



THE REAL COST OF MINING GOLD

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INTRODUCTION

It is perplexing that in the post Enron(s), post Financial Crisis era of increased regulations, designed to improve disclosure and transparency in the markets, the costs to mine gold remain such a mystery. Measuring and projecting costs is an integral part of any investment decision and the mining giants have raised billions of dollars over the years; yet cost reporting in the mining industry “has been an embarrassment and an utter joke” as an article from March 6, 2014 in the Financial Post reads.

Mining companies have been allowed to capitalize expenditures year after year, depreciate them annually at relatively low rates and then take periodic huge write-downs resulting in huge losses that effectively wipe out all previous years earnings, leaving them with little or no retained earnings on their balance sheet.

THE CURRENT NORMS: OBSCURE AND INFORMALLY REGULATED COST REPORTING

Mining companies have adopted certain non-GAAP measures, which have no standardized meaning but have been accepted as common performance measures. The declared goal was to develop a metric that expands on GAAP measures in order to aid investors by providing transparency into the economics of gold mining operations, more specifically related to expenditures, operating performance and the ability to generate cash flow from operations.

Falling metal prices, reports of negative earnings and cash flows, and a proliferation of massive write-downs have called into question the validity of these measures. We pose the following:

1. Have investors really been aided by these measures in their understanding of mining operations or have they simply been fed the proverbial kool-aid?
2. Why haven't investment professionals and regulatory bodies addressed these issues, given that they have persisted as long as mines have operated?
3. Are lower metal prices and other current market conditions simply exposing the reverberating incestuous relationships between banks, financial advisers, institutional investors and corporate executives?

Cipher Research has examined these issues in order to develop more accurate valuation models and investment strategies. This article presents Cipher's research and analysis addressing the first question on “The Real Cost of Mining Gold.”

COMMONLY USED NON-GAAP MEASURES FOR COST REPORTING IN MINING

Cash Cost

Cash cost, introduced in the mid 1990s, is the cost to dig gold bearing rocks out of the ground, process the material and sell the gold. By definition it factors in the basic mining and processing costs but ignores certain cash expenses, such as G&A and all non-cash expenses such as depreciation, which is a measure of initial plus sustaining capital.

Most companies follow the standards for Cash cost introduced by the Gold Institute Production Cost Standard. The Gold Institute, which ceased operations in 2002, was a non-regulatory body and represented a global group of suppliers of gold and gold products. The production cost standard developed by the Gold Institute remains the generally accepted standard of reporting cash costs of production by gold mining companies.

All-in Sustaining cost and All-in Cost

All-in Sustaining Cost was widely adopted in 2013, senior gold companies worked with the World Gold Council to come up with this new measure. It includes Sustaining Capital (which gets larger and larger as mines get older and grades decline) as well as G&A expenses. By definition All-in Sustaining Costs do not include costs such as initial project capital (which are included in All-In Costs) or dividends (which are discretionary).

The issues with All-in Sustaining Cost and All-in Cost are that the companies determine what are classified as sustaining costs and what are classified as additional capital expenditures. For instance the deepening of a mine shaft might be deemed an additional capital expenditure because it will continue to be used for many years, but in reality it will have to be deepened again in a few years so either the depreciation rates need to be greatly increased or these type of costs should be treated as ongoing expenses of mining.

APPLICATION OF THESE MEASURES IN OFFICIAL FILINGS

In their 2013 MD&A and Financial Report, Goldcorp reports the following costs:

Goldcorp reported costs per oz	2013	2012	2011	2010
Total Cash Cost (net of by-products)	533	300	233	274
Total Cash Costs (on co-product basis)	637	638	534	446
All-in Sustaining Costs	1031	884		
All-in Costs	1575	1590		

In their 2013 Annual Report, Barrick reports the following costs:

Barrick reported costs per oz	2013	2012	2011	2010
Adjusted Operating Costs (aka total Cash Cost)	566	563	463	573
Adjusted Operating Costs (on co-product basis)	589	580	484	592
All-in Sustaining Costs	915	1014	821	899
All-in Sustaining costs (on co-product basis)	938	1031	842	918
All-in Costs	1282	1404	1141	1317
All-in Costs (on co-product basis)	1305	1421	1162	1336

In its 2013 and 2011 Annual Reports Newmont reports the following costs:

Newmont reported costs per oz	2013	2012	2011	2010
Gold costs applicable to sales/oz	761	677	591	485
Total Production Costs	975	854	752	617
All-in Sustaining Costs	1104	1177	1062	

CONFUSION PERVADES

Companies use different terminology and do not provide enough information on how they apply the non-GAAP guidance on cost reporting. An additional layer of confusion comes from the adopted by-product and co-product accounting, another non- GAAP measure.

By-Product accounting: if the primary metal accounts for more than 80% of the total revenues, the remaining metals are considered by-products and the revenues received from their sale can be deducted from the operating expenses prior to calculating the Cash Costs for the primary metal.

Co-Product accounting: if the primary metal accounts for less than 80% of the total revenues then all the metals are considered co-products and the cost attributed to the production of each is relative to its contribution to revenue.

To illustrate let's look at the following example:

Company A has the following revenues and costs:

- \$1.75 million in revenue from 1,400 ounces of gold (87.5% of revenues)
- \$250,000 in revenue from 10,000 ounces of silver (12.5% of revenues)
- \$1.0 million in Operating Costs

If we use by-product accounting to calculate the Cash Costs they are:

$\$1,000,000 - 250,000 = \$750,000$ in costs divided by 1,400 oz = **\$535/oz Cash Cost**

If we use co-product accounting we get:

87.5% of \$1 million costs = \$875,000 in costs divided by 1,400 oz = **\$625/oz Cash Cost**

Clearly there is an issue when one company would report Cash Costs of \$535/oz and another could report \$635/oz for the same ounce of gold mined.

Cipher's method is to use a Cash Cost per Ounce of Gold Equivalent (oz Au Equiv). This metric eliminates the need to differentiate between co-products and by-products as well as the need to calculate the proportionate share of expenses attributable to each co-product. Oz Au Equiv is calculated by dividing Revenue to the ave price of gold per period. (oz Au Equiv =Revenue/ave Au price). We apply oz Au Equiv as a simple financial measure, which allows us to more accurately relate any financial item to a standardized unit, which in turn allows for a more appropriate comparison among companies and projects.

We calculate as follows:

\$2 million revenue divided by \$1,250/oz gold price = 1,600 oz Au equivalent

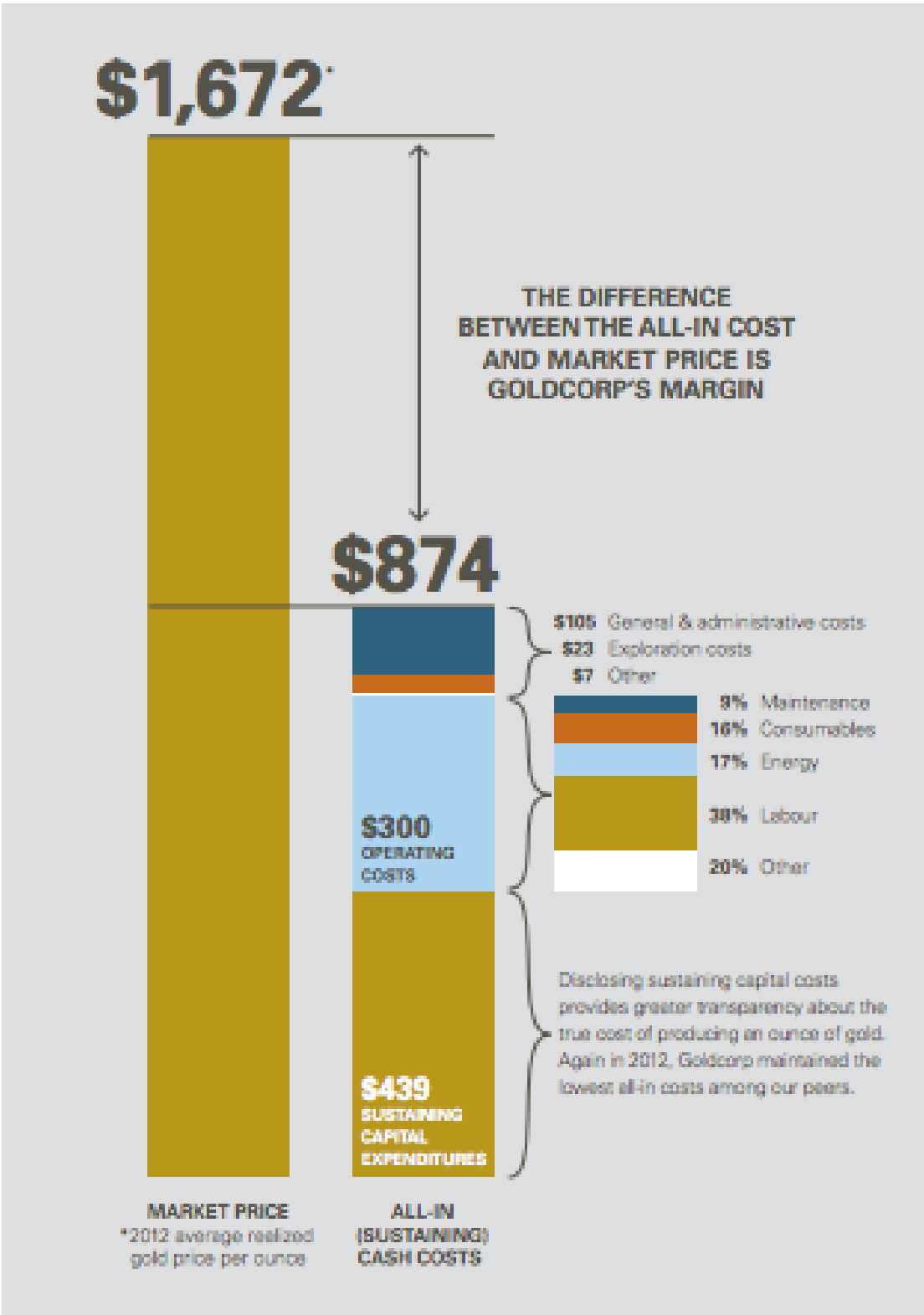
\$1 million costs divided by 1,600 oz Au Equiv = **\$625/oz Cash Cost**

RESPONSES IN THE MEDIA, INVESTMENT AND ANALYST COMMUNITY

The Financial Post (March 6, 2014) reports that, in spite of the alleged effort by leading mining companies to make the “ridiculous” cost reporting more reflective of reality, companies still leave a lot out of the picture in order to appear more profitable than they are. The article cites a leading analyst from Deutsche Bank saying, “the problem with all-in sustaining costs is that it’s a half measure. It doesn’t go far enough to give investors the full picture.”

The Globe and Mail (September 19, 2014) paints a similar picture, experts don’t have any more faith in the new “improved”, and often revered by mining CEOs, measure – All-in costs. The article quotes an expert saying, “because the companies have discretion on what they are going to spend in any particular year, and also what they are going to call growth capital versus sustaining capital, that measure is very easy to manipulate.”

What do investors have to rely on if even experts are confused? In the 2012 Annual Report, Goldcorp explains their profit margins on an ounce of gold with a compelling and simple info-graphic:



The info-graphic suggests a margin of roughly \$800 per oz. In 2012 Goldcorp produced 2.4 million oz of gold meaning it should have had \$1.92 billion in operating margin. Goldcorp reported in 2012 net income of \$1.75 billion and Operating Cash Flow of \$2.1 billion, which corresponds to the reported margin and makes the company appear very healthy. However their cash position dropped by \$582 million, indicating that the company spent the entire \$1.92 in operating margin plus an additional \$582 million. This is not unique to Goldcorp and occurs year after year in the industry.

Where does the cash go?

FOLLOW THE CASH

The balance sheet is a snapshot of a firm's financial resources and obligations at a specific point in time, and the income statement summarizes a firm's financial transactions over a given period of time. These two financial statements reflect the accrual basis accounting and are relatively easy to manipulate to paint a favorable picture because accounting standards provide a significant amount of latitude in the provisions that are available to be used.

The Statement of Cash Flow shows actual cash inflows and outflows of cash over the accounting period. Cash flows are classified in the following way depending on their purpose:

- **Cash from Operations**—cash generated from day-to-day business operations
- **Cash from Investing Activities** —cash used for investing in assets, as well as the proceeds from the sale of other businesses, equipment, or other long-term assets
- **Cash from Financing Activities** —cash paid or received from issuing shares, dividends and/or borrowing of funds

What conditions do we want to find over the years in the cash flow statements of a healthy mining company?

- The primary source of cash is from operations
- Operating cash flow exceeds net income
- Operating cash flow exceeds capital expenditures indicating that the company can finance its growth internally (from generated cash vs borrowed cash)

Below are the summaries of cash flows and cash flow related income statement items of seven of the largest mining companies:

Goldcorp	2013	2012*	2012	2011	2010	2009	2008	2007	2006	2005
Revenues	3,687	4,660	5,435	5,362	3,800	2,724	2,420	2,207	1,710	896
OPEX	(1,991)	(1,961)	(2,337)	(2,042)	(1,478)	(1,187)	(1,164)	(954)	(644)	(304)
Net Income	(2,709)	1,749	1,757	1,881	1,566	240	1,476	460	408	286
Cash from Operations	955	1,960	2,097	2,366	1,773	856	866	651	792	468
IMP	(2,188)	(2,544)	(2,608)	(1,778)	(768)	(1,356)	(1,372)	(712)	(475)	(278)
Cash from Investing Activities	(2,245)	(2,232)	(2,296)	(1,508)	(2,249)	(1,459)	(442)	(858)	(2,277)	(283)
Increase in Debt	1,481	0	0	0	0	872	(639)	140	845	0
Debt repayments	(300)	0	0	0	(1,120)	(460)	(845)	(1,266)	(620)	0
Increase in Share Capital	3	44	44	477	96	79	104	70	713	44
Dividends	(486)	(438)	(438)	(330)	(154)	(132)	(129)	(127)	(79)	(151)
Cash from Financing Activities	1,158	(394)	(394)	147	(59)	799	(660)	122	1,478	(22)

Newmont	2013	2012	2011	2010	2009	2008	2007	2006	2005
Revenues	8,322	9,868	10,358	9,540	7,705	6,199	5,526	4,987	4,406
OPEX	5,186	4,238	3,890	3,484	3,049	3,144	2,978	2,515	2,320
Net Income	(2,462)	1,809	366	2,277	1,297	853	(1,886)	791	322
Cash from Operations	1,543	2,372	3,584	3,167	2,947	1,292	663	1,218	1,243
IMP	(1,900)	(3,210)	(2,787)	(1,402)	(1,769)	(1,875)	(1,670)	(1,551)	(1,251)
Cash from Investing Activities	(1,313)	(3,264)	(5,067)	(1,419)	(2,781)	(2,157)	(1,113)	(804)	(977)
Increase in Debt	388	1,548	(262)	(430)	1,568	595	972	87	365
Debt repayments	(1,150)	(1,976)	(2,273)	(430)	(2,731)	(4,483)	(2,036)	(111)	(218)
Increase in Share Capital	2	24	40	60	1,278	29	(67)	78	43
Dividends	(613)	(698)	(611)	(708)	(590)	(571)	(181)	(180)	(365)
Cash From Financing Activities	(212)	689	(854)	(915)	2,570	127	465	(333)	38

Barrick	2013	2012	2011	2010	2009	2008	2007	2006	2005
Revenues	12,511	14,547	14,312	11,001	8,136	7,613	6,332	5,630	2,348
OPEX	5,511	5,932	4,897	3,950	3,807	3,706	3,184	2,741	1,198
Net Income	(10,603)	(677)	4,537	3,630	(4,274)	785	1,119	1,506	401
Cash from Operations	4,239	5,439	5,315	4,585	(2,322)	2,254	1,768	2,122	726
IMP	(5,501)	(6,369)	(4,973)	(3,778)	(2,351)	(1,749)	(1,035)	(1,087)	(1,104)
Cash From Investing Activities	(5,237)	(6,521)	(12,827)	(4,630)	(2,415)	(3,920)	(1,562)	(1,593)	(1,180)
Increase in Debt	5,414	2,000	6,648	782	2,154	2,717	393	2,189	179
Debt repayments	(6,412)	(1,462)	(380)	(149)	(397)	(1,603)	(1,128)	(1,581)	(59)
Increase in Share Capital	2,910	0	0	0	3,885	0	0	(191)	(118)
Dividends	(508)	(750)	(509)	(436)	(369)	(349)	(261)	(1,840)	0
Cash From Financing Activities	1,342	423	6,291	1,434	5,829	893	(1,051)	(1,347)	93

Eldorado Gold	2013	2012	2011	2010	2009	2008	2007	2006	2005
Revenues	1,124	1,148	1,099	791	361	288	189	85	30
OPEX	631	541	469	282	132	92	73	46	35
Net Income	(650)	318	347	206	102	164	35	3	(49)
Cash from Operations	356	295	512	292	192	106	70	(23)	(14)
IMP	(480)	(425)	(273)	(226)	(107)	13	(96)	(93)	(89)
Cash from Investing Activities	(494)	(296)	(293)	(221)	(14)	(38)	(92)	(130)	(89)
Increase in Debt	15.98	650.00	5.78	59.83	4.98	5.00	24.86	15.37	50.00
Debt repayments	(10.35)	(120.43)	(98.16)	(90.01)	(4.98)	(70.88)	(26.36)	(0.40)	(0.99)
Increase in Share Capital	7	15	25	36	25	15	10	164	7
Dividends	(98)	(103)	(61)	(26)	0	(0)	0	0	0
Cash From Financing Activities	(90)	424	(139)	(22)	25	(51)	8	179	(0)

Yamana Gold	2013	2012	2011	2010	2009	2008	2007	2006	2005
Revenues	1,843	2,337	2,173	1,687	1,183	1,055	747	169	46
OPEX	901	832	717	631	480	497	288	100	30
Net Income	(474)	442	548	451	193	435	157	(70)	(4)
Cash from Operations	653	1,158	1,226	615	552	329	294	(3)	3
IMP	(1,039)	(1,518)	(786)	(332)	(443)	(363)	(223)	(219)	(161)
Cash from Investing Activities	(1,050)	(1,500)	(846)	(442)	(496)	(560)	(703)	(179)	(193)
Increase in Debt	594	500	0	0	569	30	654	0	0
Debt repayments	(100)	(168)	(55)	(45)	(597)	(96)	(53)	(115)	0
Increase in Share Capital	0	9	35	75	1	272	38	221	155
Dividends	(196)	(168)	(100)	(48)	(29)	(70)	(17)	(3)	0
Cash From Financing Activities	283	146	(143)	(18)	(65)	132	614	98	250

Randgold	2013	2012	2011	2010	2009	2008	2007	2006	2005
Revenues	1,638	1,918	1,822	1,423	640	381	432	465	241
OPEX	600	516	450	270	223	202	152	116	70
Net Income	326	511	433	121	84	47	46	51	41
Cash from Operations	464	494	570	108	64	58	62	72	30
IMP	(303)	(562)	(448)	(411)	(197)	(85)	(48)	(63)	(73)
Cash from Investing Activities	(728)	(561)	(449)	(345)	(82)	(85)	(97)	(63)	(84)
Increase in Debt	0	0	0	0	0	0	0	0	0
Debt repayments	0	0	(0)	(1)	(2)	0	0	0	0
Increase in Share Capital	1	14	19	31	362	4	236	4	105
Dividends	(73)	(62)	(18)	(15)	(10)	0	0	0	0
Cash From Financing Activities	(72)	(33)	1	14	351	(9)	185	(18)	129

Agnico Eagle	2013	2012	2011	2010	2009	2008	2007	2006	2005
Revenues	1,638	1,918	1,822	1,423	640	381	432	465	241
OPEX	925	898	876	677	306	187	166	144	127
Net Income	(407)	311	(569)	332	87	73	139	161	37
Cash from Operations	438	696	663	483	115	118	229	226	83
IMP	(578)	(446)	(483)	(512)	(657)	(909)	(511)	(182)	(70)
Cash from Investing Activities	(644)	(376)	(760)	(523)	(588)	(918)	(360)	(300)	(67)
Increase in Debt	290	315	475	1,311	625	300	0	0	0
Debt repayments	(120)	(605)	(205)	(1,376)	(110)	(100)	0	0	0
Increase in Share Capital	5	21	27	85	69	376	144	315	14
Dividends	(126)	(118)	(98)	(27)	(27)	(24)	(13)	(3)	(3)
Cash From Financing Activities	49	(203)	183	(22)	560	561	131	299	12

As the tables show, mining companies consistently meet the first two criteria but most often fail to meet the third criteria. Capital expenditures exceed operating inflows for all the companies, on a cumulative basis from 2005-2013. The individual years in which operating inflows exceed capital outflows are the exceptions and the difference is often marginal.

The main uses of cash in all mining companies are Operating Expense (“OPEX”) and Investment in Mining Property (“IMP”). OPEX is indirectly classified under Cash Flow from Operations and represents the direct costs attributable to the production of the goods sold.

The following tables illustrate the percentage of Revenues that OPEX and IMP represent for the companies in the period 2005-2013

OPEX as % of Revenues

Company	2013	2012	2011	2010	2009	2008	2007	2006	2005	Ave
Goldcorp	54.0%	42.1%	38.1%	38.9%	43.6%	48.1%	43.2%	37.6%	33.9%	42.2%
Newmont	62.3%	42.9%	37.6%	36.5%	39.6%	50.7%	53.9%	50.4%	52.7%	47.4%
Barrick	44.0%	40.8%	34.2%	35.9%	46.8%	48.7%	50.3%	48.7%	51.0%	44.5%
Eldorado	56.1%	47.2%	42.7%	35.7%	36.7%	31.9%	38.5%	54.1%	119.2%	51.4%
Yamana	48.9%	35.6%	33.0%	37.4%	40.6%	47.1%	38.5%	59.1%	66.0%	45.1%
Randgold	36.6%	26.9%	24.7%	19.0%	34.8%	53.1%	35.1%	24.9%	29.2%	31.6%
Agnico Eagle	56.5%	46.8%	48.1%	47.6%	47.9%	49.1%	38.4%	30.9%	52.8%	46.5%
Average	51.2%	40.3%	36.9%	35.9%	41.4%	47.0%	42.6%	43.7%	57.8%	44.1%
Ave Gold Price (\$)	1,411	1,669	1,572	1,225	972	872	695	603	445	1,052

IMP as % of Revenues

Company	2013	2012	2011	2010	2009	2008	2007	2006	2005	Ave
Goldcorp	59.3%	54.6%	33.2%	20.2%	49.8%	56.7%	32.3%	27.7%	31.0%	40.5%
Newmont	22.8%	32.5%	26.9%	14.7%	23.0%	30.2%	30.2%	31.1%	28.4%	26.7%
Barrick	44.0%	43.8%	34.7%	34.3%	28.9%	23.0%	16.3%	19.3%	47.0%	32.4%
Eldorado	42.7%	37.1%	24.8%	28.6%	29.6%	-4.4%	51.1%	110.2%	300.5%	68.9%
Yamana	56.4%	65.0%	36.2%	19.7%	37.5%	34.4%	29.8%	129.6%	349.7%	84.2%
Randgold	18.5%	29.3%	24.6%	28.9%	30.7%	22.3%	11.1%	13.5%	30.3%	23.3%
Agnico Eagle	35.3%	23.2%	26.5%	36.0%	102.7%	238.8%	118.2%	39.1%	29.1%	72.1%
Average	39.9%	40.8%	29.6%	26.1%	43.2%	57.3%	41.3%	52.9%	116.6%	49.7%
Average*	39.9%	40.8%	29.6%	26.1%	33.2%	27.0%	28.5%	26.1%	33.2%	31.6%
Ave Gold Price (\$)	1,411	1,669	1,572	1,225	972	872	695	603	445	1,052

* average without outliers

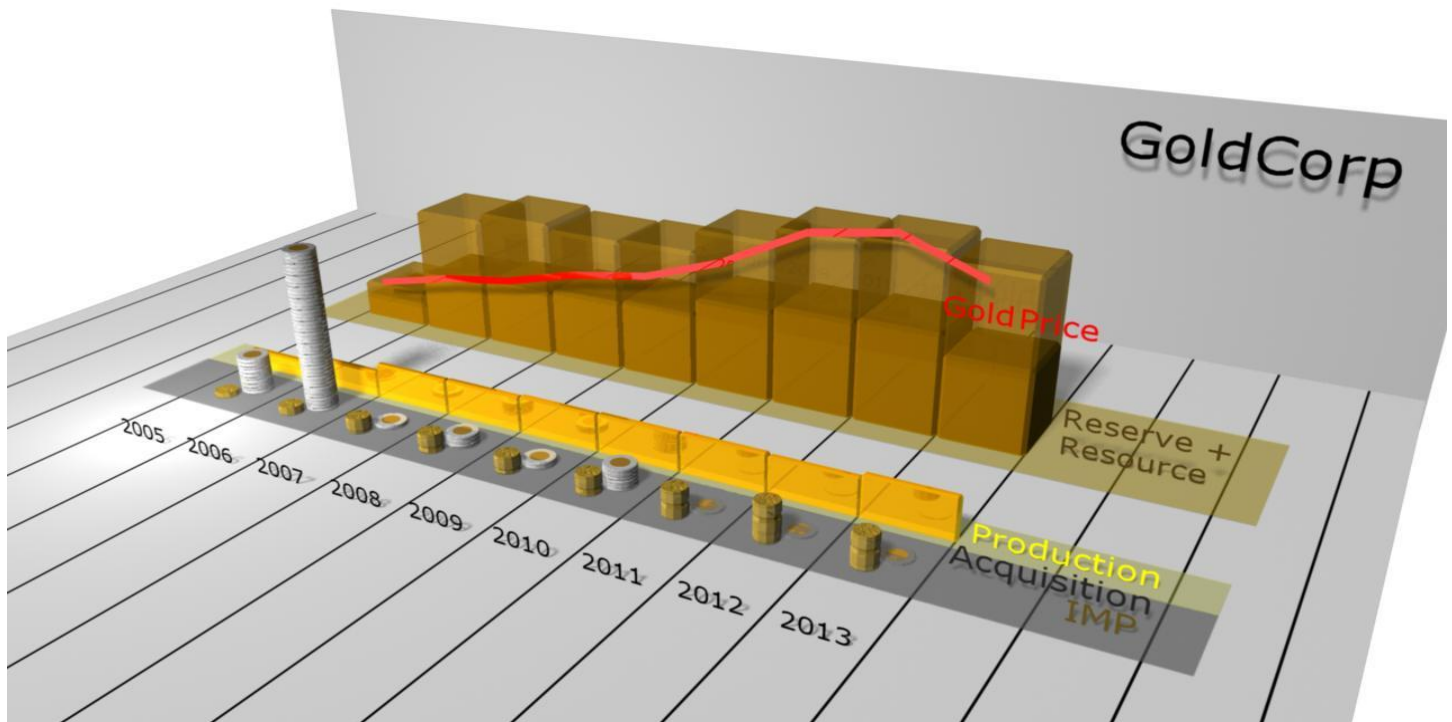
The cumulative average for OPEX and IMP combined for the period is 76% of Revenues and ranges from 62% to 91%. OPEX is relatively easy to understand and interpret but what exactly is IMP? IMP is at the root of the problem.

Investment in Mining Property, or Expenditure on Mining Interest, or Capital Expenditure is classified as an outflow from Investing Activities in the Statement of Cash Flows and increases Plant, Property and Equipment (PPE) on the Balance Sheet. IMP never makes its way onto the Income Statement except in the form of non-cash depreciation expense, which most per ounce cost estimates ignore or until there is a write down of the PPE. It is important to note here that the cash spent for acquisition of new assets has its own separate category in the Cash from Investing Activities and is not included in IMP.

Investing Activities by definition are used for the purchase or creation of long-term assets, which should generate future returns. IMP should therefore extend the life of, or increase cash flows from operations, this translates into either increasing the size of the Reserves & Resources or increasing the level of production.

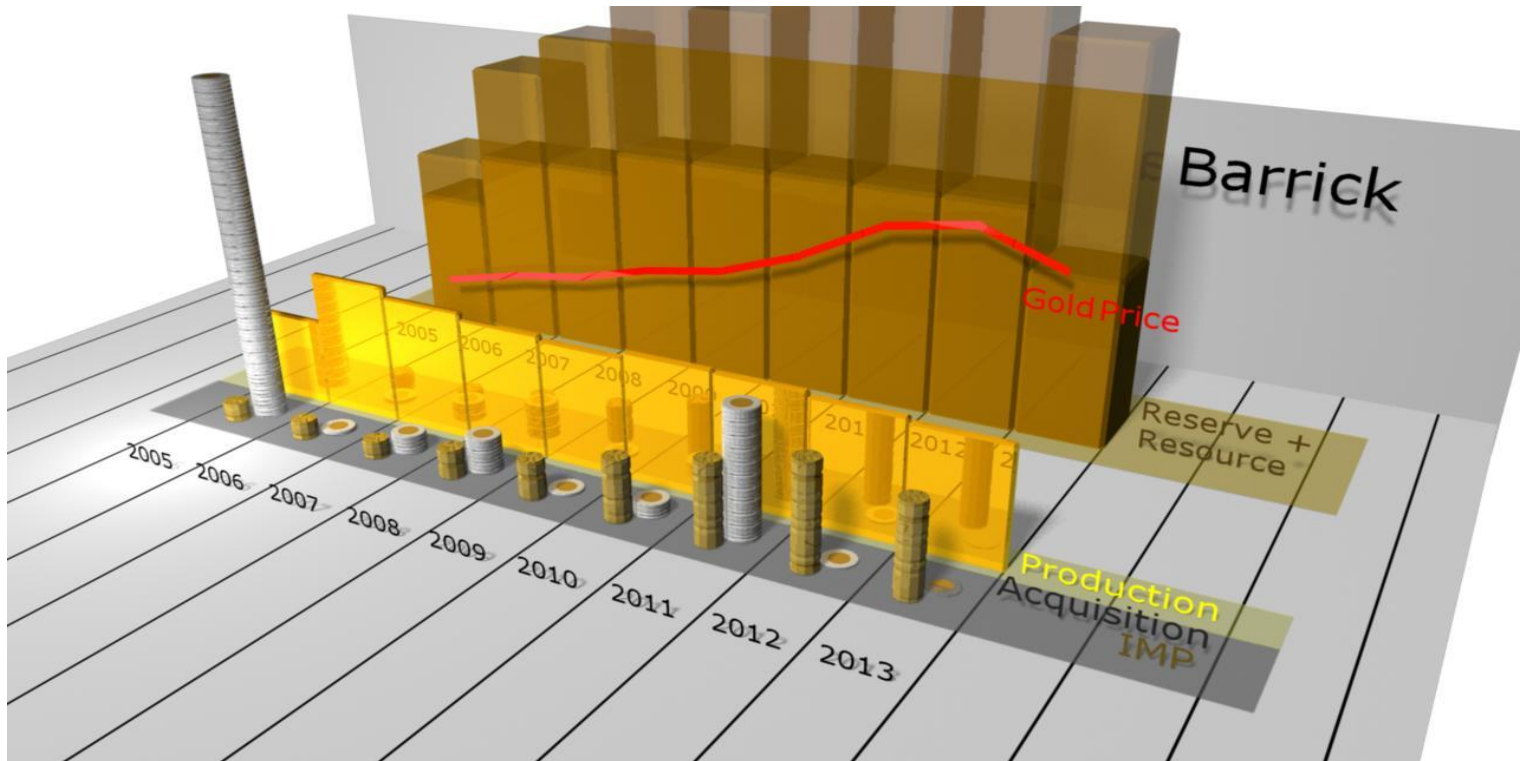
Since IMP represents such a significant percentage of Revenue each year for the mining companies we should expect reciprocal increases in production levels or the Reserve & Resource base.

Let's see how IMP relates to production levels and the Reserve & Resource base for Goldcorp, Barrick and Newmont. The charts below are very representative of all the companies we have studied.



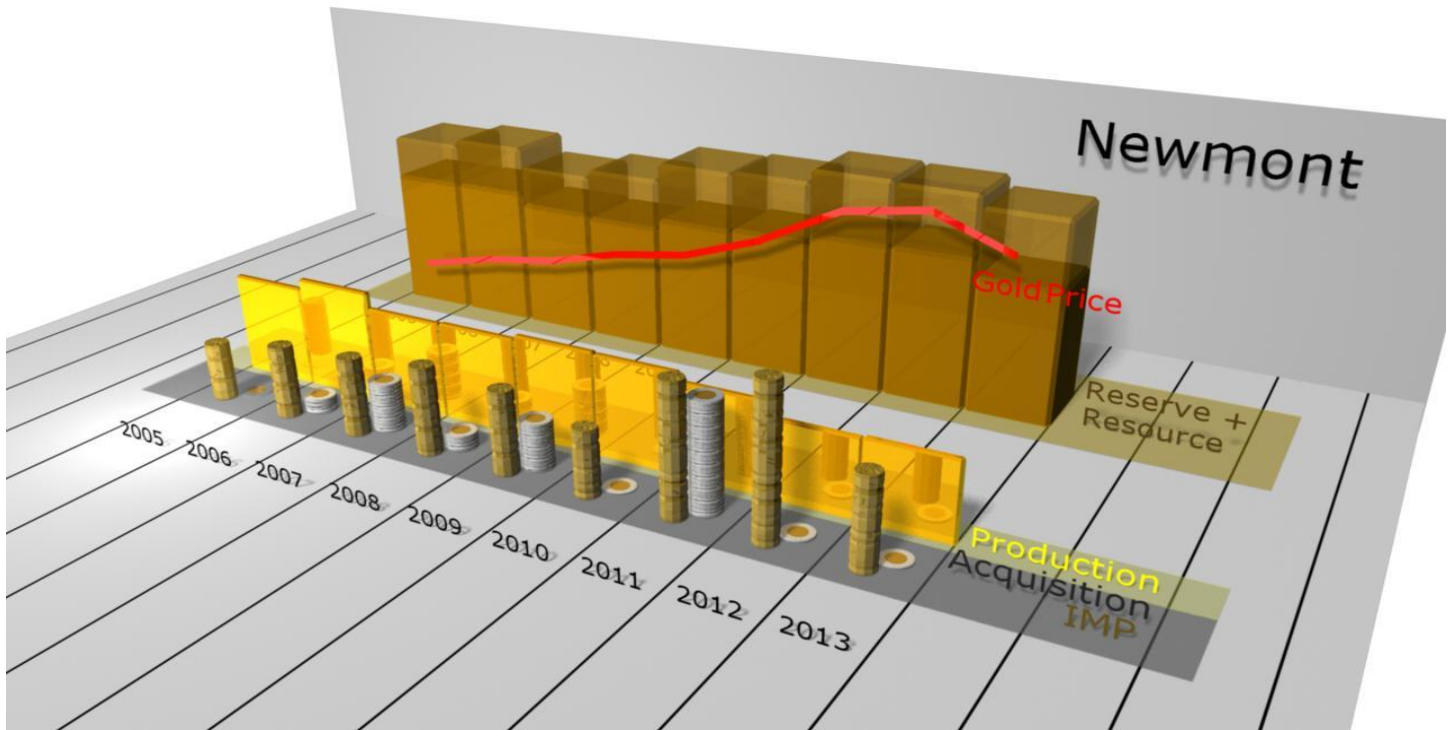
Goldcorp's chart shows:

- The significant increase in production levels and the Reserve & Resource base between 2005 and 2007 coincides directly with several large acquisitions
- From 2007 through 2013 the Reserve & Resource base closely parallels the gold price and any increases can be attributed to recalculations using higher gold prices
- Production levels since 2007 have remained relatively flat
- Based on this we can conclude that the annual IMP has not led to an increase in production and/or reserves and resources



Barrick's chart shows:

- The significant increase in production levels and the Reserve & Resource base coincides with the acquisition of Placer Dome in 2005
- From 2006 through 2013 the Reserve & Resource base closely parallels the gold price and any increases can be attributed to recalculations using higher gold prices
- Production levels since 2007 have remained relatively flat
- Based on this we can conclude that the annual IMP has not led to an increase in production and/or reserves and resources



Newmont's chart is very telling:

- A very flat Reserve & Resource base which would actually be declining due to depletion from mining if it was not for the adjustments to higher gold prices
- Production levels have been in steady decline over the last 9 years
- In spite of large IMP spending each year, particularly in the last three years, production levels and Reserves & Resources have in fact fallen

The reason for this is that Newmont made no significant acquisitions in the last 5-10 years. Miramar Mining (purchased in 2007 for \$1.5 billion) and the Fronteer Gold acquisition (2011 for \$2.3 billion) were the only two major acquisitions completed by Newmont (the acquisition in 2009 was of the remaining 33.3% of Boddington). Both projects were in development. Hope Bay project (Miramar) was a bust. Newmont took a \$1.6 billion write-down in 2013. Long Canyon (Fronteer) was quite expensive, had a slow start and was ultimately not big enough for the needs of the mining giant. Overpaying for acquisition is a topic of another research report. Newmont has spent 17.4 billion in IMP in 2005-2013 (26% of total Revenue for the period) yet in the absence of significant acquisitions, production levels are falling.

In summary, the charts indicate:

- IMP has had little to no impact on production level and/or Reserve & Resource base
- Significant changes to the production levels and/or the Reserve & Resource base are a direct result of acquisitions
- Incremental changes to the Reserve & Resource base are a function of gold price adjustments because companies recalculate it annually to reflect current metal prices.

Even the most vigilant auditors admit that they struggle with drawing lines between operating expenses and capitalized expenses. Mining companies have leeway with what they classify as initial capital vs sustaining capital vs operating expense. The incentive to appear more profitable is not unique to this industry, however the nature of operations in mining allows for more for arbitrary treatment of the costs.

Certainly part of reported IMP is justified as capital investment and should be depreciated over their useful life, which may or may not be the full life of the mine. However the evidence suggest that some of what constitutes operating expenses get tucked away in capital investment year after year, keeping expenses low. Eventually the scales get tipped too far and we see large write-downs of assets.

This practice “short term pain for long term gain” has been acceptable to investors because write-downs affect Net Income for the period but have no impact on operations and should result in higher future earnings. Analysts justify the write-downs as risky acquisitions done in the past: “These companies have highly profitable operations that continue to perform well in a tough gold market. However, they paid the price for taking risky bets that backfired and crushed shareholder value when gold prices dropped”, independent analyst John Tumazos says in the Financial Post on January 14, 2014. Is this the full picture?

Let’s review the actions of Goldcorp and Barrick over the last decade:

- Goldcorp had acquisitions and IMP totaling \$18 billion (IMP of \$14.1 billion) since 2005
- During the same period Goldcorp has taken impairment or write-downs of \$2.9 billion and is reported to be taking another \$2.7 billion this year (YE 2014)
 - Goldcorp produced 28.8 million oz of gold during this period
 - If the write-downs alone were expensed over this period, the Costs of production would have been \$195/oz Au Equiv higher than reported
- Barrick had acquisitions and IMP totaling \$39.7 billion (IMP of \$28.5 billion) since 2005
- During the same period Barrick has taken impairments or write-downs of \$20.8 billion (\$19.1 billion of which has occurred in the last 2 years)
 - Barrick produced 76.5 million oz of gold during this period
 - If the write-downs alone were expensed over this period the Costs of production would have been \$270/oz Au Equiv higher than reported

Companies capitalize significant amounts year after year as IMP and at certain times as acquisitions. Then every few years they take major write-offs that clear out their balance sheet. This has the effect of decreasing long term Assets and reducing Net Income for the period in which they occur removing the burden for future years.

Isn’t it fair then to make the argument that write-downs are a result of marginal operations more so than expensive acquisitions? If costs were properly classified as expenses instead of capital items, then previous years’ earnings would not have been earnings.

How can we develop reliable cost reporting for the gold mining industry that reflects actual return to shareholders?

It appears that either depreciation needs to be increased to more representative levels, which would reduce annual earnings and the periodic massive write-downs, or IMP should simply be expensed annually.

It is important to note that the period from 2005 to 2013 is chosen in order to be long enough to minimize the anomalies that can occur in individual years and to provide a long enough investment horizon to capture any long term effects of IMP.

Cipher reclassifies IMP into cash flow from operations:

Goldcorp

Cipher Cash Costs:	2013	2012	2011	2010	2009	2008	2007	2006	2005
OPEX/oz Au Equiv	762	718	598	476	424	420	301	227	151
Total Cost/oz Au Equiv	1883	1826	1399	901	1151	1054	715	491	350
Gold	1411	1669	1572	1225	972	872	695	603	445

Barrick

Cipher Cash Costs:	2013	2012	2011	2010	2009	2008	2007	2006	2005
OPEX/oz Au Equiv	622	681	538	440	455	424	350	294	227
Total Cost/oz Au Equiv	1554	1776	1534	1135	1531	814	615	493	516
Gold	1411	1669	1572	1225	972	872	695	603	445

Newmont

Cipher Cash Costs:	2013	2012	2011	2010	2009	2008	2007	2006	2005
OPEX/oz Au Equiv	879	717	590	447	385	442	375	304	234
Total Cost/oz Au Equiv	1472	1811	1451	998	824	954	822	644	446
Gold	1411	1669	1572	1225	972	872	695	603	445

Total Cost = (Revenues - Cash Flow From Operations) + Investment in Mining Properties

Oz Au Equiv = Revenue/Ave price of Gold

When compared with reported costs, we see a significant difference:

Goldcorp

	2013	2012	2011	2010
Cipher's Cash Cost (OPEX)/oz Au Equiv	762	718	598	476
Cipher's Total Cost/oz Au Equiv	1883	1826	1399	901
Total Cash Cost (net of by-products)	533	300	233	274
Total Cash Costs (on co-product basis)	637	638	534	446
All-in Sustaining Costs	1031	884		
All-in Costs	1575	1590		
Gold	1411	1669	1572	1225

Barrick

	2013	2012	2011	2010
Cipher's Cash Cost (OPEX)/oz Au Equiv	622	681	538	440
Cipher's Total Cost/oz Au Equiv	1554	1776	1534	1135
Adjusted Operating Costs	566	563	463	573
Adjusted Operating Costs (on co-product basis)	589	580	484	592
All-in Sustaining Costs	915	1014	821	899
All-in Sustaining costs (on co-product basis)	938	1031	842	918
All-in Costs	1282	1404	1141	1317
All-in Costs (on co-product basis)	1305	1421	1162	1336
Gold	1411	1669	1572	1225

Newmont

	2013	2012	2011	2010
Cipher's Cash Cost (OPEX)/oz Au Equiv	879	717	590	447
Cipher's Total Cost/oz Au Equiv	1472	1811	1,51	998
Gold costs applicable to sales/oz	761	677	591	485
Total Production Costs	975	854	752	617
All-in Sustaining Costs	1104	1177	1062	
Gold	1411	1669	1572	1225

CASH INFLOWS OVER OUTFLOW

Let's follow the cash to determine whether the companies generate adequate cash flows over a significant period of time in order to operate or they have to borrow money in order to survive and pay out dividends. To determine this we review their Adequacy Ratios or a measure of the Inflows over Outflows of cash. In the case of mining companies we use Revenues over Operating Costs + IMP + Debt Repayments + Dividends Paid. A ratio greater than 1.0 is healthy, a ratio below 1.0 over an extended period means that companies must continuously raise money from sources other than operations in order to survive.

Adequacy Ratio – (Revenues / (Operating Costs + IMP + Debt payments + Dividends paid))

	2013	2012	2011	2010	2009	2008	2007	2006	2005	Ave
Gold Price (ave)	1411	1669	1572	1225	972	872	695	603	445	1052
Goldcorp	0.65	0.82	1.05	0.93	0.71	0.62	0.60	0.82	1.05	0.81
Barrick	0.60	0.82	0.96	1.02	0.60	0.84	0.91	0.70	0.84	0.79
Newmont	0.80	0.74	0.83	1.07	0.78	0.52	0.63	0.89	0.88	0.81
Eldorado	0.83	0.76	1.08	0.94	1.29	1.20	0.78	0.42	0.22	0.84
Yamana	0.73	0.77	1.15	1.13	0.70	0.84	1.00	0.33	0.23	0.76
Randgold	1.06	0.94	1.06	0.82	0.82	0.93	1.03	1.02	0.85	0.95
Agnico Eagle	0.81	0.80	0.94	0.50	0.49	0.29	0.59	1.10	1.04	0.73
Average	0.78	0.81	1.01	0.92	0.77	0.75	0.79	0.75	0.73	0.81

- None of the companies has an adequacy ratio greater than 1.0 for more than two consecutive year in the past nine years
- Only in 2011 is the collective average greater than 1.0
- None of the companies have a nine-year average greater than 1.0

The table clearly shows that these companies do not make sufficient Revenues from their operations to sustain their existing business models. Negative Retained Earnings accounts on their Balance Sheets further demonstrates this fact but is beyond the scope of this article and will be visited in detail in future articles.

For more insights and information on this and various other topics related to the metals and mining markets, please contact info@cipherresearch.com

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Cipher Research Ltd. is an independent research and analysis company covering Metals and Mining markets. We develop comprehensive valuation models applying the disciplines of Geology, Economics, Statistics and Finance ("Geonomics"). Our valuation models have proven to be successful in generating investing and trading strategies.

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