6/6/2011	63.34	0.18	0.19
6/7/2011	58.36	0.18	0.19
6/8/2011	57.12	0.18	0.19
6/9/2011	53.81	0.19	0.19
6/10/2011	52.04	0.19	0.19
6/11/2011	52.04	0.19	0.19
6/12/2011	52.04	0.19	0.19
6/13/2011	53.09	0.18	0.19
6/14/2011	51.29	0.19	0.19
6/15/2011	47.72	0.19	0.19
6/16/2011	48.96	0.18	0.19
6/17/2011	47.90	0.17	0.19
6/18/2011	47.90	0.17	0.19
6/19/2011	47.90	0.17	0.19
6/20/2011	50.63	0.18	0.19
6/21/2011	48.19	0.18	0.19
6/22/2011	46.68	0.16	0.19
6/23/2011	50.35	0.15	0.19
6/24/2011	49.56	0.16	0.19
6/25/2011	49.56	0.16	0.19
6/26/2011	49.56	0.16	0.19
6/27/2011	48.91	0.18	0.19
6/28/2011	47.05	0.21	0.19
6/29/2011	47.26	0.19	0.19
6/30/2011	44.71	0.19	0.19
7/1/2011	45.16	0.20	0.19
7/2/2011	45.16	0.20	0.19
7/3/2011	45.16	0.20	0.19
7/4/2011	45.00	0.20	0.19
7/5/2011	44.57	0.19	0.19
7/6/2011	43.67	0.19	0.19
7/7/2011	40.77	0.20	0.19
7/8/2011	41.04	0.17	0.19
7/9/2011	41.04	0.17	0.19
7/10/2011	41.04	0.17	0.19
7/11/2011	41.55	0.17	0.19

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
7/12/2011	41.47	0.18	0.19
7/13/2011	40.97	0.16	0.19
7/14/2011	41.98	0.15	0.19
7/15/2011	41.42	0.15	0.19
7/16/2011	41.42	0.15	0.19
7/17/2011	41.42	0.15	0.19
7/18/2011	41.17	0.15	0.19
7/19/2011	41.07	0.17	0.19
7/20/2011	41.42	0.19	0.19
7/21/2011	39.08	0.20	0.19
7/22/2011	46.00	0.20	0.19
7/23/2011	46.00	0.20	0.19
7/24/2011	46.00	0.20	0.19
7/25/2011	47.00	0.20	0.19
7/26/2011	46.69	0.21	0.19
7/27/2011	46.90	0.21	0.19
7/28/2011	46.82	0.21	0.19
7/29/2011	46.87	0.20	0.19
7/30/2011	46.87	0.20	0.19
7/31/2011	46.87	0.20	0.19
8/1/2011	45.77	0.22	0.19
8/2/2011	47.27	0.17	0.20
8/3/2011	47.96	0.16	0.21
8/4/2011	50.09	0.12	0.21
8/5/2011	51.14	0.11	0.21
8/6/2011	51.14	0.11	0.21
8/7/2011	51.14	0.11	0.21
8/8/2011	59.28	0.12	0.21
8/9/2011	58.33	0.11	0.21
8/10/2011	58.63	0.09	0.21
8/11/2011	60.14	0.10	0.21
8/12/2011	70.34	0.11	0.21
8/13/2011	70.34	0.11	0.21
8/14/2011	70.34	0.11	0.21
8/15/2011	71.07	0.12	0.21
8/16/2011	71.67	0.12	0.21
8/17/2011	69.39	0.12	0.21
8/18/2011	73.77	0.10	0.21
8/19/2011	73.62	0.10	0.22
8/20/2011	73.62	0.10	0.22
8/21/2011	73.62	0.10	0.22
8/22/2011	76.45	0.09	0.22
8/23/2011	79.61	0.10	0.22
8/24/2011	84.40	0.11	0.22
8/25/2011	83.04	0.10	0.22
8/26/2011	83.57	0.09	0.22
8/27/2011	83.57	0.09	0.22
8/28/2011	83.57	0.09	0.22
8/29/2011	80.52	0.09	0.22
8/30/2011	78.18	0.09	0.22
8/31/2011	71.48	0.10	0.22
9/1/2011	58.14	0.10	0.22
9/2/2011	61.82	0.10	0.22
9/3/2011	61.82	0.10	0.22
9/4/2011	61.82	0.10	0.22
9/5/2011	61.36	0.10	0.22
9/6/2011	64.76	0.13	0.23
9/7/2011	60.54	0.11	0.23
9/8/2011	62.23	0.12	0.23
9/9/2011	67.32	0.11	0.23
9/10/2011	67.32	0.11	0.23
9/11/2011	67.32	0.11	0.23
9/12/2011	69.38	0.11	0.23
9/13/2011	68.18	0.10	0.23
9/14/2011	68.62	0.09	0.23
9/15/2011	65.49	0.10	0.23
9/16/2011	63.46	0.09	0.23
9/17/2011	63.46	0.09	0.23
9/18/2011	63.46	0.09	0.23
9/19/2011	67.48	0.08	0.23
9/20/2011	71.56	0.09	0.23
9/21/2011	79.89	0.11	0.23

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
9/22/2011	89.84	0.10	0.23
9/23/2011	83.71	0.10	0.24
9/24/2011	83.71	0.10	0.24
9/25/2011	83.71	0.10	0.24
9/26/2011	79.53	0.10	0.24
9/27/2011	73.25	0.10	0.24
9/28/2011	76.86	0.12	0.24
9/29/2011	76.65	0.11	0.24
9/30/2011	81.89	0.13	0.24
10/1/2011	81.89	0.13	0.24
10/2/2011	81.89	0.13	0.24
10/3/2011	87.61	0.12	0.24
10/4/2011	89.57	0.11	0.24
10/5/2011	79.62	0.10	0.24
10/6/2011	76.17	0.09	0.24
10/7/2011	73.30	0.11	0.24
10/8/2011	73.30	0.11	0.24
10/9/2011	73.30	0.11	0.24
10/10/2011	72.30	0.11	0.24
10/11/2011	68.43	0.12	0.24
10/12/2011	61.58	0.09	0.24
10/13/2011	63.75	0.11	0.24
10/14/2011	60.91	0.11	0.24
10/15/2011	60.91	0.11	0.24
10/16/2011	60.91	0.11	0.24
10/17/2011	63.22	0.12	0.24
10/18/2011	63.03	0.12	0.24
10/19/2011	62.55	0.11	0.24
10/20/2011	66.21	0.12	0.24
10/21/2011	65.09	0.12	0.24
10/22/2011	65.09	0.12	0.24
10/23/2011	65.09	0.12	0.24
10/24/2011	64.20	0.11	0.24
10/25/2011	64.36	0.11	0.24
10/26/2011	62.19	0.13	0.25
10/27/2011	53.61	0.14	0.25
10/28/2011	53.80	0.13	0.25
10/29/2011	53.80	0.13	0.25
10/30/2011	53.80	0.13	0.25
10/31/2011	56.50	0.12	0.25
11/1/2011	61.60	0.13	0.25
11/2/2011	60.48	0.11	0.25
11/3/2011	56.12	0.11	0.25
11/4/2011	57.43	0.11	0.25
11/5/2011	57.43	0.11	0.25
11/6/2011	57.43	0.11	0.25
11/7/2011	58.28	0.09	0.25
11/8/2011	56.71	0.10	0.25
11/9/2011	64.84	0.10	0.25
11/10/2011	63.26	0.10	0.25
11/11/2011	63.10	0.10	0.25
11/12/2011	63.10	0.10	0.25
11/13/2011	63.10	0.10	0.25
11/14/2011	63.12	0.09	0.25
11/15/2011	67.22	0.11	0.25
11/16/2011	68.40	0.11	0.25
11/17/2011	71.16	0.10	0.25
11/18/2011	69.28	0.12	0.26
11/19/2011	69.28	0.12	0.26
11/20/2011	69.28	0.12	0.26
11/21/2011	72.35	0.11	0.26
11/22/2011	71.03	0.11	0.26
11/23/2011	75.22	0.12	0.26
11/24/2011	75.16	0.12	0.26
11/25/2011	77.30	0.13	0.26
11/26/2011	77.30	0.13	0.26
11/27/2011	77.30	0.13	0.26
11/28/2011	71.30	0.13	0.26
11/29/2011	71.73	0.14	0.27
11/30/2011	65.69	0.12	0.27
12/1/2011	69.45	0.12	0.27
12/2/2011	67.10	0.12	0.27

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
12/3/2011	67.10	0.12	0.27
12/4/2011	67.10	0.12	0.27
12/5/2011	64.13	0.11	0.27
12/6/2011	63.95	0.11	0.28
12/7/2011	63.15	0.11	0.28
12/8/2011	66.02	0.10	0.28
12/9/2011	64.98	0.11	0.28
12/10/2011	64.98	0.11	0.28
12/11/2011	64.98	0.11	0.28
12/12/2011	70.48	0.10	0.28
12/13/2011	70.06	0.11	0.28
12/14/2011	73.08	0.12	0.28
12/15/2011	73.06	0.12	0.28
12/16/2011	73.58	0.11	0.28
12/17/2011	73.58	0.11	0.28
12/18/2011	73.58	0.11	0.28
12/19/2011	74.38	0.11	0.29
12/20/2011	74.72	0.12	0.29
12/21/2011	75.54	0.13	0.29
12/22/2011	75.21	0.12	0.29
12/23/2011	75.10	0.12	0.29
12/24/2011	75.10	0.12	0.29
12/25/2011	75.10	0.12	0.29
12/26/2011	75.10	0.12	0.29
12/27/2011	75.55	0.12	0.29
12/28/2011	75.94	0.12	0.30
12/29/2011	75.76	0.12	0.30
12/30/2011	74.48	0.12	0.30
12/31/2011	74.48	0.12	0.30
1/1/2012	74.48	0.12	0.30
1/2/2012	74.50	0.12	0.30
1/3/2012	73.38	0.12	0.30
1/4/2012	73.59	0.12	0.30
1/5/2012	75.34	0.11	0.30
1/6/2012	76.10	0.12	0.30
1/7/2012	76.10	0.12	0.30
1/8/2012	76.10	0.12	0.30
1/9/2012	76.80	0.11	0.30
1/10/2012	75.89	0.11	0.30
1/11/2012	77.39	0.11	0.29
1/12/2012	77.05	0.11	0.29
1/13/2012	80.03	0.10	0.29
1/14/2012	80.03	0.10	0.29
1/15/2012	80.03	0.10	0.29
1/16/2012	80.40	0.10	0.28
1/17/2012	78.99	0.11	0.28
1/18/2012	76.74	0.11	0.28
1/19/2012	75.39	0.11	0.28
1/20/2012	74.38	0.11	0.28
1/21/2012	74.38	0.11	0.28
1/22/2012	74.38	0.11	0.28
1/23/2012	73.01	0.12	0.28
1/24/2012	73.88	0.12	0.28
1/25/2012	73.33	0.12	0.27
1/26/2012	71.48	0.12	0.27
1/27/2012	70.57	0.12	0.27
1/28/2012	70.57	0.12	0.27
1/29/2012	70.57	0.12	0.27
1/30/2012	70.41	0.12	0.27
1/31/2012	70.84	0.13	0.26
2/1/2012	67.51	0.13	0.26
2/2/2012	67.92	0.14	0.26
2/3/2012	65.71	0.14	0.26
2/4/2012	65.71	0.14	0.26
2/5/2012	65.71	0.14	0.26
2/6/2012	65.96	0.14	0.26
2/7/2012	65.85	0.14	0.26
2/8/2012	64.10	0.15	0.25
2/9/2012	64.09	0.15	0.25
2/10/2012	64.66	0.15	0.25
2/11/2012	64.66	0.15	0.25
2/12/2012	64.66	0.15	0.25

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
2/13/2012	62.88	0.15	0.25
2/14/2012	63.06	0.18	0.25
2/15/2012	63.57	0.18	0.25
2/16/2012	61.48	0.17	0.25
2/17/2012	61.33	0.18	0.25
2/18/2012	61.33	0.18	0.25
2/19/2012	61.33	0.18	0.25
2/20/2012	61.33	0.18	0.25
2/21/2012	60.93	0.17	0.25
2/22/2012	60.68	0.17	0.24
2/23/2012	60.17	0.17	0.24
2/24/2012	60.16	0.18	0.24
2/25/2012	60.16	0.18	0.24
2/26/2012	60.16	0.18	0.24
2/27/2012	60.71	0.17	0.24
2/28/2012	59.96	0.18	0.24
2/29/2012	61.16	0.18	0.24
3/1/2012	55.22	0.18	0.24
3/2/2012	53.74	0.17	0.24
3/3/2012	53.74	0.17	0.24
3/4/2012	53.74	0.17	0.24
3/5/2012	52.96	0.17	0.24
3/6/2012	55.76	0.17	0.24
3/7/2012	53.85	0.18	0.24
3/8/2012	52.00	0.18	0.24
3/9/2012	51.13	0.18	0.24
3/10/2012	51.13	0.18	0.24
3/11/2012	51.13	0.18	0.24
3/12/2012	50.07	0.18	0.24
3/13/2012	48.84	0.20	0.24
3/14/2012	48.08	0.21	0.24
3/15/2012	47.47	0.21	0.24
3/16/2012	46.25	0.21	0.24
3/17/2012	46.25	0.21	0.24
3/18/2012	46.25	0.21	0.24
3/19/2012	44.39	0.21	0.24
3/20/2012	46.12	0.22	0.24
3/21/2012	47.32	0.21	0.24
3/22/2012	48.82	0.19	0.24
3/23/2012	48.92	0.19	0.24
3/24/2012	48.92	0.19	0.24
3/25/2012	48.92	0.19	0.24
3/26/2012	47.56	0.19	0.24
3/27/2012	48.08	0.18	0.24
3/28/2012	49.41	0.18	0.24
3/29/2012	50.48	0.18	0.24
3/30/2012	48.66	0.19	0.24
3/31/2012	48.66	0.19	0.24
4/1/2012	48.66	0.19	0.24
4/2/2012	48.52	0.18	0.24
4/3/2012	48.19	0.20	0.24
4/4/2012	49.67	0.19	0.24
4/5/2012	50.76	0.19	0.24
4/6/2012	51.00	0.19	0.24
4/7/2012	51.00	0.19	0.24
4/8/2012	51.00	0.19	0.24
4/9/2012	52.15	0.19	0.24
4/10/2012	54.52	0.19	0.24
4/11/2012	53.49	0.18	0.24
4/12/2012	52.23	0.18	0.24
4/13/2012	52.68	0.17	0.24
4/14/2012	52.68	0.17	0.24
4/15/2012	52.68	0.17	0.24
4/16/2012	53.27	0.18	0.24
4/17/2012	51.51	0.18	0.24
4/18/2012	52.52	0.18	0.24
4/19/2012	52.78	0.17	0.24
4/20/2012	50.90	0.18	0.24
4/21/2012	50.90	0.18	0.24
4/22/2012	50.90	0.18	0.24
4/23/2012	51.80	0.17	0.24
4/24/2012	51.59	0.18	0.24

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
4/25/2012	50.70	0.18	0.24
4/26/2012	50.15	0.18	0.24
4/27/2012	49.65	0.19	0.24
4/28/2012	49.65	0.19	0.24
4/29/2012	49.65	0.19	0.24
4/30/2012	50.38	0.20	0.24
5/1/2012	49.64	0.19	0.24
5/2/2012	49.24	0.18	0.24
5/3/2012	48.77	0.19	0.24
5/4/2012	49.74	0.18	0.24
5/5/2012	49.74	0.18	0.24
5/6/2012	49.74	0.18	0.24
5/7/2012	49.83	0.18	0.24
5/8/2012	51.08	0.18	0.24
5/9/2012	53.04	0.18	0.24
5/10/2012	53.05	0.18	0.24
5/11/2012	54.14	0.18	0.24
5/12/2012	54.14	0.18	0.24
5/13/2012	54.14	0.18	0.24
5/14/2012	57.57	0.19	0.24
5/15/2012	60.46	0.19	0.24
5/16/2012	63.22	0.20	0.24
5/17/2012	63.85	0.20	0.24
5/18/2012	62.96	0.20	0.24
5/19/2012	62.96	0.20	0.24
5/20/2012	62.96	0.20	0.24
5/21/2012	61.71	0.21	0.24
5/22/2012	63.03	0.21	0.24
5/23/2012	63.17	0.20	0.24
5/24/2012	64.93	0.21	0.24
5/25/2012	66.10	0.20	0.24
5/26/2012	66.10	0.20	0.24
5/27/2012	66.10	0.20	0.24
5/28/2012	67.30	0.20	0.24
5/29/2012	66.43	0.20	0.24
5/30/2012	68.71	0.19	0.24
5/31/2012	70.75	0.18	0.24
6/1/2012	73.26	0.17	0.24
6/2/2012	73.26	0.17	0.24
6/3/2012	73.26	0.17	0.24
6/4/2012	71.81	0.18	0.24
6/5/2012	70.28	0.18	0.24
6/6/2012	66.34	0.18	0.24
6/7/2012	67.25	0.18	0.24
6/8/2012	67.14	0.19	0.24
6/9/2012	67.14	0.19	0.24
6/10/2012	67.14	0.19	0.24
6/11/2012	67.99	0.18	0.24
6/12/2012	66.27	0.19	0.24
6/13/2012	67.10	0.18	0.24
6/14/2012	64.34	0.18	0.24
6/15/2012	63.91	0.18	0.24
6/16/2012	63.91	0.18	0.24
6/17/2012	63.91	0.18	0.24
6/18/2012	64.04	0.18	0.24
6/19/2012	61.69	0.18	0.24
6/20/2012	62.07	0.20	0.25
6/21/2012	65.71	0.19	0.25
6/22/2012	64.51	0.19	0.25
6/23/2012	64.51	0.19	0.25
6/24/2012	64.51	0.19	0.25
6/25/2012	67.66	0.19	0.25
6/26/2012	66.92	0.21	0.25
6/27/2012	66.50	0.21	0.25
6/28/2012	70.03	0.22	0.25
6/29/2012	64.82	0.21	0.25
6/30/2012	64.82	0.21	0.25
7/1/2012	64.82	0.21	0.25
7/2/2012	62.18	0.21	0.24
7/3/2012	60.86	0.21	0.25
7/4/2012	59.40	0.21	0.25
7/5/2012	61.23	0.19	0.25

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
7/6/2012	64.00	0.20	0.25
7/7/2012	64.00	0.20	0.25
7/8/2012	64.00	0.20	0.25
7/9/2012	64.83	0.20	0.25
7/10/2012	63.15	0.20	0.25
7/11/2012	61.64	0.20	0.25
7/12/2012	60.59	0.20	0.25
7/13/2012	56.32	0.20	0.25
7/14/2012	56.32	0.20	0.25
7/15/2012	56.32	0.20	0.25
7/16/2012	55.80	0.18	0.25
7/17/2012	55.47	0.18	0.25
7/18/2012	56.32	0.18	0.25
7/19/2012	54.99	0.17	0.25
7/20/2012	55.78	0.17	0.25
7/21/2012	55.78	0.17	0.25
7/22/2012	55.78	0.17	0.25
7/23/2012	56.45	0.17	0.25
7/24/2012	58.54	0.18	0.24
7/25/2012	57.46	0.17	0.24
7/26/2012	54.82	0.18	0.25
7/27/2012	52.19	0.17	0.25
7/28/2012	52.19	0.17	0.25
7/29/2012	52.19	0.17	0.25
7/30/2012	50.57	0.18	0.25
7/31/2012	51.40	0.16	0.25
8/1/2012	42.00	0.17	0.24
8/2/2012	42.46	0.17	0.24
8/3/2012	40.52	0.16	0.24
8/4/2012	40.52	0.16	0.24
8/5/2012	40.52	0.16	0.24
8/6/2012	39.85	0.16	0.24
8/7/2012	39.71	0.19	0.24
8/8/2012	40.03	0.19	0.24
8/9/2012	40.72	0.20	0.24
8/10/2012	40.94	0.18	0.24
8/11/2012	40.94	0.18	0.24
8/12/2012	40.94	0.18	0.24
8/13/2012	40.89	0.19	0.24
8/14/2012	40.68	0.19	0.24
8/15/2012	40.77	0.19	0.24
8/16/2012	40.66	0.20	0.24
8/17/2012	41.29	0.20	0.24
8/18/2012	41.29	0.20	0.24
8/19/2012	41.29	0.20	0.24
8/20/2012	40.75	0.19	0.24
8/21/2012	40.25	0.20	0.24
8/22/2012	39.90	0.19	0.24
8/23/2012	40.68	0.19	0.24
8/24/2012	40.90	0.19	0.23
8/25/2012	40.90	0.19	0.23
8/26/2012	40.90	0.19	0.23
8/27/2012	40.67	0.18	0.23
8/28/2012	40.92	0.18	0.23
8/29/2012	41.19	0.18	0.23
8/30/2012	41.31	0.17	0.23
8/31/2012	42.51	0.16	0.23
9/1/2012	42.51	0.16	0.23
9/2/2012	42.51	0.16	0.23
9/3/2012	42.30	0.16	0.23
9/4/2012	41.60	0.16	0.23
9/5/2012	40.62	0.17	0.23
9/6/2012	39.66	0.18	0.23
9/7/2012	38.71	0.18	0.23
9/8/2012	38.71	0.18	0.23
9/9/2012	38.71	0.18	0.23
9/10/2012	39.04	0.18	0.23
9/11/2012	37.82	0.18	0.23
9/12/2012	36.88	0.18	0.22
9/13/2012	35.99	0.17	0.22
9/14/2012	32.03	0.18	0.22
9/15/2012	32.03	0.18	0.22

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
9/16/2012	32.03	0.18	0.22
9/17/2012	17.41	0.18	0.22
9/18/2012	17.72	0.18	0.22
9/19/2012	17.57	0.18	0.22
9/20/2012	18.69	0.18	0.22
9/21/2012	18.01	0.18	0.22
9/22/2012	18.01	0.18	0.22
9/23/2012	18.01	0.18	0.22
9/24/2012	18.48	0.18	0.22
9/25/2012	19.75	0.18	0.22
9/26/2012	20.09	0.17	0.22
9/27/2012	25.78	0.16	0.21
9/28/2012	31.51	0.17	0.21
9/29/2012	31.51	0.17	0.21
9/30/2012	31.51	0.17	0.21
10/1/2012	31.83	0.17	0.21
10/2/2012	32.42	0.16	0.21
10/3/2012	32.12	0.16	0.22
10/4/2012	31.75	0.18	0.22
10/5/2012	30.85	0.18	0.22
10/6/2012	30.85	0.18	0.22
10/7/2012	30.85	0.18	0.22
10/8/2012	30.50	0.18	0.22
10/9/2012	31.12	0.18	0.22
10/10/2012	31.31	0.18	0.21
10/11/2012	30.96	0.18	0.21
10/12/2012	30.30	0.18	0.21
10/13/2012	30.30	0.18	0.21
10/14/2012	30.30	0.18	0.21
10/15/2012	30.08	0.19	0.21
10/16/2012	30.20	0.18	0.21
10/17/2012	29.64	0.18	0.21
10/18/2012	29.95	0.18	0.21
10/19/2012	30.27	0.18	0.21
10/20/2012	30.27	0.18	0.21
10/21/2012	30.27	0.18	0.21
10/22/2012	30.06	0.19	0.21
10/23/2012	30.22	0.18	0.21
10/24/2012	29.89	0.18	0.21
10/25/2012	29.34	0.19	0.21
10/26/2012	29.72	0.19	0.21
10/27/2012	29.72	0.19	0.21
10/28/2012	29.72	0.19	0.21
10/29/2012	30.00	0.18	0.21
10/30/2012	31.89	0.18	0.21
10/31/2012	29.96	0.18	0.21
11/1/2012	29.12	0.18	0.21
11/2/2012	29.33	0.19	0.21
11/3/2012	29.33	0.19	0.21
11/4/2012	29.33	0.19	0.21
11/5/2012	28.49	0.19	0.21
11/6/2012	28.17	0.19	0.21
11/7/2012	28.46	0.18	0.21
11/8/2012	29.02	0.20	0.21
11/9/2012	28.87	0.18	0.21
11/10/2012	28.87	0.18	0.21
11/11/2012	28.87	0.18	0.21
11/12/2012	28.90	0.18	0.21
11/13/2012	28.76	0.18	0.21
11/14/2012	29.78	0.18	0.21
11/15/2012	30.38	0.17	0.21
11/16/2012	30.21	0.16	0.21
11/17/2012	30.21	0.16	0.21
11/18/2012	30.21	0.16	0.21
11/19/2012	29.07	0.16	0.21
11/20/2012	28.85	0.16	0.21
11/21/2012	29.13	0.17	0.21
11/22/2012	29.07	0.17	0.21
11/23/2012	28.80	0.19	0.21
11/24/2012	28.80	0.19	0.21
11/25/2012	28.80	0.19	0.21
11/26/2012	29.38	0.17	0.21

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
11/27/2012	29.16	0.18	0.21
11/28/2012	29.41	0.18	0.21
11/29/2012	28.68	0.18	0.21
11/30/2012	28.68	0.18	0.21
12/1/2012	28.68	0.18	0.21
12/2/2012	28.68	0.18	0.21
12/3/2012	28.66	0.18	0.22
12/4/2012	28.39	0.18	0.21
12/5/2012	28.04	0.18	0.21
12/6/2012	28.19	0.18	0.21
12/7/2012	28.09	0.18	0.21
12/8/2012	28.09	0.18	0.21
12/9/2012	28.09	0.18	0.21
12/10/2012	28.26	0.18	0.21
12/11/2012	27.65	0.16	0.21
12/12/2012	27.25	0.14	0.21
12/13/2012	27.69	0.14	0.21
12/14/2012	27.62	0.13	0.21
12/15/2012	27.62	0.13	0.21
12/16/2012	27.62	0.13	0.21
12/17/2012	27.22	0.13	0.21
12/18/2012	25.67	0.16	0.21
12/19/2012	25.68	0.15	0.21
12/20/2012	26.89	0.15	0.21
12/21/2012	27.76	0.15	0.21
12/22/2012	27.76	0.15	0.21
12/23/2012	27.76	0.15	0.21
12/24/2012	27.76	0.16	0.21
12/25/2012	27.90	0.16	0.21
12/26/2012	27.71	0.16	0.21
12/27/2012	27.85	0.15	0.21
12/28/2012	28.58	0.15	0.21
12/29/2012	28.58	0.15	0.21
12/30/2012	28.58	0.15	0.21
12/31/2012	28.41	0.16	0.21
1/1/2013	28.40	0.16	0.21
1/2/2013	26.65	0.15	0.21
1/3/2013	26.35	0.15	0.21
1/4/2013	26.40	0.15	0.21
1/5/2013	26.40	0.15	0.21
1/6/2013	26.40	0.15	0.21
1/7/2013	26.64	0.15	0.21
1/8/2013	27.35	0.14	0.21
1/9/2013	27.36	0.13	0.21
1/10/2013	27.46	0.14	0.21
1/11/2013	27.87	0.14	0.21
1/12/2013	27.87	0.14	0.21
1/13/2013	27.87	0.14	0.21
1/14/2013	27.79	0.14	0.21
1/15/2013	27.52	0.14	0.21
1/16/2013	27.36	0.14	0.21
1/17/2013	26.64	0.14	0.20
1/18/2013	26.79	0.14	0.20
1/19/2013	26.79	0.14	0.20
1/20/2013	26.79	0.14	0.20
1/21/2013	26.70	0.14	0.20
1/22/2013	26.52	0.14	0.20
1/23/2013	26.51	0.15	0.20
1/24/2013	26.51	0.15	0.20
1/25/2013	26.22	0.15	0.20
1/26/2013	26.51	0.15	0.20
1/27/2013	26.51	0.15	0.20
1/28/2013	26.52	0.16	0.20
1/29/2013	26.56	0.15	0.20
1/30/2013	27.60	0.15	0.20
1/31/2013	27.94	0.15	0.20
2/1/2013	27.56	0.15	0.20
2/2/2013	27.56	0.15	0.20
2/3/2013	27.56	0.15	0.20
2/4/2013	27.99	0.15	0.20
2/5/2013	27.54	0.15	0.20
2/6/2013	27.79	0.15	0.20

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
2/7/2013	27.56	0.15	0.20
2/8/2013	27.53	0.14	0.20
2/9/2013	27.53	0.14	0.20
2/10/2013	27.53	0.14	0.20
2/11/2013	27.33	0.15	0.20
2/12/2013	27.41	0.14	0.20
2/13/2013	27.54	0.15	0.20
2/14/2013	28.06	0.16	0.20
2/15/2013	27.81	0.17	0.20
2/16/2013	27.81	0.17	0.20
2/17/2013	27.81	0.17	0.20
2/18/2013	28.00	0.17	0.20
2/19/2013	27.74	0.17	0.20
2/20/2013	28.78	0.17	0.20
2/21/2013	28.80	0.16	0.20
2/22/2013	28.09	0.16	0.20
2/23/2013	28.09	0.16	0.20
2/24/2013	28.09	0.16	0.20
2/25/2013	29.06	0.16	0.20
2/26/2013	29.19	0.17	0.20
2/27/2013	28.41	0.17	0.20
2/28/2013	28.32	0.17	0.20
3/1/2013	28.92	0.16	0.20
3/2/2013	28.92	0.16	0.20
3/3/2013	28.92	0.16	0.20
3/4/2013	28.15	0.16	0.21
3/5/2013	27.62	0.15	0.20
3/6/2013	27.04	0.15	0.20
3/7/2013	26.46	0.15	0.20
3/8/2013	25.97	0.15	0.20
3/9/2013	25.97	0.15	0.20
3/10/2013	25.97	0.15	0.20
3/11/2013	25.51	0.15	0.20
3/12/2013	25.76	0.15	0.20
3/13/2013	25.65	0.15	0.20
3/14/2013	25.51	0.15	0.20
3/15/2013	25.77	0.14	0.20
3/16/2013	25.77	0.14	0.20
3/17/2013	25.77	0.14	0.20
3/18/2013	26.13	0.15	0.20
3/19/2013	26.17	0.15	0.20
3/20/2013	26.36	0.15	0.20
3/21/2013	27.25	0.14	0.20
3/22/2013	27.53	0.14	0.20
3/23/2013	27.53	0.14	0.20
3/24/2013	27.53	0.14	0.20
3/25/2013	27.00	0.14	0.20
3/26/2013	27.71	0.14	0.20
3/27/2013	28.65	0.14	0.20
3/28/2013	28.39	0.14	0.20
3/29/2013	28.39	0.14	0.20
3/30/2013	28.39	0.14	0.20
3/31/2013	28.39	0.14	0.20
4/1/2013	28.76	0.14	0.20
4/2/2013	28.72	0.14	0.20
4/3/2013	29.21	0.13	0.20
4/4/2013	28.65	0.13	0.20
4/5/2013	28.55	0.13	0.20
4/6/2013	28.55	0.13	0.20
4/7/2013	28.55	0.13	0.20
4/8/2013	27.89	0.13	0.20
4/9/2013	26.25	0.13	0.20
4/10/2013	24.90	0.12	0.20
4/11/2013	24.24	0.12	0.20
4/12/2013	24.62	0.11	0.20
4/13/2013	24.62	0.11	0.20
4/14/2013	24.62	0.11	0.20
4/15/2013	25.29	0.12	0.20
4/16/2013	25.10	0.13	0.20
4/17/2013	25.72	0.13	0.20
4/18/2013	26.65	0.12	0.20
4/19/2013	26.41	0.12	0.20

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
4/20/2013	26.41	0.12	0.20
4/21/2013	26.41	0.12	0.20
4/22/2013	25.97	0.12	0.20
4/23/2013	25.96	0.12	0.20
4/24/2013	25.74	0.13	0.20
4/25/2013	24.81	0.12	0.20
4/26/2013	25.03	0.12	0.20
4/27/2013	25.03	0.12	0.20
4/28/2013	25.03	0.12	0.20
4/29/2013	24.63	0.12	0.20
4/30/2013	22.08	0.11	0.20
5/1/2013	23.46	0.11	0.20
5/2/2013	23.70	0.11	0.20
5/3/2013	22.49	0.11	0.20
5/4/2013	22.49	0.11	0.20
5/5/2013	22.49	0.11	0.20
5/6/2013	22.46	0.11	0.20
5/7/2013	22.45	0.10	0.20
5/8/2013	22.76	0.11	0.20
5/9/2013	22.12	0.11	0.20
5/10/2013	22.84	0.11	0.20
5/11/2013	22.84	0.11	0.20
5/12/2013	22.84	0.11	0.20
5/13/2013	23.58	0.13	0.20
5/14/2013	23.28	0.12	0.20
5/15/2013	23.98	0.12	0.20
5/16/2013	27.52	0.12	0.20
5/17/2013	28.04	0.12	0.20
5/18/2013	28.04	0.12	0.20
5/19/2013	28.04	0.12	0.20
5/20/2013	28.04	0.12	0.20
5/21/2013	33.27	0.12	0.20
5/22/2013	33.62	0.11	0.20
5/23/2013	33.86	0.12	0.19
5/24/2013	39.00	0.12	0.19
5/25/2013	39.00	0.12	0.19
5/26/2013	39.00	0.12	0.19
5/27/2013	39.20	0.12	0.19
5/28/2013	40.46	0.13	0.19
5/29/2013	41.43	0.14	0.19
5/30/2013	42.08	0.13	0.19
5/31/2013	44.01	0.14	0.19
6/1/2013	44.01	0.14	0.19
6/2/2013	44.01	0.14	0.19
6/3/2013	43.57	0.14	0.19
6/4/2013	45.79	0.14	0.19
6/5/2013	49.24	0.14	0.19
6/6/2013	56.90	0.14	0.19
6/7/2013	59.15	0.14	0.19
6/8/2013	59.15	0.14	0.19
6/9/2013	59.15	0.14	0.19
6/10/2013	63.22	0.14	0.19
6/11/2013	67.82	0.14	0.19
6/12/2013	66.16	0.14	0.19
6/13/2013	60.96	0.14	0.19
6/14/2013	60.94	0.13	0.19
6/15/2013	60.94	0.13	0.19
6/16/2013	60.94	0.13	0.19
6/17/2013	60.24	0.13	0.19
6/18/2013	62.37	0.13	0.19
6/19/2013	67.95	0.13	0.19
6/20/2013	78.72	0.14	0.19
6/21/2013	78.29	0.13	0.19
6/22/2013	78.29	0.13	0.19
6/23/2013	78.29	0.13	0.19
6/24/2013	77.12	0.16	0.20
6/25/2013	85.29	0.17	0.19
6/26/2013	80.00	0.16	0.20
6/27/2013	80.04	0.15	0.20
6/28/2013	81.51	0.15	0.19
6/29/2013	81.51	0.15	0.19
6/30/2013	81.51	0.15	0.19

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
7/1/2013	81.89	0.15	0.20
7/2/2013	84.09	0.14	0.20
7/3/2013	88.10	0.14	0.19
7/4/2013	91.60	0.14	0.19
7/5/2013	93.42	0.15	0.19
7/6/2013	93.42	0.15	0.19
7/7/2013	93.42	0.15	0.19
7/8/2013	88.13	0.14	0.19
7/9/2013	82.42	0.14	0.19
7/10/2013	84.01	0.13	0.19
7/11/2013	77.52	0.13	0.19
7/12/2013	75.74	0.12	0.19
7/13/2013	75.74	0.12	0.19
7/14/2013	75.74	0.12	0.19
7/15/2013	71.31	0.11	0.19
7/16/2013	73.34	0.10	0.19
7/17/2013	69.96	0.11	0.19
7/18/2013	67.39	0.11	0.19
7/19/2013	69.35	0.11	0.19
7/20/2013	69.35	0.11	0.19
7/21/2013	69.35	0.11	0.19
7/22/2013	61.39	0.10	0.19
7/23/2013	62.39	0.12	0.19
7/24/2013	67.08	0.12	0.19
7/25/2013	67.29	0.12	0.19
7/26/2013	69.38	0.11	0.19
7/27/2013	69.38	0.11	0.19
7/28/2013	69.38	0.11	0.19
7/29/2013	72.36	0.11	0.19
7/30/2013	70.70	0.11	0.19
7/31/2013	66.56	0.11	0.19
8/1/2013	65.29	0.13	0.19
8/2/2013	63.81	0.11	0.19
8/3/2013	63.81	0.11	0.19
8/4/2013	63.81	0.11	0.19
8/5/2013	65.36	0.12	0.19
8/6/2013	65.57	0.12	0.19
8/7/2013	66.51	0.12	0.19
8/8/2013	65.36	0.12	0.19
8/9/2013	63.67	0.11	0.18
8/10/2013	63.67	0.11	0.18
8/11/2013	63.67	0.11	0.18
8/12/2013	61.04	0.12	0.18
8/13/2013	60.33	0.12	0.18
8/14/2013	62.86	0.12	0.18
8/15/2013	66.29	0.13	0.18
8/16/2013	62.93	0.13	0.18
8/17/2013	62.93	0.13	0.18
8/18/2013	62.93	0.13	0.18
8/19/2013	67.98	0.13	0.18
8/20/2013	71.08	0.13	0.18
8/21/2013	75.01	0.14	0.18
8/22/2013	72.47	0.14	0.18
8/23/2013	67.22	0.14	0.18
8/24/2013	67.22	0.14	0.18
8/25/2013	67.22	0.14	0.18
8/26/2013	67.75	0.13	0.18
8/27/2013	70.57	0.12	0.18
8/28/2013	69.74	0.14	0.18
8/29/2013	70.52	0.14	0.18
8/30/2013	76.46	0.13	0.18
8/31/2013	76.46	0.13	0.18
9/1/2013	76.46	0.13	0.18
9/2/2013	76.80	0.13	0.18
9/3/2013	77.92	0.14	0.18
9/4/2013	76.90	0.14	0.18
9/5/2013	76.26	0.16	0.18
9/6/2013	72.22	0.14	0.18
9/7/2013	72.22	0.14	0.18
9/8/2013	72.22	0.14	0.18
9/9/2013	70.45	0.12	0.18
9/10/2013	70.04	0.13	0.18

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
9/11/2013	67.30	0.12	0.18
9/12/2013	68.82	0.13	0.18
9/13/2013	66.92	0.13	0.18
9/14/2013	66.92	0.13	0.18
9/15/2013	66.92	0.13	0.18
9/16/2013	65.31	0.13	0.18
9/17/2013	64.28	0.12	0.18
9/18/2013	59.36	0.11	0.18
9/19/2013	62.37	0.10	0.18
9/20/2013	65.11	0.11	0.18
9/21/2013	65.11	0.11	0.18
9/22/2013	65.11	0.11	0.18
9/23/2013	65.99	0.10	0.18
9/24/2013	67.54	0.10	0.18
9/25/2013	68.64	0.10	0.18
9/26/2013	70.49	0.09	0.18
9/27/2013	73.87	0.10	0.18
9/28/2013	73.87	0.10	0.18
9/29/2013	73.87	0.10	0.18
9/30/2013	73.78	0.10	0.18
10/1/2013	72.02	0.10	0.18
10/2/2013	72.44	0.11	0.18
10/3/2013	73.00	0.11	0.17
10/4/2013	69.75	0.11	0.17
10/5/2013	69.75	0.11	0.17
10/6/2013	69.75	0.11	0.17
10/7/2013	69.52	0.12	0.17
10/8/2013	69.49	0.15	0.17
10/9/2013	69.65	0.15	0.18
10/10/2013	66.19	0.14	0.17
10/11/2013	64.56	0.14	0.17
10/12/2013	64.56	0.14	0.17
10/13/2013	64.56	0.14	0.17
10/14/2013	65.00	0.14	0.18
10/15/2013	64.35	0.16	0.17
10/16/2013	63.52	0.15	0.18
10/17/2013	64.77	0.13	0.17
10/18/2013	64.16	0.12	0.17
10/19/2013	64.16	0.12	0.17
10/20/2013	64.16	0.12	0.17
10/21/2013	66.76	0.11	0.17
10/22/2013	65.37	0.10	0.17
10/23/2013	65.41	0.11	0.17
10/24/2013	65.75	0.12	0.17
10/25/2013	65.23	0.11	0.17
10/26/2013	65.23	0.11	0.17
10/27/2013	65.23	0.11	0.17
10/28/2013	64.31	0.11	0.17
10/29/2013	64.43	0.11	0.17
10/30/2013	64.18	0.11	0.17
10/31/2013	60.27	0.10	0.17
11/1/2013	61.43	0.10	0.17
11/2/2013	61.43	0.10	0.17
11/3/2013	61.43	0.10	0.17
11/4/2013	60.47	0.09	0.17
11/5/2013	63.22	0.10	0.17
11/6/2013	61.43	0.11	0.17
11/7/2013	62.72	0.11	0.17
11/8/2013	64.83	0.12	0.17
11/9/2013	64.83	0.12	0.17
11/10/2013	64.83	0.12	0.17
11/11/2013	63.40	0.12	0.17
11/12/2013	62.84	0.13	0.17
11/13/2013	61.20	0.13	0.17
11/14/2013	59.07	0.13	0.17
11/15/2013	57.19	0.13	0.17
11/16/2013	57.19	0.13	0.17
11/17/2013	57.19	0.13	0.17
11/18/2013	55.83	0.13	0.17
11/19/2013	58.31	0.14	0.17
11/20/2013	61.06	0.12	0.17
11/21/2013	62.98	0.12	0.17

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
11/22/2013	61.42	0.12	0.17
11/23/2013	61.42	0.12	0.17
11/24/2013	61.42	0.12	0.17
11/25/2013	61.76	0.14	0.16
11/26/2013	62.72	0.13	0.16
11/27/2013	62.19	0.13	0.17
11/28/2013	60.84	0.13	0.17
11/29/2013	59.32	0.13	0.17
11/30/2013	59.32	0.13	0.17
12/1/2013	59.32	0.13	0.17
12/2/2013	61.41	0.13	0.17
12/3/2013	61.80	0.13	0.17
12/4/2013	62.10	0.14	0.17
12/5/2013	60.11	0.13	0.17
12/6/2013	56.67	0.13	0.17
12/7/2013	56.67	0.13	0.17
12/8/2013	56.67	0.13	0.17
12/9/2013	56.36	0.13	0.17
12/10/2013	57.09	0.14	0.17
12/11/2013	58.00	0.13	0.17
12/12/2013	56.02	0.14	0.17
12/13/2013	56.06	0.14	0.16
12/14/2013	56.06	0.14	0.16
12/15/2013	56.06	0.14	0.16
12/16/2013	56.12	0.13	0.17
12/17/2013	56.69	0.14	0.17
12/18/2013	54.70	0.13	0.17
12/19/2013	55.41	0.13	0.16
12/20/2013	55.71	0.13	0.16
12/21/2013	55.71	0.13	0.16
12/22/2013	55.71	0.13	0.16
12/23/2013	55.67	0.14	0.16
12/24/2013	56.05	0.14	0.17
12/25/2013	56.30	0.14	0.17
12/26/2013	56.31	0.13	0.17
12/27/2013	56.31	0.12	0.17
12/28/2013	56.31	0.12	0.17
12/29/2013	56.31	0.12	0.17
12/30/2013	56.75	0.13	0.17
12/31/2013	54.85	0.13	0.17
1/1/2014	54.80	0.13	0.17
1/2/2014	55.95	0.13	0.17
1/3/2014	54.86	0.13	0.16
1/4/2014	54.86	0.13	0.16
1/5/2014	54.86	0.13	0.16
1/6/2014	55.59	0.12	0.16
1/7/2014	55.86	0.13	0.16
1/8/2014	56.16	0.13	0.16
1/9/2014	55.83	0.13	0.16
1/10/2014	55.24	0.12	0.16
1/11/2014	55.24	0.12	0.16
1/12/2014	55.24	0.12	0.16
1/13/2014	55.63	0.11	0.16
1/14/2014	55.36	0.11	0.16
1/15/2014	54.44	0.13	0.16
1/16/2014	53.62	0.11	0.16
1/17/2014	53.58	0.11	0.16
1/18/2014	53.58	0.11	0.16
1/19/2014	53.58	0.11	0.16
1/20/2014	53.70	0.11	0.16
1/21/2014	52.68	0.12	0.16
1/22/2014	54.04	0.11	0.16
1/23/2014	56.63	0.11	0.16
1/24/2014	59.04	0.11	0.16
1/25/2014	59.04	0.11	0.16
1/26/2014	59.04	0.11	0.16
1/27/2014	58.52	0.11	0.16
1/28/2014	56.57	0.11	0.16
1/29/2014	58.67	0.11	0.16
1/30/2014	57.72	0.10	0.16
1/31/2014	57.73	0.10	0.16
2/1/2014	57.73	0.10	0.16

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
2/2/2014	57.73	0.10	0.16
2/3/2014	58.58	0.11	0.16
2/4/2014	56.06	0.12	0.16
2/5/2014	55.23	0.12	0.16
2/6/2014	53.25	0.13	0.16
2/7/2014	51.79	0.12	0.16
2/8/2014	51.79	0.12	0.16
2/9/2014	51.79	0.12	0.16
2/10/2014	52.33	0.12	0.15
2/11/2014	51.65	0.12	0.15
2/12/2014	52.16	0.12	0.15
2/13/2014	43.43	0.12	0.15
2/14/2014	42.72	0.11	0.15
2/15/2014	42.72	0.11	0.15
2/16/2014	42.72	0.11	0.15
2/17/2014	41.10	0.11	0.15
2/18/2014	41.92	0.12	0.15
2/19/2014	42.46	0.11	0.15
2/20/2014	40.76	0.12	0.16
2/21/2014	40.20	0.12	0.16
2/22/2014	40.20	0.12	0.16
2/23/2014	40.20	0.12	0.16
2/24/2014	38.44	0.11	0.15
2/25/2014	38.25	0.11	0.15
2/26/2014	40.05	0.11	0.15
2/27/2014	39.35	0.11	0.15
2/28/2014	39.62	0.12	0.16
3/1/2014	39.62	0.12	0.16
3/2/2014	39.62	0.12	0.16
3/3/2014	40.20	0.12	0.16
3/4/2014	38.55	0.12	0.16
3/5/2014	37.53	0.13	0.16
3/6/2014	37.06	0.12	0.15
3/7/2014	38.08	0.13	0.16
3/8/2014	38.08	0.13	0.16
3/9/2014	38.08	0.13	0.16
3/10/2014	38.12	0.12	0.16
3/11/2014	39.45	0.13	0.16
3/12/2014	39.10	0.12	0.16
3/13/2014	39.78	0.12	0.16
3/14/2014	39.77	0.12	0.16
3/15/2014	39.77	0.12	0.16
3/16/2014	39.77	0.12	0.16
3/17/2014	39.08	0.13	0.16
3/18/2014	37.79	0.13	0.16
3/19/2014	38.12	0.15	0.16
3/20/2014	39.04	0.14	0.15
3/21/2014	38.36	0.14	0.15
3/22/2014	38.36	0.14	0.15
3/23/2014	38.36	0.14	0.15
3/24/2014	38.19	0.14	0.15
3/25/2014	37.27	0.13	0.15
3/26/2014	37.05	0.12	0.15
3/27/2014	36.36	0.12	0.15
3/28/2014	37.38	0.13	0.15
3/29/2014	37.38	0.13	0.15
3/30/2014	37.38	0.13	0.15
3/31/2014	32.93	0.13	0.15
4/1/2014	32.27	0.13	0.15
4/2/2014	32.27	0.12	0.15
4/3/2014	32.23	0.11	0.15
4/4/2014	31.41	0.11	0.15
4/5/2014	31.41	0.11	0.15
4/6/2014	31.41	0.11	0.15
4/7/2014	30.52	0.11	0.15
4/8/2014	29.65	0.11	0.15
4/9/2014	28.81	0.10	0.15
4/10/2014	29.03	0.09	0.15
4/11/2014	29.35	0.09	0.15
4/12/2014	29.35	0.09	0.15
4/13/2014	29.35	0.09	0.15
4/14/2014	29.92	0.10	0.15

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
4/15/2014	30.31	0.11	0.15
4/16/2014	29.82	0.11	0.15
4/17/2014	29.58	0.11	0.15
4/18/2014	29.60	0.11	0.15
4/19/2014	29.60	0.11	0.15
4/20/2014	29.60	0.11	0.15
4/21/2014	29.15	0.11	0.15
4/22/2014	28.82	0.11	0.15
4/23/2014	29.91	0.11	0.15
4/24/2014	29.69	0.10	0.15
4/25/2014	30.15	0.11	0.15
4/26/2014	30.15	0.11	0.15
4/27/2014	30.15	0.11	0.15
4/28/2014	29.97	0.10	0.15
4/29/2014	29.25	0.11	0.15
4/30/2014	28.30	0.11	0.15
5/1/2014	28.74	0.10	0.15
5/2/2014	28.06	0.10	0.15
5/3/2014	28.06	0.10	0.15
5/4/2014	28.06	0.10	0.15
5/5/2014	28.03	0.11	0.15
5/6/2014	28.28	0.10	0.15
5/7/2014	28.21	0.10	0.15
5/8/2014	27.20	0.10	0.15
5/9/2014	27.19	0.10	0.15
5/10/2014	27.19	0.10	0.15
5/11/2014	27.19	0.10	0.15
5/12/2014	27.27	0.09	0.15
5/13/2014	26.66	0.10	0.15
5/14/2014	26.71	0.10	0.15
5/15/2014	26.98	0.09	0.15
5/16/2014	26.65	0.09	0.15
5/17/2014	26.65	0.09	0.15
5/18/2014	26.65	0.09	0.15
5/19/2014	25.58	0.09	0.15
5/20/2014	26.39	0.09	0.15
5/21/2014	25.82	0.09	0.15
5/22/2014	24.91	0.09	0.15
5/23/2014	25.30	0.10	0.15
5/24/2014	25.30	0.10	0.15
5/25/2014	25.30	0.10	0.15
5/26/2014	25.10	0.10	0.15
5/27/2014	25.47	0.09	0.15
5/28/2014	24.46	0.10	0.15
5/29/2014	18.76	0.10	0.15
5/30/2014	15.01	0.10	0.15
5/31/2014	15.01	0.10	0.15
6/1/2014	15.01	0.10	0.15
6/2/2014	15.03	0.10	0.15
6/3/2014	15.36	0.10	0.15
6/4/2014	15.29	0.10	0.15
6/5/2014	14.94	0.10	0.15
6/6/2014	13.88	0.11	0.15
6/7/2014	13.88	0.11	0.15
6/8/2014	13.88	0.11	0.15
6/9/2014	13.99	0.11	0.15
6/10/2014	14.25	0.11	0.15
6/11/2014	14.20	0.11	0.15
6/12/2014	14.26	0.10	0.15
6/13/2014	13.91	0.11	0.15
6/14/2014	13.91	0.11	0.15
6/15/2014	13.91	0.11	0.15
6/16/2014	18.26	0.11	0.15
6/17/2014	17.87	0.11	0.16
6/18/2014	17.31	0.10	0.15
6/19/2014	18.03	0.09	0.15
6/20/2014	15.84	0.09	0.15
6/21/2014	15.84	0.09	0.15
6/22/2014	15.84	0.09	0.15
6/23/2014	15.62	0.10	0.15
6/24/2014	15.79	0.12	0.15
6/25/2014	15.06	0.11	0.15

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
6/26/2014	15.28	0.11	0.15
6/27/2014	15.66	0.10	0.15
6/28/2014	15.66	0.10	0.15
6/29/2014	15.66	0.10	0.15
6/30/2014	16.21	0.11	0.16
7/1/2014	16.07	0.11	0.16
7/2/2014	16.50	0.12	0.16
7/3/2014	15.93	0.11	0.16
7/4/2014	16.11	0.11	0.15
7/5/2014	16.11	0.11	0.15
7/6/2014	16.11	0.11	0.15
7/7/2014	16.02	0.12	0.15
7/8/2014	16.17	0.11	0.15
7/9/2014	15.81	0.11	0.15
7/10/2014	16.43	0.10	0.15
7/11/2014	16.84	0.11	0.15
7/12/2014	16.84	0.11	0.15
7/13/2014	16.84	0.11	0.15
7/14/2014	16.72	0.11	0.15
7/15/2014	17.40	0.11	0.15
7/16/2014	17.36	0.11	0.16
7/17/2014	19.61	0.10	0.16
7/18/2014	18.71	0.10	0.15
7/19/2014	18.71	0.10	0.15
7/20/2014	18.71	0.10	0.15
7/21/2014	19.05	0.11	0.15
7/22/2014	18.07	0.11	0.16
7/23/2014	17.84	0.11	0.16
7/24/2014	18.35	0.11	0.15
7/25/2014	18.85	0.11	0.16
7/26/2014	18.85	0.11	0.16
7/27/2014	18.85	0.11	0.16
7/28/2014	19.22	0.11	0.16
7/29/2014	19.75	0.12	0.16
7/30/2014	20.21	0.13	0.16
7/31/2014	21.19	0.12	0.16
8/1/2014	21.26	0.13	0.16
8/2/2014	21.26	0.13	0.16
8/3/2014	21.26	0.13	0.16
8/4/2014	20.87	0.12	0.16
8/5/2014	21.76	0.12	0.16
8/6/2014	25.18	0.11	0.16
8/7/2014	25.50	0.11	0.16
8/8/2014	24.92	0.10	0.16
8/9/2014	24.92	0.10	0.16
8/10/2014	24.92	0.10	0.16
8/11/2014	27.25	0.10	0.16
8/12/2014	26.55	0.10	0.16
8/13/2014	23.72	0.10	0.16
8/14/2014	23.18	0.10	0.16
8/15/2014	19.55	0.09	0.16
8/16/2014	19.55	0.09	0.16
8/17/2014	19.55	0.09	0.16
8/18/2014	18.82	0.10	0.16
8/19/2014	18.81	0.11	0.16
8/20/2014	19.31	0.12	0.16
8/21/2014	19.46	0.10	0.16
8/22/2014	19.82	0.10	0.16
8/23/2014	19.82	0.10	0.16
8/24/2014	19.82	0.10	0.16
8/25/2014	19.60	0.11	0.16
8/26/2014	19.16	0.12	0.16
8/27/2014	19.01	0.11	0.16
8/28/2014	20.11	0.11	0.15
8/29/2014	20.33	0.09	0.16
8/30/2014	20.33	0.09	0.16
8/31/2014	20.33	0.09	0.16
9/1/2014	19.96	0.09	0.16
9/2/2014	19.94	0.10	0.16
9/3/2014	19.81	0.11	0.16
9/4/2014	19.98	0.10	0.16
9/5/2014	19.97	0.10	0.15

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
9/6/2014	19.97	0.10	0.15
9/7/2014	19.97	0.10	0.15
9/8/2014	21.21	0.10	0.15
9/9/2014	22.36	0.11	0.15
9/10/2014	22.13	0.11	0.15
9/11/2014	21.96	0.11	0.15
9/12/2014	23.39	0.11	0.15
9/13/2014	23.39	0.11	0.15
9/14/2014	23.39	0.11	0.15
9/15/2014	22.86	0.11	0.15
9/16/2014	22.53	0.13	0.15
9/17/2014	22.35	0.12	0.15
9/18/2014	22.60	0.12	0.15
9/19/2014	22.07	0.11	0.15
9/20/2014	22.07	0.11	0.15
9/21/2014	22.07	0.11	0.15
9/22/2014	23.71	0.10	0.15
9/23/2014	23.36	0.10	0.15
9/24/2014	23.15	0.11	0.15
9/25/2014	24.00	0.10	0.15
9/26/2014	33.52	0.11	0.15
9/27/2014	33.52	0.11	0.15
9/28/2014	33.52	0.11	0.15
9/29/2014	34.74	0.11	0.15
9/30/2014	33.61	0.13	0.16
10/1/2014	33.94	0.10	0.15
10/2/2014	33.98	0.10	0.15
10/3/2014	34.20	0.11	0.15
10/4/2014	34.20	0.11	0.15
10/5/2014	34.20	0.11	0.15
10/6/2014	33.40	0.11	0.15
10/7/2014	33.67	0.10	0.15
10/8/2014	33.08	0.10	0.15
10/9/2014	33.86	0.10	0.15
10/10/2014	34.38	0.10	0.15
10/11/2014	34.38	0.10	0.15
10/12/2014	34.38	0.10	0.15
10/13/2014	34.51	0.10	0.15
10/14/2014	34.78	0.09	0.15
10/15/2014	36.47	0.10	0.15
10/16/2014	35.51	0.10	0.16
10/17/2014	33.29	0.11	0.16
10/18/2014	33.29	0.11	0.16
10/19/2014	33.29	0.11	0.16
10/20/2014	34.03	0.10	0.16
10/21/2014	32.71	0.10	0.15
10/22/2014	32.90	0.11	0.15
10/23/2014	32.56	0.11	0.15
10/24/2014	32.16	0.11	0.15
10/25/2014	32.16	0.11	0.15
10/26/2014	32.16	0.11	0.15
10/27/2014	32.48	0.11	0.15
10/28/2014	31.79	0.11	0.15
10/29/2014	32.30	0.11	0.15
10/30/2014	31.21	0.11	0.16
10/31/2014	30.89	0.11	0.16
11/1/2014	30.89	0.11	0.16
11/2/2014	30.89	0.11	0.16
11/3/2014	31.39	0.12	0.16
11/4/2014	32.19	0.11	0.16
11/5/2014	31.24	0.11	0.16
11/6/2014	32.21	0.12	0.16
11/7/2014	33.19	0.12	0.16
11/8/2014	33.19	0.12	0.16
11/9/2014	33.19	0.12	0.16
11/10/2014	32.33	0.13	0.15
11/11/2014	32.56	0.13	0.15
11/12/2014	33.22	0.14	0.15
11/13/2014	33.74	0.15	0.15
11/14/2014	34.39	0.15	0.15
11/15/2014	34.39	0.15	0.15
11/16/2014	34.39	0.15	0.15

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
11/17/2014	34.66	0.15	0.15
11/18/2014	33.97	0.14	0.16
11/19/2014	34.53	0.15	0.16
11/20/2014	34.38	0.14	0.16
11/21/2014	32.88	0.14	0.16
11/22/2014	32.88	0.14	0.16
11/23/2014	32.88	0.14	0.16
11/24/2014	32.83	0.14	0.15
11/25/2014	32.27	0.14	0.16
11/26/2014	32.37	0.14	0.16
11/27/2014	32.08	0.14	0.16
11/28/2014	31.54	0.13	0.15
11/29/2014	31.54	0.13	0.15
11/30/2014	31.54	0.13	0.15
12/1/2014	32.93	0.13	0.16
12/2/2014	34.24	0.14	0.16
12/3/2014	33.02	0.15	0.16
12/4/2014	33.58	0.14	0.16
12/5/2014	34.57	0.18	0.16
12/6/2014	34.57	0.18	0.16
12/7/2014	34.57	0.18	0.16
12/8/2014	37.25	0.18	0.16
12/9/2014	37.72	0.23	0.16
12/10/2014	41.22	0.21	0.16
12/11/2014	41.83	0.21	0.16
12/12/2014	44.95	0.19	0.16
12/13/2014	44.95	0.19	0.16
12/14/2014	44.95	0.19	0.16
12/15/2014	47.06	0.22	0.16
12/16/2014	44.01	0.21	0.16
12/17/2014	37.58	0.23	0.16
12/18/2014	37.57	0.25	0.17
12/19/2014	33.26	0.26	0.16
12/20/2014	33.26	0.26	0.16
12/21/2014	33.26	0.26	0.16
12/22/2014	33.56	0.28	0.17
12/23/2014	33.58	0.26	0.17
12/24/2014	33.39	0.26	0.17
12/25/2014	33.40	0.26	0.17
12/26/2014	33.40	0.26	0.17
12/27/2014	33.40	0.26	0.17
12/28/2014	33.40	0.26	0.17
12/29/2014	33.94	0.25	0.17
12/30/2014	42.23	0.23	0.17
12/31/2014	44.03	0.25	0.17
1/1/2015	44.46	0.25	0.17
1/2/2015	45.28	0.25	0.17
1/3/2015	45.28	0.25	0.17
1/4/2015	45.28	0.25	0.17
1/5/2015	51.74	0.26	0.17
1/6/2015	51.49	0.25	0.17
1/7/2015	48.81	0.25	0.17
1/8/2015	46.91	0.23	0.17
1/9/2015	48.01	0.22	0.17
1/10/2015	48.01	0.22	0.17
1/11/2015	48.01	0.22	0.17
1/12/2015	48.88	0.19	0.17
1/13/2015	49.68	0.20	0.17
1/14/2015	49.45	0.18	0.17
1/15/2015	51.31	0.16	0.17
1/16/2015	50.09	0.17	0.17
1/17/2015	50.09	0.17	0.17
1/18/2015	50.09	0.17	0.17
1/19/2015	48.92	0.17	0.17
1/20/2015	50.06	0.17	0.17
1/21/2015	51.71	0.17	0.17
1/22/2015	49.82	0.17	0.17
1/23/2015	49.07	0.17	0.17
1/24/2015	49.07	0.17	0.17
1/25/2015	49.07	0.17	0.17
1/26/2015	48.56	0.18	0.17
1/27/2015	49.68	0.17	0.17

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
1/28/2015	49.70	0.17	0.17
1/29/2015	49.10	0.17	0.17
1/30/2015	49.89	0.18	0.17
1/31/2015	49.89	0.18	0.17
2/1/2015	49.89	0.18	0.17
2/2/2015	50.59	0.17	0.17
2/3/2015	46.93	0.21	0.17
2/4/2015	47.85	0.20	0.17
2/5/2015	46.52	0.20	0.17
2/6/2015	45.74	0.26	0.17
2/7/2015	45.74	0.26	0.17
2/8/2015	45.74	0.26	0.17
2/9/2015	45.76	0.24	0.17
2/10/2015	47.58	0.25	0.17
2/11/2015	47.87	0.24	0.17
2/12/2015	45.69	0.23	0.17
2/13/2015	45.34	0.23	0.17
2/14/2015	45.34	0.23	0.17
2/15/2015	45.34	0.23	0.17
2/16/2015	46.56	0.23	0.17
2/17/2015	46.98	0.25	0.17
2/18/2015	46.34	0.23	0.17
2/19/2015	47.35	0.23	0.17
2/20/2015	46.88	0.23	0.17
2/21/2015	46.88	0.23	0.17
2/22/2015	46.88	0.23	0.17
2/23/2015	46.78	0.22	0.17
2/24/2015	44.87	0.22	0.17
2/25/2015	44.35	0.21	0.17
2/26/2015	44.10	0.22	0.17
2/27/2015	45.66	0.22	0.17
2/28/2015	45.66	0.22	0.17
3/1/2015	45.66	0.22	0.17
3/2/2015	44.97	0.22	0.17
3/3/2015	45.53	0.26	0.17
3/4/2015	46.37	0.26	0.18
3/5/2015	48.44	0.25	0.18
3/6/2015	51.72	0.27	0.18
3/7/2015	51.72	0.27	0.18
3/8/2015	51.72	0.27	0.18
3/9/2015	54.08	0.27	0.18
3/10/2015	59.31	0.25	0.18
3/11/2015	57.26	0.25	0.18
3/12/2015	55.82	0.24	0.17
3/13/2015	58.85	0.24	0.18
3/14/2015	58.85	0.24	0.18
3/15/2015	58.85	0.24	0.18
3/16/2015	59.80	0.26	0.18
3/17/2015	59.15	0.27	0.18
3/18/2015	56.21	0.23	0.18
3/19/2015	59.08	0.26	0.17
3/20/2015	55.12	0.24	0.17
3/21/2015	55.12	0.24	0.17
3/22/2015	55.12	0.24	0.17
3/23/2015	55.53	0.24	0.17
3/24/2015	54.91	0.24	0.17
3/25/2015	55.56	0.25	0.18
3/26/2015	54.87	0.28	0.18
3/27/2015	54.81	0.27	0.18
3/28/2015	54.81	0.27	0.18
3/29/2015	54.81	0.27	0.18
3/30/2015	58.60	0.27	0.18
3/31/2015	57.75	0.26	0.18
4/1/2015	56.66	0.27	0.18
4/2/2015	58.02	0.25	0.18
4/3/2015	57.36	0.21	0.18
4/4/2015	57.36	0.21	0.18
4/5/2015	57.36	0.21	0.18
4/6/2015	55.76	0.21	0.18
4/7/2015	57.57	0.22	0.18
4/8/2015	56.69	0.22	0.18
4/9/2015	57.97	0.22	0.18

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
4/10/2015	61.08	0.24	0.18
4/11/2015	61.08	0.24	0.18
4/12/2015	61.08	0.24	0.18
4/13/2015	61.42	0.23	0.18
4/14/2015	59.88	0.23	0.18
4/15/2015	59.61	0.23	0.18
4/16/2015	60.02	0.22	0.18
4/17/2015	61.77	0.23	0.18
4/18/2015	61.77	0.23	0.18
4/19/2015	61.77	0.23	0.18
4/20/2015	59.80	0.24	0.18
4/21/2015	60.71	0.23	0.18
4/22/2015	60.16	0.23	0.18
4/23/2015	57.76	0.24	0.18
4/24/2015	58.22	0.24	0.18
4/25/2015	58.22	0.24	0.18
4/26/2015	58.22	0.24	0.18
4/27/2015	58.16	0.25	0.18
4/28/2015	57.98	0.24	0.18
4/29/2015	58.82	0.25	0.18
4/30/2015	58.76	0.24	0.18
5/1/2015	60.20	0.25	0.18
5/2/2015	60.20	0.25	0.18
5/3/2015	60.20	0.25	0.18
5/4/2015	59.30	0.25	0.18
5/5/2015	58.08	0.24	0.18
5/6/2015	57.72	0.25	0.18
5/7/2015	58.42	0.24	0.18
5/8/2015	56.25	0.23	0.18
5/9/2015	56.25	0.23	0.18
5/10/2015	56.25	0.23	0.18
5/11/2015	57.06	0.25	0.19
5/12/2015	57.35	0.25	0.19
5/13/2015	57.57	0.24	0.19
5/14/2015	56.88	0.23	0.18
5/15/2015	56.51	0.23	0.19
5/16/2015	56.51	0.23	0.19
5/17/2015	56.51	0.23	0.19
5/18/2015	56.20	0.22	0.18
5/19/2015	57.45	0.23	0.19
5/20/2015	57.05	0.23	0.18
5/21/2015	55.88	0.22	0.18
5/22/2015	55.30	0.23	0.18
5/23/2015	55.30	0.23	0.18
5/24/2015	55.30	0.23	0.18
5/25/2015	55.31	0.23	0.18
5/26/2015	56.61	0.24	0.19
5/27/2015	56.76	0.27	0.19
5/28/2015	56.98	0.26	0.18
5/29/2015	53.61	0.26	0.18
5/30/2015	53.61	0.26	0.18
5/31/2015	53.61	0.26	0.18
6/1/2015	53.72	0.26	0.18
6/2/2015	52.87	0.26	0.18
6/3/2015	54.21	0.26	0.19
6/4/2015	55.09	0.27	0.18
6/5/2015	56.82	0.29	0.18
6/6/2015	56.82	0.29	0.18
6/7/2015	56.82	0.29	0.18
6/8/2015	57.01	0.27	0.19
6/9/2015	55.87	0.27	0.19
6/10/2015	56.74	0.28	0.19
6/11/2015	54.83	0.28	0.19
6/12/2015	54.93	0.28	0.18
6/13/2015	54.93	0.28	0.18
6/14/2015	54.93	0.28	0.18
6/15/2015	56.00	0.28	0.19
6/16/2015	56.43	0.28	0.19
6/17/2015	56.17	0.27	0.19
6/18/2015	54.88	0.26	0.19
6/19/2015	55.38	0.25	0.19
6/20/2015	55.38	0.25	0.19

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Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
6/21/2015	55.38	0.25	0.19
6/22/2015	55.62	0.27	0.19
6/23/2015	54.33	0.30	0.19
6/24/2015	55.48	0.30	0.19
6/25/2015	55.30	0.29	0.19
6/26/2015	55.52	0.29	0.19
6/27/2015	55.52	0.29	0.19
6/28/2015	55.52	0.29	0.19
6/29/2015	56.98	0.27	0.19
6/30/2015	55.48	0.28	0.19
7/1/2015	55.76	0.28	0.19
7/2/2015	54.98	0.26	0.19
7/3/2015	54.93	0.26	0.19
7/4/2015	54.93	0.26	0.19
7/5/2015	54.93	0.26	0.19
7/6/2015	55.74	0.26	0.19
7/7/2015	57.76	0.25	0.19
7/8/2015	57.97	0.24	0.19
7/9/2015	56.16	0.25	0.19
7/10/2015	55.10	0.28	0.19
7/11/2015	55.10	0.28	0.19
7/12/2015	55.10	0.28	0.19
7/13/2015	53.80	0.28	0.19
7/14/2015	53.99	0.27	0.19
7/15/2015	55.41	0.28	0.19
7/16/2015	54.31	0.29	0.19
7/17/2015	54.35	0.29	0.19
7/18/2015	54.35	0.29	0.19
7/19/2015	54.35	0.29	0.19
7/20/2015	55.18	0.31	0.19
7/21/2015	54.03	0.34	0.19
7/22/2015	55.40	0.34	0.19
7/23/2015	57.61	0.33	0.19
7/24/2015	59.65	0.32	0.19
7/25/2015	59.65	0.32	0.19
7/26/2015	59.65	0.32	0.19
7/27/2015	61.87	0.32	0.19
7/28/2015	58.92	0.32	0.19
7/29/2015	57.53	0.33	0.19
7/30/2015	57.79	0.36	0.19
7/31/2015	59.57	0.33	0.19
8/1/2015	59.57	0.33	0.19
8/2/2015	59.57	0.33	0.19
8/3/2015	61.03	0.33	0.19
8/4/2015	60.39	0.37	0.19
8/5/2015	59.74	0.38	0.19
8/6/2015	60.79	0.35	0.19
8/7/2015	60.85	0.38	0.19
8/8/2015	60.85	0.38	0.19
8/9/2015	60.85	0.38	0.19
8/10/2015	59.80	0.40	0.19
8/11/2015	61.43	0.37	0.19
8/12/2015	61.68	0.37	0.19
8/13/2015	64.61	0.40	0.20
8/14/2015	63.70	0.41	0.20
8/15/2015	63.70	0.41	0.20
8/16/2015	63.70	0.41	0.20
8/17/2015	65.21	0.40	0.20
8/18/2015	66.73	0.42	0.20
8/19/2015	68.81	0.39	0.20
8/20/2015	69.95	0.39	0.20
8/21/2015	73.40	0.36	0.20
8/22/2015	73.40	0.36	0.20
8/23/2015	73.40	0.36	0.20
8/24/2015	78.88	0.33	0.20
8/25/2015	75.00	0.36	0.20
8/26/2015	73.46	0.35	0.20
8/27/2015	67.26	0.36	0.20
8/28/2015	69.31	0.38	0.20
8/29/2015	69.31	0.38	0.20
8/30/2015	69.31	0.38	0.20
8/31/2015	83.46	0.39	0.20

Workpaper 18: Interest Rate Data

Date	Senior 1-Year Mid CDS (bps) [1]	United States Treasury Constant Maturity - 1 Year Rate (%) [2]	1-Month USD LIBOR (%) [3]
9/1/2015	86.90	0.39	0.20
9/2/2015	85.18	0.37	0.20
9/3/2015	82.50	0.36	0.20
9/4/2015	85.24	0.36	0.20
9/5/2015	85.24	0.36	0.20
9/6/2015	85.24	0.36	0.20
9/7/2015	86.06	0.36	0.20
9/8/2015	81.81	0.39	0.20
9/9/2015	82.18	0.39	0.20
9/10/2015	82.20	0.39	0.21
9/11/2015	82.68	0.40	0.21
9/12/2015	82.68	0.40	0.21
9/13/2015	82.68	0.40	0.21
9/14/2015	81.37	0.40	0.21
9/15/2015	78.19	0.47	0.21
9/16/2015	76.15	0.46	0.21
9/17/2015	75.07	0.39	0.22
9/18/2015	77.29	0.35	0.20
9/19/2015	77.29	0.35	0.20
9/20/2015	77.29	0.35	0.20
9/21/2015	80.03	0.36	0.20
9/22/2015	84.07	0.35	0.20
9/23/2015	85.78	0.34	0.19
9/24/2015	88.76	0.32	0.19

Notes:
[1]: One Year CDS Mid Spread in USD, Source: CapIQ, CDS CapIQ ID: IQT46214358.
[2]: United States Treasury Constant Maturity 1 Year Rate, Source: CapIQ, CapIQ ID: IQ36183813
[3]: ICE Libor Rates, Source: FRED Economic Data, Series ID: USD1MTD156N.

Workpaper 19: Impact of Corrections to FTI's Santa Ana FMV Estimate (Base Case) ($ Million)

	Revised Inputs for Santa Ana Extended Life Case DCF	NPV Based on FTI's DCF Model	Impact of Correction Relative to Previous Line	Percent Change
[1]	FTI NPV	191		
[2]	SRK Inputs	166	(25)	-13%
[3]	SRK Inputs and 14% Capex Overrun	158	(8)	-5%
[4]	SRK Inputs, 1 Year Delay and 14% Increase in Capex	119	(39)	-25%
[5]	SRK Inputs, 4 Year Delay and 14% Increase in Capex	54	(65)	-55%
[6]	SRK Inputs, 4 Year Delay and 12% Increase in Capex	41	(13)	-23%
[7]	SRK Inputs, 4 Year Delay and 18% Increase in Capex	69	28	68%

Sources & Notes:

[1]: FTI Report, ¶ 7.55.

[2]: Workpaper 20 - A1.

[3]: Workpaper 20 - B1.

[4]: Workpaper 20 - C1.

[5]: Workpaper 20 - D1.

[6]: Workpaper 20 - E1.

[7]: Workpaper 20 - F1.

Workpaper 20 - A1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	Sum	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Silver Price (Real $ per oz)	(1)				$ 33.20	$ 31.83	$ 30.78	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,505.16	$ 1,502.49	$ 1,514.61	$ 1,539.28	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	30,713,385	-	-	3,893,855	4,984,317	5,284,306	4,736,155	4,793,865	4,946,833	1,894,440	179,613	-			
Payable Gold (oz)	(2)	3,276	-	-	514	478	464	490	487	480	363	-	-			
Silver Revenue		$ 818,160	$ -	$ -	$ 129,273	$ 158,630	$ 162,660	$ 105,190	$ 106,472	$ 109,869	$ 42,076	$ 3,989	$ -	$ -	$ -	$ -
Gold Revenue		$ 4,699	$ -	$ -	$ 773	$ 719	$ 703	$ 754	$ 641	$ 632	$ 477	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 822,859**	**$ -**	**$ -**	**$ 130,047**	**$ 159,349**	**$ 163,363**	**$ 105,944**	**$ 107,113**	**$ 110,501**	**$ 42,553**	**$ 3,989**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (19,349)	$ -	$ -	$ (2,453)	$ (3,140)	$ (3,329)	$ (2,984)	$ (3,020)	$ (3,117)	$ (1,193)	$ (113)	$ -			
Net Smelter Return		**$ 803,510**	**$ -**	**$ -**	**$ 127,593**	**$ 156,209**	**$ 160,034**	**$ 102,961**	**$ 104,093**	**$ 107,384**	**$ 41,359**	**$ 3,876**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (12,856)	$ -	$ -	$ (2,028)	$ (2,886)	$ (3,001)	$ (1,459)	$ (1,482)	$ (1,548)	$ (414)	$ (39)	$ -	$ -	$ -	$ -
Net Revenue		**$ 790,653**	**$ -**	**$ -**	**$ 125,566**	**$ 153,323**	**$ 157,033**	**$ 101,501**	**$ 102,611**	**$ 105,837**	**$ 40,946**	**$ 3,837**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (278,313)	$ -	$ (8,687)	$ (42,940)	$ (46,849)	$ (46,472)	$ (43,644)	$ (40,994)	$ (35,531)	$ (13,196)	$ -	$ -			
Initial Capital Expenses	(2)	$ (72,485)	$ (11,329)	$ (61,156)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sustaining Capital Expenses	(2)	$ (7,769)	$ -	$ -	$ (497)	$ (6,525)	$ (449)	$ (298)	$ -	$ -	$ -	$ -	$ -	$ -		
Reclamation Capital Expenses	(2)	$ (10,543)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (1,062)	$ (2,089)	$ (3,601)	$ (65)	$ (741)	$ (737)	$ (733)
Employee Profit Sharing	(4)	**$ (35,765)**	**$ -**	**$ -**	**$ (5,737)**	**$ (7,603)**	**$ (7,888)**	**$ (3,667)**	**$ (3,966)**	**$ (4,768)**	**$ (1,978)**	**$ (159)**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 385,778**	**$ (11,329)**	**$ (69,843)**	**$ 76,387**	**$ 92,339**	**$ 102,212**	**$ 53,876**	**$ 57,632**	**$ 64,476**	**$ 23,682**	**$ 78**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
Net Tax Expense	(5)	**$ (108,481)**	**$ -**	**$ -**	**$ (1,682)**	**$ (25,959)**	**$ (27,630)**	**$ (13,696)**	**$ (15,237)**	**$ (17,982)**	**$ (6,294)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 277,297**	**$ (11,329)**	**$ (69,843)**	**$ 74,705**	**$ 66,380**	**$ 74,582**	**$ 40,180**	**$ 42,395**	**$ 46,494**	**$ 17,389**	**$ 78**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
IGV Recovered/ (Paid)	(6)	$ 7,733	$ (2,153)	$ (13,270)	$ 23,865	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (12)	$ (141)	$ (140)	$ (139)
Change in Working Capital	(2)	$ (0)	$ (440)	$ (1,501)	$ (13,885)	$ (3,588)	$ (503)	$ 7,017	$ (158)	$ (495)	$ 6,829	$ 6,795	$ (10)	$ (0)	$ (0)	$ (0)
Net Cash Flows (Real)		**$ 285,030**	**$ (13,922)**	**$ (84,615)**	**$ 84,684**	**$ 62,791**	**$ 74,079**	**$ 47,197**	**$ 42,237**	**$ 45,999**	**$ 24,218**	**$ 6,873**	**$ (87)**	**$ (882)**	**$ (877)**	**$ (873)**
Discount factor	(7)		0.9754	0.9070	0.8244	0.7495	0.6813	0.6193	0.5629	0.5118	0.4652	0.4229	0.3844	0.3494	0.3177	0.2888
Discounted Cash Flows (Real)		**$ 166,420**	**$ (13,579)**	**$ (76,742)**	**$ 69,814**	**$ 47,059**	**$ 50,472**	**$ 29,229**	**$ 23,776**	**$ 23,540**	**$ 11,267**	**$ 2,907**	**$ (33)**	**$ (308)**	**$ (279)**	**$ (252)**
Cost Arising from Delay									$ -							
Discounted Cash Flows Final	(8)								**$ 166,420**							

Notes:

Adjustments highlighted in yellow. The structure of the DCF comes from FTI Schedule 1 Extended Life Case. When implementing the FTI Base Case using RPA Base Case inputs, the final NPV was within $2 million of FTI's calculation of $191 million. See FTI Report, ¶ 7.55.

(1) FTI Prices.
(2) Per the RPA Base Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.
(8) Workpaper 20 - A2: Delay Costs Arising from Workpaper 20 - A1.

Workpaper 20 - A1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)																
Payable Gold (oz)	(2)																
Silver Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)																
Net Smelter Return		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)																
Initial Capital Expenses	(2)																
Sustaining Capital Expenses	(2)																
Reclamation Capital Expenses	(2)	$ (730)	$ (726)	$ -													
Employee Profit Sharing	(4)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Net Tax Expense	(5)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
IGV Recovered/ (Paid)	(6)	$ (139)	$ (138)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ (60)	$ -	$ -													
Net Cash Flows (Real)		**$ (928)**	**$ (864)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Discount factor	(7)	0.2625	0.2386	0.2169	0.1972	0.1792	0.1629	0.1481	0.1346	0.1224	0.1113	0.1011	0.0919	0.0836	0.0760	0.0691	0.0628
Discounted Cash Flows (Real)		**$ (244)**	**$ (206)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes:

Adjustments highlighted in yellow.

(1) See **Figure 21**.

(2) Per the RPA Base Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 20 - A2: Delay Costs Arising from Workpaper 20 - A1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	-
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	10.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.95	0.87	0.79	0.72	0.65	0.59	0.54	0.49	0.44	0.40	0.37	0.33	0.30	0.28	0.25
[10]	**Present Value**	**$ -**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 20 - B1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs and 14% Capex Overrun

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	Sum	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Silver Price (Real $ per oz)	(1)				$ 33.20	$ 31.83	$ 30.78	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,505.16	$ 1,502.49	$ 1,514.61	$ 1,539.28	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	30,713,385	-	-	3,893,855	4,984,317	5,284,306	4,736,155	4,793,865	4,946,833	1,894,440	179,613	-			
Payable Gold (oz)	(2)	3,276	-	-	514	478	464	490	487	480	363	-	-			
Silver Revenue		$ 818,160	$ -	$ -	$ 129,273	$ 158,630	$ 162,660	$ 105,190	$ 106,472	$ 109,869	$ 42,076	$ 3,989	$ -	$ -	$ -	$ -
Gold Revenue		$ 4,699	$ -	$ -	$ 773	$ 719	$ 703	$ 754	$ 641	$ 632	$ 477	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 822,859**	**$ -**	**$ -**	**$ 130,047**	**$ 159,349**	**$ 163,363**	**$ 105,944**	**$ 107,113**	**$ 110,501**	**$ 42,553**	**$ 3,989**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (19,349)	$ -	$ -	$ (2,453)	$ (3,140)	$ (3,329)	$ (2,984)	$ (3,020)	$ (3,117)	$ (1,193)	$ (113)	$ -			
Net Smelter Return		**$ 803,510**	**$ -**	**$ -**	**$ 127,593**	**$ 156,209**	**$ 160,034**	**$ 102,961**	**$ 104,093**	**$ 107,384**	**$ 41,359**	**$ 3,876**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (12,856)	$ -	$ -	$ (2,028)	$ (2,886)	$ (3,001)	$ (1,459)	$ (1,482)	$ (1,548)	$ (414)	$ (39)	$ -	$ -	$ -	$ -
Net Revenue		**$ 790,653**	**$ -**	**$ -**	**$ 125,566**	**$ 153,323**	**$ 157,033**	**$ 101,501**	**$ 102,611**	**$ 105,837**	**$ 40,946**	**$ 3,837**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (278,313)	$ -	$ (8,687)	$ (42,940)	$ (46,849)	$ (46,472)	$ (43,644)	$ (40,994)	$ (35,531)	$ (13,196)	$ -	$ -			
Initial Capital Expenses	(2)	$ (82,633)	$ (12,915)	$ (69,718)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sustaining Capital Expenses	(2)	$ (8,857)	$ -	$ -	$ (567)	$ (7,438)	$ (512)	$ (340)	$ -	$ -	$ -	$ -	$ -	$ -		
Reclamation Capital Expenses	(2)	$ (10,543)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (1,062)	$ (2,089)	$ (3,601)	$ (65)	$ (741)	$ (737)	$ (733)
Employee Profit Sharing	(4)	**$ (34,950)**	**$ -**	**$ -**	**$ (5,615)**	**$ (7,475)**	**$ (7,754)**	**$ (3,532)**	**$ (3,831)**	**$ (4,649)**	**$ (1,948)**	**$ (146)**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 375,357**	**$ (12,915)**	**$ (78,405)**	**$ 76,440**	**$ 91,553**	**$ 102,283**	**$ 53,969**	**$ 57,767**	**$ 64,595**	**$ 23,713**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
Net Tax Expense	(5)	**$ (106,088)**	**$ -**	**$ -**	**$ (1,108)**	**$ (25,479)**	**$ (27,227)**	**$ (13,379)**	**$ (14,990)**	**$ (17,788)**	**$ (6,118)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 269,270**	**$ (12,915)**	**$ (78,405)**	**$ 75,332**	**$ 66,074**	**$ 75,057**	**$ 40,591**	**$ 42,777**	**$ 46,807**	**$ 17,594**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
IGV Recovered/ (Paid)	(6)	$ 7,733	$ (2,454)	$ (14,897)	$ 24,709	$ 1,084	$ -	$ -	$ -	$ -	$ -	$ -	$ (12)	$ (141)	$ (140)	$ (139)
Change in Working Capital	(2)	$ (0)	$ (440)	$ (1,501)	$ (13,885)	$ (3,588)	$ (503)	$ 7,017	$ (158)	$ (495)	$ 6,829	$ 6,795	$ (10)	$ (0)	$ (0)	$ (0)
Net Cash Flows (Real)		**$ 277,003**	**$ (15,809)**	**$ (94,804)**	**$ 86,155**	**$ 63,570**	**$ 74,554**	**$ 47,608**	**$ 42,619**	**$ 46,312**	**$ 24,423**	**$ 6,886**	**$ (87)**	**$ (882)**	**$ (877)**	**$ (873)**
Discount factor	(7)		0.9754	0.9070	0.8244	0.7495	0.6813	0.6193	0.5629	0.5118	0.4652	0.4229	0.3844	0.3494	0.3177	0.2888
Discounted Cash Flows (Real)		**$ 158,189**	**$ (15,420)**	**$ (85,983)**	**$ 71,026**	**$ 47,643**	**$ 50,795**	**$ 29,483**	**$ 23,991**	**$ 23,700**	**$ 11,362**	**$ 2,912**	**$ (33)**	**$ (308)**	**$ (279)**	**$ (252)**
Cost Arising from Delay					$ -											
Discounted Cash Flows Final	(8)				**$ 158,189**											

Notes:

Adjustments highlighted in yellow. The structure of the DCF comes from FTI Schedule 1 Extended Life Case. When implementing the FTI Base Case using RPA Base Case inputs, the final NPV was within $2 million of FTI's calculation of $191 million. See FTI Report, ¶ 7.55.

(1) FTI Prices.
(2) Per the RPA Base Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.
(8) Workpaper 20 - B2: Delay Costs Arising from Workpaper 20 - B1.

Workpaper 20 - B1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs and 14% Capex Overrun

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)																
Payable Gold (oz)	(2)																
Silver Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)																
Net Smelter Return		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)																
Initial Capital Expenses	(2)																
Sustaining Capital Expenses	(2)																
Reclamation Capital Expenses	(2)	$ (730)	$ (726)	$ -													
Employee Profit Sharing	(4)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Net Tax Expense	(5)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
IGV Recovered/ (Paid)	(6)	$ (139)	$ (138)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ (60)	$ -	$ -													
Net Cash Flows (Real)		**$ (928)**	**$ (864)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Discount factor	(7)	0.2625	0.2386	0.2169	0.1972	0.1792	0.1629	0.1481	0.1346	0.1224	0.1113	0.1011	0.0919	0.0836	0.0760	0.0691	0.0628
Discounted Cash Flows (Real)		**$ (244)**	**$ (206)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes:
Adjustments highlighted in yellow.

(1) See **Figure 21**.
(2) Per the RPA Base Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 20 - B2: Delay Costs Arising from Workpaper 20 - B1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	-
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	10.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.95	0.87	0.79	0.72	0.65	0.59	0.54	0.49	0.44	0.40	0.37	0.33	0.30	0.28	0.25
[10]	**Present Value**	**$ -**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 20 - C1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 1 Year Delay and 14% Increase in CapEx Expenditures

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	Sum	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Silver Price (Real $ per oz)	(1)				$ 31.83	$ 30.78	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,502.49	$ 1,514.61	$ 1,539.28	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	30,713,385	-	-	3,893,855	4,984,317	5,284,306	4,736,155	4,793,865	4,946,833	1,894,440	179,613	-			
Payable Gold (oz)	(2)	3,276	-	-	514	478	464	490	487	480	363	-	-			
Silver Revenue		$ 762,312	$ -	$ -	$ 123,925	$ 153,426	$ 117,364	$ 105,190	$ 106,472	$ 109,869	$ 42,076	$ 3,989	$ -	$ -	$ -	$ -
Gold Revenue		$ 4,606	$ -	$ -	$ 772	$ 724	$ 714	$ 645	$ 641	$ 632	$ 477	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 766,917**	**$ -**	**$ -**	**$ 124,697**	**$ 154,151**	**$ 118,079**	**$ 105,835**	**$ 107,113**	**$ 110,501**	**$ 42,553**	**$ 3,989**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (19,349)	$ -	$ -	$ (2,453)	$ (3,140)	$ (3,329)	$ (2,984)	$ (3,020)	$ (3,117)	$ (1,193)	$ (113)	$ -			
Net Smelter Return		**$ 747,568**	**$ -**	**$ -**	**$ 122,244**	**$ 151,011**	**$ 114,750**	**$ 102,851**	**$ 104,093**	**$ 107,384**	**$ 41,359**	**$ 3,876**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (11,232)	$ -	$ -	$ (1,867)	$ (2,730)	$ (1,695)	$ (1,457)	$ (1,482)	$ (1,548)	$ (414)	$ (39)	$ -	$ -	$ -	$ -
Net Revenue		**$ 736,336**	**$ -**	**$ -**	**$ 120,377**	**$ 148,280**	**$ 113,055**	**$ 101,394**	**$ 102,611**	**$ 105,837**	**$ 40,946**	**$ 3,837**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (278,313)	$ -	$ (8,687)	$ (42,940)	$ (46,849)	$ (46,472)	$ (43,644)	$ (40,994)	$ (35,531)	$ (13,196)	$ -	$ -			
Initial Capital Expenses	(2)	$ (82,633)	$ (12,915)	$ (69,718)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sustaining Capital Expenses	(2)	$ (8,857)	$ -	$ -	$ (567)	$ (7,438)	$ (512)	$ (340)	$ -	$ -	$ -	$ -	$ -	$ -		
Reclamation Capital Expenses	(2)	$ (10,543)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (1,062)	$ (2,089)	$ (3,601)	$ (65)	$ (741)	$ (737)	$ (733)
Employee Profit Sharing	(4)	**$ (30,605)**	**$ -**	**$ -**	**$ (5,200)**	**$ (7,071)**	**$ (4,236)**	**$ (3,524)**	**$ (3,831)**	**$ (4,649)**	**$ (1,948)**	**$ (146)**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 325,386**	**$ (12,915)**	**$ (78,405)**	**$ 71,666**	**$ 86,914**	**$ 61,823**	**$ 53,870**	**$ 57,767**	**$ 64,595**	**$ 23,713**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
Net Tax Expense	(5)	**$ (91,096)**	**$ -**	**$ -**	**$ -**	**$ (23,763)**	**$ (15,089)**	**$ (13,349)**	**$ (14,990)**	**$ (17,788)**	**$ (6,118)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 234,290**	**$ (12,915)**	**$ (78,405)**	**$ 71,666**	**$ 63,151**	**$ 46,735**	**$ 40,521**	**$ 42,777**	**$ 46,807**	**$ 17,594**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
IGV Recovered/ (Paid)	(6)	$ 7,733	$ (2,454)	$ (14,897)	$ 23,693	$ 2,100	$ -	$ -	$ -	$ -	$ -	$ -	$ (12)	$ (141)	$ (140)	$ (139)
Change in Working Capital	(2)	$ (0)	$ (440)	$ (1,501)	$ (13,885)	$ (3,588)	$ (503)	$ 7,017	$ (158)	$ (495)	$ 6,829	$ 6,795	$ (10)	$ (0)	$ (0)	$ (0)
Net Cash Flows (Real)		**$ 242,023**	**$ (15,809)**	**$ (94,804)**	**$ 81,473**	**$ 61,663**	**$ 46,232**	**$ 47,538**	**$ 42,619**	**$ 46,312**	**$ 24,423**	**$ 6,886**	**$ (87)**	**$ (882)**	**$ (877)**	**$ (873)**
Discount factor	(7)		0.8867	0.8245	0.7495	0.6813	0.6194	0.5630	0.5118	0.4652	0.4229	0.3844	0.3494	0.3177	0.2888	0.2625
Discounted Cash Flows (Real)		**$ 121,419**	**$ (14,018)**	**$ (78,166)**	**$ 61,060**	**$ 42,012**	**$ 28,635**	**$ 26,764**	**$ 21,810**	**$ 21,546**	**$ 10,329**	**$ 2,647**	**$ (30)**	**$ (280)**	**$ (253)**	**$ (229)**
Cost Arising from Delay																
Discounted Cash Flows Final	(8)	**$ 118,827**														

Notes:

Adjustments highlighted in yellow. The structure of the DCF comes from FTI Schedule 1 Extended Life Case. When implementing the FTI Base Case using RPA Base Case inputs, the final NPV was within $2 million of FTI's calculation of $191 million. See FTI Report, ¶ 7.55.

(1) FTI Prices.
(2) Per the RPA Base Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.
(8) Workpaper 20 - C2: Delay Costs Arising from Workpaper 20 - C1.

Workpaper 20 - C1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 1 Year Delay and 14% Increase in CapEx Expenditures

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)																
Payable Gold (oz)	(2)																
Silver Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)																
Net Smelter Return		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)																
Initial Capital Expenses	(2)																
Sustaining Capital Expenses	(2)																
Reclamation Capital Expenses	(2)	$ (730)	$ (726)	$ -													
Employee Profit Sharing	(4)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Net Tax Expense	(5)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
IGV Recovered/ (Paid)	(6)	$ (139)	$ (138)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ (60)	$ -	$ -													
Net Cash Flows (Real)		**$ (928)**	**$ (864)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Discount factor	(7)	0.2386	0.2169	0.1972	0.1792	0.1629	0.1481	0.1347	0.1224	0.1113	0.1011	0.0919	0.0836	0.0760	0.0691	0.0628	0.0571
Discounted Cash Flows (Real)		**$ (221)**	**$ (187)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes:
Adjustments highlighted in yellow.

(1) See **Figure 21**.
(2) Per the RPA Base Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 20 - C2: Delay Costs Arising from Workpaper 20 - C1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	1
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	10.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ 2,718,417	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.95	0.87	0.79	0.72	0.65	0.59	0.54	0.49	0.44	0.40	0.37	0.33	0.30	0.28	0.25
[10]	**Present Value**	**$ 2,591,908**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 20 - D1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 4 Year Delay and 14% Increase in CapEx Expenditures

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	Sum	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Silver Price (Real $ per oz)	(1)				$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	30,713,385	-	-	3,893,855	4,984,317	5,284,306	4,736,155	4,793,865	4,946,833	1,894,440	179,613	-			
Payable Gold (oz)	(2)	3,276	-	-	514	478	464	490	487	480	363	-	-			
Silver Revenue		$ 682,144	$ -	$ -	$ 86,483	$ 110,702	$ 117,364	$ 105,190	$ 106,472	$ 109,869	$ 42,076	$ 3,989	$ -	$ -	$ -	$ -
Gold Revenue		$ 4,311	$ -	$ -	$ 676	$ 629	$ 610	$ 645	$ 641	$ 632	$ 477	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 686,455**	**$ -**	**$ -**	**$ 87,159**	**$ 111,331**	**$ 117,975**	**$ 105,835**	**$ 107,113**	**$ 110,501**	**$ 42,553**	**$ 3,989**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (19,349)	$ -	$ -	$ (2,453)	$ (3,140)	$ (3,329)	$ (2,984)	$ (3,020)	$ (3,117)	$ (1,193)	$ (113)	$ -			
Net Smelter Return		**$ 667,105**	**$ -**	**$ -**	**$ 84,705**	**$ 108,191**	**$ 114,646**	**$ 102,851**	**$ 104,093**	**$ 107,384**	**$ 41,359**	**$ 3,876**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (9,290)	$ -	$ -	$ (1,094)	$ (1,564)	$ (1,693)	$ (1,457)	$ (1,482)	$ (1,548)	$ (414)	$ (39)	$ -	$ -	$ -	$ -
Net Revenue		**$ 657,816**	**$ -**	**$ -**	**$ 83,611**	**$ 106,627**	**$ 112,953**	**$ 101,394**	**$ 102,611**	**$ 105,837**	**$ 40,946**	**$ 3,837**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (278,313)	$ -	$ (8,687)	$ (42,940)	$ (46,849)	$ (46,472)	$ (43,644)	$ (40,994)	$ (35,531)	$ (13,196)	$ -	$ -			
Initial Capital Expenses	(2)	$ (82,633)	$ (12,915)	$ (69,718)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sustaining Capital Expenses	(2)	$ (8,857)	$ -	$ -	$ (567)	$ (7,438)	$ (512)	$ (340)	$ -	$ -	$ -	$ -	$ -	$ -		
Reclamation Capital Expenses	(2)	$ (10,543)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (1,062)	$ (2,089)	$ (3,601)	$ (65)	$ (741)	$ (737)	$ (733)
Employee Profit Sharing	(4)	**$ (24,323)**	**$ -**	**$ -**	**$ (2,259)**	**$ (3,739)**	**$ (4,228)**	**$ (3,524)**	**$ (3,831)**	**$ (4,649)**	**$ (1,948)**	**$ (146)**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 253,147**	**$ (12,915)**	**$ (78,405)**	**$ 37,841**	**$ 48,593**	**$ 61,730**	**$ 53,870**	**$ 57,767**	**$ 64,595**	**$ 23,713**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
Net Tax Expense	(5)	**$ (69,425)**	**$ -**	**$ -**	**$ -**	**$ (2,120)**	**$ (15,061)**	**$ (13,349)**	**$ (14,990)**	**$ (17,788)**	**$ (6,118)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 183,722**	**$ (12,915)**	**$ (78,405)**	**$ 37,841**	**$ 46,474**	**$ 46,669**	**$ 40,521**	**$ 42,777**	**$ 46,807**	**$ 17,594**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
IGV Recovered/ (Paid)	(6)	$ 7,733	$ (2,454)	$ (14,897)	$ 16,560	$ 9,233	$ -	$ -	$ -	$ -	$ -	$ -	$ (12)	$ (141)	$ (140)	$ (139)
Change in Working Capital	(2)	$ (0)	$ (440)	$ (1,501)	$ (13,885)	$ (3,588)	$ (503)	$ 7,017	$ (158)	$ (495)	$ 6,829	$ 6,795	$ (10)	$ (0)	$ (0)	$ (0)
Net Cash Flows (Real)		**$ 191,455**	**$ (15,809)**	**$ (94,804)**	**$ 40,516**	**$ 52,118**	**$ 46,166**	**$ 47,538**	**$ 42,619**	**$ 46,312**	**$ 24,423**	**$ 6,886**	**$ (87)**	**$ (882)**	**$ (877)**	**$ (873)**
Discount factor	(7)		0.6662	0.6195	0.5631	0.5119	0.4654	0.4230	0.3845	0.3495	0.3178	0.2888	0.2625	0.2387	0.2170	0.1972
Discounted Cash Flows (Real)		**$ 63,246**	**$ (10,532)**	**$ (58,727)**	**$ 22,814**	**$ 26,679**	**$ 21,483**	**$ 20,108**	**$ 16,386**	**$ 16,188**	**$ 7,761**	**$ 1,989**	**$ (23)**	**$ (210)**	**$ (190)**	**$ (172)**
Cost Arising from Delay									$ (9,504)							
Discounted Cash Flows Final	(8)								**$ 53,742**							

Notes:

Adjustments highlighted in yellow. The structure of the DCF comes from FTI Schedule 1 Extended Life Case. When implementing the FTI Base Case using RPA Base Case inputs, the final NPV was within $2 million of FTI's calculation of $191 million. See FTI Report, ¶ 7.55.

(1) FTI Prices.
(2) Per the RPA Base Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.
(8) Workpaper 20 - D2: Delay Costs Arising from Workpaper 20 - D1.

Workpaper 20 - D1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 4 Year Delay and 14% Increase in CapEx Expenditures

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)																
Payable Gold (oz)	(2)																
Silver Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)																
Net Smelter Return		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)																
Initial Capital Expenses	(2)																
Sustaining Capital Expenses	(2)																
Reclamation Capital Expenses	(2)	$ (730)	$ (726)	$ -													
Employee Profit Sharing	(4)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Net Tax Expense	(5)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
IGV Recovered/ (Paid)	(6)	$ (139)	$ (138)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ (60)	$ -	$ -													
Net Cash Flows (Real)		**$ (928)**	**$ (864)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Discount factor	(7)	0.1793	0.1630	0.1482	0.1347	0.1224	0.1113	0.1012	0.0920	0.0836	0.0760	0.0691	0.0628	0.0571	0.0519	0.0472	0.0429
Discounted Cash Flows (Real)		**$ (166)**	**$ (141)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes:

Adjustments highlighted in yellow.

(1) See **Figure 21**.

(2) Per the RPA Base Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 20 - D2: Delay Costs Arising from Workpaper 20 - D1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	4
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	10.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ 2,718,417	$ 2,850,466	$ 2,918,878	$ 2,988,931	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.95	0.87	0.79	0.72	0.65	0.59	0.54	0.49	0.44	0.40	0.37	0.33	0.30	0.28	0.25
[10]	**Present Value**	**$ 9,503,803**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 20 - E1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 4 Year Delay, 14% Increase in CapEx Expenditures, 12% Discount Rate

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	Sum	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Silver Price (Real $ per oz)	(1)				$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	30,713,385	-	-	3,893,855	4,984,317	5,284,306	4,736,155	4,793,865	4,946,833	1,894,440	179,613	-			
Payable Gold (oz)	(2)	3,276	-	-	514	478	464	490	487	480	363	-	-			
Silver Revenue		$ 682,144	$ -	$ -	$ 86,483	$ 110,702	$ 117,364	$ 105,190	$ 106,472	$ 109,869	$ 42,076	$ 3,989	$ -	$ -	$ -	$ -
Gold Revenue		$ 4,311	$ -	$ -	$ 676	$ 629	$ 610	$ 645	$ 641	$ 632	$ 477	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 686,455**	**$ -**	**$ -**	**$ 87,159**	**$ 111,331**	**$ 117,975**	**$ 105,835**	**$ 107,113**	**$ 110,501**	**$ 42,553**	**$ 3,989**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (19,349)	$ -	$ -	$ (2,453)	$ (3,140)	$ (3,329)	$ (2,984)	$ (3,020)	$ (3,117)	$ (1,193)	$ (113)	$ -			
Net Smelter Return		**$ 667,105**	**$ -**	**$ -**	**$ 84,705**	**$ 108,191**	**$ 114,646**	**$ 102,851**	**$ 104,093**	**$ 107,384**	**$ 41,359**	**$ 3,876**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (9,290)	$ -	$ -	$ (1,094)	$ (1,564)	$ (1,693)	$ (1,457)	$ (1,482)	$ (1,548)	$ (414)	$ (39)	$ -	$ -	$ -	$ -
Net Revenue		**$ 657,816**	**$ -**	**$ -**	**$ 83,611**	**$ 106,627**	**$ 112,953**	**$ 101,394**	**$ 102,611**	**$ 105,837**	**$ 40,946**	**$ 3,837**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (278,313)	$ -	$ (8,687)	$ (42,940)	$ (46,849)	$ (46,472)	$ (43,644)	$ (40,994)	$ (35,531)	$ (13,196)	$ -	$ -			
Initial Capital Expenses	(2)	$ (82,633)	$ (12,915)	$ (69,718)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sustaining Capital Expenses	(2)	$ (8,857)	$ -	$ -	$ (567)	$ (7,438)	$ (512)	$ (340)	$ -	$ -	$ -	$ -	$ -	$ -		
Reclamation Capital Expenses	(2)	$ (10,543)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (1,062)	$ (2,089)	$ (3,601)	$ (65)	$ (741)	$ (737)	$ (733)
Employee Profit Sharing	(4)	**$ (24,323)**	**$ -**	**$ -**	**$ (2,259)**	**$ (3,739)**	**$ (4,228)**	**$ (3,524)**	**$ (3,831)**	**$ (4,649)**	**$ (1,948)**	**$ (146)**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 253,147**	**$ (12,915)**	**$ (78,405)**	**$ 37,841**	**$ 48,593**	**$ 61,730**	**$ 53,870**	**$ 57,767**	**$ 64,595**	**$ 23,713**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
Net Tax Expense	(5)	**$ (69,425)**	**$ -**	**$ -**	**$ -**	**$ (2,120)**	**$ (15,061)**	**$ (13,349)**	**$ (14,990)**	**$ (17,788)**	**$ (6,118)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 183,722**	**$ (12,915)**	**$ (78,405)**	**$ 37,841**	**$ 46,474**	**$ 46,669**	**$ 40,521**	**$ 42,777**	**$ 46,807**	**$ 17,594**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
IGV Recovered/ (Paid)	(6)	$ 7,733	$ (2,454)	$ (14,897)	$ 16,560	$ 9,233	$ -	$ -	$ -	$ -	$ -	$ -	$ (12)	$ (141)	$ (140)	$ (139)
Change in Working Capital	(2)	$ (0)	$ (440)	$ (1,501)	$ (13,885)	$ (3,588)	$ (503)	$ 7,017	$ (158)	$ (495)	$ 6,829	$ 6,795	$ (10)	$ (0)	$ (0)	$ (0)
Net Cash Flows (Real)		**$ 191,455**	**$ (15,809)**	**$ (94,804)**	**$ 40,516**	**$ 52,118**	**$ 46,166**	**$ 47,538**	**$ 42,619**	**$ 46,312**	**$ 24,423**	**$ 6,886**	**$ (87)**	**$ (882)**	**$ (877)**	**$ (873)**
Discount factor	(7)		0.6170	0.5658	0.5051	0.4510	0.4027	0.3595	0.3209	0.2865	0.2558	0.2284	0.2039	0.1820	0.1625	0.1451
Discounted Cash Flows (Real)		**$ 50,357**	**$ (9,753)**	**$ (53,644)**	**$ 20,466**	**$ 23,506**	**$ 18,591**	**$ 17,090**	**$ 13,678**	**$ 13,270**	**$ 6,248**	**$ 1,573**	**$ (18)**	**$ (160)**	**$ (143)**	**$ (127)**
Cost Arising from Delay		$ (9,183)														
Discounted Cash Flows Final	(8)	**$ 41,174**														

Notes:

Adjustments highlighted in yellow. The structure of the DCF comes from FTI Schedule 1 Extended Life Case. When implementing the FTI Base Case using RPA Base Case inputs, the final NPV was within $2 million of FTI's calculation of $191 million. See FTI Report, ¶ 7.55.

(1) FTI Prices.
(2) Per the RPA Base Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.
(8) Workpaper 20 - E2: Delay Costs Arising from Workpaper 20 - E1.

Workpaper 20 - E1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 4 Year Delay, 14% Increase in CapEx Expenditures, 12% Discount Rate

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)																
Payable Gold (oz)	(2)																
Silver Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)																
Net Smelter Return		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)																
Initial Capital Expenses	(2)																
Sustaining Capital Expenses	(2)																
Reclamation Capital Expenses	(2)	$ (730)	$ (726)	$ -													
Employee Profit Sharing	(4)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Net Tax Expense	(5)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
IGV Recovered/ (Paid)	(6)	$ (139)	$ (138)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ (60)	$ -	$ -													
Net Cash Flows (Real)		**$ (928)**	**$ (864)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Discount factor	(7)	0.1295	0.1157	0.1033	0.0922	0.0823	0.0735	0.0656	0.0586	0.0523	0.0467	0.0417	0.0372	0.0332	0.0297	0.0265	0.0236
Discounted Cash Flows (Real)		**$ (120)**	**$ (100)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes:
Adjustments highlighted in yellow.

(1) See **Figure 21**.
(2) Per the RPA Base Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 20 - E2: Delay Costs Arising from Workpaper 20 - E1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	4
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	12.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ 2,718,417	$ 2,850,466	$ 2,918,878	$ 2,988,931	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.94	0.84	0.75	0.67	0.60	0.54	0.48	0.43	0.38	0.34	0.30	0.27	0.24	0.22	0.19
[10]	**Present Value**	**$ 9,182,504**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 20 - F1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 4 Year Delay, 14% Increase in CapEx Expenditures, 8% Discount Rate

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	Sum	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Silver Price (Real $ per oz)	(1)				$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	30,713,385	-	-	3,893,855	4,984,317	5,284,306	4,736,155	4,793,865	4,946,833	1,894,440	179,613	-			
Payable Gold (oz)	(2)	3,276	-	-	514	478	464	490	487	480	363	-	-			
Silver Revenue		$ 682,144	$ -	$ -	$ 86,483	$ 110,702	$ 117,364	$ 105,190	$ 106,472	$ 109,869	$ 42,076	$ 3,989	$ -	$ -	$ -	$ -
Gold Revenue		$ 4,311	$ -	$ -	$ 676	$ 629	$ 610	$ 645	$ 641	$ 632	$ 477	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 686,455**	**$ -**	**$ -**	**$ 87,159**	**$ 111,331**	**$ 117,975**	**$ 105,835**	**$ 107,113**	**$ 110,501**	**$ 42,553**	**$ 3,989**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (19,349)	$ -	$ -	$ (2,453)	$ (3,140)	$ (3,329)	$ (2,984)	$ (3,020)	$ (3,117)	$ (1,193)	$ (113)	$ -			
Net Smelter Return		**$ 667,105**	**$ -**	**$ -**	**$ 84,705**	**$ 108,191**	**$ 114,646**	**$ 102,851**	**$ 104,093**	**$ 107,384**	**$ 41,359**	**$ 3,876**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (9,290)	$ -	$ -	$ (1,094)	$ (1,564)	$ (1,693)	$ (1,457)	$ (1,482)	$ (1,548)	$ (414)	$ (39)	$ -	$ -	$ -	$ -
Net Revenue		**$ 657,816**	**$ -**	**$ -**	**$ 83,611**	**$ 106,627**	**$ 112,953**	**$ 101,394**	**$ 102,611**	**$ 105,837**	**$ 40,946**	**$ 3,837**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (278,313)	$ -	$ (8,687)	$ (42,940)	$ (46,849)	$ (46,472)	$ (43,644)	$ (40,994)	$ (35,531)	$ (13,196)	$ -	$ -			
Initial Capital Expenses	(2)	$ (82,633)	$ (12,915)	$ (69,718)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sustaining Capital Expenses	(2)	$ (8,857)	$ -	$ -	$ (567)	$ (7,438)	$ (512)	$ (340)	$ -	$ -	$ -	$ -	$ -	$ -		
Reclamation Capital Expenses	(2)	$ (10,543)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (1,062)	$ (2,089)	$ (3,601)	$ (65)	$ (741)	$ (737)	$ (733)
Employee Profit Sharing	(4)	**$ (24,323)**	**$ -**	**$ -**	**$ (2,259)**	**$ (3,739)**	**$ (4,228)**	**$ (3,524)**	**$ (3,831)**	**$ (4,649)**	**$ (1,948)**	**$ (146)**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 253,147**	**$ (12,915)**	**$ (78,405)**	**$ 37,841**	**$ 48,593**	**$ 61,730**	**$ 53,870**	**$ 57,767**	**$ 64,595**	**$ 23,713**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
Net Tax Expense	(5)	**$ (69,425)**	**$ -**	**$ -**	**$ -**	**$ (2,120)**	**$ (15,061)**	**$ (13,349)**	**$ (14,990)**	**$ (17,788)**	**$ (6,118)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 183,722**	**$ (12,915)**	**$ (78,405)**	**$ 37,841**	**$ 46,474**	**$ 46,669**	**$ 40,521**	**$ 42,777**	**$ 46,807**	**$ 17,594**	**$ 90**	**$ (65)**	**$ (741)**	**$ (737)**	**$ (733)**
IGV Recovered/ (Paid)	(6)	$ 7,733	$ (2,454)	$ (14,897)	$ 16,560	$ 9,233	$ -	$ -	$ -	$ -	$ -	$ -	$ (12)	$ (141)	$ (140)	$ (139)
Change in Working Capital	(2)	$ (0)	$ (440)	$ (1,501)	$ (13,885)	$ (3,588)	$ (503)	$ 7,017	$ (158)	$ (495)	$ 6,829	$ 6,795	$ (10)	$ (0)	$ (0)	$ (0)
Net Cash Flows (Real)		**$ 191,455**	**$ (15,809)**	**$ (94,804)**	**$ 40,516**	**$ 52,118**	**$ 46,166**	**$ 47,538**	**$ 42,619**	**$ 46,312**	**$ 24,423**	**$ 6,886**	**$ (87)**	**$ (882)**	**$ (877)**	**$ (873)**
Discount factor	(7)		0.7204	0.6793	0.6289	0.5823	0.5392	0.4992	0.4622	0.4279	0.3962	0.3668	0.3396	0.3145	0.2912	0.2696
Discounted Cash Flows (Real)		**$ 79,156**	**$ (11,388)**	**$ (64,399)**	**$ 25,481**	**$ 30,350**	**$ 24,892**	**$ 23,731**	**$ 19,697**	**$ 19,819**	**$ 9,677**	**$ 2,526**	**$ (30)**	**$ (277)**	**$ (255)**	**$ (235)**
Cost Arising from Delay																
Discounted Cash Flows Final	(8)	**$ 69,309**														

Notes:

Adjustments highlighted in yellow. The structure of the DCF comes from FTI Schedule 1 Extended Life Case. When implementing the FTI Base Case using RPA Base Case inputs, the final NPV was within $2 million of FTI's calculation of $191 million. See FTI Report, ¶ 7.55.

(1) FTI Prices.
(2) Per the RPA Base Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.
(8) Workpaper 20 - F2: Delay Costs Arising from Workpaper 20 - F1.

Workpaper 20 - F1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 4 Year Delay, 14% Increase in CapEx Expenditures, 8% Discount Rate

Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)																
Payable Gold (oz)	(2)																
Silver Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)																
Net Smelter Return		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)																
Initial Capital Expenses	(2)																
Sustaining Capital Expenses	(2)																
Reclamation Capital Expenses	(2)	$ (730)	$ (726)	$ -													
Employee Profit Sharing	(4)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Net Tax Expense	(5)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ (730)**	**$ (726)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
IGV Recovered/ (Paid)	(6)	$ (139)	$ (138)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ (60)	$ -	$ -													
Net Cash Flows (Real)		**$ (928)**	**$ (864)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Discount factor	(7)	0.2496	0.2311	0.2140	0.1981	0.1834	0.1698	0.1573	0.1456	0.1348	0.1248	0.1156	0.1070	0.0991	0.0917	0.0849	0.0786
Discounted Cash Flows (Real)		**$ (232)**	**$ (200)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Notes:

Adjustments highlighted in yellow.

(1) See **Figure 21**.

(2) Per the RPA Base Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 20 - F2: Delay Costs Arising from Workpaper 20 - F1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	4
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	8.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ 2,718,417	$ 2,850,466	$ 2,918,878	$ 2,988,931	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.96	0.89	0.82	0.76	0.71	0.65	0.61	0.56	0.52	0.48	0.45	0.41	0.38	0.35	0.33
[10]	**Present Value**	**$ 9,846,626**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 21: RPA - Cash Flow Summary - Base Case - Adjusted Using SRK Inputs

Date:	Santa Ana INPUTS	RPA INPUTS	UNITS	TOTAL	2010 Year -3	2011 Year -2	2012 Year -1	2013 Year 1	2014 Year 2	2015 Year 3	2016 Year 4	2017 Year 5	2018 Year 6	2019 Year 7	2020 Year 8	2021 Year 9	2022 Year 10	2023 Year 11	2024 Year 12	2025 Year 13	Year 14-18
MINING																					
Open Pit Mining																					
Operating Days	4,050	4,410	days	4,410			90	360	360	360	360	360	360	360	360	360	360	360	360	-	
Tonnes milled per day	9,155	5,396	tonnes / day	5,396			5,973	10,429	11,313	11,260	11,484	11,340	8,783	-	-	-	-	-	-	-	
Tonnes moved per day	27,087	13,421	tonnes / day	13,421			40,000	26,888	30,208	29,737	26,820	23,730	17,024	-	-	-	-	-	-	-	
Production	37,077	23,797	'000 tonnes	23,797			538	3,754	4,073	4,054	4,134	4,082	3,162	-	-	-	-	-	-	-	
Au	0.01	0.01	g/t	0.01			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	
Ag	53.00	57.49	g/t	57.49			42.60	52.46	58.67	61.62	53.87	55.90	65.99	-	-	-	-	-	-	-	
Waste	72,627	35,390	'000 tonnes	35,390			3,062	5,925	6,802	6,652	5,521	4,461	2,967	-	-	-	-	-	-	-	
Total Moved	109,704	59,187	'000 tonnes	59,187			3,600	9,680	10,875	10,705	9,655	8,543	6,129	-	-	-	-	-	-	-	
Stripping Ratio		1.49	w:o	1.49			5.70	1.58	1.67	1.64	1.34	1.09	0.94	-	-	-	-	-	-	-	
Contained Ounces	63,180	43,986	koz	43,986			736	6,333	7,681	8,030	7,160	7,337	6,708	-	-	-	-	-	-	-	
Crusher Feed																					
Production	34,113	42,980	'000 tonnes	20,826			413	3,105	3,600	3,600	3,600	3,600	2,908								
Au	0.01	0.01	g/t	0.01			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	
Ag	55.01	45.94	g/t	61.61			46.81	57.45	62.62	65.77	57.60	59.56	69.24								
Waste	72,627	35,390	'000 tonnes	35,390			3,062	5,925	6,802	6,652	5,521	4,461	2,967								
Total Moved	106,740	56,216	'000 tonnes	56,216			3,475	9,030	10,402	10,252	9,121	8,061	5,875	-	-	-	-	-	-	-	
Stripping Ratio	1.96	1.70	w:o	1.70			7.42	1.91	1.89	1.85	1.53	1.24	1.02	-	-	-	-	-	-	-	
Contained Ounces	57,317	41,251	koz	41,251			621	5,735	7,248	7,613	6,667	6,893	6,475	-	-	-	-	-	-	-	
Stockpile																					
Opening																					
Tonnes			'000 tonnes	-			-	125	774	1,247	1,701	2,235	2,717	2,279	-	-	-	-	-	-	
Ag Grade			g/t	-			-	28.73	28.65	28.62	28.62	28.64	28.64	28.64	-	-	-	-	-	-	
Au Grade			g/t	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Addition																					
Tonnes	2,964	2,971	'000 tonnes	2,971			125	649	473	454	534	482	253								
Ag Grade	29.87	28.64	g/t	28.64			28.73	28.64	28.55	28.64	28.71	28.63	28.64								
Au Grade	-	-	g/t	-				-	-	-	-	-	-	-	-	-	-	-	-	-	
Deduction																					
Tonnes	2,964	2,971	'000 tonnes	2,971			-	-	-	-	-	-	692	2,279	-	-	-	-	-	-	
Ag Grade	29.87	28.64	g/t	28.64			-	-	-	-	-	-	29	29	-	-	-	-	-	-	
Au Grade			g/t	-				-	-	-	-	-	-	-	-	-	-	-	-	-	
Closing																					
Tonnes			'000 tonnes	-			125	774	1,247	1,701	2,235	2,717	2,279	-	-	-	-	-	-	-	
Ag Grade			g/t	-			28.73	28.65	28.62	28.62	28.64	28.64	28.64	-	-	-	-	-	-	-	
Au Grade			g/t	-			-	-	-	-	-	-	-	-	-	-	-				
PROCESSING																					
Mill Feed	37,077	23,797	'000 tonnes	23,797				3,518	3,600	3,600	3,600	3,600	3,600	2,279	-	-					
Au	0.01	0.01	g/t	0.01				0.01	0.01	0.01	0.01	0.01	0.01	0.01							
Ag	53.00	57.49	g/t	57.49				56.20	62.62	65.77	57.60	59.56	61.44	28.64							
Contained Au	7,152	4,980	oz	4,980				736	753	753	753	753	753	477							
Contained Ag	63,179,803	43,986,230	oz	43,986,230				6,355,555	7,247,636	7,612,669	6,666,985	6,893,278	7,111,343	2,098,764							
Current Year Recovery																					
Au	100.0%	100.0%	%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Ag	65.8%	65.8%	%	61%				61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	
Previous Year Residual Recovery																					
Au	0.0%	0.0%	%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Ag	9.2%	9.2%	%	9%				9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
Net Recovery																					
Au	67%	67%	%	69%				73%	67%	65%	68%	68%	67%	80%	0%	0%	0%	0%	0%	0%	
Ag	75%	70%	%	70%				70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	
Total Average Recovery	75%	70%	%	70%				70%	70%	70%	70%	70%	70%	70%	-	-	-	-	-	-	
Current Year Recovery																					
Au	6,930	4,980	oz	4,980				736	753	753	753	753	753	477	-	-	-	-	-	-	
Ag	41,577,170	27,016,568	oz	27,016,568				3,903,614	4,451,535	4,675,740	4,094,897	4,233,887	4,367,824	1,289,071	-	-	-	-	-	-	
Previous Year Residual Recovery																					
Au	-	-	oz	-				-	-	-	-	-	-	-	-	-	-	-	-	-	
Ag	5,807,682	3,773,793	oz	3,773,793				-	545,274	621,810	653,128	571,993	591,408	610,117	180,063	-	-	-	-	-	-
Total Recovered																					
Au	**4,788**	**3,449**	**oz**	**3,449**				**541**	**503**	**488**	**516**	**513**	**505**	**382**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Ag	**47,384,852**	**30,790,361**	**oz**	**30,790,361**				**3,903,614**	**4,996,809**	**5,297,550**	**4,748,025**	**4,805,880**	**4,959,232**	**1,899,188**	**180,063**	**-**	**-**	**-**	**-**	**-**	**-**
REVENUE																					
Metal Prices			**Input Units**																		
Au	US$950 /oz Au	US$1434 /oz Au	US$/oz Au	$ 1,434				$ 1,505	$ 1,502	$ 1,515	$ 1,539	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316
Ag	US$14.50 /oz Ag	US$26.64 /oz Ag	US$/oz Ag	$ 26.64				$ 33.20	$ 31.83	$ 30.78	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Exchange Rate	$ 1.00	$ 1.00	US$/ US$	$ 1.00		$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Au Payable Percentage	95.00%	95.00%	US$ '000	95%				95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Ag Payable Percentage	99.75%	99.75%	US$ '000	100%				99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%
Au Payable			oz	3,276				514	478	464	490	487	480	363	-	-	-	-	-	-	-
Ag Payable			oz	30,713,385				3,893,855	4,984,317	5,284,306	4,736,155	4,793,865	4,946,833	1,894,440	179,613	-	-	-	-	-	-
Au Gross Revenue	$ 4,321	$ 4,699	US$ '000	$ 4,699				$ 773	$ 719	$ 703	$ 754	$ 641	$ 632	$ 477	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag Gross Revenue	$ 685,363	$ 818,173	US$ '000	$ 818,173				$ 129,276	$ 158,651	$ 162,651	$ 105,190	$ 106,472	$ 109,869	$ 42,076	$ 3,989	$ -	$ -	$ -	$ -	$ -	$ -
Total Gross Revenue	**$ 689,683**	**$ 822,873**	**US$ '000**	**$ 822,873**				**$ 130,049**	**$ 159,369**	**$ 163,354**	**$ 105,944**	**$ 107,113**	**$ 110,501**	**$ 42,553**	**$ 3,989**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Charges	$ 29,778	$ 19,349	US$ '000	$ 19,349				$ 2,453	$ 3,140	$ 3,329	$ 2,984	$ 3,020	$ 3,117	$ 1,193	$ 113	$ -	$ -	$ -	$ -	$ -	$ -
Net Smelter Return	$ 659,906	$ 803,523	US$ '000	$ 803,523				$ 127,596	$ 156,229	$ 160,025	$ 102,961	$ 104,093	$ 107,384	$ 41,359	$ 3,876	$ -	$ -	$ -	$ -	$ -	$ -
Royalty NSR	1%	1%	US$ '000	$ 4,052				$ 600	$ 600	$ 600	$ 600	$ 600	$ 600	$ 414	$ 39	$ -	$ -	$ -	$ -	$ -	$ -
	2%	2%	US$ '000	$ 6,289				$ 1,200	$ 1,200	$ 1,200	$ 859	$ 882	$ 948	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	3%	3%	US$ '000	$ 2,516				$ 228	$ 1,087	$ 1,201	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
				$ 32,206																	
Net Revenue	**$ 652,707**	**$ 790,667**	**US$ '000**	**$ 790,667**				**$ 125,568**	**$ 153,342**	**$ 157,024**	**$ 101,501**	**$ 102,611**	**$ 105,837**	**$ 40,946**	**$ 3,837**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Unit NSR	**$ 17.60**	**$ 33.23**	**US$/t milled**	**$ 33.23**				**$ 35.70**	**$ 42.60**	**$ 43.62**	**$ 28.19**	**$ 28.50**	**$ 29.40**	**$ 17.96**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
CUT-OFF GRADE																					

Workpaper 21: RPA - Cash Flow Summary - Base Case - Adjusted Using SRK Inputs

Date:	Santa Ana INPUTS	RPA INPUTS	UNITS	TOTAL	2010 Year -3	2011 Year -2	2012 Year -1	2013 Year 1	2014 Year 2	2015 Year 3	2016 Year 4	2017 Year 5	2018 Year 6	2019 Year 7	2020 Year 8	2021 Year 9	2022 Year 10	2023 Year 11	2024 Year 12	2025 Year 13	Year 14-18
OPERATING COST																					
Mining (Open Pit)	$ 1.68	$ 2.10	US$/t moved	$ 2.50			$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50
Crusher to Plant (Open Pit)	$ 0.71	$ 0.71	US$/t moved	$ 0.71			$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85
Mining (Open Pit)	$ 5.60	$ 6.39	US$/t milled	$ 6.39			$ -	$ 7.27	$ 8.07	$ 7.97	$ 7.18	$ 6.45	$ 4.93	$ 0.85	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Processing	$ 3.49	$ 3.49	US$/t milled	$ 3.49			$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 3.49	$ 4.49
G&A	$ 1.17	$ 1.45	US$/t milled	$ 1.45			$ -	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45	$ 1.45
Total Unit Operating Cost	**$ 10.26**	**$ 11.33**	**US$/t milled**	**$ 11.33**			**$ 3.49**	**$ 12.21**	**$ 13.01**	**$ 12.91**	**$ 12.12**	**$ 11.39**	**$ 9.87**	**$ 5.79**	**$ 4.94**	**$ 4.94**	**$ 4.94**	**$ 4.94**	**$ 4.94**	**$ 4.94**	**$ 5.94**
Mining (Open Pit)	$ 189,681	$ 140,540	US$ '000	$ 140,540			$ 8,687	$ 22,576	$ 26,006	$ 25,629	$ 22,802	$ 20,151	$ 14,688	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Crusher to Plant (Open Pit)	$ 26,173	$ 20,227	US$ '000	$ 20,227			$ -	$ 2,990	$ 3,060	$ 3,060	$ 3,060	$ 3,060	$ 3,060	$ 1,937	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Processing	$ 129,274	$ 82,970	US$ '000	$ 82,970			$ -	$ 12,264	$ 12,552	$ 12,552	$ 12,552	$ 12,552	$ 12,552	$ 7,947	$ -	$ -	$ -	$ -	$ -	$ -	$ -
G&A	$ 43,380	$ 34,575	US$ '000	$ 34,575			$ -	$ 5,111	$ 5,231	$ 5,231	$ 5,231	$ 5,231	$ 5,231	$ 3,312	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Cost	**$ 388,508**	**$ 278,313**	**US$ '000**	**$ 278,313**			**$ 8,687**	**$ 42,940**	**$ 46,849**	**$ 46,472**	**$ 43,644**	**$ 40,994**	**$ 35,531**	**$ 13,196**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Cashflow	$ 264,199	$ 512,354	US$ '000	$ 512,354			$ (8,687)	$ 82,628	$ 106,494	$ 110,552	$ 57,857	$ 61,617	$ 70,306	$ 27,750	$ 3,837	$ -	$ -	$ -	$ -	$ -	$ -
CAPITAL COST																					
Direct Cost																					
Mining			US$ '000	$ -				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Processing	$ 16,874	$ 16,874	US$ '000	$ 16,874		$ 3,375	$ 13,499	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Infrastructure	$ 25,794	$ 25,794	US$ '000	$ 25,794		$ 5,159	$ 20,636	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tailings	$ -	$ -	US$ '000	$ -		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Direct Cost	**$ 42,669**	**$ 42,669**	**US$ '000**	**$ 42,669**	**$ -**	**$ 8,534**	**$ 34,135**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Other Costs																					
23% Preprod Mine Dev & Equipment	$ 9,909	$ 9,909	US$ '000	$ 9,909	$ -	$ -	$ 9,909	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12% Owners	$ 4,226	$ 5,098	US$ '000	$ 5,098	$ -	$ -	$ 5,098	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
19% Indirect Costs (EPCM, Freight, Insurance, etc)	$ 7,947	$ 7,947	US$ '000	$ 7,947	$ -	$ 1,589	$ 6,357	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2% Spare Parts	$ 833	$ 833	US$ '000	$ 833	$ -	$ -	$ 833	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal Costs	**$ 65,583**	**$ 66,455**	**US$ '000**	**$ 66,455**	**$ -**	**$ 10,123**	**$ 56,331**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
																				$ -	**$ -**
14% Contingency	$ 6,031	$ 6,031	US$ '000	$ 6,031	$ -	$ 1,206	$ 4,824	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Cost	**$ 71,613**	**$ 72,485**	**US$ '000**	**$ 72,485**	**$ -**	**$ 11,329**	**$ 61,156**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Sustaining	$ 15,008	$ 7,769	US$ '000	$ 7,769	$ -	$ -	$ -	$ 497	$ 6,525	$ 449	$ 298	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Working Capital	$ -	$ 0	US$ '000	$ 0	$ -	$ 440	$ 1,501	$ 13,885	$ 3,588	$ 503	$ (7,017)	$ 158	$ 495	$ (6,829)	$ (6,795)	$ 10	$ 0	$ 0	$ 0	$ 60	$ -
Reclamation and closure	$ 10,662	$ 10,531	US$ '000	$ 10,531	$ -	$ -	$ -	$ 9	$ 17	$ 26	$ 1,058	$ 2,089	$ 3,601	$ 65	$ 741	$ 737	$ 733	$ 730	$ 726	$ -	$ -
Total Capital Cost	**$ 97,283**	**$ 90,786**	**US$ '000**	**$ 90,786**	**$ -**	**$ 11,769**	**$ 62,657**	**$ 14,391**	**$ 10,130**	**$ 978**	**$ (5,661)**	**$ 2,247**	**$ 4,096**	**$ (6,764)**	**$ (6,055)**	**$ 747**	**$ 734**	**$ 730**	**$ 726**	**$ 60**	**$ -**
CASH FLOW																					
Pre-Tax Cashflow		**$ 421,568**	US$ '000	$ 421,568	$ -	$ (11,769)	$ (71,345)	$ 68,237	$ 96,364	$ 109,574	$ 63,518	$ 59,370	$ 66,210	$ 34,514	$ 9,892	$ (747)	$ (734)	$ (730)	$ (726)	$ (60)	$ -
Cumulative Pre-Tax Cashflow			US$ '000		$ -	$ (11,769)	$ (83,114)	$ (14,877)	$ 81,486	$ 191,060	$ 254,579	$ 313,949	$ 380,159	$ 414,673	$ 424,565	$ 423,818	$ 423,085	$ 422,354	$ 421,628	$ 421,568	$ 421,568
Taxes (from Proforma)	0%	30%	US$ '000	$ 124,965	$ -	$ -	$ -	$ 18,257	$ 27,611	$ 28,832	$ 13,377	$ 14,155	$ 16,205	$ 5,672	$ 855	$ -	$ -	$ -	$ -	$ -	$ -
After-Tax Cashflow			US$ '000	$ 296,604	$ -	$ (11,769)	$ (71,345)	$ 49,980	$ 68,752	$ 80,742	$ 50,141	$ 45,215	$ 50,005	$ 28,842	$ 9,037	$ (747)	$ (734)	$ (730)	$ (726)	$ (60)	$ -
Cumulative After-Tax Cashflow			US$ '000		$ -	$ (11,769)	$ (83,114)	$ (33,134)	$ 35,618	$ 116,360	$ 166,501	$ 211,716	$ 261,721	$ 290,563	$ 299,600	$ 298,854	$ 298,120	$ 297,390	$ 296,663	$ 296,604	$ 296,604

Sources & Notes:

[1]: SRK Extended Life inputs are highlighted in green.
[2]: Recovery percentages for silver have been adjusted so that the total current year plus previous year recovery is equal to the SRK suggested 70%.
[3]: Sustaining capital costs in the original RPA Base Case Model ended two years prior to the last year of production. To be consistent, sustaining capital costs are equal to RPA's original model and then end in year 4.
[4]: Reclamation and closure costs follow the methodology of the RPA model and Feasibility study. Salvage value is assumed to be captured following the last year of production.

Workpaper 22 - A1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs
Bear Creek Mining Corporation v. Republic of Peru
Discounted Cash Flow of the Santa Ana Project
(in $ thousands unless noted otherwise)

Description	Notes	Sum	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Silver Price (Real $ per oz)	(1)				$ 33.20	$ 31.83	$ 30.78	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,505.16	$ 1,502.49	$ 1,514.61	$ 1,539.28	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	82,399,671	-	-	3,141,075	3,980,676	4,037,424	3,870,715	3,903,731	3,828,005	3,832,951	3,833,321	3,779,168	3,706,475	3,595,490	3,589,000
Payable Gold (oz)	(2)	8,079	-	-	286	337	331	343	338	341	343	347	346	344	350	361
Silver Revenue		$ 1,937,501	$ -	$ -	$ 104,281	$ 126,689	$ 124,279	$ 85,969	$ 86,702	$ 85,020	$ 85,130	$ 85,138	$ 83,935	$ 82,321	$ 79,856	$ 79,712
Gold Revenue		$ 10,888	$ -	$ -	$ 431	$ 506	$ 501	$ 528	$ 445	$ 448	$ 451	$ 457	$ 455	$ 453	$ 460	$ 475
Gross Revenue		**$ 1,948,389**	**$ -**	**$ -**	**$ 104,712**	**$ 127,195**	**$ 124,780**	**$ 86,496**	**$ 87,147**	**$ 85,468**	**$ 85,581**	**$ 85,595**	**$ 84,390**	**$ 82,773**	**$ 80,316**	**$ 80,186**
Transportation and Treatment	(2)	$ (51,912)	$ -	$ -	$ (1,979)	$ (2,508)	$ (2,544)	$ (2,439)	$ (2,459)	$ (2,412)	$ (2,415)	$ (2,415)	$ (2,381)	$ (2,335)	$ (2,265)	$ (2,261)
Net Smelter Return		**$ 1,896,477**	**$ -**	**$ -**	**$ 102,733**	**$ 124,687**	**$ 122,236**	**$ 84,058**	**$ 84,688**	**$ 83,057**	**$ 83,166**	**$ 83,180**	**$ 82,009**	**$ 80,438**	**$ 78,051**	**$ 77,925**
Peruvian Production Royalty	(3)	$ (23,794)	$ -	$ -	$ (1,455)	$ (1,941)	$ (1,867)	$ (1,081)	$ (1,094)	$ (1,061)	$ (1,063)	$ (1,064)	$ (1,040)	$ (1,009)	$ (961)	$ (959)
Net Revenue		**$ 1,872,684**	**$ -**	**$ -**	**$ 101,279**	**$ 122,746**	**$ 120,369**	**$ 82,977**	**$ 83,594**	**$ 81,995**	**$ 82,103**	**$ 82,116**	**$ 80,969**	**$ 79,430**	**$ 77,090**	**$ 76,967**
Operating Expenses	(2)	$ (997,616)	$ -	$ -	$ (42,980)	$ (45,334)	$ (41,825)	$ (42,878)	$ (40,990)	$ (40,916)	$ (42,045)	$ (42,591)	$ (43,294)	$ (44,548)	$ (44,420)	$ (44,397)
Initial Capital Expenses	(2)	$ (72,485)	$ (11,329)	$ (61,156)												
Sustaining Capital Expenses	(2)	$ (29,208)	$ -	$ -	$ (497)	$ (6,525)	$ (449)	$ (298)	$ (5,940)	$ (278)	$ (187)	$ (200)	$ (205)	$ (429)	$ (5,000)	$ (300)
Reclamation Capital Expenses	(2)	$ (19,133)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (24)	$ (28)	$ (32)	$ (36)	$ (1,062)	$ (2,089)	$ (3,601)
Employee Profit Sharing	(4)	**$ (61,425)**	**$ -**	**$ -**	**$ (3,791)**	**$ (5,278)**	**$ (5,327)**	**$ (2,246)**	**$ (2,409)**	**$ (2,363)**	**$ (2,912)**	**$ (2,994)**	**$ (2,910)**	**$ (2,694)**	**$ (2,469)**	**$ (2,455)**
Pre-tax Cash Flows		**$ 692,817**	**$ (11,329)**	**$ (61,156)**	**$ 54,007**	**$ 65,602**	**$ 72,757**	**$ 37,539**	**$ 34,235**	**$ 38,415**	**$ 36,931**	**$ 36,300**	**$ 34,526**	**$ 30,697**	**$ 23,112**	**$ 26,214**
Net Tax Expense	(5)	**$ (196,075)**	**$ -**	**$ -**	**$ -**	**$ (15,512)**	**$ (18,794)**	**$ (8,795)**	**$ (9,822)**	**$ (9,638)**	**$ (9,546)**	**$ (9,668)**	**$ (9,383)**	**$ (8,767)**	**$ (8,091)**	**$ (7,929)**
After-tax Cash Flows		**$ 496,742**	**$ (11,329)**	**$ (61,156)**	**$ 54,007**	**$ 50,090**	**$ 53,963**	**$ 28,743**	**$ 24,413**	**$ 28,778**	**$ 27,384**	**$ 26,632**	**$ 25,143**	**$ 21,930**	**$ 15,021**	**$ 18,285**
IGV Recovered/ (Paid)	(6)	$ 7,709	$ (2,153)	$ (11,620)	$ 19,895	$ 2,319	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ 0	$ (440)	$ (1,835)	$ (10,597)	$ (2,728)	$ 151	$ 4,747	$ (332)	$ 191	$ 27	$ 19	$ 162	$ 309	$ 227	$ 142
Net Cash Flows (Real)		**$ 504,451**	**$ (13,922)**	**$ (74,610)**	**$ 63,305**	**$ 49,681**	**$ 54,114**	**$ 33,491**	**$ 24,081**	**$ 28,968**	**$ 27,412**	**$ 26,651**	**$ 25,305**	**$ 22,239**	**$ 15,248**	**$ 18,427**
Discount factor	(7)		0.9754	0.9070	0.8244	0.7495	0.6813	0.6193	0.5629	0.5118	0.4652	0.4229	0.3844	0.3494	0.3177	0.2888
Discounted Cash Flows (Real)		**$ 178,438**	**$ (13,579)**	**$ (67,668)**	**$ 52,188**	**$ 37,234**	**$ 36,869**	**$ 20,741**	**$ 13,556**	**$ 14,825**	**$ 12,753**	**$ 11,270**	**$ 9,727**	**$ 7,771**	**$ 4,844**	**$ 5,321**
Cost Arising from Delay		$ -														
Discounted Cash Flows Final	(8)	**$ 178,438**														

Notes:
Adjustments are highlighted in green.
(1) FTI prices.
(2) Per the RPA Extended Life Case, as adjusted with SRK revised inputs.
(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).
(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).
(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).
(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.
(8) Workpaper 22 - A2: Delay Costs Arising from Workpaper 22 - A1.

Workpaper 22 - A1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs

Bear Creek Mining Corporation v. Republic of Peru

Discounted Cash Flow of the Santa Ana Project

(in $ thousands unless noted otherwise)

Description	Notes	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	3,500,057	3,285,758	3,225,609	3,234,959	3,024,878	3,197,161	3,327,686	3,354,205	3,592,247	2,347,360	1,873,429	2,928,339	405,996	3,956	-	-	-	-	-
Payable Gold (oz)	(2)	367	371	373	349	321	363	362	364	356	196	234	357	-	-	-	-	-	-	-
Silver Revenue		$ 77,736	$ 72,977	$ 71,641	$ 71,848	$ 67,183	$ 71,009	$ 73,908	$ 74,497	$ 79,784	$ 52,135	$ 41,609	$ 65,038	$ 9,017	$ 88	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ 483	$ 489	$ 491	$ 459	$ 422	$ 477	$ 476	$ 479	$ 469	$ 258	$ 307	$ 469	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 78,220**	**$ 73,465**	**$ 72,131**	**$ 72,307**	**$ 67,605**	**$ 71,486**	**$ 74,384**	**$ 74,976**	**$ 80,253**	**$ 52,393**	**$ 41,916**	**$ 65,507**	**$ 9,017**	**$ 88**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (2,205)	$ (2,070)	$ (2,032)	$ (2,038)	$ (1,906)	$ (2,014)	$ (2,096)	$ (2,113)	$ (2,263)	$ (1,479)	$ (1,180)	$ (1,845)	$ (256)	$ (2)	$ -	$ -	$ -	$ -	$ -
Net Smelter Return		**$ 76,015**	**$ 71,395**	**$ 70,099**	**$ 70,269**	**$ 65,699**	**$ 69,472**	**$ 72,288**	**$ 72,863**	**$ 77,990**	**$ 50,914**	**$ 40,736**	**$ 63,663**	**$ 8,761**	**$ 85**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (920)	$ (828)	$ (802)	$ (805)	$ (714)	$ (789)	$ (846)	$ (857)	$ (960)	$ (509)	$ (407)	$ (673)	$ (88)	$ (1)	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ 75,094**	**$ 70,567**	**$ 69,297**	**$ 69,464**	**$ 64,985**	**$ 68,682**	**$ 71,442**	**$ 72,006**	**$ 77,030**	**$ 50,405**	**$ 40,329**	**$ 62,989**	**$ 8,674**	**$ 85**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (45,626)	$ (45,617)	$ (46,074)	$ (45,395)	$ (44,043)	$ (45,816)	$ (41,553)	$ (38,602)	$ (37,441)	$ (38,400)	$ (12,041)	$ (40,510)	$ (284)	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenses	(2)																			
Sustaining Capital Expenses	(2)	$ (300)	$ (300)	$ (5,000)	$ (300)	$ (300)	$ (300)	$ (300)	$ (300)	$ (300)	$ (300)	$ (300)	$ (300)	$ (300)	$ (300)	$ -	$ -	$ -	$ -	$ -
Reclamation Capital Expenses	(2)	$ (784)	$ (774)	$ (773)	$ (738)	$ (682)	$ (756)	$ (764)	$ (769)	$ (774)	$ (452)	$ (474)	$ (728)	$ (5)	$ (65)	$ (741)	$ (737)	$ (733)	$ (730)	$ (726)
Employee Profit Sharing	(4)	**$ (2,192)**	**$ (1,821)**	**$ (1,644)**	**$ (1,674)**	**$ (1,427)**	**$ (1,643)**	**$ (2,245)**	**$ (2,532)**	**$ (3,027)**	**$ (869)**	**$ (2,184)**	**$ (1,721)**	**$ (598)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 26,192**	**$ 22,055**	**$ 15,806**	**$ 21,357**	**$ 18,533**	**$ 20,169**	**$ 26,580**	**$ 29,803**	**$ 35,488**	**$ 10,385**	**$ 25,330**	**$ 19,731**	**$ 7,487**	**$ (280)**	**$ (741)**	**$ (737)**	**$ (733)**	**$ (730)**	**$ (726)**
Net Tax Expense	(5)	**$ (7,149)**	**$ (6,047)**	**$ (5,555)**	**$ (5,779)**	**$ (5,043)**	**$ (5,657)**	**$ (7,661)**	**$ (8,692)**	**$ (10,449)**	**$ (2,870)**	**$ (7,409)**	**$ (5,836)**	**$ (1,984)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 19,043**	**$ 16,008**	**$ 10,251**	**$ 15,578**	**$ 13,491**	**$ 14,512**	**$ 18,919**	**$ 21,111**	**$ 25,040**	**$ 7,514**	**$ 17,921**	**$ 13,895**	**$ 5,503**	**$ (280)**	**$ (741)**	**$ (737)**	**$ (733)**	**$ (730)**	**$ (726)**
IGV Recovered/ (Paid)	(6)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (37)	$ (141)	$ (140)	$ (139)	$ (139)	$ (138)
Change in Working Capital	(2)	$ 47	$ 558	$ 27	$ (87)	$ 458	$ (345)	$ (516)	$ (189)	$ (687)	$ 3,112	$ 267	$ (1,405)	$ 4,501	$ 1,059	$ 66	$ 2,990	$ -	$ -	$ 100
Net Cash Flows (Real)		**$ 19,090**	**$ 16,565**	**$ 10,278**	**$ 15,490**	**$ 13,949**	**$ 14,167**	**$ 18,403**	**$ 20,922**	**$ 24,352**	**$ 10,626**	**$ 18,188**	**$ 12,490**	**$ 10,004**	**$ 742**	**$ (815)**	**$ 2,113**	**$ (873)**	**$ (868)**	**$ (764)**
Discount factor	(7)	0.2625	0.2386	0.2169	0.1972	0.1792	0.1629	0.1481	0.1346	0.1224	0.1113	0.1011	0.0919	0.0836	0.0760	0.0691	0.0628	0.0571	0.0519	0.0472
Discounted Cash Flows (Real)		**$ 5,011**	**$ 3,953**	**$ 2,230**	**$ 3,054**	**$ 2,500**	**$ 2,308**	**$ 2,726**	**$ 2,817**	**$ 2,980**	**$ 1,182**	**$ 1,840**	**$ 1,148**	**$ 836**	**$ 56**	**$ (56)**	**$ 133**	**$ (50)**	**$ (45)**	**$ (36)**

Notes:

Adjustments are highlighted in green.

(1) FTI prices.

(2) Per the RPA Extended Life Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 22 - A2: Delay Costs Arising from Workpaper 22 - A1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	-
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	10.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.95	0.87	0.79	0.72	0.65	0.59	0.54	0.49	0.44	0.40	0.37	0.33	0.30	0.28	0.25
[10]	**Present Value**	**$ -**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 22 - B1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs and 14% Capex Overrun

Bear Creek Mining Corporation v. Republic of Peru

Discounted Cash Flow of the Santa Ana Project

(in $ thousands unless noted otherwise)

Description	Notes	Sum	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Silver Price (Real $ per oz)	(1)				$ 33.20	$ 31.83	$ 30.78	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,505.16	$ 1,502.49	$ 1,514.61	$ 1,539.28	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	82,399,671	-	-	3,141,075	3,980,676	4,037,424	3,870,715	3,903,731	3,828,005	3,832,951	3,833,321	3,779,168	3,706,475	3,595,490	3,589,000
Payable Gold (oz)	(2)	8,079	-	-	286	337	331	343	338	341	343	347	346	344	350	361
Silver Revenue		$ 1,937,501	$ -	$ -	$ 104,281	$ 126,689	$ 124,279	$ 85,969	$ 86,702	$ 85,020	$ 85,130	$ 85,138	$ 83,935	$ 82,321	$ 79,856	$ 79,712
Gold Revenue		$ 10,888	$ -	$ -	$ 431	$ 506	$ 501	$ 528	$ 445	$ 448	$ 451	$ 457	$ 455	$ 453	$ 460	$ 475
Gross Revenue		**$ 1,948,389**	**$ -**	**$ -**	**$ 104,712**	**$ 127,195**	**$ 124,780**	**$ 86,496**	**$ 87,147**	**$ 85,468**	**$ 85,581**	**$ 85,595**	**$ 84,390**	**$ 82,773**	**$ 80,316**	**$ 80,186**
Transportation and Treatment	(2)	$ (51,912)	$ -	$ -	$ (1,979)	$ (2,508)	$ (2,544)	$ (2,439)	$ (2,459)	$ (2,412)	$ (2,415)	$ (2,415)	$ (2,381)	$ (2,335)	$ (2,265)	$ (2,261)
Net Smelter Return		**$ 1,896,477**	**$ -**	**$ -**	**$ 102,733**	**$ 124,687**	**$ 122,236**	**$ 84,058**	**$ 84,688**	**$ 83,057**	**$ 83,166**	**$ 83,180**	**$ 82,009**	**$ 80,438**	**$ 78,051**	**$ 77,925**
Peruvian Production Royalty	(3)	$ (23,794)	$ -	$ -	$ (1,455)	$ (1,941)	$ (1,867)	$ (1,081)	$ (1,094)	$ (1,061)	$ (1,063)	$ (1,064)	$ (1,040)	$ (1,009)	$ (961)	$ (959)
Net Revenue		**$ 1,872,684**	**$ -**	**$ -**	**$ 101,279**	**$ 122,746**	**$ 120,369**	**$ 82,977**	**$ 83,594**	**$ 81,995**	**$ 82,103**	**$ 82,116**	**$ 80,969**	**$ 79,430**	**$ 77,090**	**$ 76,967**
Operating Expenses	(2)	$ (997,616)	$ -	$ -	$ (42,980)	$ (45,334)	$ (41,825)	$ (42,878)	$ (40,990)	$ (40,916)	$ (42,045)	$ (42,591)	$ (43,294)	$ (44,548)	$ (44,420)	$ (44,397)
Initial Capital Expenses	(2)	$ (82,633)	$ (12,915)	$ (69,718)												
Sustaining Capital Expenses	(2)	$ (33,297)	$ -	$ -	$ (567)	$ (7,438)	$ (512)	$ (340)	$ (6,772)	$ (317)	$ (214)	$ (228)	$ (233)	$ (489)	$ (5,700)	$ (342)
Reclamation Capital Expenses	(2)	$ (19,133)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (24)	$ (28)	$ (32)	$ (36)	$ (1,062)	$ (2,089)	$ (3,601)
Employee Profit Sharing	(4)	**$ (60,380)**	**$ -**	**$ -**	**$ (3,669)**	**$ (5,150)**	**$ (5,193)**	**$ (2,112)**	**$ (2,269)**	**$ (2,234)**	**$ (2,871)**	**$ (2,971)**	**$ (2,895)**	**$ (2,681)**	**$ (2,453)**	**$ (2,443)**
Pre-tax Cash Flows		**$ 679,625**	**$ (12,915)**	**$ (69,718)**	**$ 54,059**	**$ 64,817**	**$ 72,828**	**$ 37,631**	**$ 33,543**	**$ 38,506**	**$ 36,945**	**$ 36,295**	**$ 34,512**	**$ 30,649**	**$ 22,428**	**$ 26,184**
Net Tax Expense	(5)	**$ (192,229)**	**$ -**	**$ -**	**$ -**	**$ (14,458)**	**$ (18,390)**	**$ (8,477)**	**$ (9,551)**	**$ (9,400)**	**$ (9,336)**	**$ (9,495)**	**$ (9,241)**	**$ (8,651)**	**$ (7,978)**	**$ (7,816)**
After-tax Cash Flows		**$ 487,396**	**$ (12,915)**	**$ (69,718)**	**$ 54,059**	**$ 50,359**	**$ 54,438**	**$ 29,154**	**$ 23,992**	**$ 29,106**	**$ 27,610**	**$ 26,800**	**$ 25,270**	**$ 21,998**	**$ 14,450**	**$ 18,368**
IGV Recovered/ (Paid)	(6)	$ 7,701	$ (2,454)	$ (13,246)	$ 19,895	$ 4,247	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ 0	$ (440)	$ (1,835)	$ (10,597)	$ (2,728)	$ 151	$ 4,747	$ (332)	$ 191	$ 27	$ 19	$ 162	$ 309	$ 227	$ 142
Net Cash Flows (Real)		**$ 495,097**	**$ (15,809)**	**$ (84,799)**	**$ 63,357**	**$ 51,878**	**$ 54,589**	**$ 33,901**	**$ 23,660**	**$ 29,296**	**$ 27,637**	**$ 26,819**	**$ 25,432**	**$ 22,307**	**$ 14,678**	**$ 18,511**
Discount factor	(7)		0.9754	0.9070	0.8244	0.7495	0.6813	0.6193	0.5629	0.5118	0.4652	0.4229	0.3844	0.3494	0.3177	0.2888
Discounted Cash Flows (Real)		**$ 169,564**	**$ (15,420)**	**$ (76,909)**	**$ 52,232**	**$ 38,880**	**$ 37,193**	**$ 20,995**	**$ 13,319**	**$ 14,992**	**$ 12,858**	**$ 11,341**	**$ 9,776**	**$ 7,795**	**$ 4,663**	**$ 5,345**
Cost Arising from Delay		$ -														
Discounted Cash Flows Final	(8)	**$ 169,564**														

Notes:

Adjustments are highlighted in green.

(1) FTI prices.

(2) Per the RPA Extended Life Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

(8) Workpaper 22 - B2: Delay Costs Arising from Workpaper 22 - B1.

Workpaper 22 - B1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs and 14% Capex Overrun

Bear Creek Mining Corporation v. Republic of Peru

Discounted Cash Flow of the Santa Ana Project

(in $ thousands unless noted otherwise)

Description	Notes	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	3,500,057	3,285,758	3,225,609	3,234,959	3,024,878	3,197,161	3,327,686	3,354,205	3,592,247	2,347,360	1,873,429	2,928,339	405,996	3,956	-	-	-	-	-
Payable Gold (oz)	(2)	367	371	373	349	321	363	362	364	356	196	234	357	-	-	-	-	-	-	-
Silver Revenue		$ 77,736	$ 72,977	$ 71,641	$ 71,848	$ 67,183	$ 71,009	$ 73,908	$ 74,497	$ 79,784	$ 52,135	$ 41,609	$ 65,038	$ 9,017	$ 88	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ 483	$ 489	$ 491	$ 459	$ 422	$ 477	$ 476	$ 479	$ 469	$ 258	$ 307	$ 469	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 78,220**	**$ 73,465**	**$ 72,131**	**$ 72,307**	**$ 67,605**	**$ 71,486**	**$ 74,384**	**$ 74,976**	**$ 80,253**	**$ 52,393**	**$ 41,916**	**$ 65,507**	**$ 9,017**	**$ 88**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (2,205)	$ (2,070)	$ (2,032)	$ (2,038)	$ (1,906)	$ (2,014)	$ (2,096)	$ (2,113)	$ (2,263)	$ (1,479)	$ (1,180)	$ (1,845)	$ (256)	$ (2)	$ -	$ -	$ -	$ -	$ -
Net Smelter Return		**$ 76,015**	**$ 71,395**	**$ 70,099**	**$ 70,269**	**$ 65,699**	**$ 69,472**	**$ 72,288**	**$ 72,863**	**$ 77,990**	**$ 50,914**	**$ 40,736**	**$ 63,663**	**$ 8,761**	**$ 85**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (920)	$ (828)	$ (802)	$ (805)	$ (714)	$ (789)	$ (846)	$ (857)	$ (960)	$ (509)	$ (407)	$ (673)	$ (88)	$ (1)	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ 75,094**	**$ 70,567**	**$ 69,297**	**$ 69,464**	**$ 64,985**	**$ 68,682**	**$ 71,442**	**$ 72,006**	**$ 77,030**	**$ 50,405**	**$ 40,329**	**$ 62,989**	**$ 8,674**	**$ 85**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (45,626)	$ (45,617)	$ (46,074)	$ (45,395)	$ (44,043)	$ (45,816)	$ (41,553)	$ (38,602)	$ (37,441)	$ (38,400)	$ (12,041)	$ (40,510)	$ (284)	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenses	(2)																			
Sustaining Capital Expenses	(2)	$ (342)	$ (342)	$ (5,700)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ -	$ -	$ -	$ -	$ -
Reclamation Capital Expenses	(2)	$ (784)	$ (774)	$ (773)	$ (738)	$ (682)	$ (756)	$ (764)	$ (769)	$ (774)	$ (452)	$ (474)	$ (728)	$ (5)	$ (65)	$ (741)	$ (737)	$ (733)	$ (730)	$ (726)
Employee Profit Sharing	(4)	**$ (2,181)**	**$ (1,810)**	**$ (1,629)**	**$ (1,654)**	**$ (1,408)**	**$ (1,630)**	**$ (2,234)**	**$ (2,521)**	**$ (3,015)**	**$ (864)**	**$ (2,181)**	**$ (1,717)**	**$ (595)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 26,161**	**$ 22,024**	**$ 15,121**	**$ 21,334**	**$ 18,510**	**$ 20,139**	**$ 26,550**	**$ 29,772**	**$ 35,458**	**$ 10,347**	**$ 25,291**	**$ 19,692**	**$ 7,448**	**$ (322)**	**$ (741)**	**$ (737)**	**$ (733)**	**$ (730)**	**$ (726)**
Net Tax Expense	(5)	**$ (7,057)**	**$ (5,971)**	**$ (5,474)**	**$ (5,694)**	**$ (4,973)**	**$ (5,598)**	**$ (7,612)**	**$ (8,651)**	**$ (10,414)**	**$ (2,838)**	**$ (7,381)**	**$ (5,811)**	**$ (1,962)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 19,105**	**$ 16,053**	**$ 9,647**	**$ 15,640**	**$ 13,537**	**$ 14,541**	**$ 18,938**	**$ 21,122**	**$ 25,044**	**$ 7,509**	**$ 17,910**	**$ 13,881**	**$ 5,486**	**$ (322)**	**$ (741)**	**$ (737)**	**$ (733)**	**$ (730)**	**$ (726)**
IGV Recovered/ (Paid)	(6)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (45)	$ (141)	$ (140)	$ (139)	$ (139)	$ (138)
Change in Working Capital	(2)	$ 47	$ 558	$ 27	$ (87)	$ 458	$ (345)	$ (516)	$ (189)	$ (687)	$ 3,112	$ 267	$ (1,405)	$ 4,501	$ 1,059	$ 66	$ 2,990	$ -	$ -	$ 100
Net Cash Flows (Real)		**$ 19,152**	**$ 16,610**	**$ 9,675**	**$ 15,553**	**$ 13,996**	**$ 14,196**	**$ 18,422**	**$ 20,933**	**$ 24,356**	**$ 10,620**	**$ 18,177**	**$ 12,477**	**$ 9,987**	**$ 692**	**$ (815)**	**$ 2,113**	**$ (873)**	**$ (868)**	**$ (764)**
Discount factor	(7)	0.2625	0.2386	0.2169	0.1972	0.1792	0.1629	0.1481	0.1346	0.1224	0.1113	0.1011	0.0919	0.0836	0.0760	0.0691	0.0628	0.0571	0.0519	0.0472
Discounted Cash Flows (Real)		**$ 5,027**	**$ 3,963**	**$ 2,099**	**$ 3,067**	**$ 2,508**	**$ 2,313**	**$ 2,729**	**$ 2,818**	**$ 2,981**	**$ 1,182**	**$ 1,838**	**$ 1,147**	**$ 835**	**$ 53**	**$ (56)**	**$ 133**	**$ (50)**	**$ (45)**	**$ (36)**

Notes:

Adjustments are highlighted in green.

(1) FTI prices.

(2) Per the RPA Extended Life Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 22 - B2: Delay Costs Arising from Workpaper 22 - B1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	-
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	10.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.95	0.87	0.79	0.72	0.65	0.59	0.54	0.49	0.44	0.40	0.37	0.33	0.30	0.28	0.25
[10]	**Present Value**	**$ -**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 22 - C1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 1 Year Delay and 14% Increase in CapEx Expenditures

Bear Creek Mining Corporation v. Republic of Peru

Discounted Cash Flow of the Santa Ana Project

(in $ thousands unless noted otherwise)

Description	Notes	Sum	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Silver Price (Real $ per oz)	(1)				$ 31.83	$ 30.78	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,502.49	$ 1,514.61	$ 1,539.28	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	82,399,671	-	-	3,141,075	3,980,676	4,037,424	3,870,715	3,903,731	3,828,005	3,832,951	3,833,321	3,779,168	3,706,475	3,595,490	3,589,000
Payable Gold (oz)	(2)	8,079	-	-	286	337	331	343	338	341	343	347	346	344	350	361
Silver Revenue		$ 1,894,423	$ -	$ -	$ 99,968	$ 122,532	$ 89,671	$ 85,969	$ 86,702	$ 85,020	$ 85,130	$ 85,138	$ 83,935	$ 82,321	$ 79,856	$ 79,712
Gold Revenue		$ 10,823	$ -	$ -	$ 430	$ 510	$ 509	$ 451	$ 445	$ 448	$ 451	$ 457	$ 455	$ 453	$ 460	$ 475
Gross Revenue		**$ 1,905,246**	**$ -**	**$ -**	**$ 100,397**	**$ 123,043**	**$ 90,180**	**$ 86,420**	**$ 87,147**	**$ 85,468**	**$ 85,581**	**$ 85,595**	**$ 84,390**	**$ 82,773**	**$ 80,316**	**$ 80,186**
Transportation and Treatment	(2)	$ (51,912)	$ -	$ -	$ (1,979)	$ (2,508)	$ (2,544)	$ (2,439)	$ (2,459)	$ (2,412)	$ (2,415)	$ (2,415)	$ (2,381)	$ (2,335)	$ (2,265)	$ (2,261)
Net Smelter Return		**$ 1,853,334**	**$ -**	**$ -**	**$ 98,419**	**$ 120,535**	**$ 87,636**	**$ 83,981**	**$ 84,688**	**$ 83,057**	**$ 83,166**	**$ 83,180**	**$ 82,009**	**$ 80,438**	**$ 78,051**	**$ 77,925**
Peruvian Production Royalty	(3)	$ (22,867)	$ -	$ -	$ (1,368)	$ (1,816)	$ (1,153)	$ (1,080)	$ (1,094)	$ (1,061)	$ (1,063)	$ (1,064)	$ (1,040)	$ (1,009)	$ (961)	$ (959)
Net Revenue		**$ 1,830,467**	**$ -**	**$ -**	**$ 97,050**	**$ 118,719**	**$ 86,484**	**$ 82,901**	**$ 83,594**	**$ 81,995**	**$ 82,103**	**$ 82,116**	**$ 80,969**	**$ 79,430**	**$ 77,090**	**$ 76,967**
Operating Expenses	(2)	$ (997,616)	$ -	$ -	$ (42,980)	$ (45,334)	$ (41,825)	$ (42,878)	$ (40,990)	$ (40,916)	$ (42,045)	$ (42,591)	$ (43,294)	$ (44,548)	$ (44,420)	$ (44,397)
Initial Capital Expenses	(2)	$ (82,633)	$ (12,915)	$ (69,718)												
Sustaining Capital Expenses	(2)	$ (33,297)	$ -	$ -	$ (567)	$ (7,438)	$ (512)	$ (340)	$ (6,772)	$ (317)	$ (214)	$ (228)	$ (233)	$ (489)	$ (5,700)	$ (342)
Reclamation Capital Expenses	(2)	$ (19,133)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (24)	$ (28)	$ (32)	$ (36)	$ (1,062)	$ (2,089)	$ (3,601)
Employee Profit Sharing	(4)	**$ (57,003)**	**$ -**	**$ -**	**$ (3,331)**	**$ (4,828)**	**$ (2,482)**	**$ (2,106)**	**$ (2,269)**	**$ (2,234)**	**$ (2,871)**	**$ (2,971)**	**$ (2,895)**	**$ (2,681)**	**$ (2,453)**	**$ (2,443)**
Pre-tax Cash Flows		**$ 640,785**	**$ (12,915)**	**$ (69,718)**	**$ 50,169**	**$ 61,111**	**$ 41,653**	**$ 37,562**	**$ 33,543**	**$ 38,506**	**$ 36,945**	**$ 36,295**	**$ 34,512**	**$ 30,649**	**$ 22,428**	**$ 26,184**
Net Tax Expense	(5)	**$ (180,577)**	**$ -**	**$ -**	**$ -**	**$ (12,180)**	**$ (9,038)**	**$ (8,456)**	**$ (9,551)**	**$ (9,400)**	**$ (9,336)**	**$ (9,495)**	**$ (9,241)**	**$ (8,651)**	**$ (7,978)**	**$ (7,816)**
After-tax Cash Flows		**$ 460,208**	**$ (12,915)**	**$ (69,718)**	**$ 50,169**	**$ 48,932**	**$ 32,615**	**$ 29,106**	**$ 23,992**	**$ 29,106**	**$ 27,610**	**$ 26,800**	**$ 25,270**	**$ 21,998**	**$ 14,450**	**$ 18,368**
IGV Recovered/ (Paid)	(6)	$ 7,701	$ (2,454)	$ (13,246)	$ 19,076	$ 5,067	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ 0	$ (440)	$ (1,835)	$ (10,597)	$ (2,728)	$ 151	$ 4,747	$ (332)	$ 191	$ 27	$ 19	$ 162	$ 309	$ 227	$ 142
Net Cash Flows (Real)		**$ 467,909**	**$ (15,809)**	**$ (84,799)**	**$ 58,648**	**$ 51,271**	**$ 32,767**	**$ 33,853**	**$ 23,660**	**$ 29,296**	**$ 27,637**	**$ 26,819**	**$ 25,432**	**$ 22,307**	**$ 14,678**	**$ 18,511**
Discount factor	(7)		0.8867	0.8245	0.7495	0.6813	0.6194	0.5630	0.5118	0.4652	0.4229	0.3844	0.3494	0.3177	0.2888	0.2625
Discounted Cash Flows (Real)		**$ 136,663**	**$ (14,018)**	**$ (69,917)**	**$ 43,954**	**$ 34,932**	**$ 20,295**	**$ 19,059**	**$ 12,108**	**$ 13,630**	**$ 11,689**	**$ 10,310**	**$ 8,887**	**$ 7,086**	**$ 4,239**	**$ 4,859**
Cost Arising from Delay		$ (2,592)														
Discounted Cash Flows Final	(8)	**$ 134,071**														

Notes:

Adjustments are highlighted in green.

(1) FTI prices.

(2) Per the RPA Extended Life Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

(8) Workpaper 22 - C2: Delay Costs Arising from Workpaper 22 - C1.

Workpaper 22 - C1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 1 Year Delay and 14% Increase in CapEx Expenditures

Bear Creek Mining Corporation v. Republic of Peru

Discounted Cash Flow of the Santa Ana Project

(in $ thousands unless noted otherwise)

Description	Notes	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	3,500,057	3,285,758	3,225,609	3,234,959	3,024,878	3,197,161	3,327,686	3,354,205	3,592,247	2,347,360	1,873,429	2,928,339	405,996	3,956	-	-	-	-	-
Payable Gold (oz)	(2)	367	371	373	349	321	363	362	364	356	196	234	357	-	-	-	-	-	-	-
Silver Revenue		$ 77,736	$ 72,977	$ 71,641	$ 71,848	$ 67,183	$ 71,009	$ 73,908	$ 74,497	$ 79,784	$ 52,135	$ 41,609	$ 65,038	$ 9,017	$ 88	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ 483	$ 489	$ 491	$ 459	$ 422	$ 477	$ 476	$ 479	$ 469	$ 258	$ 307	$ 469	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 78,220**	**$ 73,465**	**$ 72,131**	**$ 72,307**	**$ 67,605**	**$ 71,486**	**$ 74,384**	**$ 74,976**	**$ 80,253**	**$ 52,393**	**$ 41,916**	**$ 65,507**	**$ 9,017**	**$ 88**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (2,205)	$ (2,070)	$ (2,032)	$ (2,038)	$ (1,906)	$ (2,014)	$ (2,096)	$ (2,113)	$ (2,263)	$ (1,479)	$ (1,180)	$ (1,845)	$ (256)	$ (2)	$ -	$ -	$ -	$ -	$ -
Net Smelter Return		**$ 76,015**	**$ 71,395**	**$ 70,099**	**$ 70,269**	**$ 65,699**	**$ 69,472**	**$ 72,288**	**$ 72,863**	**$ 77,990**	**$ 50,914**	**$ 40,736**	**$ 63,663**	**$ 8,761**	**$ 85**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (920)	$ (828)	$ (802)	$ (805)	$ (714)	$ (789)	$ (846)	$ (857)	$ (960)	$ (509)	$ (407)	$ (673)	$ (88)	$ (1)	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ 75,094**	**$ 70,567**	**$ 69,297**	**$ 69,464**	**$ 64,985**	**$ 68,682**	**$ 71,442**	**$ 72,006**	**$ 77,030**	**$ 50,405**	**$ 40,329**	**$ 62,989**	**$ 8,674**	**$ 85**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (45,626)	$ (45,617)	$ (46,074)	$ (45,395)	$ (44,043)	$ (45,816)	$ (41,553)	$ (38,602)	$ (37,441)	$ (38,400)	$ (12,041)	$ (40,510)	$ (284)	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenses	(2)																			
Sustaining Capital Expenses	(2)	$ (342)	$ (342)	$ (5,700)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ -	$ -	$ -	$ -	$ -
Reclamation Capital Expenses	(2)	$ (784)	$ (774)	$ (773)	$ (738)	$ (682)	$ (756)	$ (764)	$ (769)	$ (774)	$ (452)	$ (474)	$ (728)	$ (5)	$ (65)	$ (741)	$ (737)	$ (733)	$ (730)	$ (726)
Employee Profit Sharing	(4)	**$ (2,181)**	**$ (1,810)**	**$ (1,629)**	**$ (1,654)**	**$ (1,408)**	**$ (1,630)**	**$ (2,234)**	**$ (2,521)**	**$ (3,015)**	**$ (864)**	**$ (2,181)**	**$ (1,717)**	**$ (595)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 26,161**	**$ 22,024**	**$ 15,121**	**$ 21,334**	**$ 18,510**	**$ 20,139**	**$ 26,550**	**$ 29,772**	**$ 35,458**	**$ 10,347**	**$ 25,291**	**$ 19,692**	**$ 7,448**	**$ (322)**	**$ (741)**	**$ (737)**	**$ (733)**	**$ (730)**	**$ (726)**
Net Tax Expense	(5)	**$ (7,057)**	**$ (5,971)**	**$ (5,474)**	**$ (5,694)**	**$ (4,973)**	**$ (5,598)**	**$ (7,612)**	**$ (8,651)**	**$ (10,414)**	**$ (2,838)**	**$ (7,381)**	**$ (5,811)**	**$ (1,962)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 19,105**	**$ 16,053**	**$ 9,647**	**$ 15,640**	**$ 13,537**	**$ 14,541**	**$ 18,938**	**$ 21,122**	**$ 25,044**	**$ 7,509**	**$ 17,910**	**$ 13,881**	**$ 5,486**	**$ (322)**	**$ (741)**	**$ (737)**	**$ (733)**	**$ (730)**	**$ (726)**
IGV Recovered/ (Paid)	(6)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (45)	$ (141)	$ (140)	$ (139)	$ (139)	$ (138)
Change in Working Capital	(2)	$ 47	$ 558	$ 27	$ (87)	$ 458	$ (345)	$ (516)	$ (189)	$ (687)	$ 3,112	$ 267	$ (1,405)	$ 4,501	$ 1,059	$ 66	$ 2,990	$ -	$ -	$ 100
Net Cash Flows (Real)		**$ 19,152**	**$ 16,610**	**$ 9,675**	**$ 15,553**	**$ 13,996**	**$ 14,196**	**$ 18,422**	**$ 20,933**	**$ 24,356**	**$ 10,620**	**$ 18,177**	**$ 12,477**	**$ 9,987**	**$ 692**	**$ (815)**	**$ 2,113**	**$ (873)**	**$ (868)**	**$ (764)**
Discount factor	(7)	0.2386	0.2169	0.1972	0.1792	0.1629	0.1481	0.1347	0.1224	0.1113	0.1011	0.0919	0.0836	0.0760	0.0691	0.0628	0.0571	0.0519	0.0472	0.0429
Discounted Cash Flows (Real)		**$ 4,570**	**$ 3,603**	**$ 1,908**	**$ 2,788**	**$ 2,280**	**$ 2,103**	**$ 2,481**	**$ 2,562**	**$ 2,710**	**$ 1,074**	**$ 1,671**	**$ 1,043**	**$ 759**	**$ 48**	**$ (51)**	**$ 121**	**$ (45)**	**$ (41)**	**$ (33)**

Notes:

Adjustments are highlighted in green.

(1) FTI prices.

(2) Per the RPA Extended Life Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 22 - C2: Delay Costs Arising from Workpaper 22 - C1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	1
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	10.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ 2,718,417	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.95	0.87	0.79	0.72	0.65	0.59	0.54	0.49	0.44	0.40	0.37	0.33	0.30	0.28	0.25
[10]	**Present Value**	**$ 2,591,908**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 22 - D1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 4 Year Delay and 14% Increase in CapEx Expenditures

Bear Creek Mining Corporation v. Republic of Peru

Discounted Cash Flow of the Santa Ana Project

(in $ thousands unless noted otherwise)

Description	Notes	Sum	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Silver Price (Real $ per oz)	(1)				$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)				$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	82,399,671	-	-	3,141,075	3,980,676	4,037,424	3,870,715	3,903,731	3,828,005	3,832,951	3,833,321	3,779,168	3,706,475	3,595,490	3,589,000
Payable Gold (oz)	(2)	8,079	-	-	286	337	331	343	338	341	343	347	346	344	350	361
Silver Revenue		$ 1,830,097	$ -	$ -	$ 69,763	$ 88,411	$ 89,671	$ 85,969	$ 86,702	$ 85,020	$ 85,130	$ 85,138	$ 83,935	$ 82,321	$ 79,856	$ 79,712
Gold Revenue		$ 10,629	$ -	$ -	$ 376	$ 443	$ 435	$ 451	$ 445	$ 448	$ 451	$ 457	$ 455	$ 453	$ 460	$ 475
Gross Revenue		**$ 1,840,726**	**$ -**	**$ -**	**$ 70,140**	**$ 88,854**	**$ 90,106**	**$ 86,420**	**$ 87,147**	**$ 85,468**	**$ 85,581**	**$ 85,595**	**$ 84,390**	**$ 82,773**	**$ 80,316**	**$ 80,186**
Transportation and Treatment	(2)	$ (51,912)	$ -	$ -	$ (1,979)	$ (2,508)	$ (2,544)	$ (2,439)	$ (2,459)	$ (2,412)	$ (2,415)	$ (2,415)	$ (2,381)	$ (2,335)	$ (2,265)	$ (2,261)
Net Smelter Return		**$ 1,788,814**	**$ -**	**$ -**	**$ 68,161**	**$ 86,346**	**$ 87,563**	**$ 83,981**	**$ 84,688**	**$ 83,057**	**$ 83,166**	**$ 83,180**	**$ 82,009**	**$ 80,438**	**$ 78,051**	**$ 77,925**
Peruvian Production Royalty	(3)	$ (21,571)	$ -	$ -	$ (763)	$ (1,127)	$ (1,151)	$ (1,080)	$ (1,094)	$ (1,061)	$ (1,063)	$ (1,064)	$ (1,040)	$ (1,009)	$ (961)	$ (959)
Net Revenue		**$ 1,767,242**	**$ -**	**$ -**	**$ 67,398**	**$ 85,219**	**$ 86,411**	**$ 82,901**	**$ 83,594**	**$ 81,995**	**$ 82,103**	**$ 82,116**	**$ 80,969**	**$ 79,430**	**$ 77,090**	**$ 76,967**
Operating Expenses	(2)	$ (997,616)	$ -	$ -	$ (42,980)	$ (45,334)	$ (41,825)	$ (42,878)	$ (40,990)	$ (40,916)	$ (42,045)	$ (42,591)	$ (43,294)	$ (44,548)	$ (44,420)	$ (44,397)
Initial Capital Expenses	(2)	$ (82,633)	$ (12,915)	$ (69,718)												
Sustaining Capital Expenses	(2)	$ (33,297)	$ -	$ -	$ (567)	$ (7,438)	$ (512)	$ (340)	$ (6,772)	$ (317)	$ (214)	$ (228)	$ (233)	$ (489)	$ (5,700)	$ (342)
Reclamation Capital Expenses	(2)	$ (19,133)	$ -	$ -	$ (4)	$ (8)	$ (12)	$ (16)	$ (20)	$ (24)	$ (28)	$ (32)	$ (36)	$ (1,062)	$ (2,089)	$ (3,601)
Employee Profit Sharing	(4)	**$ (51,945)**	**$ -**	**$ -**	**$ (958)**	**$ (2,148)**	**$ (2,476)**	**$ (2,106)**	**$ (2,269)**	**$ (2,234)**	**$ (2,871)**	**$ (2,971)**	**$ (2,895)**	**$ (2,681)**	**$ (2,453)**	**$ (2,443)**
Pre-tax Cash Flows		**$ 582,619**	**$ (12,915)**	**$ (69,718)**	**$ 22,889**	**$ 30,292**	**$ 41,586**	**$ 37,562**	**$ 33,543**	**$ 38,506**	**$ 36,945**	**$ 36,295**	**$ 34,512**	**$ 30,649**	**$ 22,428**	**$ 26,184**
Net Tax Expense	(5)	**$ (163,127)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ (3,767)**	**$ (8,456)**	**$ (9,551)**	**$ (9,400)**	**$ (9,336)**	**$ (9,495)**	**$ (9,241)**	**$ (8,651)**	**$ (7,978)**	**$ (7,816)**
After-tax Cash Flows		**$ 419,492**	**$ (12,915)**	**$ (69,718)**	**$ 22,889**	**$ 30,292**	**$ 37,819**	**$ 29,106**	**$ 23,992**	**$ 29,106**	**$ 27,610**	**$ 26,800**	**$ 25,270**	**$ 21,998**	**$ 14,450**	**$ 18,368**
IGV Recovered/ (Paid)	(6)	$ 7,701	$ (2,454)	$ (13,246)	$ 13,327	$ 10,816	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change in Working Capital	(2)	$ 0	$ (440)	$ (1,835)	$ (10,597)	$ (2,728)	$ 151	$ 4,747	$ (332)	$ 191	$ 27	$ 19	$ 162	$ 309	$ 227	$ 142
Net Cash Flows (Real)		**$ 427,192**	**$ (15,809)**	**$ (84,799)**	**$ 25,618**	**$ 38,380**	**$ 37,971**	**$ 33,853**	**$ 23,660**	**$ 29,296**	**$ 27,637**	**$ 26,819**	**$ 25,432**	**$ 22,307**	**$ 14,678**	**$ 18,511**
Discount factor	(7)		0.6662	0.6195	0.5631	0.5119	0.4654	0.4230	0.3845	0.3495	0.3178	0.2888	0.2625	0.2387	0.2170	0.1972
Discounted Cash Flows (Real)		**$ 79,901**	**$ (10,532)**	**$ (52,530)**	**$ 14,425**	**$ 19,646**	**$ 17,670**	**$ 14,320**	**$ 9,097**	**$ 10,240**	**$ 8,782**	**$ 7,746**	**$ 6,677**	**$ 5,324**	**$ 3,185**	**$ 3,651**
Cost Arising from Delay		$ (9,504)														
Discounted Cash Flows Final	(8)	**$ 70,398**														

Notes:

Adjustments are highlighted in green.

(1) FTI prices.

(2) Per the RPA Extended Life Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

(8) Workpaper 22 - D2: Delay Costs Arising from Workpaper 22 - D1.

Workpaper 22 - D1: FTI Extended Life Case: Revised Schedule 1 Using SRK Inputs, 4 Year Delay and 14% Increase in CapEx Expenditures

Bear Creek Mining Corporation v. Republic of Peru

Discounted Cash Flow of the Santa Ana Project

(in $ thousands unless noted otherwise)

Description	Notes	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
Silver Price (Real $ per oz)	(1)	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Gold Price (Real $ per oz)	(1)	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64	$ 1,315.64
Payable Silver (oz)	(2)	3,500,057	3,285,758	3,225,609	3,234,959	3,024,878	3,197,161	3,327,686	3,354,205	3,592,247	2,347,360	1,873,429	2,928,339	405,996	3,956	-	-	-	-	-
Payable Gold (oz)	(2)	367	371	373	349	321	363	362	364	356	196	234	357	-	-	-	-	-	-	-
Silver Revenue		$ 77,736	$ 72,977	$ 71,641	$ 71,848	$ 67,183	$ 71,009	$ 73,908	$ 74,497	$ 79,784	$ 52,135	$ 41,609	$ 65,038	$ 9,017	$ 88	$ -	$ -	$ -	$ -	$ -
Gold Revenue		$ 483	$ 489	$ 491	$ 459	$ 422	$ 477	$ 476	$ 479	$ 469	$ 258	$ 307	$ 469	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Revenue		**$ 78,220**	**$ 73,465**	**$ 72,131**	**$ 72,307**	**$ 67,605**	**$ 71,486**	**$ 74,384**	**$ 74,976**	**$ 80,253**	**$ 52,393**	**$ 41,916**	**$ 65,507**	**$ 9,017**	**$ 88**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transportation and Treatment	(2)	$ (2,205)	$ (2,070)	$ (2,032)	$ (2,038)	$ (1,906)	$ (2,014)	$ (2,096)	$ (2,113)	$ (2,263)	$ (1,479)	$ (1,180)	$ (1,845)	$ (256)	$ (2)	$ -	$ -	$ -	$ -	$ -
Net Smelter Return		**$ 76,015**	**$ 71,395**	**$ 70,099**	**$ 70,269**	**$ 65,699**	**$ 69,472**	**$ 72,288**	**$ 72,863**	**$ 77,990**	**$ 50,914**	**$ 40,736**	**$ 63,663**	**$ 8,761**	**$ 85**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Peruvian Production Royalty	(3)	$ (920)	$ (828)	$ (802)	$ (805)	$ (714)	$ (789)	$ (846)	$ (857)	$ (960)	$ (509)	$ (407)	$ (673)	$ (88)	$ (1)	$ -	$ -	$ -	$ -	$ -
Net Revenue		**$ 75,094**	**$ 70,567**	**$ 69,297**	**$ 69,464**	**$ 64,985**	**$ 68,682**	**$ 71,442**	**$ 72,006**	**$ 77,030**	**$ 50,405**	**$ 40,329**	**$ 62,989**	**$ 8,674**	**$ 85**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Operating Expenses	(2)	$ (45,626)	$ (45,617)	$ (46,074)	$ (45,395)	$ (44,043)	$ (45,816)	$ (41,553)	$ (38,602)	$ (37,441)	$ (38,400)	$ (12,041)	$ (40,510)	$ (284)	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenses	(2)																			
Sustaining Capital Expenses	(2)	$ (342)	$ (342)	$ (5,700)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ (342)	$ -	$ -	$ -	$ -	$ -
Reclamation Capital Expenses	(2)	$ (784)	$ (774)	$ (773)	$ (738)	$ (682)	$ (756)	$ (764)	$ (769)	$ (774)	$ (452)	$ (474)	$ (728)	$ (5)	$ (65)	$ (741)	$ (737)	$ (733)	$ (730)	$ (726)
Employee Profit Sharing	(4)	**$ (2,181)**	**$ (1,810)**	**$ (1,629)**	**$ (1,654)**	**$ (1,408)**	**$ (1,630)**	**$ (2,234)**	**$ (2,521)**	**$ (3,015)**	**$ (864)**	**$ (2,181)**	**$ (1,717)**	**$ (595)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Pre-tax Cash Flows		**$ 26,161**	**$ 22,024**	**$ 15,121**	**$ 21,334**	**$ 18,510**	**$ 20,139**	**$ 26,550**	**$ 29,772**	**$ 35,458**	**$ 10,347**	**$ 25,291**	**$ 19,692**	**$ 7,448**	**$ (322)**	**$ (741)**	**$ (737)**	**$ (733)**	**$ (730)**	**$ (726)**
Net Tax Expense	(5)	**$ (7,057)**	**$ (5,971)**	**$ (5,474)**	**$ (5,694)**	**$ (4,973)**	**$ (5,598)**	**$ (7,612)**	**$ (8,651)**	**$ (10,414)**	**$ (2,838)**	**$ (7,381)**	**$ (5,811)**	**$ (1,962)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
After-tax Cash Flows		**$ 19,105**	**$ 16,053**	**$ 9,647**	**$ 15,640**	**$ 13,537**	**$ 14,541**	**$ 18,938**	**$ 21,122**	**$ 25,044**	**$ 7,509**	**$ 17,910**	**$ 13,881**	**$ 5,486**	**$ (322)**	**$ (741)**	**$ (737)**	**$ (733)**	**$ (730)**	**$ (726)**
IGV Recovered/ (Paid)	(6)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (45)	$ (141)	$ (140)	$ (139)	$ (139)	$ (138)
Change in Working Capital	(2)	$ 47	$ 558	$ 27	$ (87)	$ 458	$ (345)	$ (516)	$ (189)	$ (687)	$ 3,112	$ 267	$ (1,405)	$ 4,501	$ 1,059	$ 66	$ 2,990	$ -	$ -	$ 100
Net Cash Flows (Real)		**$ 19,152**	**$ 16,610**	**$ 9,675**	**$ 15,553**	**$ 13,996**	**$ 14,196**	**$ 18,422**	**$ 20,933**	**$ 24,356**	**$ 10,620**	**$ 18,177**	**$ 12,477**	**$ 9,987**	**$ 692**	**$ (815)**	**$ 2,113**	**$ (873)**	**$ (868)**	**$ (764)**
Discount factor	(7)	0.1793	0.1630	0.1482	0.1347	0.1224	0.1113	0.1012	0.0920	0.0836	0.0760	0.0691	0.0628	0.0571	0.0519	0.0472	0.0429	0.0390	0.0354	0.0322
Discounted Cash Flows (Real)		**$ 3,433**	**$ 2,707**	**$ 1,433**	**$ 2,095**	**$ 1,713**	**$ 1,580**	**$ 1,864**	**$ 1,925**	**$ 2,036**	**$ 807**	**$ 1,256**	**$ 783**	**$ 570**	**$ 36**	**$ (38)**	**$ 91**	**$ (34)**	**$ (31)**	**$ (25)**

Notes:

Adjustments are highlighted in green.

(1) FTI prices.

(2) Per the RPA Extended Life Case, as adjusted with SRK revised inputs.

(3) Calculated as 1.0% on the first $60.0 million of NSR, 2.0% up to $120.0 million, and 3.0% beyond. See Revised Feasibility Study, page 144 (**FTI-06**).

(4) Calculated at 8% of accounting net income before taxes. See Revised Feasibility Study, page 144 (**FTI-06**).
Accounting depreciation calculated based on 15.0% annual straight-line depreciation (halved in the first year of addition). See Revised Feasibility Study, page 144 (**FTI-06**).

(5) Calculated based on a 30.0% corporate income tax rate. See Revised Feasibility Study, page 144 (**FTI-06**).
Depreciation for tax purposes calculated at a 20.0% depreciation rate on undepreciated capital cost. See PWC, "Doing Deals in Peru 2011", page 13 (**FTI-60**).
Tax losses from years prior to 2012 are assumed to be $14.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(6) IGV credits calculated at 19.0% of costs and recuperated at 19.0% of gross revenue. IGV credit prior to 2012 is assumed to be $8.4 million. See Revised Feasibility Study, page 144 (**FTI-06**).

(7) Calculated based on a discount rate of 10.0%. See **FTI Appendix 5**.

Workpaper 22 - D2: Delay Costs Arising from Workpaper 22 - D1

[1]	Total Exploration Costs (2004 - 2Q2011)	$ 20,388,124
[2]	Years	7.5
[3]	Average Annual Costs	$ 2,718,417
[4]	Years Delayed In Current Scenario	4
[5]	Inflation as Specified by FTI	2.4%
[6]	Discount Rate	10.00%

[7]	**Years Delayed**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
[8]	Total Delay Cost	$ -	$ 2,718,417	$ 2,850,466	$ 2,918,878	$ 2,988,931	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
[9]	Discount Factor	1.00	0.95	0.87	0.79	0.72	0.65	0.59	0.54	0.49	0.44	0.40	0.37	0.33	0.30	0.28	0.25
[10]	**Present Value**	**$ 9,503,803**															

Sources & Notes:
[1]: Table 7 in Report, total exploration costs except for acquisition and claim fees.
[2]: Total years from 2004 through 2Q2011.
[3]: [1] / [2].
[4]: Years delayed.
[5]: FTI Direct Report, Paragraph 7.30.
[6]: Discount rate.
[7]: Years.
[8]: For years up to and including [4]: [3] x (1 + [5]) ^ [7], otherwise zero.
[9]: 1 / (1 + [6]) ^ ([7] - .5).

Workpaper 23: RPA - Cash Flow Summary - Extended Life Case - Adjusted Using SRK Inputs

Date:	Santa Ana INPUTS	RPA Revised BC INPUTS	RPA Extended Life INPUTS	UNITS	TOTAL	2010 Year -3	2011 Year -2	2012 Year -1
MINING								
Open Pit Mining								
Operating Days	4,050	4,410	11,250	days	11,250			90
Tonnes milled per day	9,155	10,418	6,863	tonnes / day	6,863			-
Tonnes moved per day	27,087	24,876	20,420	tonnes / day	20,420			-
Production	37,077	45,944	77,207	'000 tonnes	77,207			-
Au	0.01	0.01	0.01	g/t	0.01			0.01
Ag	53.00	44.90	47.54	g/t	47.54			-
Waste	72,627	63,760	152,514	'000 tonnes	152,514			-
Total Moved	109,704	109,704	229,721	'000 tonnes	229,721			-
Stripping Ratio		1.39	1.98	w:o	1.98			-
Contained Ounces	63,180	66,325	118,009	'000 ounces				
Crusher Feed								
Production	34,113	42,980	77,207	'000 tonnes	77,207			-
Au	0.01	0.01	0.01	g/t	0.01			0.01
Ag	55.01	45.94	47.54	g/t	47.54			-
Waste	72,627	63,760	152,514	'000 tonnes	152,514			-
Total Moved	106,740	106,740	229,721	'000 tonnes	229,721			-
Stripping Ratio	1.96	1.48	1.98	w:o	1.98			-
Contained Ounces	57,317	63,478	118,009	'000 ounces	118,009			-
Stockpile								
Opening								
Tonnes				'000 tonnes	-			-
Ag Grade				g/t	-			-
Au Grade				g/t	-			-
Addition								
Tonnes	2,964	2,964	-	'000 tonnes	-			-
Ag Grade	29.87	29.87	-	g/t	-			-
Au Grade	-	-	-	g/t	-			-
Deduction								
Tonnes	2,964	2,964	-	'000 tonnes	-			-
Ag Grade	29.87	29.87	-	g/t	-			-
Au Grade				g/t	-			
Closing								
Tonnes				'000 tonnes	-			-
Ag Grade				g/t	-			-
Au Grade				g/t	-			-
PROCESSING								
Mill Feed	37,077	45,944	77,207	'000 tonnes	77,207			
Au	0.01	0.01	0.01	g/t	0.01			
Ag	53.00	44.90	47.54	g/t	47.54			
Contained Au	7,152	7,508	12,618	oz	12,618			
Contained Ag	63,179,803	66,324,692	118,008,838	oz	118,008,838			
Current Year Recovery								
Au	100.0%	100.0%	93.1%	%	93%			
Ag	65.8%	65.8%	61.4%	%	61%			
Previous Year Residual Recovery			0%					
Au	0.0%	0.0%	0.0%	%	0%			
Ag	9.2%	9.2%	8.6%	%	9%			
Net Recovery								
Au	67%	67%	67%	%	67%			
Ag	75%	75%	70%	%	70%			
Total Average Recovery	75%	75%	70%	%	70%			
Current Year Recovery								
Au	6,930	7,509	11,752	oz	11,752			
Ag	41,577,170	43,646,749	72,481,633	oz	72,481,633			
Previous Year Residual Recovery								
Au	-	-	-	oz	-			
Ag	5,807,682	6,096,770	10,124,553	oz	10,124,553			
Total Recovered								
Au	**4,788**	**5,033**	**8,504**	**oz**	**8,504**			
Ag	**47,384,852**	**49,743,519**	**82,606,187**	**oz**	**82,606,187**			
REVENUE								
Metal Prices				**Input Units**				
Au	US$950 /oz Au	US$1375 /oz Au	US$1348 /oz Au	US$/oz Au	$ 1,348			
Ag	US$14.50 /oz Ag	US$24.71 /oz Ag	US$23.51 /oz Ag	US$/oz Ag	$ 23.51			
Exchange Rate	$ 1.00	$ 1.00	$ 1.00	US$/ US$	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Au Payable Percentage	95.00%	95.00%	95.00%	US$ '000	95%			
Ag Payable Percentage	99.75%	99.75%	99.75%	US$ '000	99.75%			
Au Payable				oz	8,079			
Ag Payable				oz	82,399,671			
Au Gross Revenue	$ 4,321	$ 6,574	$ 10,888	US$ '000	$ 10,888			
Ag Gross Revenue	$ 685,363	$ 1,226,112	$ 1,937,512	US$ '000	$ 1,937,512			
Total Gross Revenue	**$ 689,683**	**$ 1,232,686**	**$ 1,948,400**	**US$ '000**	**$ 1,948,400**			
Transport & Treatment								
Au				US$ '000	$ -			
Ag	US$0.63 /oz Ag	US$0.63 /oz Ag	US$0.63 /oz Ag	US$ '000	$ 51,912			
Treatment			$.00/oz Au					
Au	US$.00 /oz Au	US$.00 /oz Au	US$.00 /oz Au	US$ '000	$ -			
Ag	US$0.00 /oz Ag	US$0.00 /oz Ag	US$0.00 /oz Ag	US$ '000	$ -			
Refining cost								
Au	US$0.00 /oz Au	US$0.00 /oz Au	US$0.00 /oz Au	US$ '000	$ -			
Ag	US$0.00 /oz Ag	US$0.00 /oz Ag	US$0.00 /oz Ag	US$ '000	$ -			
Total Charges	$ 29,778	$ 31,260	51,912	US$ '000	$ 51,912			
			$ -					
Net Smelter Return	$ 659,906	$ 1,201,426	$ 1,896,489	US$ '000	$ 1,896,489			
			$.00/oz Ag					
Royalty NSR	1%	1%	1%	US$ '000	$ 14,205			
	2%	2%	2%	US$ '000	$ 9,381			
	3%	3%	3%	US$ '000	$ 208			
Net Revenue	**$ 652,707**	**$ 1,184,688**	**$ 1,872,694**	**US$ '000**	**$ 1,872,694**			
Unit NSR	**$ 17.60**	**$ 25.79**	**$ 24.26**	**US$/t milled**	**$ 24.26**			
CUT-OFF GRADE								
Net Revenue by Metal								
Au				%	1%			
Ag				%	99%			
Revenue per Metal Unit (NSR Factor)								
Au				US$ per g Au	$ 27.40			
Ag				US$ per g Ag	$ 0.51			

Date:	2013 Year 1	2014 Year 2	2015 Year 3	2016 Year 4	2017 Year 5	2018 Year 6	2019 Year 7	2020 Year 8	2021 Year 9	2022 Year 10
MINING										
Open Pit Mining										
Operating Days	360	360	360	360	360	360	360	360	360	360
Tonnes milled per day	7,796	9,421	9,354	9,431	9,379	9,357	9,400	9,479	9,406	9,313
Tonnes moved per day	29,701	28,555	24,809	25,801	23,824	23,792	24,947	25,371	26,321	27,930
Production	2,807	3,391	3,368	3,395	3,377	3,369	3,384	3,412	3,386	3,353
Au	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ag	56.82	53.02	53.41	50.48	51.60	50.47	50.48	50.04	49.62	49.12
Waste	7,886	6,888	5,564	5,893	5,200	5,197	5,597	5,721	6,089	6,702
Total Moved	10,692	10,280	8,931	9,288	8,577	8,565	8,981	9,134	9,476	10,055
Stripping Ratio	2.81	2.03	1.65	1.74	1.54	1.54	1.65	1.68	1.80	2.00
Contained Ounces										
Crusher Feed										
Production	2,807	3,391	3,368	3,395	3,377	3,369	3,384	3,412	3,386	3,353
Au	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ag	56.82	53.02	53.41	50.48	51.60	50.47	50.48	50.04	49.62	49.12
Waste	7,885.90	6,888.31	5,563.71	5,893.24	5,200.02	5,196.68	5,597.03	5,721.30	6,089.46	6,702.01
Total Moved	10,692	10,280	8,931	9,288	8,577	8,565	8,981	9,134	9,476	10,055
Stripping Ratio	2.81	2.03	1.65	1.74	1.54	1.54	1.65	1.68	1.80	2.00
Contained Ounces	5,127	5,781	5,782	5,510	5,602	5,466	5,493	5,490	5,402	5,295
Stockpile										
Opening										
Tonnes	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-
Au Grade	-	-	-	-	-	-	-	-	-	-
Addition										
Tonnes	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-
Au Grade	-	-	-	-	-	-	-	-	-	-
Deduction										
Tonnes	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-
Au Grade										
Closing										
Tonnes	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-
Au Grade	-	-	-	-	-	-	-	-	-	-
PROCESSING										
Mill Feed	2,807	3,391	3,368	3,395	3,377	3,369	3,384	3,412	3,386	3,353
Au	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ag	56.82	53.02	53.41	50.48	51.60	50.47	50.48	50.04	49.62	49.12
Contained Au	459	554	550	555	552	551	553	558	553	548
Contained Ag	5,126,866	5,781,120	5,782,356	5,510,080	5,602,001	5,465,562	5,492,693	5,489,506	5,401,564	5,295,199
Current Year Recovery										
Au	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Ag	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%
Previous Year Residual Recovery										
Au	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ag	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Net Recovery										
Au	66%	64%	63%	65%	65%	65%	65%	66%	66%	66%
Ag	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Total Average Recovery	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Current Year Recovery										
Au	459	554	550	555	552	551	553	558	553	548
Ag	3,148,947	3,550,793	3,551,553	3,384,320	3,440,778	3,356,976	3,373,640	3,371,683	3,317,668	3,252,338
Previous Year Residual Recovery										
Au	-	-	-	-	-	-	-	-	-	-
Ag	-	439,859	495,990	496,097	472,737	480,623	468,917	471,245	470,971	463,427
Total Recovered										
Au	**301**	**355**	**348**	**361**	**356**	**359**	**361**	**366**	**364**	**362**
Ag	**3,148,947**	**3,990,652**	**4,047,543**	**3,880,416**	**3,913,514**	**3,837,599**	**3,842,558**	**3,842,928**	**3,788,640**	**3,715,765**
REVENUE										
Metal Prices										
Au	$ 1,505	$ 1,502	$ 1,515	$ 1,539	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316
Ag	$ 33.20	$ 31.83	$ 30.78	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Exchange Rate	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Au Payable Percentage	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Ag Payable Percentage	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%
Au Payable	286	337	331	343	338	341	343	347	346	344
Ag Payable	3,141,075	3,980,676	4,037,424	3,870,715	3,903,731	3,828,005	3,832,951	3,833,321	3,779,168	3,706,475
Au Gross Revenue	$ 431	$ 506	$ 501	$ 528	$ 445	$ 448	$ 451	$ 457	$ 455	$ 453
Ag Gross Revenue	$ 104,284	$ 126,705	$ 124,272	$ 85,969	$ 86,702	$ 85,020	$ 85,130	$ 85,138	$ 83,935	$ 82,321
Total Gross Revenue	**$ 104,714**	**$ 127,211**	**$ 124,773**	**$ 86,496**	**$ 87,147**	**$ 85,468**	**$ 85,581**	**$ 85,595**	**$ 84,390**	**$ 82,773**
Transport & Treatment										
Au	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag	$ 1,979	$ 2,508	$ 2,544	$ 2,439	$ 2,459	$ 2,412	$ 2,415	$ 2,415	$ 2,381	$ 2,335
Treatment										
Au	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Refining cost										
Au	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Charges	$ 1,979	$ 2,508	$ 2,544	$ 2,439	$ 2,459	$ 2,412	$ 2,415	$ 2,415	$ 2,381	$ 2,335
Net Smelter Return	$ 102,735	$ 124,703	$ 122,229	$ 84,058	$ 84,688	$ 83,057	$ 83,166	$ 83,180	$ 82,009	$ 80,438
Royalty NSR	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600
	$ 855	$ 1,200	$ 1,200	$ 481	$ 494	$ 461	$ 463	$ 464	$ 440	$ 409
	$ -	$ 141	$ 67	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Revenue	**$ 101,281**	**$ 122,762**	**$ 120,362**	**$ 82,977**	**$ 83,594**	**$ 81,995**	**$ 82,103**	**$ 82,116**	**$ 80,969**	**$ 79,430**
Unit NSR	**$ 36.09**	**$ 36.20**	**$ 35.74**	**$ 24.44**	**$ 24.76**	**$ 24.34**	**$ 24.26**	**$ 24.06**	**$ 23.91**	**$ 23.69**
CUT-OFF GRADE										
Net Revenue by Metal										
Au	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%
Ag	100%	100%	100%	99%	99%	99%	99%	99%	99%	99%
Revenue per Metal Unit (NSR Factor)										
Au	$ 29.76	$ 28.91	$ 28.80	$ 30.18	$ 25.60	$ 25.84	$ 25.89	$ 26.00	$ 26.09	$ 26.22
Ag	$ 0.63	$ 0.68	$ 0.67	$ 0.48	$ 0.48	$ 0.48	$ 0.48	$ 0.48	$ 0.48	$ 0.48

Date:	2023 Year 11	2024 Year 12	2025 Year 13	2026 Year 14	2027 Year 15	2028 Year 16	2029 Year 17	2030 Year 18	2031 Year 19	2032 Year 20
MINING										
Open Pit Mining										
Operating Days	360	360	360	360	360	360	360	360	360	360
Tonnes milled per day	9,324	9,511	9,555	9,443	9,422	8,996	8,317	9,214	9,311	9,379
Tonnes moved per day	27,763	27,304	28,568	28,816	29,374	29,606	29,677	29,569	24,608	21,172
Production	3,357	3,424	3,440	3,400	3,392	3,239	2,994	3,317	3,352	3,376
Au	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ag	47.53	46.71	45.16	42.68	42.30	44.52	44.56	43.32	44.41	44.28
Waste	6,638	6,405	6,845	6,974	7,183	7,420	7,690	7,328	5,507	4,246
Total Moved	9,995	9,829	10,284	10,374	10,575	10,658	10,684	10,645	8,859	7,622
Stripping Ratio	1.98	1.87	1.99	2.05	2.12	2.29	2.57	2.21	1.64	1.26
Contained Ounces										
Crusher Feed										
Production	3,357	3,424	3,440	3,400	3,392	3,239	2,994	3,317	3,352	3,376
Au	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ag	47.53	46.71	45.16	42.68	42.30	44.52	44.56	43.32	44.41	44.28
Waste	6,638.11	6,405.48	6,844.70	6,974.31	7,182.73	7,419.64	7,689.58	7,327.92	5,507.02	4,245.66
Total Moved	9,995	9,829	10,284	10,374	10,575	10,658	10,684	10,645	8,859	7,622
Stripping Ratio	1.98	1.87	1.99	2.05	2.12	2.29	2.57	2.21	1.64	1.26
Contained Ounces	5,129	5,142	4,995	4,665	4,613	4,636	4,290	4,619	4,786	4,806
Stockpile										
Opening										
Tonnes	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-
Au Grade	-	-	-	-	-	-	-	-	-	-
Addition										
Tonnes	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-
Au Grade	-	-	-	-	-	-	-	-	-	-
Deduction										
Tonnes	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-
Au Grade										
Closing										
Tonnes	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-
Au Grade	-	-	-	-	-	-	-	-	-	-
PROCESSING										
Mill Feed	3,357	3,424	3,440	3,400	3,392	3,239	2,994	3,317	3,352	3,376
Au	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ag	47.53	46.71	45.16	42.68	42.30	44.52	44.56	43.32	44.41	44.28
Contained Au	549	560	562	556	554	529	489	542	548	552
Contained Ag	5,128,907	5,141,542	4,994,604	4,665,349	4,613,165	4,635,716	4,289,672	4,619,210	4,786,221	4,806,176
Current Year Recovery										
Au	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Ag	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%
Previous Year Residual Recovery										
Au	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ag	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Net Recovery										
Au	67%	68%	69%	70%	71%	69%	69%	70%	70%	70%
Ag	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Total Average Recovery	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Current Year Recovery										
Au	549	560	562	556	554	529	489	542	548	552
Ag	3,150,201	3,157,961	3,067,712	2,865,481	2,833,430	2,847,281	2,634,738	2,837,142	2,939,722	2,951,978
Previous Year Residual Recovery										
Au	-	-	-	-	-	-	-	-	-	-
Ag	454,301	440,034	441,118	428,511	400,263	395,786	397,721	368,032	396,305	410,633
Total Recovered										
Au	**368**	**380**	**387**	**391**	**393**	**367**	**338**	**382**	**381**	**384**
Ag	**3,604,502**	**3,597,995**	**3,508,830**	**3,293,993**	**3,233,693**	**3,243,067**	**3,032,459**	**3,205,174**	**3,336,026**	**3,362,611**
REVENUE										
Metal Prices										
Au	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316
Ag	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Exchange Rate	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Au Payable Percentage	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Ag Payable Percentage	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%
Au Payable	350	361	367	371	373	349	321	363	362	364
Ag Payable	3,595,490	3,589,000	3,500,057	3,285,758	3,225,609	3,234,959	3,024,878	3,197,161	3,327,686	3,354,205
Au Gross Revenue	$ 460	$ 475	$ 483	$ 489	$ 491	$ 459	$ 422	$ 477	$ 476	$ 479
Ag Gross Revenue	$ 79,856	$ 79,712	$ 77,736	$ 72,977	$ 71,641	$ 71,848	$ 67,183	$ 71,009	$ 73,908	$ 74,497
Total Gross Revenue	**$ 80,316**	**$ 80,186**	**$ 78,220**	**$ 73,465**	**$ 72,131**	**$ 72,307**	**$ 67,605**	**$ 71,486**	**$ 74,384**	**$ 74,976**
Transport & Treatment										
Au	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag	$ 2,265	$ 2,261	$ 2,205	$ 2,070	$ 2,032	$ 2,038	$ 1,906	$ 2,014	$ 2,096	$ 2,113
Treatment										
Au	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Refining cost										
Au	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Charges	$ 2,265	$ 2,261	$ 2,205	$ 2,070	$ 2,032	$ 2,038	$ 1,906	$ 2,014	$ 2,096	$ 2,113
Net Smelter Return	$ 78,051	$ 77,925	$ 76,015	$ 71,395	$ 70,099	$ 70,269	$ 65,699	$ 69,472	$ 72,288	$ 72,863
Royalty NSR	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600	$ 600
	$ 361	$ 359	$ 320	$ 228	$ 202	$ 205	$ 114	$ 189	$ 246	$ 257
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Revenue	**$ 77,090**	**$ 76,967**	**$ 75,094**	**$ 70,567**	**$ 69,297**	**$ 69,464**	**$ 64,985**	**$ 68,682**	**$ 71,442**	**$ 72,006**
Unit NSR	**$ 22.97**	**$ 22.48**	**$ 21.83**	**$ 20.76**	**$ 20.43**	**$ 21.45**	**$ 21.71**	**$ 20.71**	**$ 21.31**	**$ 21.33**
CUT-OFF GRADE										
Net Revenue by Metal										
Au	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Ag	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Revenue per Metal Unit (NSR Factor)										
Au	$ 26.65	$ 26.93	$ 27.31	$ 27.94	$ 28.14	$ 27.55	$ 27.43	$ 27.98	$ 27.62	$ 27.61
Ag	$ 0.48	$ 0.48	$ 0.48	$ 0.48	$ 0.48	$ 0.48	$ 0.48	$ 0.47	$ 0.48	$ 0.48

Date:	2033 Year 21	2034 Year 22	2035 Year 23	2036 Year 24	2037 Year 25	2038 Year 26	2039 Year 27	2040 Year 28	2041 Year 29	2040 Year 30	2041 Year 31
MINING											
Open Pit Mining											
Operating Days	360	360	360	360	360	360	360	360	360	360	360
Tonnes milled per day	9,437	5,511	5,777	8,874	57	-	-	-	-	-	-
Tonnes moved per day	19,747	29,905	29,906	20,911	136	-	-	-	-	-	-
Production	3,397	1,984	2,080	3,195	21	-	-	-	-	-	-
Au	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ag	47.53	48.70	39.24	42.97	69.48	-	-	-	-	-	-
Waste	3,712	8,782	8,686	4,333	28	-	-	-	-	-	-
Total Moved	7,109	10,766	10,766	7,528	49	-	-	-	-	-	-
Stripping Ratio	1.09	4.43	4.18	1.36	1.37	-	-	-	-	-	-
Contained Ounces											
Crusher Feed											
Production	3,397	1,984	2,080	3,195	21	-	-	-	-	-	-
Au	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ag	47.53	48.70	39.24	42.97	69.48	-	-	-	-	-	-
Waste	3,711.67	8,781.81	8,686.30	4,333.13	28.42	-	-	-	-	-	-
Total Moved	7,109	10,766	10,766	7,528	49	-	-	-	-	-	-
Stripping Ratio	1.09	4.43	4.18	1.36	1.37	-	-	-	-	-	-
Contained Ounces	5,192	3,106	2,624	4,413	46						
Stockpile											
Opening											
Tonnes	-	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-	-
Au Grade	-	-	-	-	-	-	-	-	-	-	-
Addition											
Tonnes	-	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-	-
Au Grade	-	-	-	-	-	-	-	-	-	-	-
Deduction											
Tonnes	-	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-	-
Au Grade											
Closing											
Tonnes	-	-	-	-	-	-	-	-	-	-	-
Ag Grade	-	-	-	-	-	-	-	-	-	-	-
Au Grade	-	-	-	-	-	-	-	-	-	-	-
PROCESSING											
Mill Feed	3,397	1,984	2,080	3,195	21	-	-	-	-	-	-
Au	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ag	47.53	48.70	39.24	42.97	69.48	-	-	-	-	-	-
Contained Au	555	324	340	522	3	-	-	-	-	-	-
Contained Ag	5,191,921	3,106,133	2,623,934	4,413,116	46,224	-	-	-	-	-	-
Current Year Recovery											
Au	100%	100%	0%	0%	0%	0%	0%	100%	200%	200%	200%
Ag	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%
Previous Year Residual Recovery											
Au	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ag	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Net Recovery											
Au	68%	64%	72%	72%	0%	0%	0%	0%	0%	0%	0%
Ag	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Total Average Recovery	70%	70%	70%	70%	70%	-	-	-	-	-	-
Current Year Recovery											
Au	555	324	-	-	-	-	-	-	-	-	-
Ag	3,188,904	1,907,803	1,611,634	2,710,558	28,391	-	-	-	-	-	-
Previous Year Residual Recovery											
Au	-	-	-	-	-	-	-	-	-	-	-
Ag	412,345	445,440	266,490	225,120	378,623	3,966	-	-	-	-	-
Total Recovered											
Au	**375**	**207**	**246**	**375**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Ag	**3,601,250**	**2,353,243**	**1,878,124**	**2,935,678**	**407,014**	**3,966**	**-**	**-**	**-**	**-**	**-**
REVENUE											
Metal Prices											
Au	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316	$ 1,316
Ag	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21	$ 22.21
Exchange Rate	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Au Payable Percentage	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Ag Payable Percentage	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%	99.75%
Au Payable	356	196	234	357	-	-	-	-	-	-	-
Ag Payable	3,592,247	2,347,360	1,873,429	2,928,339	405,996	3,956	-	-	-	-	-
Au Gross Revenue	$ 469	$ 258	$ 307	$ 469	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag Gross Revenue	$ 79,784	$ 52,135	$ 41,609	$ 65,038	$ 9,017	$ 88	$ -	$ -	$ -	$ -	$ -
Total Gross Revenue	**$ 80,253**	**$ 52,393**	**$ 41,916**	**$ 65,507**	**$ 9,017**	**$ 88**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transport & Treatment											
Au	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag	$ 2,263	$ 1,479	$ 1,180	$ 1,845	$ 256	$ 2	$ -	$ -	$ -	$ -	$ -
Treatment											
Au	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Refining cost											
Au	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ag	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Charges	$ 2,263	$ 1,479	$ 1,180	$ 1,845	$ 256	$ 2	$ -	$ -	$ -	$ -	$ -
Net Smelter Return	$ 77,990	$ 50,914	$ 40,736	$ 63,663	$ 8,761	$ 85	$ -	$ -	$ -	$ -	$ -
Royalty NSR	$ 600	$ 509	$ 407	$ 600	$ 88	$ 1	$ -	$ -	$ -	$ -	$ -
	$ 360	$ -	$ -	$ 73	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Revenue	**$ 77,030**	**$ 50,405**	**$ 40,329**	**$ 62,989**	**$ 8,674**	**$ 85**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Unit NSR	**$ 22.67**	**$ 25.41**	**$ 19.39**	**$ 19.72**	**$ 419.20**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
CUT-OFF GRADE											
Net Revenue by Metal											
Au	1%	1%	1%	1%							
Ag	99%	99%	99%	99%							
Revenue per Metal Unit (NSR Factor)											
Au	$ 26.82	$ 25.34	$ 28.79	$ 28.58							
Ag	$ 0.47	$ 0.52	$ 0.49	$ 0.46							

Workpaper 23: RPA - Cash Flow Summary - Extended Life Case - Adjusted Using SRK Inputs

Date:	Santa Ana INPUTS	RPA Revised BC INPUTS	RPA Extended Life INPUTS	UNITS	TOTAL	2010 Year -3	2011 Year -2	2012 Year -1
OPERATING COST								
Mining (Open Pit)	$ 1.68	$ 2.10	$ 2.50	US$/t moved	$ 2.50			$ 2.50
Crusher to Plant (Open Pit)	$ 0.71	$ 0.71	$ 0.71	US$/t moved	$ 0.71			$ 0.85
Mining (Open Pit)	$ 5.60	$ 5.48	$ 7.94	US$/t milled	$ 7.94			$ -
Mining (Underground)			$ -	US$/t milled	$ -			$ -
Processing	$ 3.49	$ 3.49	$ 3.53	US$/t milled	$ 3.53			$ 3.49
G&A	$ 1.17	$ 1.45	$ 1.45	US$/t milled	$ 1.45			$ -
Total Unit Operating Cost	**$ 10.26**	**$ 10.41**	**$ 12.92**	**US$/t milled**	**$ 12.92**			**$ 3.49**
Mining (Open Pit)	$ 189,681	$ 228,475	$ 547,387	US$ '000	$ 547,387			$ -
Crusher to Plant (Open Pit)	26,173	$ 32,620	$ 65,626	US$ '000	$ 65,626			$ -
Mining (Underground)			0	US$ '000	$ -			$ -
Processing	$ 129,274	$ 160,190	$ 272,428	US$ '000	$ 272,428			$ -
G&A	$ 43,380	$ 66,753	$ 112,176	US$ '000	$ 112,176			$ -
Total Operating Cost	**$ 388,508**	**$ 488,038**	**$ 997,616**	**US$ '000**	**$ 997,616**			**$ -**
Operating Cashflow	$ 264,199	$ 696,650	$ 875,078	US$ '000	$ 875,078			$ -
CAPITAL COST								
Direct Cost								
Mining			$ -	US$ '000	$ -			
Processing	$ 16,874	$ 16,874	$ 16,874	US$ '000	$ 16,874		$ 3,375	$ 13,499
Infrastructure	$ 25,794	$ 25,794	$ 25,794	US$ '000	$ 25,794		$ 5,159	$ 20,636
Tailings	$ -	$ -	$ -	US$ '000	$ -		$ -	$ -
Total Direct Cost	**$ 42,669**	**$ 42,669**	**$ 42,669**	**US$ '000**	**$ 42,669**	**$ -**	**$ 8,534**	**$ 34,135**
Other Costs								
23% Preprod Mine Dev & Equipment	$ 9,909	$ 9,909	$ 9,909	US$ '000	$ 9,909	$ -	$ -	$ 9,909
12% Owners	$ 4,226	$ 5,098	$ 5,098	US$ '000	$ 5,098	$ -	$ -	$ 5,098
19% Indirect Costs (EPCM, Freight, Insurance, etc)	$ 7,947	$ 7,947	$ 7,947	US$ '000	$ 7,947	$ -	$ 1,589	$ 6,357
2% Spare Parts	$ 833	$ 833	$ 833	US$ '000	$ 833	$ -	$ -	$ 833
Subtotal Costs	**$ 65,583**	**$ 66,455**	**$ 66,455**	**US$ '000**	**$ 66,455**	**$ -**	**$ 10,123**	**$ 56,331**
14% Contingency	$ 6,031	$ 6,031	$ 6,031	US$ '000	$ 6,031	$ -	$ 1,206	$ 4,824
Initial Capital Cost	**$ 71,613**	**$ 72,485**	**$ 72,485**	**US$ '000**	**$ 72,485**	**$ -**	**$ 11,329**	**$ 61,156**
Sustaining	$ 15,008	$ 15,008	$ 29,208	US$ '000	$ 29,208	$ -	$ -	$ -
Working Capital	$ -	$ -	$ (0)	US$ '000	$ (0)	$ -	$ 440	$ 1,835
Reclamation and closure	$ 10,662	$ 10,662	$ 19,133	US$ '000	$ 19,133	$ -	$ -	$ -
Total Capital Cost	**$ 97,283**	**$ 98,154**	**$ 120,826**	**US$ '000**	**$ 120,826**	**$ -**	**$ 11,769**	**$ 62,991**
CASH FLOW								
Pre-Tax Cashflow		**$ 598,496**	**$ 754,879**	US$ '000	$ 754,879	$ -	$ (11,769)	$ (62,991)
Cumulative Pre-Tax Cashflow				US$ '000		$ -	$ (11,769)	$ (74,760)

Date:	2013 Year 1	2014 Year 2	2015 Year 3	2016 Year 4	2017 Year 5	2018 Year 6	2019 Year 7	2020 Year 8	2021 Year 9	2022 Year 10
OPERATING COST										
Mining (Open Pit)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Crusher to Plant (Open Pit)	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Mining (Open Pit)	10.37	8.43	7.48	7.69	7.20	7.21	7.48	7.54	7.85	8.35
Mining (Underground)	-	-	-	-	-	-	-	-	-	-
Processing	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49
G&A	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Total Unit Operating Cost	**15.31**	**13.37**	**12.42**	**12.63**	**12.14**	**12.15**	**12.42**	**12.48**	**12.79**	**13.29**
Mining (Open Pit)	26,731	25,699	22,328	23,221	21,441	21,413	22,453	22,834	23,689	25,137
Crusher to Plant (Open Pit)	2,386	2,883	2,862	2,886	2,870	2,863	2,876	2,901	2,878	2,850
Mining (Underground)	-	-	-	-	-	-	-	-	-	-
Processing	9,785	11,825	11,741	11,838	11,773	11,745	11,799	11,898	11,806	11,690
G&A	4,078	4,927	4,893	4,933	4,906	4,894	4,917	4,958	4,920	4,871
Total Operating Cost	**42,980**	**45,334**	**41,825**	**42,878**	**40,990**	**40,916**	**42,045**	**42,591**	**43,294**	**44,548**
Operating Cashflow	58,301	77,428	78,537	40,098	42,604	41,080	40,058	39,526	37,676	34,882
CAPITAL COST										
Direct Cost										
Mining	-	-	-	-	-	-	-	-	-	-
Processing	-	-	-	-	-	-	-	-	-	-
Infrastructure	-	-	-	-	-	-	-	-	-	-
Tailings	-	-	-	-	-	-	-	-	-	-
Total Direct Cost	-	-	-	-	-	-	-	-	-	-
Other Costs										
23% Preprod Mine Dev & Equipment	-	-	-	-	-	-	-	-	-	-
12% Owners	-	-	-	-	-	-	-	-	-	-
19% Indirect Costs (EPCM, Freight, Insurance, etc)	-	-	-	-	-	-	-	-	-	-
2% Spare Parts	-	-	-	-	-	-	-	-	-	-
Subtotal Costs	-	-	-	-	-	-	-	-	-	-
14% Contingency	-	-	-	-	-	-	-	-	-	-
Initial Capital Cost	-	-	-	-	-	-	-	-	-	-
Sustaining	497	6,525	449	298	5,940	278	187	200	205	429
Working Capital	10,597	2,728	(151)	(4,747)	332	(191)	(27)	(19)	(162)	(309)
Reclamation and closure	4	8	12	16	20	24	28	32	36	1,062
Total Capital Cost	**11,098**	**9,260**	**310**	**(4,433)**	**6,292**	**111**	**188**	**212**	**78**	**1,182**
CASH FLOW										
Pre-Tax Cashflow	47,203	68,168	78,228	44,532	36,311	40,969	39,870	39,313	37,598	33,700
Cumulative Pre-Tax Cashflow	(27,557)	40,611	118,839	163,371	199,682	240,651	280,522	319,835	357,432	391,132

Date:	2023 Year 11	2024 Year 12	2025 Year 13	2026 Year 14	2027 Year 15	2028 Year 16	2029 Year 17	2030 Year 18	2031 Year 19	2032 Year 20
OPERATING COST										
Mining (Open Pit)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Crusher to Plant (Open Pit)	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Mining (Open Pit)	8.29	8.03	8.32	8.48	8.64	9.08	9.77	8.87	7.46	6.49
Mining (Underground)	-	-	-	-	-	-	-	-	-	-
Processing	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49
G&A	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Total Unit Operating Cost	**13.23**	**12.97**	**13.26**	**13.42**	**13.58**	**14.02**	**14.71**	**13.81**	**12.40**	**11.43**
Mining (Open Pit)	24,987	24,574	25,711	25,935	26,437	26,645	26,709	26,612	22,147	19,055
Crusher to Plant (Open Pit)	2,853	2,910	2,924	2,890	2,883	2,753	2,545	2,819	2,849	2,870
Mining (Underground)	-	-	-	-	-	-	-	-	-	-
Processing	11,703	11,938	11,993	11,853	11,826	11,292	10,439	11,565	11,687	11,772
G&A	4,877	4,975	4,998	4,939	4,928	4,705	4,350	4,819	4,870	4,905
Total Operating Cost	**44,420**	**44,397**	**45,626**	**45,617**	**46,074**	**45,395**	**44,043**	**45,816**	**41,553**	**38,602**
Operating Cashflow	32,670	32,570	29,468	24,950	23,223	24,069	20,942	22,867	29,889	33,404
CAPITAL COST										
Direct Cost										
Mining	-	-	-	-	-	-	-	-	-	-
Processing	-	-	-	-	-	-	-	-	-	-
Infrastructure	-	-	-	-	-	-	-	-	-	-
Tailings	-	-	-	-	-	-	-	-	-	-
Total Direct Cost	-	-	-	-	-	-	-	-	-	-
Other Costs										
23% Preprod Mine Dev & Equipment	-	-	-	-	-	-	-	-	-	-
12% Owners	-	-	-	-	-	-	-	-	-	-
19% Indirect Costs (EPCM, Freight, Insurance, etc)	-	-	-	-	-	-	-	-	-	-
2% Spare Parts	-	-	-	-	-	-	-	-	-	-
Subtotal Costs	-	-	-	-	-	-	-	-	-	-
14% Contingency	-	-	-	-	-	-	-	-	-	-
Initial Capital Cost	-	-	-	-	-	-	-	-	-	-
Sustaining	5,000	300	300	300	5,000	300	300	300	300	300
Working Capital	(227)	(142)	(47)	(558)	(27)	87	(458)	345	516	189
Reclamation and closure	2,089	3,601	784	774	773	738	682	756	764	769
Total Capital Cost	**6,862**	**3,758**	**1,036**	**517**	**5,745**	**1,125**	**524**	**1,401**	**1,580**	**1,258**
CASH FLOW										
Pre-Tax Cashflow	25,808	28,812	28,432	24,433	17,478	22,943	20,419	21,466	28,309	32,146
Cumulative Pre-Tax Cashflow	416,940	445,752	474,184	498,618	516,095	539,039	559,457	580,923	609,233	641,379

Date:	2033 Year 21	2034 Year 22	2035 Year 23	2036 Year 24	2037 Year 25	2038 Year 26	2039 Year 27	2040 Year 28	2041 Year 29	2040 Year 30	2041 Year 31
OPERATING COST											
Mining (Open Pit)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Crusher to Plant (Open Pit)	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Mining (Open Pit)	6.08	14.42	0.85	6.74	6.78	-	-	-	-	-	-
Mining (Underground)	-	-	-	-	-	-	-	-	-	-	-
Processing	3.49	3.49	3.49	4.49	5.49	6.49	7.49	8.49	9.49	7.49	7.49
G&A	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Total Unit Operating Cost	**11.02**	**19.36**	**5.79**	**12.68**	**13.72**	**7.94**	**8.94**	**9.94**	**10.94**	**8.94**	**8.94**
Mining (Open Pit)	17,772	26,914	-	18,819	123	-	-	-	-	-	-
Crusher to Plant (Open Pit)	2,888	1,686	1,768	2,715	18	-	-	-	-	-	-
Mining (Underground)	-	-	-	-	-	-	-	-	-	-	-
Processing	11,845	6,917	7,251	14,333	114	-	-	-	-	-	-
G&A	4,936	2,882	3,022	4,642	30	-	-	-	-	-	-
Total Operating Cost	**37,441**	**38,400**	**12,041**	**40,510**	**284**	**-**	**-**	**-**	**-**	**-**	**-**
Operating Cashflow	39,589	12,005	28,288	22,480	8,390	85	-	-	-	-	-
CAPITAL COST											
Direct Cost											
Mining	-	-	-	-	-	-	-	-	-	-	-
Processing	-	-	-	-	-	-	-	-	-	-	-
Infrastructure	-	-	-	-	-	-	-	-	-	-	-
Tailings	-	-	-	-	-	-	-	-	-	-	-
Total Direct Cost	-	-	-	-	-	-	-	-	-	-	-
Other Costs											
23% Preprod Mine Dev & Equipment	-	-	-	-	-	-	-	-	-	-	-
12% Owners	-	-	-	-	-	-	-	-	-	-	-
19% Indirect Costs (EPCM, Freight, Insurance, etc)	-	-	-	-	-	-	-	-	-	-	-
2% Spare Parts	-	-	-	-	-	-	-	-	-	-	-
Subtotal Costs	-	-	-	-	-	-	-	-	-	-	-
14% Contingency	-	-	-	-	-	-	-	-	-	-	-
Initial Capital Cost	-	-	-	-	-	-	-	-	-	-	-
Sustaining	300	300	300	300	300	300					
Working Capital	687	(3,112)	(267)	1,405	(4,501)	(1,059)	(66)	(2,990)	-	-	(100)
Reclamation and closure	774	452	474	728	5	65	741	737	733	730	726
Total Capital Cost	**1,761**	**(2,360)**	**507**	**2,433**	**(4,196)**	**(695)**	**674**	**(2,253)**	**733**	**730**	**626**
CASH FLOW											
Pre-Tax Cashflow	37,828	14,365	27,780	20,047	12,586	779	(674)	2,253	(733)	(730)	(626)
Cumulative Pre-Tax Cashflow	679,206	693,571	721,352	741,399	753,984	754,763	754,089	756,342	755,609	754,879	754,253

Sources & Notes:
[1]: SRK Extended Life inputs are highlighted in green.
[2]: Recovery percentages for silver have been adjusted so that the total current year plus previous year recovery is equal to the SRK suggested 70%.
[3]: The final three years of sustaining capital costs are assumed equal to the last year of data provided in the original RPA Extended Life Model.
[4]: Reclamation and closure costs follow the methodology of the RPA model. Salvage value is assumed to be captured following the last year of production.

Appendix C - Curriculum Vitae

GRAHAM A. DAVIS

1230 Judson Drive
Boulder, Colorado 80305, USA
Tel: (303) 273-3550
email: gdavis@mines.edu

Education

Degrees:

Ph.D., Mineral Economics, 1993
Pennsylvania State University, USA

MBA, 1988
University of Cape Town, South Africa

B.Sc. (with honors), **Metallurgical Engineering**, 1982
Queen's University at Kingston, Canada

Employment

Academic:

Professor, April 2006 - present
Division of Economics and Business, Colorado School of Mines

Undergraduate Courses Taught	Graduate Courses Taught
Microeconomics	Microeconomics
International Economics	Resource Economics
Economic Development	Economic Development
Freshman Success	Asset Valuation (Real Options)
Mathematical Economics	Mathematical Economics
Economics Field Session	Mineral and Energy Policy Analysis
Investments	Social License in Exploration and Mining
Public Policy (Honors)	Research Methodology
	Advanced Project Analysis

Associate Professor, April 1999 - April 2006
Division of Economics and Business, Colorado School of Mines

Assistant Professor, August 1993 - April 1999
Department of Mineral Economics, Colorado School of Mines

Instructor, 1992 - 1993
Department of Mineral Economics, The Pennsylvania State University

Assistant Lecturer, 1988 - 1989
The Graduate School of Business, University of Cape Town

Employment (continued)

Industry:

Resource Economics Consultant and Expert Witness, 1993 - Present
United States Dept. of Energy, United States Dept. of Justice, RMB Resources, Yates and Leal LLP, Hall and Evans LLP, Corporate Tax Management, Monument Resources, National Research Council, Pincock, Allen and Holt, Frommer Lawrence & Haug LLP, Platts Research & Consulting, Stevens Littman Biddison Tharp & Weinberg LLC, Berg Hill Greenleaf & Ruscitti LLP, Royal Gold, Community Systems Associates, Birch Mountain Resources, Westchester Resources, Africore (Ghana), Patterson Belknap Webb & Tyler LLP, De Beers, De Beers Canada, Duke Corporate Education, Shutts & Bowen LLP, Reoforce Inc., Australian Centre for Geomechanics, United Nations Conference on Trade and Development, Hines Norman Hines PL, Foulston Siefkin LLP, Rio Tinto Coal Australia, Yetter, Warden & Coleman, LLP, Boulder Scientific, GLG Research, Newmont Mining USA, CRC Mining, Ernst & Young LLP, Summit Consulting LLC, Debevoise and Plimpton LLP, Pomerantz, Grossman, Hufford, Dahlstrom & Gross LLP, The Brattle Group, Dechert (Paris) LLP, White & Case LLP.

World Bank Group Staff Member, 2013 - 2014

Consulting Metallurgist, 1986
Deblin Mines (silver/lead/zinc), Swakopmund, Namibia

Mill Metallurgist, 1985 - 1986
Equity Silver Mines Ltd. (Placer Dome), British Columbia, Canada

Metallurgical Engineer, 1982 - 1985
Rössing Uranium Ltd. (RTZ), Swakopmund, Namibia

Research Grants

Earth Resources Institute Mini-Grant, 2015, $12,500

Inter-American Development Bank, 2013: $20,666

Denham Capital Management LP, 2011 - 2012: $129,956

Ernst and Young LLP, 2011: $2,580

Ernst and Young LLP, 2010: $8,000

United Nations Industrial Development Organization, 2010: $29,038.

World Trade Organization, 2009: $9,396.

CRC Mining, 2009: $9,331.

CRC Mining, 2008: $30,000.

RCF Management LLC, 2008: $1,367.

Research Grants (continued)

International Council on Mining and Metals: $15,000.

AMEC Americas, 2004 - 2006: $2,000 annually.

U.S. Dept. of Energy, Fossil Energy Division, 2002 - 2003: $30,000.

International Council on Mining and Metals, 2002: $10,400.

National Renewable Energy Laboratory, 2001: $4,976.

Rio Tinto, 1997: $10,000.

Rio Tinto, 1996: $10,000.

National Science Foundation/Environmental Protection Agency Partnership for Environmental Research (NSF 95-48), R824705-01-0, 1995 - 1997: $101,000.

Professional Awards, Appointments, and Distinctions

William J. Coulter Chair in Mineral Economics, 2014 - 2016

Research Council, J.P. Morgan Center for Commodities, University of Colorado Business School, 2015 -

Associate Editor, Journal of Commodity Markets (Elsevier), 2015 -

Co-editor, Global Commodity Issues eJournal (Editor's Choice), 2015 -

Visiting Professor, GĚRENS Graduate School, Lima, Peru, 2013, 2014, 2015.

Mineral Economics Award, Society for Mining, Metallurgy and Exploration/American Institute of Mining, Metallurgical, and Petroleum Engineers, 2014.

Academic Advisor, The Brattle Group, 2013 -

Voted Outstanding Instructor in Mineral and Energy Economics, Division of Economics and Business, Colorado School of Mines, 1995 - 1996, 1996 - 1997, 1997 - 1998, 2005 - 2006, 2007 - 2008, 2011 - 2012, 2012 - 2013, 2014 - 2015.

Editorial Board, Resources Policy (Elsevier), 2007 -

Board of Trustees, Queen's University at Kingston (Canada), 2006 - 2012.

Board of Directors, Mineral Economics and Management Society, 2005 - 2007.

Visiting Scholar, Centre Interuniversitaire de Recherches en Economique Quantitative (CIREQ), McGill University, 2004.

Professional Awards, Appointment, and Distinctions (continued)

Member, National Research Council Standing Committee on Earth Resources, Board on Earth Sciences and Resources, 1999 - 2001.

Visiting Teaching Fellow, Department of Mineral Economics, Western Australia School of Mines, 1997.

Domingo Moreno Developmental Professorship in Mineral Economics, Colorado School of Mines, 1996 - 1997.

United Nations Conference on Trade and Development (UNCTAD) Secretary-General's Expert Group on Development Policies in Resource-based Economies, 1996.

Centennial Fellow, College of Earth and Mineral Sciences, Pennsylvania State University, 1996.

Visiting Scholar, Graduate School of Business, University of Cape Town, 1995.

Memberships

Member, American Economic Association (AEA)

Member, Association of Environmental and Resource Economists (AERE)

Registered Member, Society for Mining, Metallurgy, and Exploration (SME)

Fellow, Australasian Institute of Mining & Metallurgy (AusIMM)

Member, International Association for Energy Economics (IAEE)

Member, United States Association for Energy Economics (USAEE)

Member, Prospectors & Developers Association of Canada (PDAC)

Publications

Books:

Davis, G. A. South African Managed Trade Policy: The Wasting of a Mineral Endowment. Westport: Praeger (1994).

Chapters in Books:

(Refereed) Davis, G. A., "Replicating 'Sources of Slow Growth in African Economies'," in Methodological Challenges and New Approaches to Research in International Development, Laura Camfield, ed. London, Palgrave Macmillan (2014), 261-82.

Publications (continued)

Samis, M., and Davis, G. A., "Using Dynamic DCF and Real Options Methods to Value and Assess Flexible Mine Project Design," in Mineral Resources/Reserves and Valuation Standards, CIM Special Volume 56, Montreal: Canadian Institute of Mining, Metallurgy and Petroleum (2009), 632-50.

(Refereed) Davis, G. A., "Extractive Economies, Growth and the Poor," in Mining, Society, and a Sustainable World, Jeremy P. Richards, ed. Berlin: Springer-Verlag (2009), 37-60.

Davis, G. A., "Project Feasibility Evaluation: New Trends," in Sustainable Management of Mining Operations, edited by Jose A. Botin. Littleton, CO: Society for Mining, Metallurgy, and Exploration, Inc. (2009), 240-48.

(Refereed) Davis, G. A., and Samis, M. "Using Real Options to Value and Manage Exploration," in Wealth Creation in the Minerals Industry: Integrating Science, Business, and Education, edited by Michael D. Doggett and John R. Parry. Littleton, CO: Special Publication Number 12, Society of Economic Geologists (2006), 273-94.

Davis, G. A., and Tilton, J. E. "La Maldición de los Recursos Naturales," in Minería y Desarrollo, Foro en Economía de Minerales, Vol. III, edited by Gustavo Lagos. Santiago: Ediciones Universidad Católica de Chile (2005), 83-103.

Davis, G. A., and Moore, D. "Valuing Mineral Stocks and Depletion in Green National Income Accounts," in Natural Resource Accounting and Economic Development: Theory and Practice, edited by Charles Perrings and Jeffrey R. Vincent. Cheltenham: Edward Elgar (2003), 105-23. Reprinted from Environmental and Development Economics 5 (2000): 109-27.

Davis, G. A. "The Potential for Economic Recovery of Metals from the Sillamäe Site," in Turning a Problem into a Resource: Remediation and Waste Management at the Sillamäe Site, Estonia, edited by Cheryl K. Rofer and Tõnis Kaasik. Dordrecht: Kluwer Academic Publishers (2000), 195-206.

Davis, G. A. "Project Assessment Methodologies and Measures: The Contribution of Mining Projects to Sustainable Development," in Sustainable Development and the Future of Mineral Investment, edited by James M. Otto and John Cordes. Paris: United Nations Environment Programme (2000), 7.1-7.31.

Davis, G. A. "A Review of Option Valuation," in Evaluating Mineral Projects: Applications and Misconceptions, by Thomas F. Torries. Littleton, CO: Society for Mining, Metallurgy, and Exploration, Inc. (1998),: 117-23.

Considine, T. J., Davis, G. A. and Marakovits, D. "Costs and Benefits of Coke Oven Emission Controls," in Modeling Environmental Policy, edited by Wade E. Martin and Lisa A. McDonald. Boston: Kluwer Academic Publishers (1997), 103-22.

Davis, G. A. "The Declining Influence of Economic Growth on Metal Demand," in Productivity and Technology in the Metallurgical Industries, edited by M. Koch and J. C. Taylor. Warrendale: The Minerals, Metals, and Materials Society (1989), 159-86.

Publications (continued)

Refereed Journal Articles:

Samis, M., and Davis, G. A. "Using Monte Carlo simulation with DCF and real options risk pricing techniques to analyse a mine financing proposal." International Journal of Financial Engineering and Risk Management 1.3 (2014): 264-281.

Davis, G. A. "Replicating Sachs and Warner's Working Papers on the Resource Curse." Journal of Development Studies 49.12 (2013): 1615-1630.

Davis, G. A., and Vásquez Cordano, A. L. "The Fate of the Poor in Growing Mineral and Energy Economies." Resources Policy 38.2 (2013): 138-51.

Davis, G. A., and Vásquez Cordano, A. L. "International Trade in Mining Products." Journal of Economic Surveys 27.1 (2013): 74-97.

Davis, G. A. "Technical Note: Simulating the Two-factor Schwartz and Smith Model of Commodity Prices." Engineering Economist 57.2 (2012): 130-40.

Davis, G. A., and Cairns, R. D. "Good Timing: The Economics of Optimal Stopping." Journal of Economic Dynamics and Control 36.2 (2012): 255-65.

Davis, G. A. "The Resource Drag." International Economics and Economic Policy 8.2 (2011): 155-76.

Bertisen, J., and Davis, G. A. "Bias and Error in Mine Project Capital Cost Estimation." Engineering Economist 53.2 (2008): 118-39.

Davis, G. A. "Measuring Unambiguously Pro-poor Growth." Journal of Economic and Social Measurement 32.4 (2007): 253-61.

Cairns, R. D., and Davis, G. A. "Strike When the Force Is with You: Optimal Stopping with Application to Resource Equilibria." American Journal of Agricultural Economics 89.2 (2007): 461-72, with Erratum, American Journal of Agricultural Economics 89.5 (2007).

Samis, M., Davis, G. A., Laughton, D., and Poulin, R. "Valuing Uncertain Asset Cash Flows When There are No Options: A Real Options Approach." Resources Policy 30 (2006): 285-98.

Cairns, R. D., and Davis, G. A. "Comment: Rejecting the Hotelling Valuation Principle." Empirical Economics 30.2 (2005): 473-78.

Davis, G. A., and Tilton, J. "The Resource Curse." Natural Resources Forum 29.3 (2005): 233-42.

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Davis, G. A., and Moore, D. "Valuing Mineral Stocks and Depletion in Green National Income Accounts." Environment and Development Economics 5.1 (2000): 109-27.

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Davis, G. A. "Energy Catastrophes and Energy Consumption." Materials and Society 15.1 (1991): 31-39.

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Davis, G. A., and Tilton, J. E. "Why the Resource Curse is a Concern." Mining Engineering 60.4 (2008): 29-32.

Davis, G. A. "Reflections of a First-time Replicator." Journal of Economic and Social Measurement 32.4 (2007): 263-66.

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Davis, G. A. "(Mis)Use of Monte Carlo Simulations in NPV Analysis." Transactions of the Society for Mining, Metallurgy, and Exploration, Inc., 298. Littleton, CO: Society for Mining, Metallurgy, and Exploration, Inc. 1996, 75-79.

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Davis, G. A. "US Share of World Mineral Markets: Where Are We Headed?" Mining Engineering 46.9 (1994):1067-69.

Davis, G. A., and Considine, T. "An Economic Evaluation of Process Options that Reduce Coking Emissions at Integrated Steel Mills." Iron and Steelmaker March 1992: 57-62.

Papers in Proceedings:

(Refereed) Samis, M., Martinez, L., Davis, G. A., and Whyte, J. B. "Using Dynamic Discounted Cash Flow and Real Option Methods for Economic Analysis in NI43-101 Technical Reports." In The Valmin Seminar Series 2011-12 Proceedings, The Australian Institute of Mining and Metallurgy, Publication Series No 3/2012, 149-160.

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Publications (continued)

(Refereed) Davis, G. A., and Newman, A. M. "Modern Strategic Mine Planning." Proceedings of the 2008 Australian Mining Technology Conference, AusIMM, Carlton, Australia. 2008, 129-39.

(Refereed) Samis, M. R., Davis, G. A., and Laughton, D. G. "Using Stochastic Discounted Cash Flow and Real Options Monte Carlo Simulation to Analyse the Impacts of Contingent Taxes on Mining Projects." Project Evaluation 2007, AusIMM, Carlton, Australia. 2007, 127-37.

Davis, G. A. "Economic Theory and the Valuation of Mineral Assets." Journal of Business Valuation - 2003, Proceedings of the Fifth Joint Business Valuation Conference of the Canadian Institute of Chartered Business Valuators and the American Society of Appraisers. 2003, 391-408.

Davis, G. A. "Brazil's Comparative Advantage in the Global Economy." Proceedings of the First International Symposium on Mining and Development, Universidade Estadual de Campinas, Campinas, Brazil. Ed. Saul B. Suslick. July 1995, 35-44.

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Reports

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Book Reviews:

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Escaping the Resource Curse, edited by Macartan Humphreys, Jeffrey D. Sachs, and Joseph E. Stiglitz. New York: Columbia University Press, 2007. Resources Policy 33.4 (2008): 240-42.

Natural Resources: Neither Curse nor Destiny, edited by Daniel Lederman and William F. Maloney. Washington, DC: the World Bank, and Palo Alto, CA: Stanford University Press, 2007. Resources Policy 33.4 (2008): 243-45.

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Angola: Anatomy of an Oil State, 2nd edition, by Tony Hodges. Norway: Fridtjof Nansen Institute, in association with James Currey and Indiana University Press, 2004. Energy Journal 26.4 (2005): 127-30.

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The Green Myth – Economic Growth and the Quality of the Environment, by Marian Radetzki. Essex: Multi-Science Publishing Co. Ltd., 2001. Resources Policy 30.1 (2004): 71.

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Canadian Suppliers of Mining Goods and Services: Links Between Canadian Mining Companies and Selected Sectors of the Canadian Economy. Ottawa: Natural Resources Canada, 2000. Resources Policy 27 (2001): 273-78.

Why Governments Waste Natural Resources: Policy Failures in Developing Countries, by William Ascher. Baltimore: Johns Hopkins University Press, 1999. Resources Policy 26 (2000): 181-82.

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Trade Policy Implications of the Basel Convention Export Ban on Recyclables from Developed to Developing Countries, by Maria Isolda P. Guevara and Michael Hart, and A Statistical Review of International Trade in Metal Scrap and Residues , Parts I, II and III, by Ulrich Hoffmann. Ottawa, International Council on Metals and the Environment, 1996. Resources Policy 23.3 (1997): 147-48.

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Freer Trade, Protected Environment: Balancing Trade Liberalization and Environmental Issues, by C. Ford Runge, New York: Council on Foreign Relations Press, 1994, and Environment and Resource Policies for the World Economy, by Richard N. Cooper, Washington DC, The Brookings Institution, 1994. Resources Policy 21.1 (1995): 74-75.

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Working Papers:

Kaffine, D., and Davis, G. A. “A simple Monte Carlo approach to examine sample robustness in growth regressions. WP2013-04, Colorado School of Mines, 2013.

Davis, G. A. “Replicating ‘Sources of Slow Growth in African Economies’.” WP2012-09, Colorado School of Mines, 2012.

Davis, G. A. “Replicating Sachs and Warner: The 1997 Working Paper.” WP2012-08, Colorado School of Mines, 2012.

Davis, G. A. “The Resource Drag.” USAEE Working Paper No. 10-049. 2010.

Davis, G. A., and Schantz, R. “Selling and Managing Offshore Oil Leases: A Real Options Analysis.” 2002.

Davis, G. A., and Tilton, J. “Should Developing Countries Renounce Mining? A Perspective on the Debate.” Colorado School of Mines, November, 2002.

Davis, G. A. “Option Premiums in Mineral Asset Valuation: Are They Important?” Working Paper 94-10, Colorado School of Mines, November, 1994.

Davis, G. A. “Reconsidering the Substitution Problem in the Theory of Effective Protection.” Working Paper no. 77, Pennsylvania State University, November, 1992.

Davis, G. A., and Considine, T. “Process Choices for Steelmaking in the 1990s.” Working Paper no. 55, Pennsylvania State University, May, 1991.

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Davis, G. A. "An Environmental Scanning Exercise into the Trends that are Shaping the Financial Services Industry in South Africa." Confidential industry report, Graduate School of Business, University of Cape Town, 22 August, 1988.

Davis, G. A. "Metal Marketing Neglect: A South African Phenomenon." Working Paper no. 88-35, Graduate School of Business, University of Cape Town, 1988.

Presentations and Chaired Sessions

"The Odd Notion of 'Reversible Investment'" (with R. Cairns), 19th Annual Real Options Conference, Athens and Monemvasia, Greece, June 17-20, 2015.

"The Comparison Sales Approach to Valuation: Science or Black Magic?" 2015 SME Annual Conference & Expo, Denver, Colorado, February 15-18, 2015.

"Mining, Oil, and Inequality," 2015 SME Annual Conference & Expo, Denver, Colorado, February 15-18, 2015.

"Mining, Oil, and Inequality," Canadian Resource and Environmental Economics Study Group Annual Conference 2014, Saskatoon, Canada, October 3-5, 2014.

Co-chair and session organizer (with Heather Douglas), "Mineral Economics: Approaches to Understanding and Managing Uncertainty and Risk," Prospectors and Developers Association of Canada (PDAC) 2014 Annual Meeting, Toronto, Canada, March 3, 2014.

"Explaining the Resource Curse," GĚRENS Graduate School, Lima, Peru, October 4, 2013.

"Replicating Sachs and Warner: Sources of Slow Growth in African Economies," 13th EADI General Conference, 2011 DSA Annual Conference, York, UK, September 19-22, 2011.

"The Economics of Optimal Stopping," 2010 AAEA, CAES, & WAEA Joint Annual Meeting, Denver, July 27, 2010.

"An Assessment of Mongolia's Comparative Advantage in Value-added Mineral and Energy Processing," Second Workshop on Industrial Policy in Mongolia, UNIDO and the Mongolian Government, Ulaanbaatar, June 3-4, 2010.

"Mine Planning and Sustainability" (with A. Newman), 2009 SME Annual Meeting and Exhibit, Denver, Colorado, February 22-25, 2009.

"Resource Booms and the Poor" (with A. Vasquez), 2009 SME Annual Meeting and Exhibit, Denver, Colorado, February 22-25, 2009.

Presentations and chaired sessions (continued)

"Resource Booms and the Poor" (with A. Vasquez), 28th US Association for Energy Economics/International Association for Energy Economics Annual North American Conference North American Conference, New Orleans, December 3-5, 2008.

"Resource Booms and the Poor" (with A. Vasquez), 2008 International Association for Energy Economics Asian Conference, Perth, Australia, November 7-9, 2008.

"Modern Strategic Mine Planning" (with A. Newman), 2008 Australian Mining Technology Conference, Twin Waters, Queensland, Australia, September 16-18, 2008.

"Can Resource Depletion Explain the Resource Curse?," Pontificia Universidad Católica de Chile, Santiago, Chile, May 17, 2007.

"Risk Analysis and Economic Valuation of Mining Projects" (with R. Halatchev and Y. Potvin), Australian Centre for Geomechanics, Brisbane, Australia, April 3-5, 2007.

"Recent Advances in Project Evaluation," Mineral Economics and Management Society 2007 Santiago Symposium, Santiago, Chile, March 26, 2007.

"Modeling Exploration Decision Making in a Value-creation Framework" (with M. Samis), Denver Region Exploration Geologists' Society, Denver, Colorado, November 6, 2006

"A Unified Theory of Optimal Stopping" (with R.D. Cairns), West Virginia University, Morgantown, West Virginia, October 6, 2006

"An Intuitive Approach to Optimal Stopping Under Certainty and Uncertainty" (with R.D. Cairns), 10th Annual International Conference on Real Options, New York, New York, June 14-17, 2006

"The Resource Curse: Assessing the Empirical Evidence," 2006 Allied Social Science Associations (ASSA) Meetings, Boston, Massachusetts, January 6-8, 2006.

"An Empirical Investigation of Resource Extraction and Sustainable Development," 25th US Association for Energy Economics/International Association for Energy Economics Annual North American Conference, Denver, Colorado, September 18-21, 2005.

"An Empirical Investigation of Mining and Sustainable Development," Inaugural Global Sustainable Development Conference, Minerals Council of Australia, Melbourne, Australia, October 25-29, 2004.

"Selling and Managing Offshore Oil Leases: A Real Options Analysis" (with R. Schantz), University of Auckland, Auckland, New Zealand, July 29, 2004.

"An Empirical Investigation of Mining and Sustainable Development," CRC Mining, Brisbane, Australia, July 18, 2004.

"An Empirical Investigation of Mining and Sustainable Development," CIM 2004 Annual Meeting & Exhibit, Edmonton, Alberta, May 12, 2004.

Presentations and chaired sessions (continued)

Session Chair, "Mining's View of Sustainability," Mineral Economics and Management Society (MEMS) 13th Annual Conference, Toronto, Ontario, April 21-23, 2004.

"An Empirical Investigation of Mining and Sustainable Development," Mineral Economics and Management Society (MEMS) 13th Annual Conference, Toronto, Ontario, April 23, 2004.

"Selling and Managing Offshore Oil Leases: A Real Options Analysis" (with R. Schantz), Centre Interuniversitaire de Recherches en Economique Quantitative (CIREQ), McGill University, Montreal, Quebec, March 19, 2004.

"An Empirical Investigation of Mining and Sustainable Development," 2004 SME Annual Meeting & Exhibit, Denver, Colorado, Feb. 23-25, 2004.

"Selling and Managing Offshore Oil Leases: A Real Options Analysis" (with R. Schantz), INFORMS 2003 Annual Meeting, Atlanta, Georgia, October 19-22, 2003.

"The Economic and Financial Theory Behind the Income Method of Mineral Property Appraisal," Center for Advanced Property Economics Mineral Appraisal Symposium, Denver, Colorado, October 1-3, 2003.

"Should Developing Countries Renounce Extractive Industries? A Perspective on the Debate," World Bank Oil, Gas, Mining, and Chemicals Department, Williamsburg, Virginia, June 18-20, 2003.

Session Chair, "Financial Decision Making for Sustainable Development," Mineral Economics and Management Society, 12th Annual Professional Program, Golden, Colorado, April 9-11, 2003.

"Economic Methods of Valuing Mineral Assets," American Society of Appraisers/Canadian Institute of Chartered Business Valuators 5th Joint Business Valuation Conference, Orlando, Florida, October 24-26, 2002.

"Strike When the Force is With You: A Robust Rule Involving the Force of Interest and Natural Resources" (with R.D. Cairns), University of Colorado Environmental and Resource Economics Workshop, Boulder, Colorado, July 15-16, 2002.

Session Co-Chair, "Student Paper Session," Mineral Economics and Management Society, 11th Annual Professional Program, Montreal, Quebec, April 10-12, 2002.

Session Co-Chair, "Student Paper Session," Mineral Economics and Management Society, 10th Annual Professional Program, Pittsburgh, Pennsylvania, April 5-7, 2001.

"The Pitfalls of Real Options: How to Avoid Poor Management Decisions," 50th Annual Meeting of the Midwest Finance Association, Cleveland, Ohio, March 29-31, 2001.

"Renewable Energy and Real Options Analysis," National Renewable Energy Laboratory, Washington D.C., March 8, 2001.

Presentations and chaired sessions (continued)

"Optimizing the Level of Renewable Energy Research and Development Using Real Options Analysis," National Renewable Energy Laboratory, Golden, Colorado, March 2, 2001.

"The Pitfalls of Real Options: How to Avoid Poor Management Decisions," Real Options 2000, hosted by the International Quality & Productivity Center, Chicago, Illinois, September 25-26, 2000.

Session Co-Chair, "Student Paper Session," Mineral Economics and Management Society, Ninth Annual Professional Program, Boulder, Colorado, April 12-14, 2000.

"Selling Oil Leases: A Long-term Real Options Analysis," (with R. Schantz), Allied Social Sciences Associations (ASSA) Annual Meeting, Boston, Massachusetts, January 7-9, 2000.

"The Potential for Economic Recovery of Metals from the Sillamäe Site," NATO Advanced Research Workshop, Tallinn, Estonia, October 5-9, 1998.

"Estimating Volatility and Dividend Yield When Valuing Real Options to Invest or Abandon," 2nd Annual Real Options Conference, Northwestern University, Chicago, Illinois, June 11-12, 1998.

Session Chair, "Financing Mining," Mineral Economics and Management Society, Seventh Annual Professional Program, Washington, D.C., March 25-27, 1998.

"On Estimating Volatility and the Rate of Return Shortfall When Valuing Real Options to Invest or Abandon," Midwest Finance Association, 47th Annual Meeting, Chicago, Illinois, March 19-21, 1998.

Session Chair, "Managing Capital in the Minerals Industry," 1998 SME Annual Meeting & Exhibit, Orlando, Florida, March 9-11, 1998

"Accounting for and Managing Political Risk in Mineral Projects," 1998 SME Annual Meeting & Exhibit, Orlando, Florida, March 9-11, 1998

"Valuing the Stock and Flow of Mineral and Renewable Assets in National Income Accounting," 1997 Workshop on Valuation and Environmental Policy, National Science Foundation, Arlington, Virginia, April 7-8, 1997.

"One Project: Two Discount Rates," 1997 SME Annual Meeting & Exhibit, Denver, Colorado, February 24, 1997.

"The Credibility of a Threat to Nationalize," Graduate School of Business, University of Colorado at Denver, November 13, 1996.

"The Cost of a Threat to Nationalize," 71st Annual Western Economic Association International Conference, San Francisco, California, June 28 - July 2, 1996.

"The Effect of NAFTA on the Economics of Mineral Production," 1996 SME Annual Meeting & Exhibit, Phoenix, Arizona, March 12, 1996.

Presentations and chaired sessions (continued)

Session Chair, “Mining and NAFTA - Two Years Later,” 1996 SME Annual Meeting & Exhibit, Phoenix, Arizona, March 12, 1996.

“Valuing Petroleum Reserves Using Current Net Price” (with R.D. Cairns), Front Range Finance Conference, University of Colorado, Boulder, Colorado, November 10, 1995.

“The Minerals Sector as Winner in Development Economics,” 18th Annual Third World Studies Conference, University of Nebraska at Omaha, Omaha, Nebraska, October 12-14, 1995.

“Valuing Petroleum Reserves Using Current Net Price” (with R.D. Cairns), University of Colorado Department of Economics, September 22, 1995.

“Brazil's Comparative Advantage in the Global Economy,” First International Symposium on Mining and Development, Universidade Estadual de Campinas, Campinas, Brazil, July 10-13, 1995.

Session Chair, “Using Financial Concepts in Mineral Management Decisions,” Mineral Economics and Management Society, Fourth Annual Professional Program, Boulder, Colorado, March 9-11, 1995.

Session Chair, “Commodity Price Projections to 2000,” 1995 SME Annual Meeting & Exhibit, Denver, Colorado, March 6-9, 1995.

“An Investigation of the Underpricing Inherent in DCF Valuation Techniques,” 1995 SME Annual Meeting & Exhibit, Denver, Colorado, March 6-9, 1995.

“Using Commodity Price Projections in Mineral Project Valuation,” 1995 SME Annual Meeting & Exhibit, Denver, Colorado, March 6-9, 1995.

“Demand and Supply in World Mineral Markets: Where Are We Headed?” Envirosciences Expo '93, Earth Resources Consortium, Denver, Colorado, October 7-8, 1993.

“The Empty Economics in South Africa's Industrial Policy,” 68th Annual Western Economic Association International Conference, Lake Tahoe, Nevada, June 20-24, 1993.

“The South African Export Incentive Scheme: Boom or Bust for the Minerals Sector?”, First Annual Mineral Economics and Management Society Professional Program, Sterling, Virginia, March 19-21, 1992.

“The Declining Influence of Economic Growth on Metal Demand,” International Symposium on Productivity and Technology in the Metallurgical Industries, co-sponsored by The Minerals, Metals & Materials Society and Gesellschaft Deutscher Metallhütten-und Bergleute, Cologne, West Germany, September 17-22, 1989.

Executive Short Courses

"Using Dynamic DCF and Real Options to Design, Value and Manage Natural Resource Projects," with Michael Samis. 8 hours or 24 hours of instruction, 2 Continuing Education units, offered through the Colorado School of Mines Office of Special Programs and Continuing Education.

"Using Monte Carlo Simulation to Design, Value and Manage Mineral and Energy Projects," with Michael Samis. 8 hours or 24 hours of instruction, 2 Continuing Education units, offered through the Colorado School of Mines Office of Special Programs and Continuing Education.

Refereeing Services

Agricultural and Resource Economics Review, American Economic Review, American Journal of Agricultural Economics, Annals of Operations Research, Applied Economics, Applied Financial Economics, The Australasian Institute of Mining and Metallurgy, Australian Journal of Management, Blackwell Publishing, Boston University, Canadian Institute of Mining and Metallurgy (CIM) Bulletin, Canadian Journal of Economics, China: An International Journal, Development & Society, Ecological Economics, Economic Development and Cultural Change, Economic Inquiry, Economics Bulletin, Energy - The International Journal, Energy Economics, Energy Journal, Energy Policy, Engineering Economist, Environment and Development Economics, Environmental and Resource Economics, European Journal of Development Research, European Journal of Finance, European Journal of Operational Research, Exploration and Mining Geology, Greener Management International, IEEE Transactions on Engineering Management, International Economic Review, International Journal of Industrial Organization, International Journal of Oil, Gas, and Coal Technology, International Journal of Risk Assessment and Management, International Review of Economics and Finance, Japan International Cooperation Agency Research Institute, Journal of Corporate Finance, Journal of Development Studies, Journal of Economics and Business, Journal of Economic Dynamics & Control, Journal of Energy and Development, Journal of Environmental Economics and Management, Journal of Industrial Ecology, Journal of International Development, Journal of Nonlinear Studies, Journal of Petroleum Science and Engineering, Journal of Political Economy, Management Science, Mining Engineering, MIT Press, Natural Resources Forum, Natural Resources Research, New Zealand Economic Papers, Operations Research, Oxford University Press, PennWell Publishing, Policy Sciences, Raw Materials Report, Resource & Energy Economics, Resources Policy, Review of International Economics, SEG Newsletter, Studies in Comparative International Development, United States Environmental Protection Agency, United States National Science Foundation, United States National Research Council, The World Bank, World Development.

FLORIN A. DOROBANTU

Senior Associate

New York, NY | +1.212.789.3681 | Florin.Dorobantu@brattle.com

Dr. Florin Dorobantu specializes in business and project valuation and structured finance issues, applied in the context of international arbitration and litigation involving financial institutions and tax matters. He has prepared testimony on damages under the Arbitration Rules of the International Chamber of Commerce (ICC) and before the Permanent Court of Arbitration (PCA), and has provided support for expert testimony in arbitration proceedings before the International Centre for the Settlement of Investment Disputes (ICSID), London Court of International Arbitration (LCIA), and ICC, litigation in U.S. federal courts, state courts, and tax courts, and regulatory proceedings before U.S. public utilities commissions.

He has experience conducting complex discounted cash flow analyses, including building cash flow forecasts, estimating the impact of business and financial risks on cash flows and discount rates, and incorporating the value of real options in the valuation of long-lived assets. Dr. Dorobantu has performed valuation analyses in a variety of industries, including mining, oil & gas, large project engineering and construction, consumer goods, financial services, and business process outsourcing.

Dr. Dorobantu has worked closely with testifying experts on matters involving structured finance and asset backed securities. In litigations stemming from the recent global financial crisis, he analyzed the mark-to-market value of leveraged loans and mortgage backed securities in disputes between banks and investment funds, and analyzed the portfolio of a large hedge fund that collapsed following subprime mortgage-related losses. In tax-related litigations, he evaluated the economic substance of investment strategies involving foreign currency derivatives, cross-border leveraged leases, interest rate swaps and swaptions, and structured promissory notes.

EDUCATION

Ph.D. and M.A. in Economics, Duke University, 2007

B.A. in Economics and Business Administration, American University in Bulgaria, 2001

AREAS OF EXPERTISE

International Arbitration

Structured Finance and Securities Litigation

Tax Disputes

Regulatory Finance

EXPERIENCE

International Arbitration

- In a commercial arbitration under the arbitration rules of the ICC, Dr. Dorobantu testified on the quantum of damages stemming from the cancellation of an agreement to design and build a nuclear power plant.
- In an investment arbitration before the PCA over the alleged illegal expropriation of a silver mining project in South America, Dr. Dorobantu submitted expert testimony concerning the valuation methods that were appropriate to calculate the quantum of damages.
- In an investor-state dispute related to the denial of a mining license to a foreign investor, Dr. Dorobantu managed a Brattle team estimating the fair market value of a copper and gold mining project.
- In a commercial arbitration dispute before the LCIA, he analyzed economic issues related to the valuation of uranium mining assets.
- For an expropriation claim before the ICSID, Dr. Dorobantu worked on the valuation of an oil field investment in Latin America.
- In a commercial arbitration between a company and its supplier of raw materials, Dr. Dorobantu analyzed the economic aspects of a long-term procurement contract.
- In an investor-state dispute before the ICSID, Dr. Dorobantu was part of a Brattle team that assisted an academic expert in estimating damages from the cancellation of investment tax incentives for a firm in the food and beverage industry.

Structured Finance and Securities Litigation

- In a dispute between a broker-dealer and an investment fund related to the repo financing of a multi-billion dollar portfolio of mortgage-backed securities, Dr. Dorobantu managed a team that analyzed the broker-dealer's mark-to-market valuation of the MBS portfolio and estimated damages from the early termination of the repo financing.
- In a dispute between a hedge fund and an investment bank related to the marking to market of collateral underlying a total return swap, Dr. Dorobantu assisted the expert in analyzing the market value of a large portfolio of leveraged loans in the immediate aftermath of the Lehman Brothers bankruptcy filing.

- Dr. Dorobantu analyzed the portfolio of a major hedge fund that collapsed during the subprime mortgage crisis, as part of an engagement to assist a client in developing a complaint against the fund's managers.
- In litigation related to the fraud-driven bankruptcy of a broker-dealer, he was part of a team evaluating but-for and proximate causation issues, deepening insolvency and general damages on behalf of a large accounting firm.
- In a matter concerning the tax treatment of financial derivative positions held for hedging purposes, Dr. Dorobantu conducted analyses of economic aspects of interest rate swaps and swaptions.
- Dr. Dorobantu helped analyze the trading activity and positions of several traders in a matter involving potential market manipulation in commodity futures markets.

Tax Disputes

- In *Country Pine Finance, LLC v. Commissioner of Internal Revenue*, Dr. Dorobantu worked closely with testifying experts on evaluating the transaction's economic substance and whether the loan structure represented genuine indebtedness in a transaction structure known as Custom Adjustable Rate Debt Structure (CARDS).
- Dr. Dorobantu analyzed multiple cross-border leveraged lease transactions known as LILO and SILO that have been challenged by the United States Internal Revenue Service. His team evaluated the economic substance of each transaction, as well as the risks and benefits undertaken by the U.S. lessor upon entering into the transaction.
- In a case involving a listed transaction, he evaluated the profitability of a complex multi-step transaction involving a structured promissory note and a purchase of shares in a hedge fund.

Regulatory Finance

- For a water utility in California, Dr. Dorobantu evaluated the impact of a proposed revenue decoupling mechanism on the utility's cost of equity capital.
- For an electric distribution utility, he helped develop and implement a test of "significantly excessive earnings" consistent with newly adopted state legislation and based on rigorous statistical methods.
- Dr. Dorobantu has managed teams in developing cost of equity estimates for water utilities in a number of rate proceedings, and worked on project teams involved in cost of capital proceedings before the United States Federal Energy Regulatory Commission. During his involvement in these

and other engagements, Dr. Dorobantu has played an important role in refining and updating the cost of capital estimation methodology, and in revising and expanding expert testimony in the electric, natural gas, and water industries.

PROFESSIONAL AFFILIATIONS

Member of the American Finance Association and the American Economic Association.

PUBLICATIONS AND PRESENTATIONS

"Country Risk and Damages in Investment Arbitration," co-authored with M. Alexis Maniatis and Natasha Dupont, forthcoming, *ICSID Review*.

"Public Trust, the Law, and Financial Investment," co-authored with Bruce Carlin and S. Viswanathan. *Journal of Financial Economics*, 2009, volume 92(3), pp. 321-341 (lead article).

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