



MUNICIPAL
PROPERTY
ASSESSMENT
CORPORATION



ANALYSIS OF ECONOMIC OBSOLESCENCE
FOR THE
GOLD ORE MINING INDUSTRY IN ONTARIO
AS AT JANUARY 1, 2016

Table of Contents

EXECUTIVE SUMMARY	4
SUMMARY OF CONCLUSION ON ECONOMIC OBSOLESCENCE	4
INTRODUCTION AND PURPOSE	4
STATEMENT OF INDEPENDENCE AND IMPARTIALITY	4
ECONOMIC OBSOLESCENCE	5
SCOPE OF REVIEW	6
CURRENT AND FUTURE OUTLOOK OF CANADIAN AND GLOBAL ECONOMY	7
GLOBAL ECONOMY	7
US ECONOMY	8
CANADIAN ECONOMY	8
ONTARIO ECONOMY	11
GOLD MINING INDUSTRY IN CANADA AND ONTARIO	13
BACKGROUND	13
KEY EXTERNAL MARKET INFLUENCES IMPACTING THE INDUSTRY	13
CURRENT INDUSTRY PERFORMANCE AND MARKET TRENDS	15
FUTURE OUTLOOK FOR THE INDUSTRY	15
ANALYSIS OF EXISTENCE OF ECONOMIC OBSOLESCENCE	16
APPROACH TO QUANTIFYING ECONOMIC OBSOLESCENCE	17
QUANTIFYING ECONOMIC OBSOLESCENCE	19
WORLD GOLD PRICE ANALYSIS	19
NORMALIZED RETURN ON INVESTED CAPITAL ANALYSIS.....	19
GROSS PROFIT MARGIN (%) ANALYSIS.....	21
EV/EBITDA MULTIPLES ANALYSIS	23
S&P TSX GLOBAL GOLD INDEX	24
INDUSTRY CAPITAL EXPENDITURES ANALYSIS – GOLD & SILVER ORE MINING	24

INDUSTRIAL CAPACITY UTILIZATION RATE ANALYSIS 25

CONCLUSION 26

ASSUMPTIONS AND RESTRICTIONS..... 28

SCHEDULES..... ERROR! BOOKMARK NOT DEFINED.

Executive Summary

1. This report details the results of an analysis undertaken to determine the extent of economic obsolescence (EO) present in the Ontario gold ore mining industry (“the industry”), or lack thereof, as at January 1, 2016 (the “effective date”).
2. This report should be read in conjunction with the attached schedules, which are integral to the analysis and report commentary.
3. It is important to note that this estimate of EO, as at the effective date, reflects analysis and assumptions as at the date of this report (the “report date”) based on publicly disclosed financial results of guideline public companies, economic data and expectations regarding future economic events and financial trends that are anticipated to impact the industry as at the effective date. Further, no guarantee is made or implied as to the accuracy of forecasts, projections or predictive statements referenced herein.

Summary of Conclusion on Economic Obsolescence

4. Based on the scope of review, research and analysis carried out, and subject to the restrictions as set out herein, **the rate of EO present in the industry as at January 1, 2016, is estimated to be 31%. (See Schedule 1.)**

Introduction and Purpose

5. It is understood that this report has been requested in order to confirm the existence of EO within the industry (or lack thereof), on a broad level, as at the effective date. It is further understood that this analysis will be incorporated into a mass appraisal of special purpose properties in Ontario using the cost approach method of valuation.

Statement of Independence and Impartiality

6. The writer of this report has no stake, directly or indirectly, in the results of this analysis. The fee for this assignment is based solely on an hourly rate and is in no way dependent upon the conclusion(s) expressed herein.

Economic Obsolescence

7. EO can be described as a form of depreciation or an incurable loss in value that occurs when influences external to an asset itself reduce the value of the asset.
8. In industry terms, EO exists when external influences occurring in an industry have an adverse impact on profits, thereby preventing industry participants from earning an optimal return on their asset investment. Consequently, the current value of the industry's assets is less than what it would be if the profits derived from the operation of those assets were optimal.
9. EO is most often present when external influences prompt a change in the supply and/or demand of an industry's products and/or cause a change in competition, leading to a decline in operating profits. Some examples of external influences that adversely impact operating profits, giving rise to EO, include (but are not limited to):
 - changes in industry economics, such as reduced demand or excess supply, which can put downward pressure on prices, thereby negatively impacting sales revenue and weakening profitability;
 - an increase in direct costs, such as raw materials and labour, without a corresponding increase in sales price due to adverse market conditions, thereby weakening profitability. Such a scenario results from declining demand for an industry's products and/or increased competition leading to excess supply and price pressure;
 - increased domestic and/or foreign competition, which puts downward pressure on prices and negatively impacts sales revenue and profits;
 - government legislation and/or changes in regulations, which can negatively impact sales revenue and weaken profitability;
 - economic factors over which an industry has no control, including changes in inflation, interest rates, foreign currency rates, all of which can negatively impact sales revenue and profitability; and,
 - adverse global economic conditions.

Scope of Review

10. In preparing these comments and calculations, the following has been reviewed, considered and relied upon, inter alia:
- information contained in a report as published by IBISWorld entitled “Gold & Silver Ore Manufacturing in Canada – November 2015”;
 - information contained in a report as published by IBISWorld entitled “Gold & Silver Ore Manufacturing in Canada – June 2016”;
 - information contained in a report entitled “Gold and copper price survey 2015” as published by PricewaterhouseCoopers LLP”;
 - excerpts from an economic report for Ontario as published by TD Economics entitled “Provincial Economic Forecast” and dated April 10, 2015;
 - excerpts from a report as published by the Bank of Canada entitled “Monetary Policy Report – October 2015”;
 - pricing data as published by “Goldprice.org”;
 - statistical data as published by Statistics Canada;
 - <http://www.bankofcanada.ca/rates/interest-rates/canadian-interest-rates/>;
 - <http://www.bankofcanada.ca/rates/interest-rates/lookup-bond-yields/>;
 - various financial and market data of publicly traded gold mining companies as retrieved from the Thomson Reuters Eikon database; and,
 - a report entitled “Report, Commentary and Consultation Submission – Preliminary Economic Obsolescence Indicators for Gold Mine Properties in Ontario,” prepared by Municipal Tax Equity Consultants Inc. and dated August 30, 2016.

Current and Future Outlook of Canadian and Global Economy

11. The state of the world economy is a key factor influencing demand for gold assets. As the world economy and consumer confidence strengthens, demand for gold assets weakens. The opposite is true when the world economy and consumer confidence deteriorate.
12. As a result, the industry is significantly impacted by and exposed to global economic conditions. Consequently, in order to validate and support a conclusion on EO, this review incorporates an assessment of both the domestic and global economic conditions existing around the report date.
13. The major economic indicators that are used to assess the overall state of the economy include changes in manufacturing activity, retail sales, gross domestic product, unemployment rates, the consumer price index and inflationary pressures, currency strength and interest rates, among others.
14. Below is commentary on the economic conditions and future outlook for the global economy, extracted from a report entitled “Monetary Policy Report – October 2015” as published by the Bank of Canada.

Global Economy

Global economic growth remains modest as the world economy is undergoing significant shifts. The U.S. economy is in a solid expansion, and the recovery is gradually progressing in other advanced economies. At the same time, growth prospects have softened in a number of emerging-market economies (EMEs)—the main engine of global growth over the past several years.

After weak activity in 2015, global economic growth is expected to strengthen over 2016–17. Monetary policy easing by a number of central banks, together with the positive effects of low oil prices, is providing support for this pickup in growth. Nevertheless, persistent weakness in global business investment and slow progress in implementing structural reforms in a number of economies are dampening the growth of potential output. Against this backdrop, robust growth in private domestic demand in the United States—Canada’s main trading partner—is driving stronger foreign demand for Canadian exports.

US Economy

The U.S. economy is expected to grow at a solid pace, driven by strong growth in private domestic demand.... Housing market indicators have reached post-recession highs, and motor vehicle sales are near record levels.....

The Federal Reserve has indicated that it is likely to begin the gradual process of normalizing monetary policy, contingent on further improvement in the labour market and rising inflation. Against this background, weaker growth prospects in China and other EMEs have contributed to an appreciation of the U.S. dollar. Exchange rate adjustments, in turn, should facilitate some rebalancing of global growth, dampening net exports and growth in the United States and strengthening them in other economies.

Canadian Economy

The implications of recent global economic developments for the Canadian economy are mixed. On the one hand, Canada's exports should benefit from the strength of the U.S. economy. Components of U.S. demand that are important for Canadian exports, such as business investment in equipment, housing and consumption, are expected to grow at a solid pace. On the other hand, commodity producers in Canada face lower prices for oil and non-energy commodities. In this context, the Canadian dollar has depreciated since the *July Report*. By convention, the Canadian dollar is assumed to be close to its recent average level of 76 cents over the projection horizon, lower than the 80 cents assumed in July.

GDP

Economic momentum is rebuilding, and real GDP growth is estimated to have rebounded to about 2 per cent in the second half of 2015, following a modest contraction in the first half of the year. On an average annual basis, real GDP is expected to grow by just over 1 per cent this year, before firming to about 2 per cent in 2016 and about 2 1/2 per cent in 2017 (Table 2). Since July, the Bank has marked down modestly its projection for economic activity in 2016–17, in response to the further decline in the prices for oil and other commodities and the additional downgrade of investment intentions by energy firms.

Non-Energy Commodity Prices

The Bank's non-energy commodity price index has fallen by about 10 per cent since the July Report and is now more than 25 per cent below its peak in 2011. While China is one of the world's largest consumers of several commodities and its demand remains high, expectations of a slower growth trajectory in the future have put downward pressure on prices, especially for base metals. The declines in prices of agricultural products and forestry products since July have been larger than for base metals because demand effects were compounded by stronger-than-expected supply growth.

Largely offsetting forces are expected to keep the Bank's non-energy commodity price index near its recent levels. The anticipated strengthening in the global economy should put upward pressure on non-energy commodity prices.

Inflation

Core inflation is expected to remain near 2 per cent throughout the projection horizon as the upward pressure from exchange rate pass-through roughly offsets the downward pressure from excess supply, with both effects diminishing over time.

Total CPI inflation is expected to remain in the lower half of the inflation-control range until 2017, reflecting weak year-over-year gasoline price inflation. Once the economy reaches and stabilizes at full capacity, total CPI inflation and core inflation will remain at 2 per cent on a sustained basis.

Exports

Commodity exports are expected to increase at a moderate pace over the projection horizon. Cuts to capital expenditures will temper future production and exports in the oil sector. Similarly, expectations of low prices and competitiveness issues will weigh on activity in the mining and related sectors (particularly for intermediate metal products). In contrast, lumber exports should benefit from an improving U.S. housing market, and agricultural exports are projected to pick up in response to increasing global demand for food and a bounce back in production after the 2015 drought.

Following a rebound in recent months, non-commodity exports are expected to grow at a solid pace, boosted by the strong growth in U.S. private domestic demand and the depreciation of the Canadian dollar. Export growth is being led by components sensitive to the exchange rate, roughly two-thirds of which are showing positive momentum and are significantly outperforming those that are less exchange rate sensitive.

Exchange Rates

For many exporters, the lower exchange rate has boosted margins and cash flow expressed in Canadian dollars. In contrast, for domestic firms with relatively higher import content in their production processes, the higher Canadian-dollar cost of imports is potentially squeezing margins and cash flow.

Labour Markets

Labour market data indicate continued slack, and there is little evidence of mounting wage pressures. The national unemployment rate has risen slightly in recent months, while the Bank's labour market indicator ticked up in September (Chart 22). Given the magnitude of the commodity price shock, the Canadian labour market is nonetheless showing some resilience. Over the past year, the Canadian economy has added about 160,000 net new jobs (with full-time employment increasing by about 200,000 and part-time employment decreasing by about 40,000); the total number of hours worked has grown by 1.3 per cent, about double the estimated trend pace of growth; and the prime-age participation rate has rebounded by 0.7 percentage points. As expected, national indicators mask diverging trends in developments among the energy-producing provinces and the rest of the country.

15. The key Canadian financial market indicators at the effective date per the Bank of Canada website are summarized below:

Government of Canada benchmark bond yields:	
3 years	0.49%
5 years	0.73%
7 years	1.03%
10 years	1.39%
Long-term	2.15%
Canadian chartered bank prime business rate	2.70%
Conventional mortgage lending rates:	
3 years	3.39%
5 years	4.64%
Chartered bank guaranteed investment certificate rates:	
3 years	1.03%
5 years	1.50%

16. Below is commentary on the economic conditions and outlook for the Ontario economy, extracted from a report entitled “Provincial Economic Forecast” as published by TD Economics and dated April 10, 2015.

Ontario Economy

Ontario is projected to be the fastest growing economy over the 2015-16 period, with real GDP growth estimated at 2.7% on average.

U.S. real GDP growth is forecast to run at around 3% annually over the next two years which will translate into solid demand for Ontario’s manufacturing sector. A lower Canadian dollar will also benefit Ontario producers. Already there is evidence of rising momentum in factory production, with manufacturing real GDP in Ontario up almost 5% Y/Y in 2014Q3. Somewhat mitigating the positive outlook for manufacturing is an expected contraction in auto production on account of the planned 14-week shutdown for retooling at the Chrysler plant in Windsor and the gradual shutdown of GM’s Oshawa 2 plant.

A low interest rate environment has continued to fuel the housing market over the first few months of 2015 with both resales and average prices tracking higher. While our housing demand outlook has been nudged up since our January update, we still expect to see a gradual moderation in the resale market on account of an expected deterioration in affordability and elevated household debt. New construction activity is projected to decline over the next few years after a period of overbuilding.

The Ontario government’s fiscal outlook remains challenging, with a deficit elimination timetable still set for fiscal 2017-18. The upcoming spring budget should provide some additional details on how the government plans to keep program spending essentially flat through fiscal 2017-18.

Employment growth in Ontario has been slow out of the gate in 2015, up only 0.6% on a trend basis. Surprisingly, manufacturing employment is still tracking lower through February despite the uptick in activity. Our forecast pegs employment growth at 1% over the 2015-16 period. Steady gains in export-based manufacturing and tourism industries are expected to translate into increased hiring as 2015 progresses.

17. Economic conditions for the province of Ontario as at April 2015 are summarized in the chart below:

SELECTED ECONOMIC STATISTICS - ONTARIO (Annual average % change, unless otherwise noted)						
	Actual	Actual	Actual	Forecast (as at April 2015)		
	2012	2013	2014	2014E	2015F	2016F
Real GDP	1.7	1.3	-	2.4	2.8	2.5
Nominal GDP	3.2	2.4	-	4.0	3.8	4.7
Employment	0.7	1.8	0.8	-	1.0	1.0
Unemployment Rate (annual, %)	7.9	7.6	7.3	-	6.9	6.7
Retail Trade	1.6	2.3	4.8	-	3.6	4.0
Housing Starts (000's units)	77.4	60.9	58.4	-	57.4	57.3
Housing Starts	14.2	-21.4	-4.0	-	-1.8	-0.2
Existing Home Sales (000's units)	197.6	198.5	206.0	-	211.1	212.6
Existing Home Sales	-1.9	0.5	3.7	-	2.5	0.7
Average Home Price (000's C\$)	381.3	400.7	428.6	-	446.7	455.5
Average Home Price	5.0	5.1	7.0	-	4.2	2.0
Consumer Price Index	1.4	1.0	2.3	-	0.7	2.2

SOURCE: TD Economics – April 2015 (www.td.com/economics)

Gold Mining Industry in Canada and Ontario

Background

18. Gold is a precious metal known for its bright lustrous yellow colour and is highly valued for its use in coins, jewelry and as an investment.
19. The location of gold mining operations is driven by the existence of gold deposits. Ontario has one of the largest concentrations of gold mining operations in Canada, with approximately 38% of industry participants in Canada operating in Ontario.¹
20. Exports accounted for approximately 46% of the industry's revenues in 2015, with the bulk of the exports going to the United Kingdom.²
21. The industry is highly capital intensive and must invest heavily in capital equipment and technology to increase production and improve efficiencies.

Key External Market Influences Impacting the Industry

22. The key external influences impacting revenue growth and profitability within the industry are identified and discussed below.

World Price of Gold

23. The industry's performance is strongly tied to the price of gold. When the price of gold rises, the industry's profit margins increase.
24. As at the effective date, the price of gold was anticipated to increase moderately in 2016.³

Consumer Confidence Index

25. The Consumer Confidence Index (CCI) is an indicator used to measure consumer confidence, which can be described as the degree of consumers' optimism about the current state of the economy, expressed through their activities of savings and spending.

1 IBISWorld, "Gold & Silver Ore Mining in Canada – November 2015."

2 *ibid.*

3 PricewaterhouseCoopers LLP, "Gold and copper price survey 2015."

26. As the CCI increases, gold normally becomes a less popular investment option, thus weakening gold prices. The reverse happens when the CCI decreases, resulting in gold prices rising.
27. As at the effective date, the CCI was anticipated to have declined in 2015.⁴

Demand for Computer and Electronic Product Manufacturing

28. Gold is a key material used in the production of many electronic component parts.
29. As at the effective date, demand from computer and electronic manufacturers was expected to have declined in 2015.⁵

Canadian-dollar effective exchange rate index

30. The Canadian-dollar effective exchange rate index (CERI) compares the Canadian dollar against the currencies of Canada's major trading partners. The six foreign currencies in the CERI include the U.S. dollar, the European Union euro, the Japanese yen, the Chinese yuan and the Mexican peso.
31. When the CERI decreases, the Canadian dollar depreciates and domestic products become relatively less expensive for foreign buyers, typically increasing demand for exports of domestically produced goods. Alternatively, when the CERI rises, this trend causes domestically manufactured goods to be relatively more expensive for global consumers, thereby cutting into global demand for Canadian exports.
32. Since the industry exports the majority of its production, the value of the Canadian dollar is a significant factor in the industry's ability to remain competitive. A stronger dollar makes exports relatively more expensive and imports relatively cheaper. As a result, the industry may become less competitive. However, if the Canadian dollar depreciates against the currencies of its major trading partners, exports become cheaper and imports become more expensive, causing the industry's price competitiveness to improve.

⁴ IBISWorld, "Gold & Silver Ore Mining in Canada – November 2015."

⁵ *ibid.*

Current Industry Performance and Market Trends

33. The price of gold is the dominant driver of a gold mining operator's profitability. The price of gold rallied strongly after the economic crisis in 2008, peaking in September 2011 at US\$1,856 per troy ounce, but it has steadily fallen since then as worldwide economic conditions improved. The price of gold hit a six-year low of US\$1,051 in mid-December 2015 in response to the U.S. Federal Reserve's first interest rate hike in the last ten years. The price of gold closed out the year at US\$1,060.⁶
34. When the price of gold started to climb post-recession, the industry ramped up production to capitalize on the high price, which drove revenue growth by an average annual rate of 9.1%.⁷ However, the large fall in the price of gold since reaching its peak in 2011 has had a severe negative impact on the industry's profitability in the most recent years.

Future Outlook for the Industry

35. Notwithstanding the large declines suffered over the past four years, the price of gold has hovered in the \$1,000 to \$1,200 range in the second half of 2015, suggesting that the price has stabilized. As at the effective date, the world price of gold was forecast to strengthen moderately during the next three years and over the long-term horizon increasing at an average annual rate of 3.4% during 2016 to 2018.⁸ The rise in price should help boost the industry's profits.
36. Demand conditions for gold are expected to remain strong given the scarcity of the commodity. As at the effective date, the industry's revenues are projected to grow modestly at an average annual rate of 0.7% from 2016 to 2020.⁹ The rise in the price of gold should help boost the industry's profits.

⁶ "Goldprice.org"

⁷ IBISWorld, "Gold & Silver Ore Mining in Canada – June 2016."

⁸ PricewaterhouseCoopers LLP, "Gold and copper price survey 2015."

⁹ IBISWorld, "Gold & Silver Ore Mining in Canada – November 2015."

Analysis of Existence of Economic Obsolescence

37. As discussed previously, EO exists when external influences adversely impact the economic returns an industry earns from the operation of its assets, thereby diminishing the value of those assets. The first step in determining if EO exists in an industry is to perform a qualitative analysis assessing the current economic conditions of the industry and the impact of external influences on that industry.
38. As the price of gold is the dominant driver of a gold mining operator's profitability, the dramatic fall in the price of gold since 2012 has had a severe negative impact on the industry's profitability. The economics of operating a gold mine are such that a decline in the price of gold will often drastically reduce the economic feasibility of extracting gold deposits. This has created a difficult operating environment for the industry.
39. Despite aggressive revenue growth over the past five years, profitability has been volatile. The uncertainty and unpredictability surrounding future gold prices combined with modest revenue and price growth projections over the next four years provides evidence of the existence of EO within the industry as at the effective date.

Approach to Quantifying Economic Obsolescence

40. In addition to a review of the qualitative factors associated with EO as discussed above, a quantitative analysis of key profitability ratios of guideline public companies operating in the industry, as well as certain market and industry data key to the industry, was completed as a method of quantifying the level of EO present in the industry, or lack thereof, on a broad level.
41. The guideline public companies considered most appropriate for this analysis are as follows: Goldcorp; Barrick Gold Corp.; Newmont Mining Corp.; Agnico Eagle Mines Ltd.; Eldorado Gold Corp.; Alamos Gold Inc.; Kinross Gold Corp.; Yamana Gold Inc.; New Gold Inc.; Lake Shore Gold Corp.; Kirkland Lake Gold Inc.; Richmond Mines Inc.; St. Andrew Goldfields Ltd.; Wesdome Gold Mines Ltd.; and, Primero Mining Corp. The selected guideline public companies are collectively referred to hereafter as the “Guideline Companies.”
42. Of the Guideline Companies selected, thirteen have mining operations in Canada to ensure that the conditions facing the subject properties under assessment are incorporated into the analysis. It is important to note that the financial information of the Guideline Companies analyzed will reflect the circumstances of the companies’ global operations. However, absent site-specific financial and operating results of the subject properties under assessment, the global operating results of the Guideline Companies selected is the best information available.
43. For purposes of the quantitative analysis portion of this report, the Guideline Companies were divided into subgroups based on the size of their market capitalization (market cap). Market cap is a measure of the aggregate value of a company’s outstanding shares as determined by the market and is calculated by multiplying a company’s current share price by its total number of outstanding shares. Companies are generally classified based on the size of their market cap (i.e., “Large-Cap” is greater than \$10 billion, “Mid-Cap” is \$2 to \$10 billion and “Small-Cap” is less than \$2 billion.)
44. Generally, companies with a large market cap are considered less risky given they are well established, operate in mature industries, realize greater diversification benefits and have greater access to capital resources. Financial and operating performance results are also relatively more stable in comparison to companies with a smaller market cap.

45. The specific information analyzed (and explained in greater detail further below) is as follows:
- gold prices;
 - return on invested capital;
 - gross profit margin percentage;
 - EV/EBITDA multiples;
 - S&P TSX Global Gold Index;
 - industrial capacity utilization rates; and,
 - capital expenditures data for gold & silver ore;
46. The historical key profitability ratios of the Guideline Companies as well as the market and industry data were analyzed in order to derive historical performance benchmarks. The most current data based on 2015 was then compared against the historical benchmarks.
47. If the current performance data is trending below historical benchmarks by a material amount, on a collective basis, this can signal that EO is present in the industry.
48. The percentage decline in the current data as measured against the historical benchmarks, on a collective basis, serves as the basis for an overall benchmark of the rate of EO present in the industry, on a broad level.
49. A discussion of the analysis undertaken to quantify EO follows below.

Quantifying Economic Obsolescence

50. A description of the key profitability ratios and the market and industry data reviewed as well as a discussion of the analysis undertaken to quantify EO follows below.

World Gold Price Analysis

51. The world price of gold is fixed twice each business day at the London Bullion Market through a process where member participants agree to buy or sell at a fixed price (in U.S. dollars). The price fix informally provides a recognized rate that is used as a benchmark for pricing the majority of gold assets in world markets.
52. The monthly average annual world price of gold in U.S. dollars per troy ounce based on the prices fixed by the London Bullion Market were analyzed from 2009 to 2014 to derive a historical benchmark based on the median price level over this time period, assuming this represents an economic price level for the industry.
53. The historical benchmark was then compared against the estimated stabilized price going forward as at the effective date based on a weighted average incorporating both actual 2015 and forecasted price levels to reflect future expectations of value. In calculating the weighted average price, a greater weight was applied to the actual 2015 price and decreasing weight was applied to the forecasted prices for 2016 to 2018 given the uncertainty and unpredictability of future gold prices the farther out the projection period.
54. The price of gold has realized a decline in its current price level when compared to the historical benchmark. Consequently, there is evidence that the industry has experienced a loss of economic value resulting from the decline in the price of gold. The calculation of the rate of indicated EO based on the world price of gold analysis is presented on **Schedule 2**.

Normalized Return on Invested Capital Analysis

55. Return on invested capital (ROIC) is a profitability ratio that measures how efficiently a company generates income from capital invested by comparing net operating profit to capital invested. The ROIC is a better measurement than return on equity as it measures how well a company is using both its equity and debt to generate profits. A low ROIC indicates that a company is making poor use of its capital resources.

56. The return on invested capital is calculated as follows:

$$\frac{\text{Return (i.e., Net Operating Profit after Taxes)}}{\text{Invested Capital (i.e. Interest-bearing Debt + Equity)}}$$

57. The ROIC is informative when tracked on a trend line annually, as it will indicate long-term changes in the operating performance of a company. A decline in operating profits while invested capital remains constant or increases will cause the ROIC to decline.

58. A decline in the ROIC can signal that external influences occurring in the marketplace are negatively impacting profitability, giving rise to EO.

59. Any or all of the following external influences can negatively impact operating profits and the ROIC, giving rise to EO, and can impede the ability of an industry to earn an economic rate of return on its assets:

- a declining demand for an industry's products;
- increased competition creating excess supply and price pressure; and,
- government regulations requiring increased investment and/or price caps.

60. The historical rates of ROIC of the Guideline Companies from 2005 to 2014 were analyzed to derive historical benchmarks. The rates of ROIC were normalized by adjusting the earnings results in each of the fiscal years to exclude any unusual/nonrecurring amounts, such as impairment losses and/or gains (losses) on sale of assets. The historical benchmarks were based on the median ROIC realized over this period under the assumption that this benchmark is the best measure of an economic rate of return for the industry.

61. The historical benchmarks were then compared against the rates of ROIC in fiscal 2015 to gauge if the most current rates of ROIC are consistent with historical benchmarks.

62. All of the Guideline Companies within the Large-Cap and Mid-Cap subgroups realized significant declines in their rates of ROIC in 2015 when compared to their historical benchmarks. The majority of the companies within the Small-Cap subgroup realized an increase in their rate of ROIC. Consequently, there was a wide divergence in the rates of EO based on the ROIC analysis of the market cap subgroups.

63. The overall rate of EO was calculated by weighting the median rate of EO indicated by each subgroup based on the size of its market cap. Increased weighting was applied to the

median rate of EO indicated by the Large-Cap subgroup and decreasing weight was applied to the median EO rates of the Mid-Cap and Small-Cap subgroups. (The larger the market cap, the more reliable the historical benchmarks are considered given they are generally more established companies with relatively stable earnings performance results. In contrast, smaller companies are generally more prone to greater earnings volatility, which may distort historical benchmarks.) The calculation of the rate of indicated EO based on the ROIC analysis is presented on **Schedule 3**.

Gross Profit Margin (%) Analysis

64. Gross profit margin percentage is a profitability ratio that measures the percentage by which sales revenue exceeds the expenses required to manufacture a product, known as the cost of goods sold (COGS).
65. The COGS includes the cost of the raw materials, direct labour and production overheads that go into producing the goods sold and is included on a company's income statement where it is deducted from revenue in order to calculate the company's gross margin dollars. The gross margin dollars reflect the amount of dollars earned from the sale of products and services before consideration of non-production costs, such as selling and administrative costs.
66. Gross profit margin percentage is calculated as follows:
$$\text{Gross Profit Margin (\%)} = (\text{Sales Revenue} - \text{COGS} / \text{Sales Revenue}) \times 100$$
67. The gross profit margin percentage when tracked on a trend line indicates if any significant changes in sales and/or the COGS have occurred over a period of time. The gross profit margin percentage declines when sales revenue decreases and the COGS remains constant or increases, as less gross margin dollars are being generated per unit sold.
68. A decline in the gross profit margin percentage can be an indication that external influences occurring in the marketplace are negatively impacting sales and/or the COGS, thereby giving rise to EO.
69. Similar to the ROIC, external influences that cause declining demand for an industry's products and/or increased competition leading to excess supply put downward pressure on prices and can negatively impact an industry's gross profit, thereby impeding an industry's ability to earn an economic return on its assets.

70. In addition, when the COGS increases and the increase cannot be passed on to the consumer through a price increase due to adverse market conditions, such as government price caps and/or price pressure due to increased competition, the additional costs must be absorbed by the manufacturer and gross profits therefore decline, negatively impacting industry returns.
71. The historical gross profit margin percentages of the Guideline Companies from 2005 to 2014 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median gross profit margin percentage realized over this period under the assumption that this benchmark is the best measurement of an economic rate for the industry.
72. The historical benchmarks were then compared against gross profit margin percentages based on fiscal 2015 to gauge if the most current gross margin percentages are consistent with historical benchmarks.
73. The majority of the Guideline Companies within each subgroup realized moderate to significant declines in their gross profit margin percentages in 2015 when compared to their historical benchmarks. Consequently, there is a strong indication that the majority of the companies realized a material decline in value based on the gross profit margin percentage analysis. The gross profit margin percentage is a direct reflection of the impact of demand conditions and price volatility on the financial performance of the Guideline Companies.
74. The overall rate of EO was calculated by weighting the median rate of EO indicated by each subgroup based on the size of its market cap. Increased weighting was applied to the median rate of EO indicated by the Large-Cap subgroup and decreasing weight was applied to the median EO rates of the Mid-Cap and Small-Cap subgroups. (The larger the market cap, the more reliable the historical benchmarks are considered given they are generally more established companies with relatively stable earnings performance results. In contrast, smaller companies are generally more prone to greater earnings volatility, which may distort historical benchmarks.)The calculation of the rate of indicated EO based on the gross profit margin percentage analysis is presented on **Schedule 4**.

EV/EBITDA Multiples Analysis

75. The EV/EBITDA ratio, also referred to as the EBITDA multiple, compares the enterprise value of a company to its earnings before interest, taxes, depreciation and amortization (EBITDA).
76. The enterprise value (EV) of a company is determined by the sum of its market value (i.e., current share price multiplied by total number of outstanding shares, also known as market capitalization) and the net value of its interest-bearing debt (i.e., debt less non-operational cash/cash equivalents). This measurement is used to estimate what it would cost for an investor to buy a company outright given it incorporates both the market value of the shares and the debt that the investor assumes on takeover.
77. As a company's shares are bought and sold in the public market, the EV reflects investor perception of a company's value. More specifically, the EBITDA multiple is an indicator of how many times of EBITDA an investor is willing to pay for a company's assets.
78. The historical EBITDA multiples of the Guideline Companies were analyzed from 2005 to 2014 to derive historical benchmarks. The historical benchmarks were based on the median EBITDA multiple over this period under the assumption that this represents a period of optimal price levels for the industry.
79. The historical benchmarks were then compared against the EBITDA multiples in 2015 to gauge if the most current EBITDA multiples are above or below their historical benchmarks.
80. The majority of the Guideline Companies within each subgroup realized significant declines in their EBITDA multiples in 2015 when compared to their historical benchmarks. Consequently, there is a strong indication that the majority of the companies realized a material decline in their market value based on the EBITDA multiple analysis.
81. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the EBITDA multiples analysis is presented on **Schedule 5**.

S&P TSX Global Gold Index

82. The S&P TSX Global Gold Index (“the Index”) can be used as an indicator of changes in the market value of the Canadian gold mining industry, as Canadian gold mining companies represent 67.9% of the Index’s weight and 56 of the Index’s 67 constituents.
83. The Index is calculated based on a modified market-value weighting, which is a type of market index where the individual components are weighted according to their market capitalization and where no one constituent can have a weight in the Index greater than or equal to 25%.
84. The historical end-of-year prices and average monthly prices of the Index were analyzed from 2005 to 2014 to derive historical benchmarks. The historical benchmarks were based on the median price over this period under the assumption that this represents a favourable value for the industry.
85. The historical benchmarks were then compared against the Index’s prices in 2015 to gauge if the most current price levels are above or below the historical benchmarks.
86. The end-of-year price levels and monthly average price levels declined significantly over the past four years. The overall rate of indicated EO chosen was based on the average of the range of indicated EO values based on the two pricing measures reviewed. The calculation of the rate of indicated EO based on the analysis of the S&P TSX Global Gold Index is presented on **Schedule 6**.

Industry Capital Expenditures Analysis – Gold & Silver Ore Mining

87. Capital expenditures (Capex) are costs related to acquiring or upgrading operating assets, such as land, buildings and/or equipment. The magnitude of an industry’s Capex can be used as an indicator of an industry’s profit expectations with regard to future growth opportunities over the long term from new investment projects.
88. The average annual Capex of the Canadian gold and silver ore mining industry related to new construction, machinery and equipment investment were analyzed from 2006 to 2014 to derive a historical benchmark level of capital investment based on the median Capex level over this time period assuming this represents a favourable level of investment for the industry.

89. The historical benchmark was then compared against the Capex level in 2015 to gauge if the most current expenditure levels are above or below the historical benchmarks.
90. The current level of Capex based on 2015 is above the median level based on the historical benchmarks. Accordingly, it appears that the current Capex level of the Canadian gold and silver ore mining industry is well above its historical level. Details of the analysis are presented on **Schedule 7**.

Industrial Capacity Utilization Rate Analysis

91. The capacity utilization rate indicates the rate of production capacity that is actually being utilized in comparison to the maximum production capacity available.
92. A decline in the utilization rate when compared to historical industry norms indicates that current production is below the supply capacity available and may be a signal that external factors occurring in the marketplace are causing a decline in demand for an industry's products, which can negatively impact an industry's economic return, giving rise to EO.
93. The capacity utilization rate can be calculated as follows:

$$\text{Capacity Utilization Rate} = \frac{[(\text{Actual Output} - \text{Potential Output}) / \text{Potential Output}]^{\text{scale factor}}}{1}$$

94. Data on the industrial capacity utilization rates specific to the Ontario gold mining industry was not available. As a substitute, the industrial capacity utilization rates of the Canadian gold and silver ore mining sector were analyzed from 2005 to 2015 to gauge whether current production levels are consistent with historical levels.
95. The current capacity utilization rate for the gold and silver ore mining sector based on the average capacity utilization rate for 2015 falls above the median rate for the past ten years.
96. Accordingly, it appears that the current productivity rate of the two sectors is well above its historical levels.
97. It is important to note that EO can exist even when an asset's capacity utilization rate is at maximum and/or at the industry norm because, although the asset may be operating at its normal/maximum capacity utilization rate, the return being generated by the asset(s) may still be below an economic level.
98. The results of the analysis of industrial capacity utilization rates for the Canadian gold and silver ore mining sector are presented on **Schedule 8**.

Conclusion

99. Based on the scope of review, research and analysis carried out, and subject to the restrictions as set out herein, the rate of EO present in the industry as at January 1, 2016, is estimated to be as follows (see also Schedule 1):

Ontario Gold Ore Mining Industry			
Summary of EO Indicators by Index	Indicated EO	Assigned Weight	Weighted Average
Gold Price	13.1%	2	26.2%
Normalized Return on Invested Capital (%)	35.8%	2	71.6%
Gross Profit Margin (%)	41.7%	2	83.4%
EV/EBITDA Multiples	41.1%	2	82.2%
S&P TSX Global Gold Index	52.2%	2	104.4%
Industry Capital Expenditures for Gold & Silver Ore	0.0%	1	0.0%
Industrial Capacity Utilization rates	0.0%	1	0.0%
		12	367.8%
		divide by total assigned weight	12
Estimated Rate of EO as at January 1, 2016			31.0%

100. In concluding on the overall rate of EO, a weighted average of the rates of EO indicated by each of the indices analyzed was calculated based on their degree of significance in relation to the EO analysis.
101. Increased weight was given to the rates of EO indicated by the gold price and profitability analyses given that this data provides a direct measure of actual loss in value resulting from a decline in prices and profitability. Accordingly, they are direct indicators of changes in economic value.
102. Increased weight was also given to the rate of EO determined based on the market multiples analysis given that this is a direct measure of changes in the magnitude of prices paid by investors for gold mining stocks. Accordingly, it is a direct indicator of changes in economic value. Increased weight was also given to the equity market data as this data directly measures changes in investor perception of the value of the gold mining industry.

103. Lesser weights were assigned to the rates of EO indicated by the industry's production capacity data and capital expenditures data. Although these analyses are meaningful indicators of the industry's expectations with regard to future demand and potential growth opportunities (i.e., through additional investment), they do not directly measure changes in economic value. Accordingly, they have been assigned reduced weights.

Assumptions and Restrictions

104. The financial and operating results of the Guideline Companies, as sourced from the Thompson Reuters Eikon database (Reuters), are fairly stated and free of material errors. If the financial and operating results of the Guideline Companies, as sourced from Reuters, are not free of material errors, such errors could have a material impact on the conclusion(s) stated herein.
105. The information contained in the IBISWorld reports, including aggregate financial results, statistics and prospects of the gold ore mining industry in Canada, is accurate, reasonable and reflects best estimates based on the information available at the report date.
106. This report is not intended for general circulation or publication, nor is it to be reproduced or used for any purpose other than that outlined above without prior written consent in each specific instance. No responsibility or liability is assumed for losses resulting from the circulation, publication, reproduction or use of this report contrary to the provisions of this paragraph.

* * * * *