BARCLAYS

Equity Research

9 October 2018

North America Metals & Mining

Mastering the Cycle; Initiating Coverage

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Initiating coverage on the North American mining sector with a positive outlook: The current dollar-positive macro dynamic has taken its toll on mining equities, offering investors an attractive entry point to the sector. Gold is now a cheap risk-off hedge in a period of rising uncertainty, and copper fundamentals remain healthy. Meanwhile, mining equities are generally in good shape with balance sheets repaired and capital allocation practices the healthiest they have been in years.

The capital cycle remains in its infancy: The mining capital cycle has moved from euphoria (2006-2012), to fear (2013-2016), and into prudence (2017-2019). With accretive investment options remaining scarce, companies are focusing on free cash flow generation. While we see the supply-demand dynamic as relatively balanced through 2020, supply challenges are just over the horizon. Given the mining sector's long production response times, we see the potential for a multi-year bull cycle ahead, particularly for copper, which remains a sector with a strong demand growth story.

Smart capital allocation is the key factor driving value creation: We built a virtual company run by a computer program to test capital deployment strategies under stochastic commodity price models. Our proprietary Monte Carlo analysis suggests companies that steadily deploy capital, rather than time the market, can generate superior returns on invested capital and total equity returns. The key to executing this approach is focusing on mining camps with significant geologic potential, building value through exploration, and syndicating megaprojects rather than making big stand-alone investments. The royalty/streaming business model captures this approach by design, making FNV, RGLD, and WPM ideally positioned. We see NEM and AEM as the best practitioners of this approach among the miners, with GG and TECK in hot pursuit. We also run a screen of potential returns across global reserves and resources to identify areas where excess returns still have potential; smaller scale high-grade gold projects stand-out, supporting the idea that gold companies should keep exploration funds flowing.

Overweight AEM, GG, KGC, NEM, FNV, WPM, FM, LUN, HBM, TECK, Underweight FCX and AUY: We see underappreciated quality at a discount with TECK and GG. We still see upside in well-known quality names AEM, NEM, FNV, and WPM. FM (we are assuming coverage), KGC, LUN, and HBM are excessively discounted due to specific risks and commodity beta. We see RGLD and OGC as reasonably priced under our gold price outlook. We are Underweight FCX on low-growth and a weak project pipeline, and AUY where we see short mine lives and a lack of catalysts as weighing on valuation.

INITIATING COVERAGE

North America Metals & Mining

POSITIVE

from N/A

For a full list of our ratings, price target and earnings changes in this report, please see table on page 2.

North America Metals & Mining

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Summary of our Ratings, Price Targets and Earnings Changes in this Report (all changes are shown in bold)

Company	Rating		Price	Price Target			EPS FY1 (E)			EPS FY2 (E)		
	Old	New	05-Oct-18	Old	New	%Chg	Old	New	%Chg	Old	New	%Chg
North America Metals & Mining	NR	**Pos**										
Agnico Eagle Mines Ltd. (AEM)	N/A	**OW**	35.09	N/A	**39.00**	-	N/A	**0.23**	-	N/A	**0.41**	-
First Quantum (FM CN / FM.TO)	EW	**OW**	14.60	19.40	**18.00**	-7	0.74	**0.60**	-19	1.23	**0.47**	-62
Franco-Nevada Corp. (FNV)	N/A	**OW**	63.16	N/A	**70.00**	-	N/A	**1.21**	-	N/A	**1.47**	-
Freeport-McMoRan Inc. (FCX)	N/A	**UW**	13.27	N/A	**12.00**	-	N/A	**1.76**	-	N/A	**0.55**	-
Goldcorp Inc. (GG)	N/A	**OW**	9.99	N/A	**14.00**	-	N/A	**0.11**	-	N/A	**0.48**	-
Hudbay Minerals Inc. (HBM)	N/A	**OW**	5.96	N/A	**8.00**	-	N/A	**0.36**	-	N/A	**0.36**	-
Kinross Gold Corp. (KGC)	N/A	**OW**	2.76	N/A	**4.00**	-	N/A	**0.14**	-	N/A	**0.11**	-
Lundin Mining Corp. (LUN)	N/A	**OW**	6.34	N/A	**8.00**	-	N/A	**0.26**	-	N/A	**0.18**	-
Newmont Mining Corp. (NEM)	N/A	**OW**	30.58	N/A	**34.00**	-	N/A	**0.90**	-	N/A	**1.51**	-
OceanaGold Corp. (OGC)	N/A	**EW**	3.83	N/A	**4.00**	-	N/A	**0.22**	-	N/A	**0.17**	-
Royal Gold Inc. (RGLD)	N/A	**EW**	76.37	N/A	**78.00**	-	N/A	**1.86**	-	N/A	**2.33**	-
Teck Resources Ltd. (TECK/B)	N/A	**OW**	31.10	N/A	**38.00**	-	N/A	**4.12**	-	N/A	**3.55**	-
Wheaton Precious Metals Corp. (WPM)	N/A	**OW**	17.05	N/A	**21.00**	-	N/A	**0.52**	-	N/A	**0.61**	-
Yamana Gold Inc. (AUY)	N/A	**UW**	2.50	N/A	**2.50**	-	N/A	**0.06**	-	N/A	**0.09**	-

Source: Barclays Research. Share prices and target prices are shown in the primary listing currency and EPS estimates are shown in the reporting currency.
FY1(E): Current fiscal year estimates by Barclays Research. FY2(E): Next fiscal year estimates by Barclays Research.
Stock Rating: OW: Overweight; EW: Equal Weight; UW: Underweight; RS: Rating Suspended
Industry View: Pos: Positive; Neu: Neutral; Neg: Negative

CONTENTS

EXECUTIVE SUMMARY

We initiate coverage on the North American mining sector with a positive outlook

The capital cycle remains in its infancy: Gold and copper prices are sitting at the upper end of their respective cost curves but still well below incentive price levels. As a result, companies are generating free cash flow from operations but capex is ~40% below the levels required to replace production over the long-term. While markets are balanced in the medium-term, the capital base is being depleted.

Short commodity trade appears crowded: The dollar-positive macro dynamic has reduced fund flows into emerging markets and credit growth is slowing, weighing on gold and base metal prices. Despite this, near-term fundamentals for industrial commodities still appear robust. We see positioning at an extreme with future and option positioning at near record levels short gold and copper, and long the USD. We see most possible changes in the macro narrative (a dovish tilt from the Fed, China easing, intervention in forex), as offering a higher probability of upside than downside for both gold and copper.

Capital deployment – slow and steady wins the race: The mining sector often lacks a clear sense of direction due to long production response lag times, mismatched investor and company time horizons, commodity price volatility, and a lack of control over both prices and costs. These industry features are a drag on returns. We believe there is a better way. We see smart capital allocation as the key factor driving value creation in the mining space. Our Monte Carlo analysis shows that a steady capital deployment approach generates superior returns to a market timing approach, often with lower risk, under a variety of stochastic commodity price models.

Steady capital deployers focus on exploration and risk mitigation: We see a number of strategies that lend themselves particularly well to steady capital deployment in the mining space: focussing on brownfield development in camps with significant geologic potential, syndicating exposure to megaprojects, and building value slowly with an active exploration program. The streaming/royalty companies FNV, WPM, and RGLD have the ideal business model, although competition is increasing.

Valuations are attractive. AEM, NEM, FNV, RGLD, WPM, and TECK deserve a premium: Gold equities are trading at an average P/NAV of 1.1x, at the low end of the historical range of 1.0-2.0x, while the base metal names are trading at 1.0x, within the historical range of 0.8-1.0x. We believe range-bound gold prices have caused the gold option premium to collapse; only a persistently upward trending gold price can bring it back. The average P/NAV of 1.2x over the past few years is likely to persist. Our company scorecard is used to identify business models that we feel can create sustained excess returns, which we can justify for the streamers/royalties FNV, RGLD, and WPM and for miners AEM, NEM, and TECK. Gold equities are trading at 5.9x EV/EBITDA 2019 under our $1,269/oz forecast and at 7.2x EV/EBITDA 2019 at spot, below the 10yr average of ~7.5x. Base metal equities are trading at 5.5x EV/EBITDA 2019 under our $2.84/lb forecast and at 5.8x EV/EBITDA 2019 at spot versus the 5yr average of ~6.0x.

Overweight AEM, GG, KGC, NEM, FNV, WPM, FM, LUN, HBM, TECK, Underweight FCX and AUY: We see underappreciated quality at a discount with TECK, and GG. We still see upside in well known quality names AEM, NEM, FNV, and WPM. FM, KGC, LUN, and HBM are excessively discounted due to specific risks and commodity beta. We see RGLD and OGC as reasonably priced under our gold price outlook. We are Underweight FCX on low-growth and a weak project pipeline, and AUY where we see short mine lives and a lack of catalysts as weighing on valuation. See Figure 1 for a snapshot of our key views on each covered company.

FIGURE 1

Company investment theses

Company	Rating	Share price	Price target	Potential upside/ downside	Market Cap ($bn)	Investment Thesis	EPS FY19 est. Barclays est.	Street est.	% Diff.	Street ratings Buy	Hold	Sell
Gold												
AEM-US	OW	$34.04	$39.00	15%	$8.00	AEM offers investors a low beta, low risk gold play with a proven approach to capital allocation, unique assets anchored by its Nunavut portfolio, free cash flow and dividend growth with substantial exploration upside.	$0.41	$0.72	-44%	15	5	1
GG-US	OW	$9.87	$14.00	42%	$8.58	We believe GG is well on the way to delivering low-risk production growth and operating cost reductions largely driven by brownfield projects. With the company delivering on expectations, we think the stock is on the cusp of a re-rating.	$0.48	$0.57	3%	16	8	1
KGC-US	OW	$2.71	$4.00	48%	$3.41	Our primary attraction to KGC stems from an attractive valuation. It has been our experience that investors can do well buying into higher geopolitical risk names when that risk appears priced in. KGC has a solid production profile over the next 5 years.	$0.11	$0.13	-17%	10	11	1
NEM-US	OW	$30.11	$34.00	13%	$16.11	Newmont is a top quality gold miner with a global asset base of established gold operations and a number of expansion options in its project pipeline. The diverse asset base paired with a comprehensive capital allocation framework justify the stock's premium valuation.	$1.51	$1.46	3%	11	7	2
OGC-T	EW	$3.83	$4.00	4%	$2.41	After completing construction at Haile, OGC is limiting its focus to exploration and brownfield investment. We believe these efforts will help grow FCF and maximize returns on capital. The key remaining risk in our view is extending the life of Waihi and Macraes.	$0.17	$0.20	-15%	10	4	0
AUY-US	UW	$2.44	$2.50	2%	$2.32	AUY has the highest leverage versus gold peers but plans to enter a cash harvest phase. We anticipate improvement as Cerro Moro ramps up, but outside of Chapada we see the pipeline as fairly weak and low exploration spend does not suggest a near-term improvement	$0.09	$0.15	-41%	12	6	1
Streams/ Royalties												
FNV-US	OW	$62.36	$70.00	12%	$11.60	FNV is on the verge of harvesting significant amounts of cash as the much awaited Cobre Panama project is in the final stretch of construction. Longer-term we see a nice growth profile based on already spent capital, and further growth opportunities as cash builds up.	$1.47	$1.35	9%	7	9	0
RGLD-US	EW	$75.29	$78.00	4%	$4.92	RGLD distinguishes itself as the last pure-play precious streamer, with FNV now having increased oil investment and WPM has begun to expand into industrial metals. The company is facing operational risks at several assets (Mt. Milligan and Rainy River). We see the outlook as positive but the current valuation appears fair.	$1.86	$2.30	-19%	9	4	0
WPM-US	OW	$16.90	$21.00	24%	$7.50	WPM has underperformed owing to slightly elevated leverage of 2.4x net debt/ EBITDA and a higher proportion of non-gold streams. However with some $500-600M in FCF per year we expect deleveraging to occur rapidly. WPM has several catalysts ahead and CRA risks appear priced in.	$0.61	$0.67	-9%	16	0	0
Base Metals												
FM-T	OW	$14.60	$18.00	23%	$10.07	FM offers potent copper exposure courtesy of its significant financial leverage, size, and growth profile. While FM still has a degree of vulnerability from the downside risks of the cycle, this could change rapidly to upside when the copper market's descent reverses.	$0.47	$1.12	-58%	15	9	1
FCX	UW	$13.12	$12.00	-9%	$19.13	We see FCX's project pipeline and growth profile as lacking. FCX's properties in the Americas could have expansion potential, but it is hard to see right now. Meanwhile at Grasberg, we see ownership risks fading but have technical concerns on the transition to block caving.	$0.55	$1.00	-44%	7	16	0
HBM-T	OW	$5.95	$8.00	34%	$1.55	HBM is awaiting two key developments in its asset portfolio: permitting at Rosemont, and community agreement to access the high grade Pampacancha satellite pit at Constancia. In the meantime the stock is trading at a significant discount, making for an attractive risk-reward trade.	$0.36	$0.45	-19%	14	4	0
LUN-T	OW	$6.34	$8.00	26%	$4.65	LUN remains a stock to watch in the base metals space as it has a good capital allocation track record, a desire to grow, a $1.5B cash pile it has twice failed to deploy, and a new CEO. In the meantime it is reinvesting in its anchor assets, Candelaria and Neves Corvo.	$0.18	$0.39	-54%	13	6	1
TECKB.TO	OW	$31.10	$38.00	22%	$18.12	Teck has the best free cash flow in the mining space with a yield of 15% in 2019 at spot commodity prices, largely driven its long-life metallurgical coal business. Teck also looks strongly positioned for syndication and off-cycle development of its QB2 copper project.	$3.55	$3.78	-6%	17	6	0

Source: Barclays Research, Bloomberg. Pricing as of 5 October 2018.

Note: Industry view: Positive. Barclays stock ratings: OW = Overweight, EW = Equal Weight, UW = Underweight

FIGURE 2

Commodity, Currency, and Macroeconomic assumptions

Commodity and Currency Assumptions								
		2017	2018E	2019E	2020E	LT	Spot	spot v '18E
Commodities								
Gold	$/oz	1,258	1,262	1,269	1,300	1,350	1,198	-5%
Silver	$/oz	17.07	15.83	16.00	18.00	18.00	14.64	-8%
Copper	$/lb	2.81	3.00	2.84	2.95	3.10	2.85	-5%
Zinc	$/lb	1.31	1.32	1.20	1.20	1.20	1.21	-9%
Nickel	$/lb	4.74	6.24	6.50	7.00	7.00	5.68	-9%
Cobalt	$/lb	27.07	35.19	30.00	35.00	30.00	28.41	-19%
Aluminium	$/lb	0.90	0.98	1.08	1.00	1.00	0.96	-2%
Platinum	$/oz	950	885	888	938	1,000	829	-6%
Palladium	$/oz	871	982	1,013	1,063	1,050	1,062	8%
Hard coking coal (Australia	$/t	216	201	175	150	150	n/a	n/a
Thermal coal (Newcastle)	$/t	84	101	91	80	65	115	14%
Oil (Brent)	$/bbl	55	72	71	75	65	86	19%
Natural gas (Henry Hub)	$/mmbtu	3.15	2.85	3.00	3.00	3.00	3.24	13%
Currencies								
Canadian Dollar	C$/US$	1.30	1.30	1.32	1.32	1.32	1.28	-1%
Euro	US$/€	1.13	1.19	1.17	1.17	1.17	1.15	-3%
Brazilean Real	BRL/US$	3.19	3.64	3.85	3.85	3.85	3.91	8%
Chilean Peso	CLP/US$	648.99	631.36	650.74	650.74	650.74	660.96	5%
Australian Dollar	US$/A$	0.77	0.76	0.74	0.74	0.74	0.71	-6%
Rand	R/US$	13.31	12.80	13.30	13.30	13.30	14.56	14%

Macro Economic Assumptions				
		2017	2018E	2019E
Real GDP growth	Global	3.9	4	3.8
% annual change	United States	2.2	2.9	2.6
	China	6.9	6.7	6.5
	Euro Area	2.4	2.1	1.8
Consumer Prices	Global	2.1	2.4	2.5
% annual change	United States	2.1	2.5	2.2
	China	1.6	2.1	2.3
	Euro Area	1.5	1.7	1.5
Current Account	Global	0.6	0	-0.2
% of GDP	United States	-2.3	-3	-3.5
	China	1.5	0.5	0.4
	Euro Area	3.5	2.9	2.4
Government Balance	Global	-3.2	-3.2	-3.5
% of GDP	United States	-4.2	-4.4	-5.9
	China	-4	-4	-4
	Euro Area	-0.9	-0.8	-0.8
Gross government debt ratic	United States	102.5	105	106.3
% GDP	China	16.9	17.9	18.9
	Euro Area	88.8	86.8	84.6

Interest Rate Assumptions					
		3Q18	4Q18	1Q19	2Q19
Fed Funds rate	USA	2.00-2.25	2.25-2.50	2.50-2.75	2.75-3.00
ECB main refinancing rate	Euro Area	0.00	0.00	0.00	0.00
China 1y bench, lending rate	China	4.35	4.35	4.35	4.35

Source: Barclays Research, Barclays Cross Asset Research, *"Rising US protectionism: It's not me, it's you"* 27 September 2018
Note: Macroeconomic and Interest Rate Assumptions are from Barclays Cross Asset Research

HOW TO MINE THIS REPORT

This report has several specific objectives, all of which are dedicated to helping investors identify the right times and the right opportunities to invest in the mining sector. In particular we are focused on the gold and copper sectors, which are of most relevance for our North American listed coverage.

The first two sections of this report are focussed on identifying where we are in the mining cycle:

- We kick off the report with an analysis of the mining capital cycle which we view as an important long-lead indicator. Our examination of industry capex as well as cost curve and incentive curve positioning suggests that the mining industry is depleting its asset base, and accretive investment opportunities are rare. Higher prices are needed to reverse the trend.
- The second section of the report examines the narratives that are weighing down the space. We lay out the Barclays macro views and how these views are reflected in current market sentiment. Predicting sentiment is difficult, but we do identify current sentiment as particularly negative suggesting the potential for more upside than downside. We examine what possible narratives could emerge to help this sentiment reversal.

The next three sections take a holistic view of the mining cycle to examine why mining industry capital deployment has a challenged track record, and what it can do about it.

- We identify features of the mining cycle that can cause value destructive behaviour. These features include: significant production response lag times, mismatched time horizons with investors, a misunderstood cycle profile, and unreasonable profit expectations.
- To test what the sector can do to combat poor returns, we built a proprietary analysis tool using Monte Carlo and a virtual company run by a computer program. This program has all the features of real mining company including operations, projects it can choose to activate, a market pricing mechanism so we can calculate a share price, and it has the ability to make rules-based decisions on what to do with its capital. We fed the model different commodity price series generated by different commodity price models. The outcome of hundreds of simulations showed that companies can generate superior risk adjusted returns by adopting a "steady" investment model, rather than focussing on market timing strategies.
- To complete the holistic mining cycle analysis we identify the key elements that we see as conducive to a "steady" investment model: focussing on brownfield expansion in camps with geologic potential, syndicating megaprojects to reduce risk, and focussing consistently on exploration. We also identify the streaming and royalty business as a steady investment model by design.

Using our insights into the most value accretive business models we then turn our focus to the equities in the next three sections.

- We calculate justified company P/NAV multiples based on: WACC, mine lives, growth rates, and the inherent value of company business models. We conduct a regression analysis to show that a 70% weighting to P/NAV provides the best stock price prediction fit, with the remaining 30% coming from EV/EBITDA.

- We develop a company scorecard to help inform our valuations and stock selection. The scorecard uses a weighted z-score with 25% allocated to past company features (risk, returns, impairments, growth), 40% to forecasted features (returns, stability, uniqueness of the asset base, growth, and the project pipeline), and the remaining 35% weighted on valuation (current multiples versus historic multiples). FNV, RGLD, WPM, GG, KGC, HBM, LUN, and TECK come in above the sector average.
- Before we delve into individual company notes we build-up our target and valuation. It is not enough to simply invest based on quality, rather we look for misunderstandings (i.e., where a company may have better projects than consensus believes or the company is making better decisions than consensus believes).

These potential misunderstandings are further explored in the company sections at the back of the report.

THE CAPITAL CYCLE REMAINS IN ITS INFANCY

"*Typically, capital is attracted into high-return businesses and leaves when returns fall below the cost of capital. This process is not static, but cyclical – there is constant flux. The inflow of capital leads to new investment, which over time increases capacity in the sector and eventually pushes down returns. Conversely, when returns are low, capital exits and capacity is reduced; over time, then, profitability recovers*." Capital Returns: Investing Through the Capital Cycle: A Money Manager's Reports 2002-15, edited by Edward Chancellor

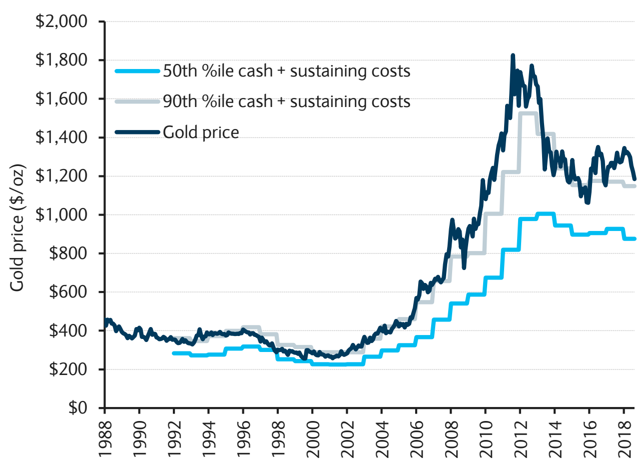
Gold and copper prices are sitting at the upper end of their respective cost curves but still well below incentive price levels. As a result, companies are generating free cash flow from operations but capex is ~40% below the levels required to replace production over the long-term. While markets are balanced in the medium-term, the capital base is being depleted.

Commodity prices are sitting on the ~96th percentile of the cost curve

Figure 3 and Figure 4 show nominal price histories of the gold and copper price, and show that prices sit above their 2015 lows but are still sitting on their respective cost curves, and are not currently offering an incentive price for marginal growth investments.

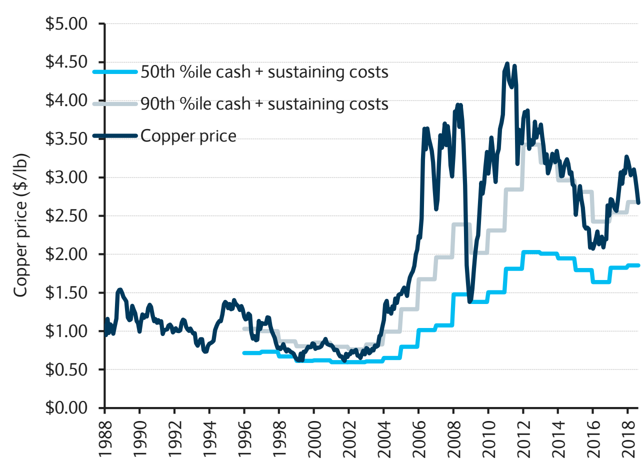
The general downward movement of the cost curve over the last five years has been driven by a combination of successful cost-out initiatives, macro factors such as a stronger USD, and temporary strategies implemented during the 2015-16 commodity price compression including reductions to non-essential capex, high cost asset closures, and various forms of high grading. In 2017 prices lifted away from the 90th percentile of the cost curve, meaning almost all operations were profitable. Costs inflated slightly in some cases but miners have generally shown continued determination to contain costs.

FIGURE 3
Nominal gold prices – fluctuating around $1200/oz



Source: Barclays Research, Wood Mackenzie

FIGURE 4
Nominal copper prices – above the 96th percentile



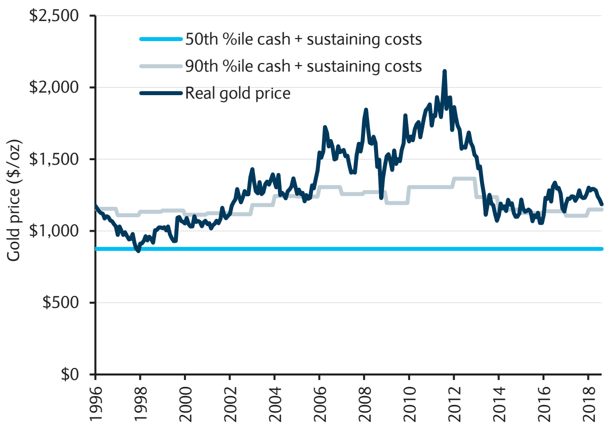
Source: Barclays Research, Wood Mackenzie

The price dynamics relative to the cost curve become clearer when we look at the price series in real terms. In Figure 5 and Figure 6 below, we used the 50th percentile of the cost curve as a producer price inflation index (hence the 50th percentile appears as a flat line). Inflating the commodity price at CPI fails to capture the degree of inflation in mining costs over the last ~15 years. The difference between the 50th percentile and the price can also be viewed as the margin for a mid-cost producer (generally the large primary miners).

Prices have to be considered in relation to costs. The narrative around the commodity "supercycle" sometimes implies that after the supercycle, prices will retreat to pre-cycle lows in nominal terms. This is highly unlikely without exceptional market shrinkage (demand loss), input cost deflation, or productivity gains. When you look at Figure 5 and Figure 6 in real terms, it becomes quite clear that prices are already sitting at low levels, relative to costs.

FIGURE 5

Real gold prices – margins sitting near decade lows

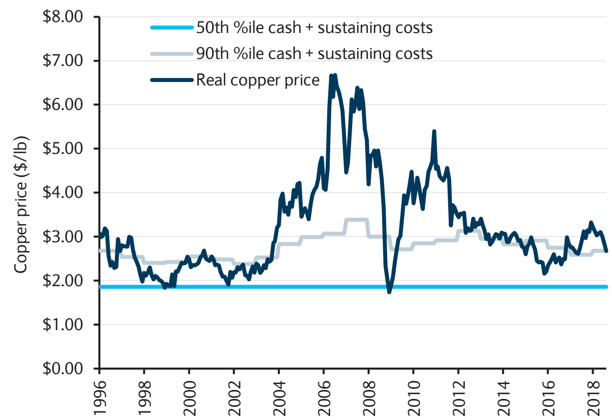


Source: Barclays Research, Wood Mackenzie

Note: Prices are adjusted to real 2018 dollars using the 50th percentile of the all-in cost curve as an inflation index.

FIGURE 6

Real copper prices



Source: Barclays Research, Wood Mackenzie

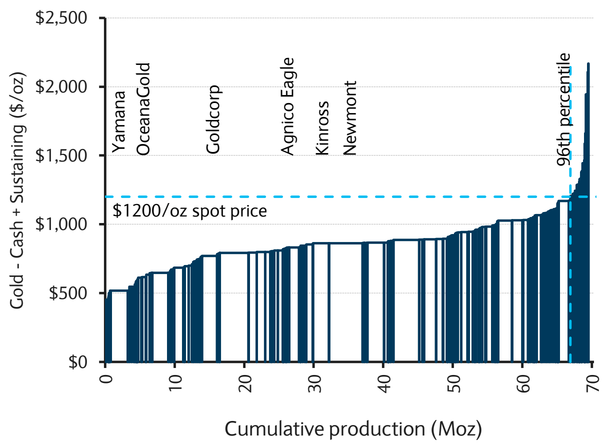
Note: Prices are adjusted to real 2018 dollars using the 50th percentile of the all-in cost curve as an inflation index.

Although we are looking at gold and copper side-by-side in this analysis we should note that the two markets are fundamentally different. In copper, price is a function of costs and pricing power (supply and demand). In gold, price is theoretically a function of demand only - high inventories mean that the market is much less sensitive to changes in mined supply and hence costs do not provide the same degree of support. Gold sector costs have historically been a function of price (i.e., when incentive prices are reached, marginal supply will rush in until the cost curve reaches the price).

Today we are sitting on the 96th percentile of the gold and copper total cash plus sustaining cost curve as shown in Figure 7 and Figure 8 which is fairly typical when demand and supply are aligned.

FIGURE 7

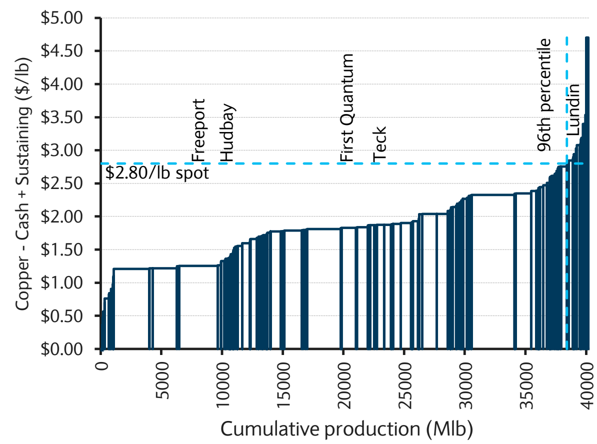
Gold total cash + sustaining cost curve



Source: Barclays Research, Wood Mackenzie

FIGURE 8

Copper total cash + sustaining cost curve



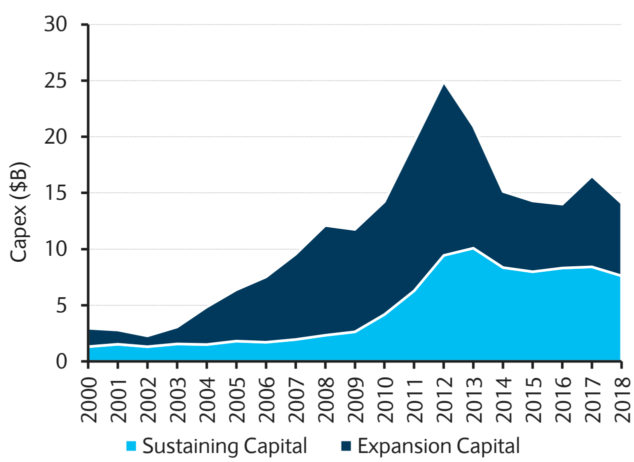
Source: Barclays Research, Wood Mackenzie

Industry capex has bounced, but still sits ~40% below replacement

In nominal terms the capital cycle appears to have turned a corner with capex rebounding from the lows of 2016 (Figure 9 and Figure 10). The market rebound in 2017 boosted cash flows and reduced the strain on miner balance sheets and allowed spend to pick-up. However, there are still several signs that we are still in the capital cycle doldrums, with companies generally unwilling to commit to meaningful growth capex.

FIGURE 9

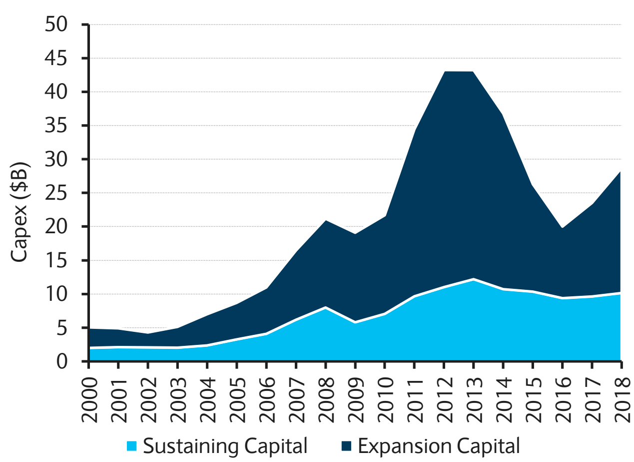
Capex for primary gold mines in nominal terms



Source: Barclays Research, Wood Mackenzie

FIGURE 10

Capex for primary copper mines in nominal terms

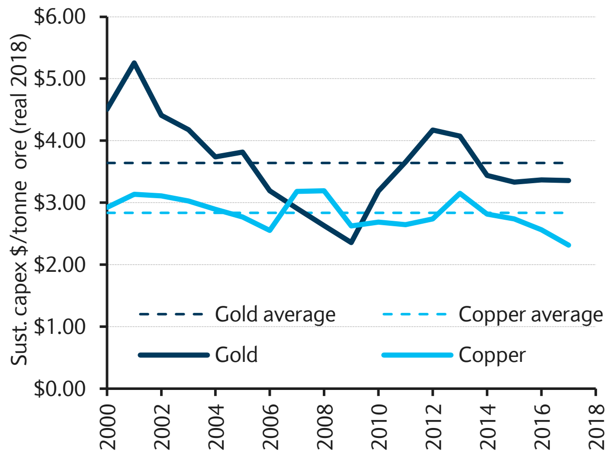


Source: Barclays Research, Wood Mackenzie

When we adjust sustaining capital by our producer inflation index in Figure 11 we see that sustaining capital remained slightly below trend in 2017, especially for copper. Capex is roughly in-line with depreciation at present, which means that on average companies are not maintaining the asset base, or to the extent that some companies are growing, others are depleting the asset base.

FIGURE 11

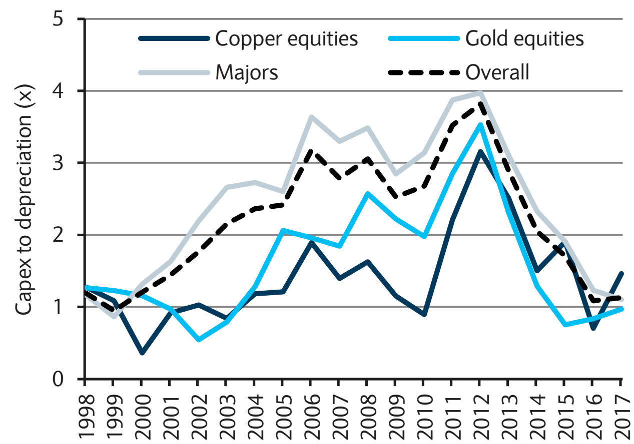
Generally on trend with real sustaining capital



Source: Barclays Research, Wood Mackenzie

FIGURE 12

Capex back in-line with depreciation

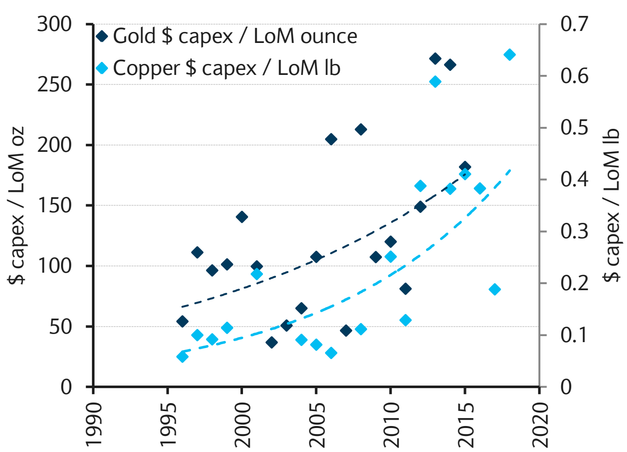


Source: Barclays Research, Bloomberg

Development capex has also seen considerable inflation. Figure 14 shows the steady appreciation in the capacity cost ($/t ore) of large copper sulphide operations. The challenge of development capex inflation has been compounded by the transition into large lower-grade ore bodies which means every unit of mine/mill capacity gets you less production. In an inflationary capex environment you would expect capex to exceed depreciation even when there's no growth, however as shown in Figure 12, we are not seeing this. We think development capex inflation is levelling off to some extent, although we believe future development of even larger open pit mines and block caves will possess some diseconomies of scale.

FIGURE 13

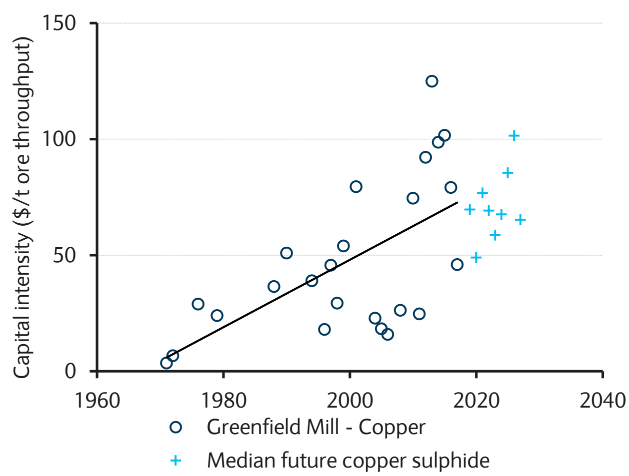
Development gets more costly



Source: Barclays Research, Wood Mackenzie

FIGURE 14

Pace of project capital inflation beginning to level out



Source: Barclays Research, Wood Mackenzie

To put current capex levels into context we conducted an exercise to roughly determine the level of capex required for the industry to maintain steady state operation which is shown in Figure 15 and Figure 16. By our estimates, the gold and copper industry is currently underspending on development capex by ~40% for a no-growth target. This shows that, while development capex has bounced, it is still well below the required levels to sustain production in the long-term, given current industry capital intensities. This is bullish for copper and possibly bullish for gold (if we believe that supply has any degree of influence over price). In the medium and short-term, the outlook will be influenced more by supply-demand balances which are generally balanced, as we show in Figure 19 and Figure 20.

FIGURE 15

Gold industry development capital is at ~55% of sustainable levels

Weighted average mine life remaining (years)	A	12.8
2018 production (Moz pa)	B	58.1
Standstill capacity replacement rate (Moz pa)	C=B/A	4.6
Capital intensity of future capacity ($/oz Au)	D	$3,000
Amount of capital required ($B)	E=DxC/1000	14

Current industry development capex ($B)	F	$7.6
Current spend vs required amount (%)	G = F/E	55%

Amount of capital required ($B)...

Capacity needed (Moz)	Capital intensity of future capacity ($/oz Au)					
	$2,000	$2,500	$3,000	$3,500	$4,000	$4,500
3.7	$7	$9	$11	$13	$15	$17
4.0	$8	$10	$12	$14	$16	$18
4.3	$9	$11	$13	$15	$17	$19
4.6	$9	$12	$14	$16	$18	$21
4.9	$10	$12	$15	$17	$20	$22
5.2	$10	$13	$16	$18	$21	$23
5.5	$11	$14	$17	$19	$22	$25

... relative to current spending levels

Capacity needed (Moz)	Capital intensity of future capacity ($/oz Au)					
	$2,000	$2,500	$3,000	$3,500	$4,000	$4,500
3.7	103%	82%	69%	59%	51%	46%
4	95%	76%	63%	54%	48%	42%
4.3	89%	71%	59%	51%	44%	39%
4.6	83%	66%	55%	47%	41%	37%
4.9	78%	62%	52%	44%	39%	35%
5.2	73%	59%	49%	42%	37%	33%
5.5	69%	55%	46%	40%	35%	31%

Source: Barclays Research. Note: assumes mines terminate linearly. Assumes sustaining capital does not include capex for life extension, but to maintain the current mine plan. Capacity replacement is total annual production divided by average mine life.

FIGURE 16

Copper industry development capital is at ~60% of sustainable levels

Weighted average mine life remaining (years)	A	17.0
2018 production (Blb pa)	B	47.1
Standstill capacity replacement rate (Blbpa)	C=B/A	2.8
Capital intensity of future capacity ($/lb Cu)	D	$8.00
Amount of capital required ($B)	E=DxC	22

Current industry development capex ($B)	F	$13.9
Current spend vs required amount (%)	G = F/E	62%

Amount of capital required ($B)...

Capacity needed (Blb)	Capital intensity of future capacity ($/lb Cu)					
	$6	$7	$8	$9	$10	$11
2.2	$13	$15	$18	$20	$22	$24
2.4	$14	$17	$19	$22	$24	$26
2.6	$16	$18	$21	$23	$26	$29
2.8	$17	$20	$22	$25	$28	$31
3	$18	$21	$24	$27	$30	$33
3.2	$19	$22	$26	$29	$32	$35
3.4	$20	$24	$27	$31	$34	$37

... relative to current spending levels

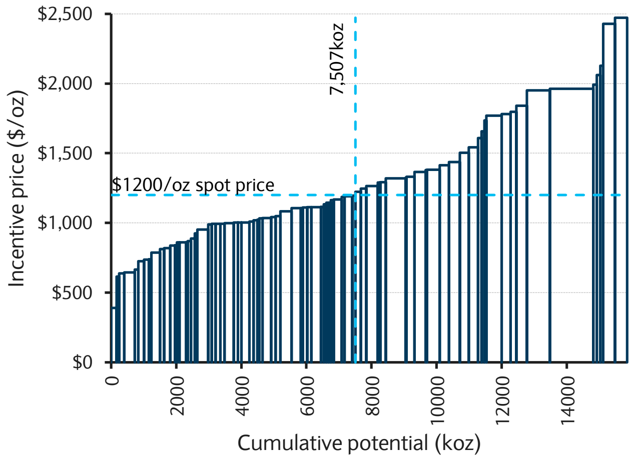
Capacity needed (Blb)	Capital intensity of future capacity ($/lb Cu)					
	$6	$7	$8	$9	$10	$11
2.2	105%	90%	79%	70%	63%	57%
2.4	96%	83%	72%	64%	58%	53%
2.6	89%	76%	67%	59%	53%	49%
2.8	83%	71%	62%	55%	50%	45%
3	77%	66%	58%	51%	46%	42%
3.2	72%	62%	54%	48%	43%	39%
3.4	68%	58%	51%	45%	41%	37%

Source: Barclays Research. Note: assumes mines terminate linearly. Assumes sustaining capital does not include capex for life extension, but to maintain the current mine plan. Capacity replacement is total annual production divided by average mine life.

While current incentive price curve estimates suggest that there are roughly ~7.5Moz of gold projects and ~4Blb of copper projects "in-the-money" at a 15% IRR and spot pricing, we note that only around 25% of these are approved for development, with the remainder unpermitted, unfinanced, or at an early stage of study.

FIGURE 17

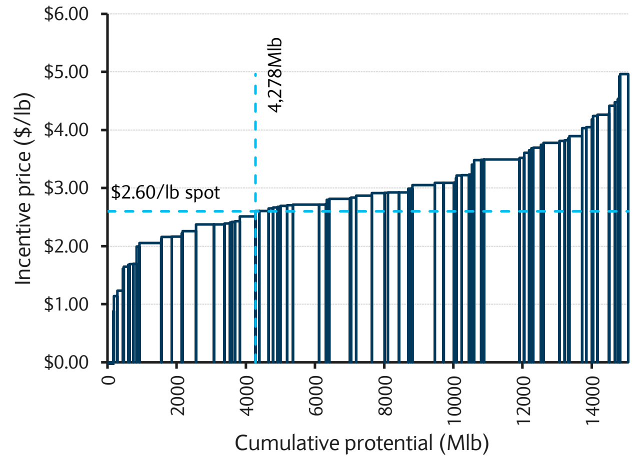
Gold incentive price curve at 15% IRR



Source: Barclays Research, Wood Mackenzie

FIGURE 18

Copper incentive price curve at 15% IRR



Source: Barclays Research, Wood Mackenzie

In Figure 21 and Figure 22 on the next page, we put hurdle rates in the context of reserve/resource grade and tonnage, and we see very few projects make the cut. The lacklustre project pipeline is not an immediately pressing issue for the copper market which we see as relatively balanced over the next few years, as shown in Figure 20. However, we believe the market will start to take commodity prices into incentive price territory in 2020 as the upcoming shortages draw nearer. Gold is in surplus over our forecast horizon but given short mine lives, mine production should remain on a steadily declining path.

FIGURE 19

Gold supply trend versus current demand

	2018E	2019E	2020E	2021E
Mine production (t)	3,301	3,250	3,200	3,150
Net producer hedging (t)	2	0	0	0
Recycled gold (t)	1,165	1,165	1,165	1,165
Total supply (t)	**4,468**	**4,415**	**4,365**	**4,315**
Year/Year Growth	*0%*	*-1%*	*-1%*	*-1%*
Fabrication demand (t)	2,428	2,428	2,428	2,428
Investment demand (t)	1,133	1,332	1,238	1,234
Central bank & other inst. (t)	372	400	400	400
Gold demand (t)	**3,933**	**4,160**	**4,066**	**4,063**
Year / Year Growth	*-6%*	*6%*	*-2%*	*0%*
Implied Market Surplus/Deficit (t)	534	254	299	252
Average Gold Price (US$/oz)	$1,275	$1,275	$1,300	$1,350
Gold price YoY change	1%	0%	2%	4%

Source: Barclays Research, World Gold Council (WGC)

Note: The significant portion of the gold stock available for investors makes a physical demand trend less relevant and hence we forecast flat demand.

FIGURE 20

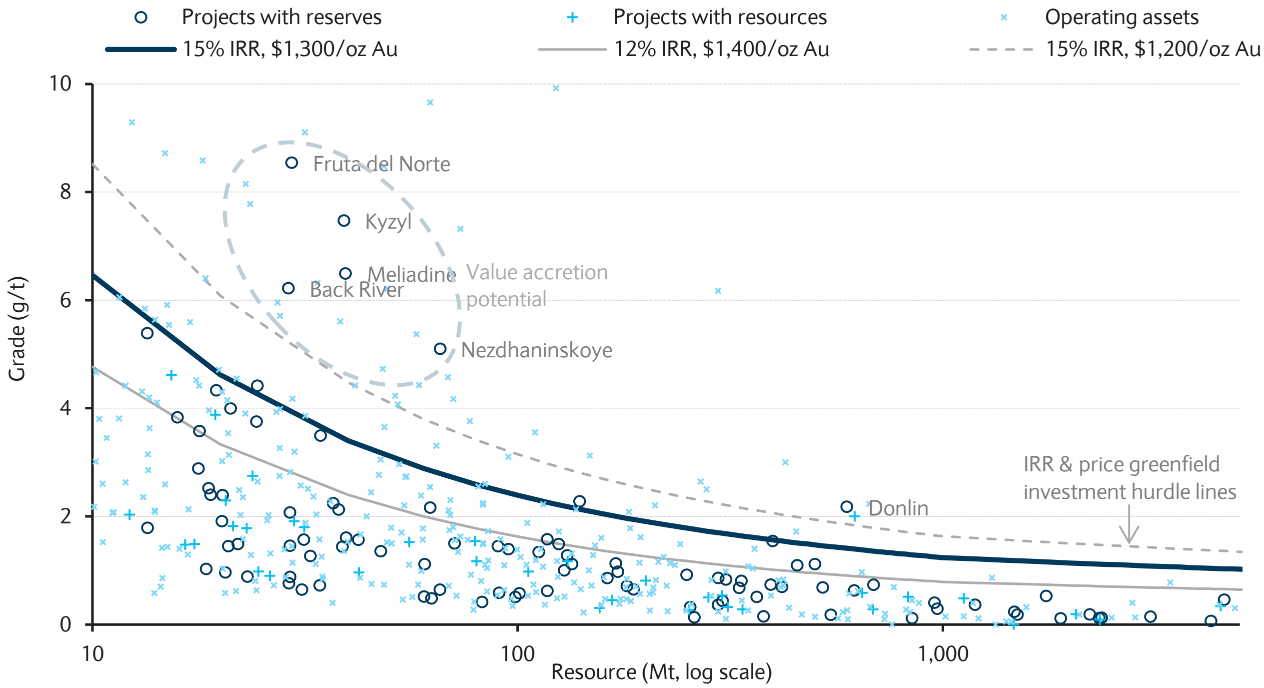
Copper supply and demand forecast (kt, unless noted)

	2017A	2018E	2019E
Chile	2,430	2,477	2,417
China	8,409	8,930	9,284
USA	1,080	1,067	1,091
Rest of World	11,106	10,956	11,253
Production Forecast	**23,024**	**23,431**	**24,046**
YoY change	*1.3%*	*1.8%*	*2.6%*
North America	2,304	2,245	2,266
Europe	3,741	3,833	3,869
China	11,090	11,480	11,754
Rest of World	5,919	5,918	6,060
Demand Forecast	**23,054**	**23,477**	**23,949**
YoY change	*2.1%*	*1.8%*	*2.0%*
Global Balance	**-30**	**-46**	**97**
Above ground stocks	1,853	-	-
Latest LME cash forecast ($/t)	$6,177	$6,603	$6,263

Source: Barclays Research, Wood Mackenzie

FIGURE 21

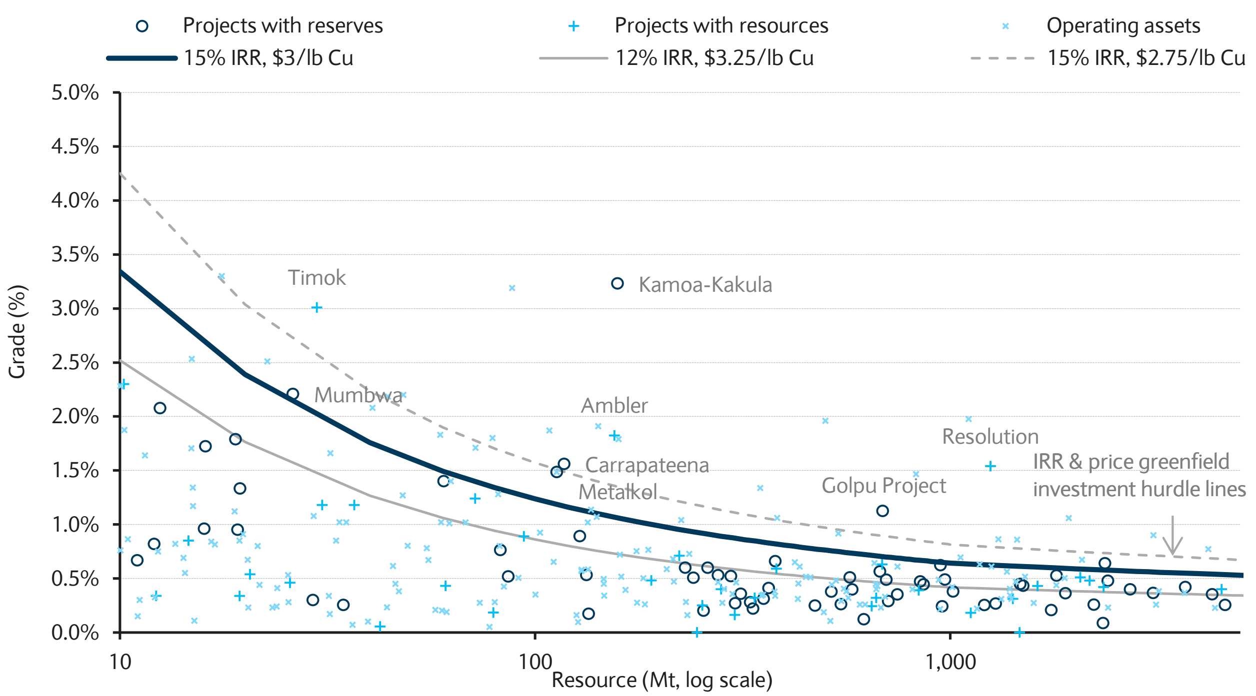
Gold resources and investable frontiers – smaller scale high grade gold projects show excess return potential



Source: Barclays Research. Note – in this analysis we use scaling rules of thumb to size theoretical mill throughput for every possible resource size, and capex relative to throughput. We assume every project aims to achieve a mid-tier cost profile and solve for the cash margin per tonne that would achieve a given IRR at every level of resource scale. This cash margin per tonne can be converted into grade by assuming a commodity price and recovery, thereby allowing us to calculate hurdle grades at different prices and IRR's across the entire spectrum of possible resource scales. Projects above a hurdle may still not be viable if these factors do not hold – i.e., they have especially high costs or capex, or if they are high risk. Projects below a hurdle may still be viable if they have lower cost or capex than the industry average.

FIGURE 22

Copper resources and investable frontiers – few opportunities until $3.25/lb copper



Source: Barclays Research, see explanation under the above figure.

SHORT COMMODITY TRADE COULD BE CROWDED

"*It was as though the entire industry and investment community had developed collective amnesia, forgetting almost everything that had been learned about cycles. But there is one thing that seems a constant. At their nadir, almost everyone in the business becomes conditioned to the worst being here for the forseeable future and cost cutting becomes the watchword.*" Never Rest on Your Ores: Building a Mining Company One Stone at a Time, by Norman B. Keevil.

Meanwhile, the dollar-positive macro dynamic has reduced fund flows into emerging markets and credit growth is slowing, weighing on gold and base metal prices. Despite this, near-term fundamentals for industrial commodities including copper still appear robust. We see positioning at an extreme with managed money future and option positioning at near record levels short gold and copper, and long the USD. We see most potential changes in the macro narrative (a dovish tilt from the Fed, China stimulus, intervention in forex), as offering a higher probability of upside than downside for both gold and copper.

Mining sector sentiment has fluctuated between positive and negative extremes several times over the past decade, giving investors numerous opportunities to "buy the dip". The best opportunities for new longs typically come when there is a cohesive negative narrative. Taken to the extreme, we could sum up our investment philosophy in the mining sector as "the bleaker the better"; the key challenge is identifying when sentiment is likely to bottom.

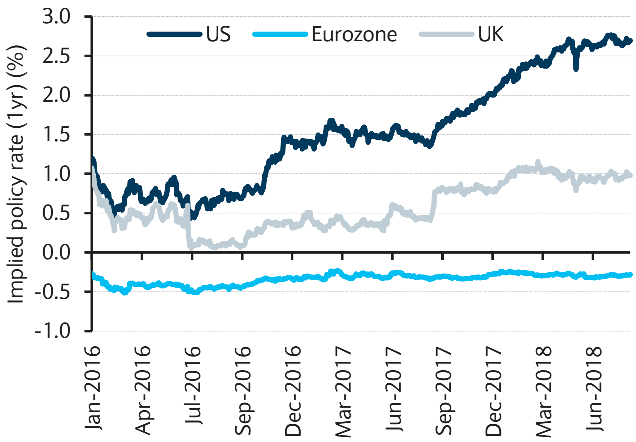
In this section we look at the current macro factors that are impacting the commodity complex, which our global macro team summed up quite succinctly in their recent *Global Outlook* (1 October 2018): "it's the US economy".

The common denominator: the US dollar

In the capital cycle section we saw gold and copper sharing a few features including cost and capital inflation trends, and a significant degree of underinvestment at present. The other major shared feature is that both gold and copper are real assets denominated in fiat, and more specifically in U.S. dollars. As a result, there can be high degrees of short-term correlation when the U.S. dollar is volatile.

Today we are in the midst of a dollar-positive macro dynamic. The U.S. economy is growing above trend and at full employment, and the Fed appears poised to continue raising rates with another four rate hikes anticipated by the end of 2019. This trend is asynchronous from other major economies (Figure 23), which is driving U.S. dollar appreciation. The market moved long the USD in May, showing strong conviction in the tightening cycle.

FIGURE 23
USD implied rate divergence



Source: Barclays Research, BIS

FIGURE 24
Non-commercial USD firmly net long

Source: Barclays Research, Bloomberg.

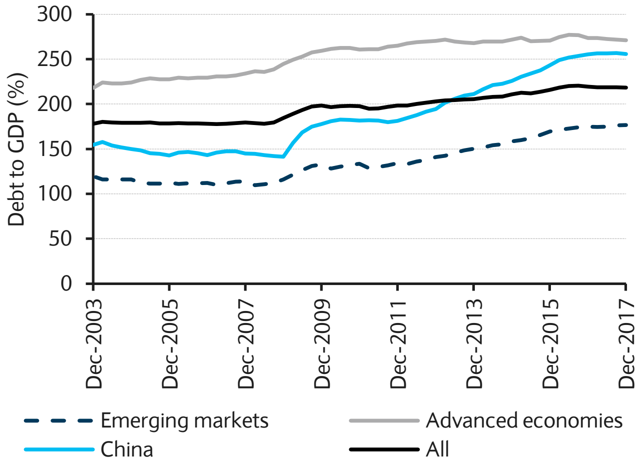
The USD appreciation: 1) hurts USD-denominated commodity prices, 2) increases the cost of USD-denominated debt, 3) forces emerging markets to follow suit in tightening, and 4) dries up capital flows into emerging markets. We view these capital flows as the most important drivers of the short-term commodity price risk on/off cycle.

Debt binge pause a near-term risk for commodities

The consequence of the low interest rate environment of the last decade was an ongoing borrowing spree among both private and public entities. The Bank for International Settlements (BIS) estimates that global debt to GDP has gone from 179% at the end of 2007 to 217% by the end of 2017 (Figure 25) while China has gone from ~150% just before the financial crisis to over 250% at the end of 2017. This credit growth drove significant fixed asset investment and benefitted the commodity complex tremendously. A higher U.S. rate environment and attempts to delever the real economy in China are slowing the pace of credit growth. China credit has had a significant influence on commodity price cycle over the last 10 years, as shown in Figure 26 and slowing credit growth has contributed to the current commodity price pullback.

FIGURE 25

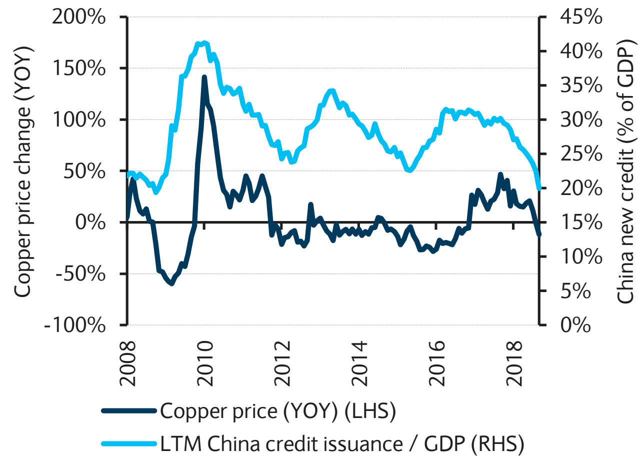
Global debt levels stabilizing relative to GDP



Source: Barclays Research, BIS

FIGURE 26

China credit as a driver of commodity price reflation

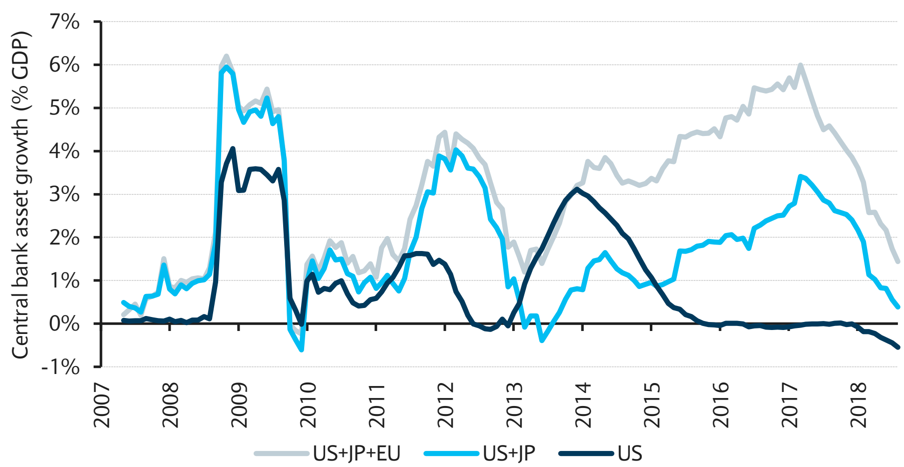


Source: Barclays Research, Bloomberg

Monetary policy isn't the only front causing a challenge for emerging markets. Quantitative policy also has liquidity in decline.

FIGURE 27

Central bank asset growth declining

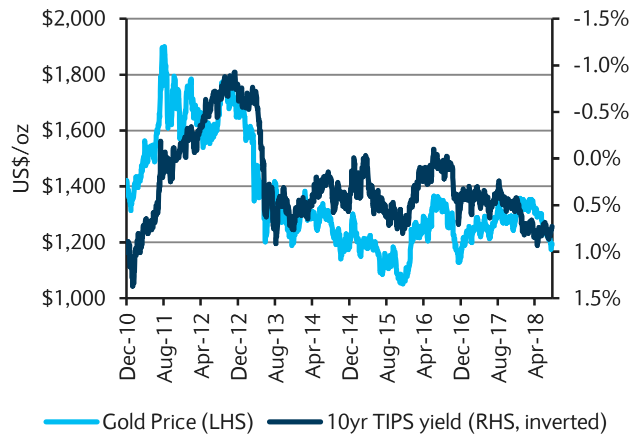


Source: Barclays Research, Bloomberg

Inflation is at target

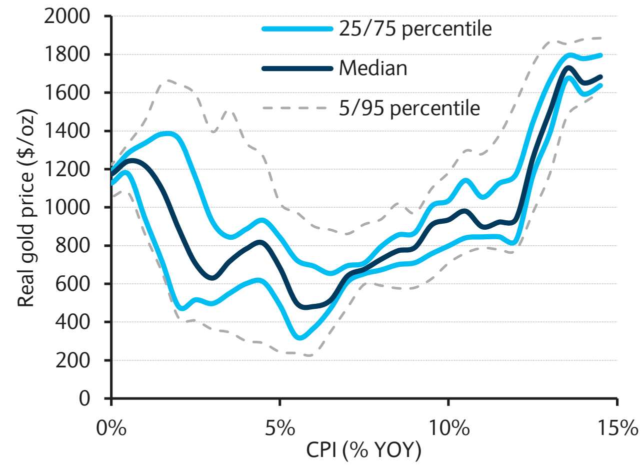
Gold bulls are feeling "deflated" by the lack of U.S. inflation despite years of central bank stimulus and credit growth. Instead we have inflation firming at a little more than 2%. We view gold as an insurance policy against central bank error and hence when inflation is within the goldilocks zone, gold tends to be out of favour. Figure 29 is what we call the pendulum chart – gold rallies when the economy is headed towards deflation or inflation – not when it is right in the fairway.

FIGURE 28
Gold and real yields



Source: Barclays Research, BIS

FIGURE 29
The gold pendulum



Source: Barclays Research, Bloomberg. Note: Real gold price is adjusted using CPI. Note that the range of CPI likely to elicit gold price upside is much lower in today's lower GDP growth world.

How could the narrative change?

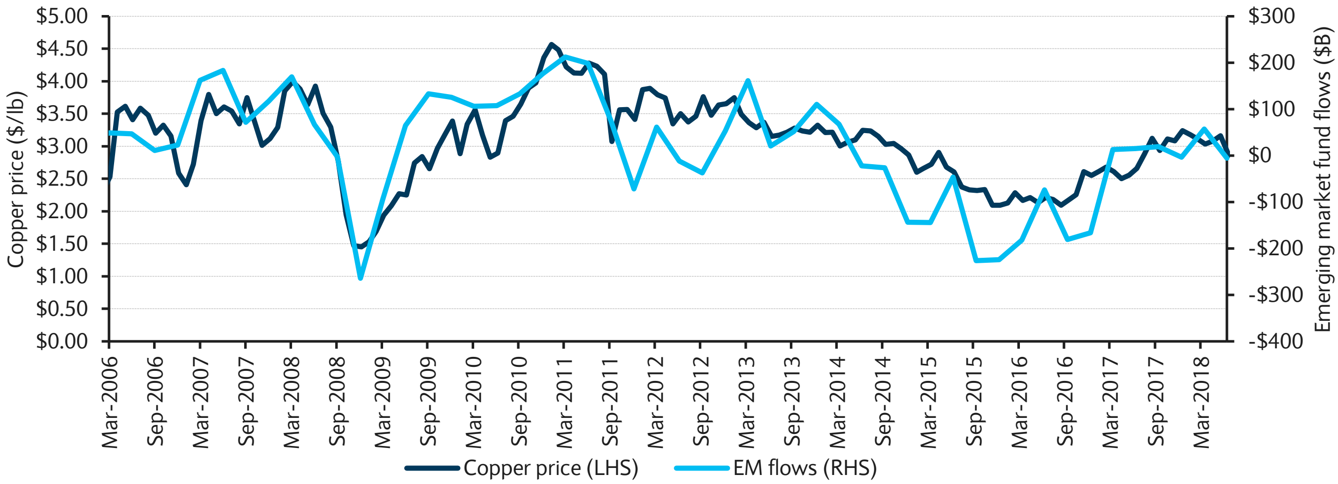
The above factors make for a fairly compelling macro narrative: avoid commodity beta. In fact, Barclays macro strategists are advising not to buy the EM dip as long as dollar strength is expected to continue.

However, we want to consider not the current macro dynamic, but how that dynamic might change. In our view, the current macro outlook is sufficiently negative that it suggests to us a greater potential for sentiment to improve rather than worsen over the next year. We see three ways the narrative could change:

1) **The Fed takes a less aggressive tightening stance:** With unemployment falling further below the natural rate and significant fiscal stimulus still under way (tax cuts plus the government running a large deficit), the lack of inflation remains a mystery to central bankers. The uncertainty suggests the Fed should proceed with caution. Our economics teams forecasts GDP growth decelerating into late 2019. A combination of falling growth and still absent inflation could drive a reduced policy rate outlook, helping drive fund flows back into emerging markets (i.e., risk on).

FIGURE 30

Less aggressive tightening stance could drive virtuous EM inflows

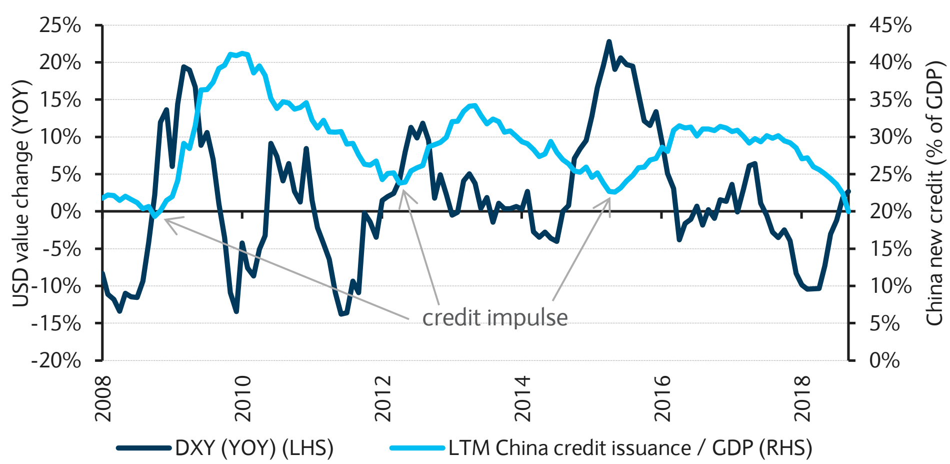


Source: Barclays Research, Bloomberg, IIF, EM flows = Non-resident capital net inflows (FDI, equity, lending) minus private resident capital net outflows

2) **China stimulates:** Over the last year China has been focussed on deleveraging the real economy to mitigate risks of a hard landing. This causes an inevitable drag on economic growth and commodity prices. However, Figure 31 shows that China has habitually eased to reduce USD strength. While China appears increasingly focussed on delevering the real economy, the government has proven willing and capable of taking action to stave off crisis when necessary. China has already taken steps to ease and support infrastructure spending. If the U.S. does not relent in tightening and liquidity deteriorates further, we could be approaching the point where China eases more materially, improving the narrative once again. This can spur a virtuous cycle with flows accelerating back into EM. The Institute of International Finance forecasts non-resident capital flows to emerging markets at $1.13B in 2019, roughly in line with 2018. China is anticipated to be the main beneficiary, helped by increased foreign access to Chinese domestic markets.

FIGURE 31

Strong USD typically countered by EM stimulus



Source: Barclays Research, Bloomberg. Periods of USD strength highlighted – China commences easing as the USD strengthens.

3) **Currency war:** President Trump has already expressed displeasure with U.S. dollar strength. In a case where the US dollar appreciates further, we could see commodity price downside mitigated by further efforts to talk down the dollar. While these efforts are not likely to translate to action, the possibility of government influence on Fed policy could drive a bid on gold. Meanwhile, China is supporting the Yuan with its currency reserves but an alternative would be to let the Yuan depreciate in the face of economic pain (tariffs). While a cheaper Yuan negatively impacts Chinese gold demand in the short term, we believe competitive devaluations could drive capital flight into gold and potentially other real assets including copper if the market remains sufficiently tight.

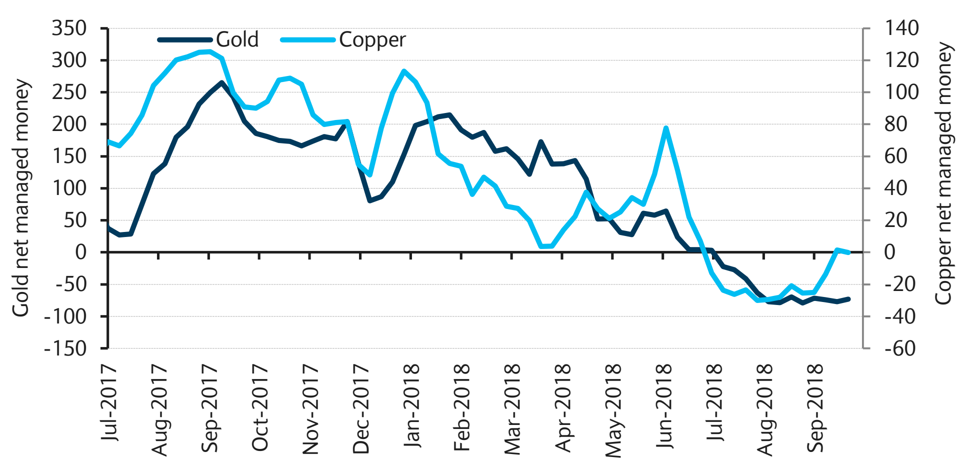
4) **Inflation heats up:** We would be remiss to not mention the risk of the U.S. economy overheating. Our global macro team has highlighted that, despite the current noise level over trade wars and EM turmoil, fundamentals are actually not bad, with the U.S., Europe, and Japan growing above trend, and China likely to keep growth in the 6.5% range for 2018 and 2019. With this in mind, an alternative future scenario is for inflation to ultimately heat up. This is a lower probability scenario in our opinion but with the strong dose of late-cycle fiscal stimulus under way in the U.S. we could envisage a narrative shifting to concerns of an overheating economy, supporting a bid for gold.

So we have a situation where the status quo is negative, but most of the alternative narratives could actually be quite positive for gold and copper. When we pair the potential for an incrementally positive change in the macro narrative with the very real long-term supply challenges facing the space, we are actually quite constructive.

When it comes to the short-term view, market positioning is extremely negative, as suggested by managed money net short future and option positions in both copper and gold in Figure 32. We have not seen this short convergence before in the managed money data which suggests to us very strong belief in a steadily-hiking Fed and deleveraging China.

FIGURE 32

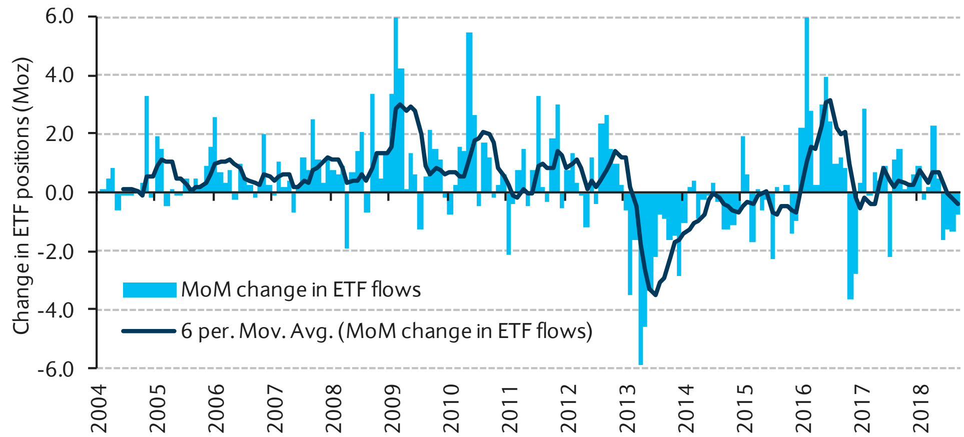
Managed money positioned net short in both gold and copper



Source: Barclays Research, Bloomberg

In the gold space, we have seen four consecutive draws from gold ETFs in June through September, but the pace of selling has been steady, not accelerating.

FIGURE 33
Gold ETF flows MOM



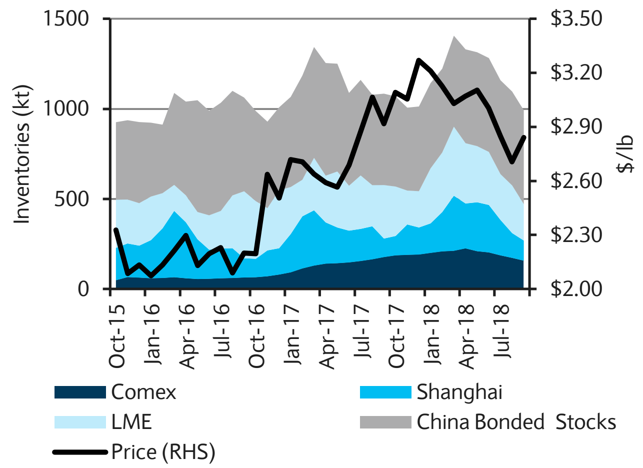
Source: World Gold Council, Barclays Research

However, copper fundamentals give us reason for optimism. Shanghai premiums have been rising, indicating that metal demand in China remains tight. Inventories have also been in steady draw down. As our copper analyst noted in his *recent analysis*, this market backdrop provides a strong fundamental rationale for higher prices in the short term. While he has his concerns on deterioration of fundamentals later in 2019, we believe the potential for emerging supply concerns thereafter could keep copper better bid than fundamentals would otherwise suggest.

FIGURE 34
Shanghai copper premiums rising

Source: Barclays Research, Bloomberg

FIGURE 35
Exchange inventories falling



Source: Barclays Research, Bloomberg

CAPITAL DEPLOYMENT – TROUBLED BY TIMING

"*Shareholders' interests are short-term. They don't like being asked to wait five years. Five years is too long.*" – Peter Tomsett, Placer Dome CEO 2004-2006. A History – Placer Development Limited and Placer Dome Inc. Compiled by Nean Allman ad Justin Baulch.

"*Such violent fluctuations in copper prices may be attributed to two basic features of the world copper market. First, the price elasticity of supply for copper is low in the short-run but very high in the long-run. This marked difference may be attributed to the length of time required to bring new mines into production. Secondly, the demand for copper in both the short- and long-run tends to be inelastic with respect to price, while being extremely sensitive to changes in the level of industrial activity in the consuming countries.*" The Rio Tinto Company: An Economic History of a Leading International Mining Concern, 1873-1954 Charles Harvey

We see smart capital deployment as the key factor driving value creation in the mining space; however, the mining sector has struggled to consistently demonstrate this capability. We attribute this to the lack of a clear sense of direction in the industry, stemming from long production response lag times, mismatched investor and company time horizons, commodity price volatility, and a lack of control over both prices and costs. These industry features are a drag on returns.

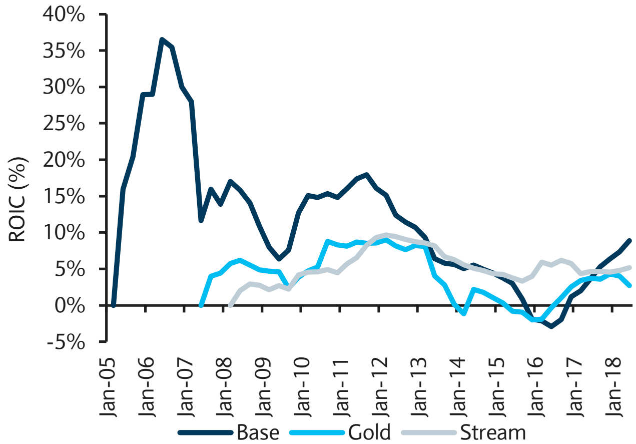
Typically the focus in mining equity analysis is on the quality of a company's assets or its execution capabilities. These are obviously critical elements, but in many ways they are derivatives of smart capital allocation and deployment through the cycle. Capital allocation is critical in any business, but especially in mining given the depleting nature of the assets, the volatility and uncertainty of the revenue line, and the diversity of investment opportunities. A properly functioning approach to capital allocation should allow companies to control unique assets, and the profits from those unique assets provide the fuel for the capital allocation machine to keep running. These unique assets are also more forgiving to operate (i.e., high grade, long-life assets in good jurisdictions), making strong execution also a derivative of good capital allocation. However, missteps on capital allocation can break the value creation process and permanently impair a company by saddling it with debt or bad assets, and hence capital allocation is important to consistently get right.

The mining sector does not have the greatest value creation track record. This has been well documented and is a reason many investors avoid the sector today. For most of the last 10 years, the sector has failed to generate surplus returns, as shown in Figure 37.[1] In this section we explore why capital allocation is difficult in the mining sector, and investigate potential solutions. We can use these solutions to look for bright spots in the industry, which informs our stock valuation framework and stock selection process.

[1] We are focused on equity returns through the cycle rather than shareholder outcomes. Some shareholder outcomes have been excellent. One aspect of the industry often ignored by critics is that it suffers from a reverse survivorship bias – mining companies which were acquired in the bull cycle generated significant value for shareholders.

FIGURE 36

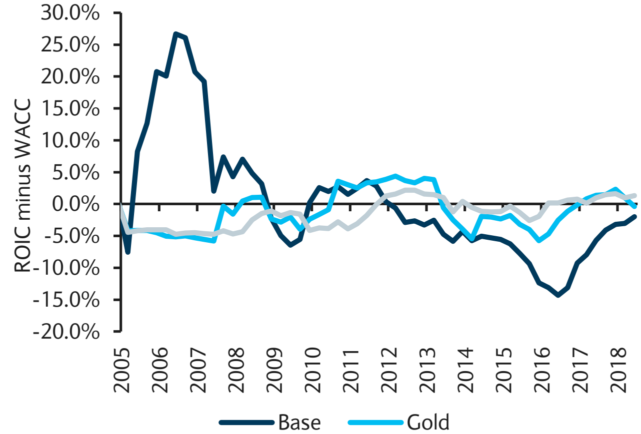
ROIC



Source: Barclays Research, Bloomberg

FIGURE 37

ROIC minus WACC



Source: Barclays Research, Bloomberg

Timing issues and missed expectations make value creation difficult

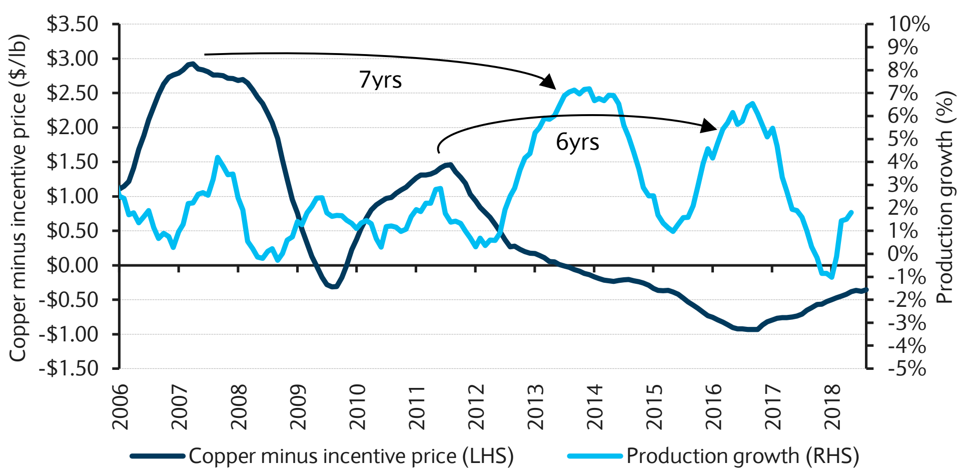
We think the questionable track record of value creation in the mining industry stems from the fact that the sector often lacks a clear sense of direction. This unclear direction has a few causes (many of which are related) including: long production response times, mismatched time horizons between investors and companies, a cycle shape which induces extreme risk-on/off periods, and the illusion of permanent excess profits. We expand upon each of these below.

Long production response times create volatility

The time that passes between peak incentive prices (theoretically when most new capacity is approved) and peak copper production growth is on the order of ~6-7 years, as shown in Figure 38.

FIGURE 38

Response time lags in copper by 6-7 years

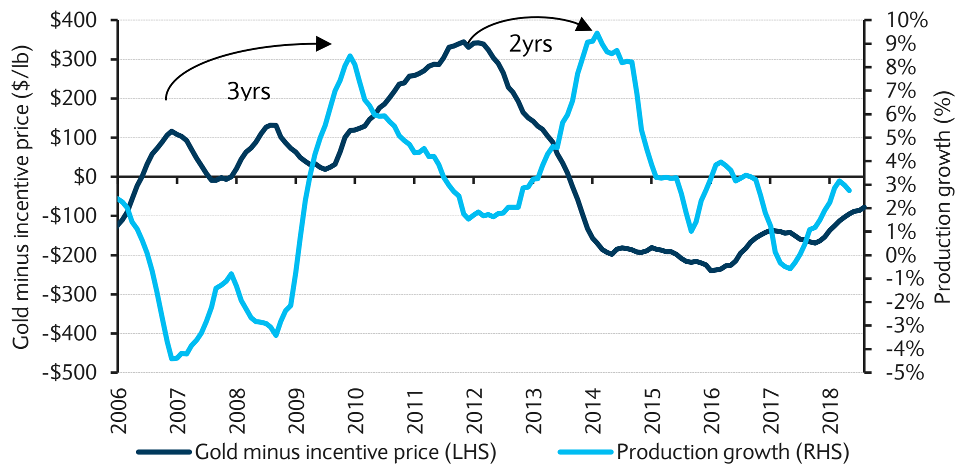


Source: Barclays Research, WBMS

In gold, where there are more small projects and operating flexibility, the response time tends to be faster but it is still 2-3 years (Figure 39).

FIGURE 39

Response time lags in gold by 2-3 years

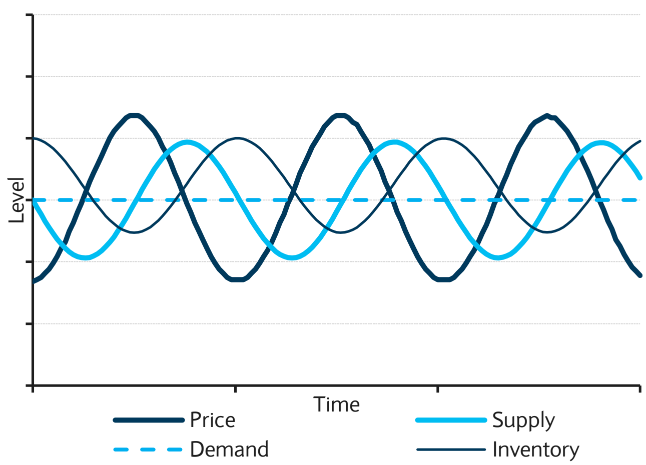


Source: Barclays Research, WBMS

These long response times amplify volatility, especially for copper. We can show this using a simple example of a market where demand is constant, price is a function of inventory, and supply is a function of price. We see in Figure 40 that when supply is allowed to rapidly respond to price, shortages and surpluses are quickly addressed and the system remains stable. In Figure 41 we see that when time lags are higher, volatility increases (i.e., the system becomes unstable).

FIGURE 40

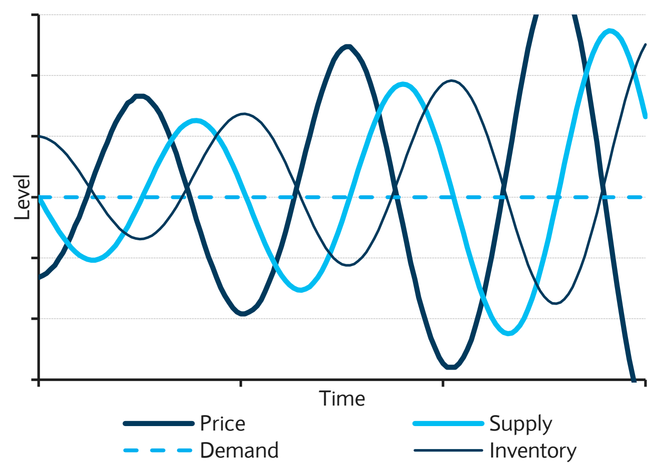
Steady volatility possible when imbalances are immediately addressed



Source: Barclays Research, Bloomberg

FIGURE 41

Amplifying volatility occurs when lag times extend



Source: Barclays Research, Bloomberg

In the real world, where lag times are greater than 1, there are other mitigating factors that help to dampen the instability. This includes demand elasticity for base metals, and release of above-ground inventories (selling of holdings) for gold, which mitigates against extreme outcomes. But despite these dampeners, we think the lagged response times create a challenge for the industry, and it is important for incumbent miners to shorten response times wherever possible. Although producers may enjoy the occasional raging bull market, we would argue that the volatility should be avoided since it:

- increases beta and the cost of capital, reducing the likelihood of excess returns for equity holders;

- increases the threat of disruptive innovation – high prices can fund R&D into new technology (think shale in the oil and gas sector, or nickel pig iron in the nickel sector) which wipe out the asset values of incumbent producers;
- increases the threat of substitutes – for example thermal coal lost substantial market share to low natural gas prices in the U.S., cobalt is targeted for reduction in battery cathodes, (imagine the R&D dollars that graphene conductors might attract if copper were sustained at excessive levels); and
- is likely to increase the amount of value destructive behaviour by industry players.

The uncertainty that volatility breeds drives confusion over both long- and short-term commodity prices, and makes it difficult to maintain a clear sense of direction for capital allocation.

Mismatched time horizons between companies and investors creates conflict

As we've shown above, mining company investment cycles are significantly longer than most investor holding periods.

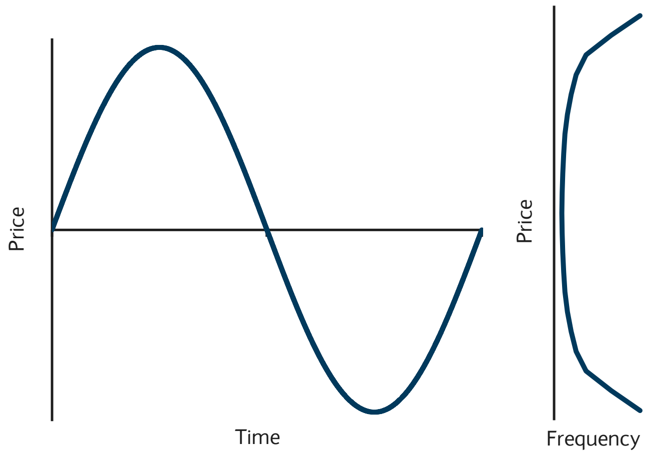
The majority of investors will want to see a good growth outlook when conditions are good, and discipline when conditions are bad. However when you are operating on a time lag you need to be initiating growth when conditions are bad and disciplined when conditions are good. As a result, there is a conflict between ideal company actions and the desires of investors, and usually the investors (the owners of the business) will get their way. There are good reasons for this. One reason is because the future is highly uncertain, investing on a long-term view is much less certain than investing on a short-term view. Maintaining and articulating conviction in a long-term view when short-term conditions are trending differently is very difficult. A contrarian approach also introduces career risk for both management teams (who may be unpopular for a while) and investors (who may underperform benchmarks for a while).

The shape of the cycle misleads the industry

A stylized illustration of the cycle is a sine curve (Figure 41), but this is misleading. The fact that markets don't move like a sine curve becomes apparent when you look at a frequency distribution of a sine curve which is extremely heavy in the tails. Metals markets (in fact, most markets) have much closer to normal distributions (with varying degrees of skewness and kurtosis). To better understand the cycle dynamics we think investors should consider Figure 43. In this cycle shape, the peaks can be viewed as rare extremes, which we do see in mining. But the shape of the curve is also very important. In Figure 43, when the price is approaching a peak, it actually begins to accelerate upwards (the slope increases). This phenomenon induces value destructive behaviour in firms and investors when there is not a clear sense of direction and can cause behaviours like buying companies at significant premiums near the peak of the cycle, or buying marginally profitable assets that appear to be headed to higher profitability. It is also highly destructive on the way to the trough where investors concerned over deterioration of financials give way to panic selling and bankruptcy concerns.

FIGURE 42

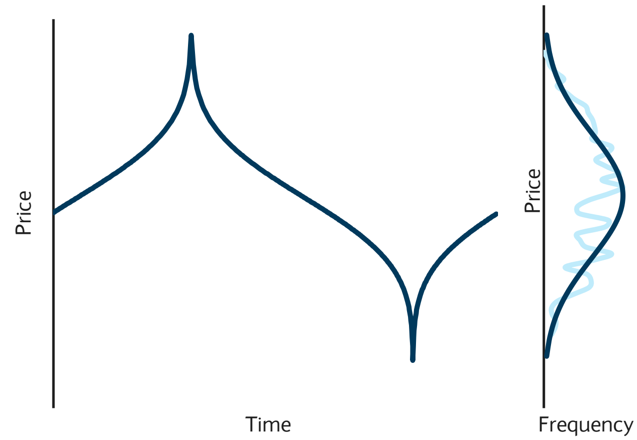
Conventional stylized cycle: peaks and troughs last longer – not an appropriate picture



Source: Barclays Research

FIGURE 43

Representative stylized cycle: peaks and troughs are short in duration – a more appropriate model



Source: Barclays Research. Note: Histogram of monthly copper prices is overlaid in light blue with the normal frequency distribution above.

For investors or traders who understand this dynamic, there is a possibility of significant excess returns. In early 2016 you could buy high yield miner debt for 40¢ on the dollar or buy heavily discounted equity for a 10x return in a little over a year. Likewise you could experience significant upside if you owned takeout candidates into 2011, or sold riskier names coming out of 2011. But there are many dangers associated with this cycle shape as well, including bankruptcy or heavily dilutive equity issues at the bottom of the market, and acquiring overpriced or marginal assets for growth at the peak.

Excess profits and other illusions

Much of the activity in the mining sector is driven by the commodity price outlook, when it should be driven by the margin outlook. The two are close, but they are not the same. In the very short-run, price increases likely directly translate to margin, but we can see from Figure 3 and Figure 4 that the cost curve changes in response to prices. For example, in mid-2005 gold was sitting at ~$420/oz, near the 90th percentile of the cost curve at $396/oz. If you were to run a scenario where gold doubled by the end of 2007 (which it did), you might expect the margin to jump from $24/oz to $444/oz. What actually happened was the cost curve inflated and the margin went to $293/oz. The margin had slipped to ~$200/oz another year after, despite an unchanged gold price. While this margin was still a huge improvement from initial conditions, it was far less than what had been envisaged. Key drivers of cost curve inflation include inputs, labour, and new marginal producers.

- Commodity prices are correlated with currency flows into emerging markets. When markets move risk-on, money flows into EM, the USD weakens, and all commodity prices inflate in USD terms. As a result, the revenue line increases, but so does the cost line due to currency appreciation for non-US producers. Costs are also influenced by rising costs of USD denominated inputs including oil, steel, and chemicals.

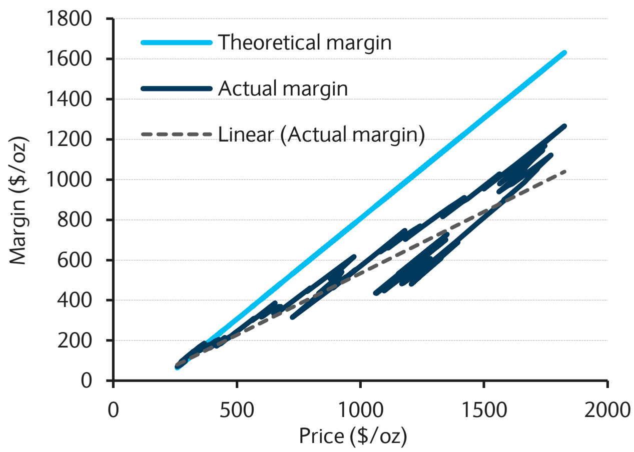
- Movement above incentive price causes herding into new capacity investment, which tightens up input markets. This makes it more difficult for incumbent producers to do business as labour, contractors, and consultants become constrained, leading to both higher costs and the potential for production misses.

- Higher commodity prices typically lead to changes in the mine plan as management seeks to increase NAV by increasing reserves, throughput, and mine life (a topic for another note).

An investment thesis may appear clear when predicated on higher prices, but it should also be predicated on the realization that the margin opportunity will likely be less than first appears. We illustrate this in Figure 44 and Figure 45 where we hold AISC flat from early 2000 and look at margin if costs never inflated versus what actually happened. The trend for gold margins is ~37% below what you would have expected and copper is 25% lower.

FIGURE 44

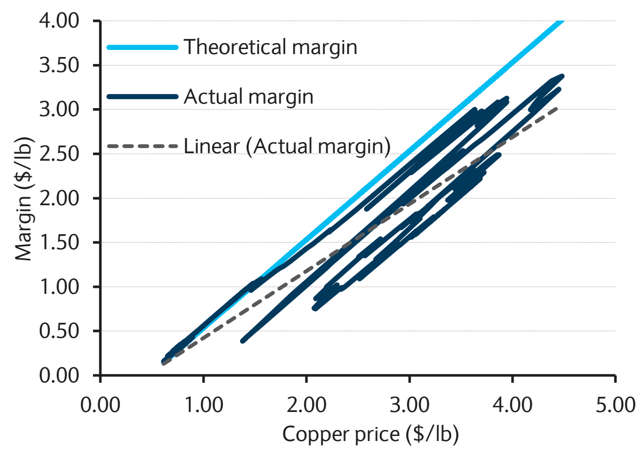
Industry margins don't increase dollar for dollar for gold…



Source: Barclays Research, Bloomberg

FIGURE 45

…or for copper

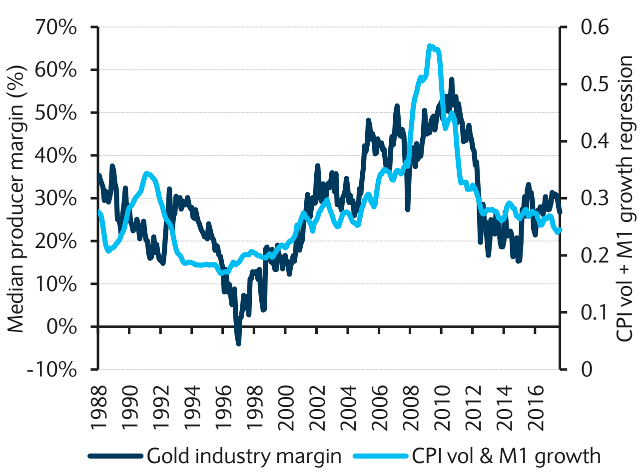


Source: Barclays Research, Bloomberg

The net result of this behaviour is that the industry's capability to produce free cash flow from operations is less a function of the commodity price, and more a function of macro factors. We illustrate this in Figure 46 and Figure 47.

FIGURE 46

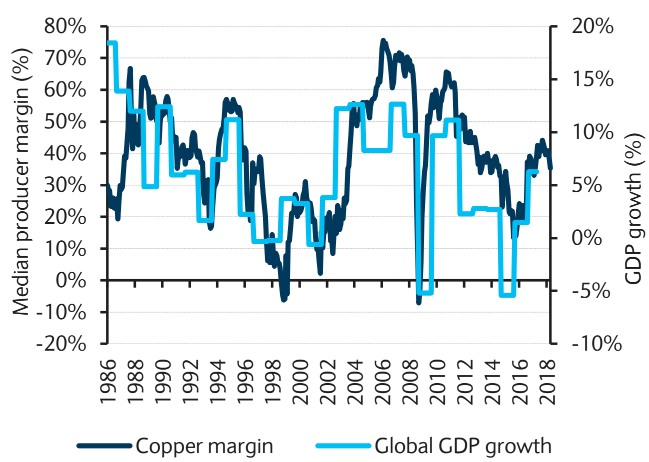
Gold industry margins can be viewed as a function of central bank error likelihood



Source: Barclays Research, Bloomberg. Industry margin is the 50th percentile.

FIGURE 47

Copper industry margins are a function of economic growth

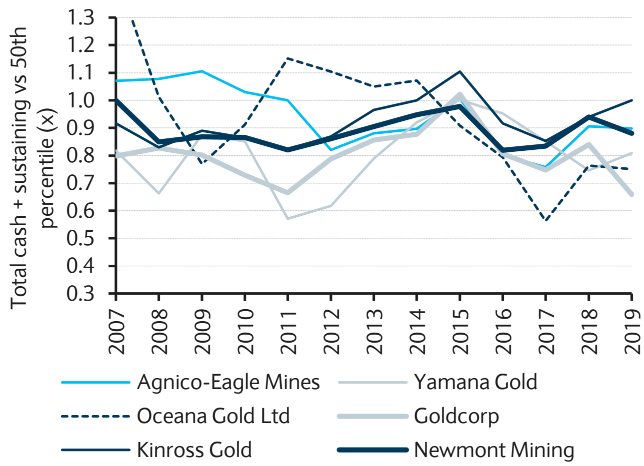


Source: Barclays Research, Bloomberg. Industry margin is the 50th percentile.

Now it should be pointed out that company margin is not the same as industry margin. If the industry is chasing volume and driving up costs, a producer who sticks to a lower cost mine plan or has much better operational execution should experience margin growth while the others would not. But the data shows that it is very difficult for a company to cut or even maintain costs in the face of a rising commodity price, especially as grades decline and mines get deeper and more remote. Figure 48 and Figure 49 show the cost position of our coverage space relative to the 50th percentile of all-in costs over the last decade. If a company is maintaining its cost profile versus the industry, the line should be horizontal. If costs are increasing faster than the industry, it should have a positive slope and if costs are flat or increasing at a slower pace than the industry then it would have a negative slope. What we see in Figure 48 and Figure 49 is that very few companies have a negative slope. Standout performers include OGC from 2010/11 and GLEN from 2015. The majority of our coverage space however has seen costs moving with, or faster than, the sector.

FIGURE 48

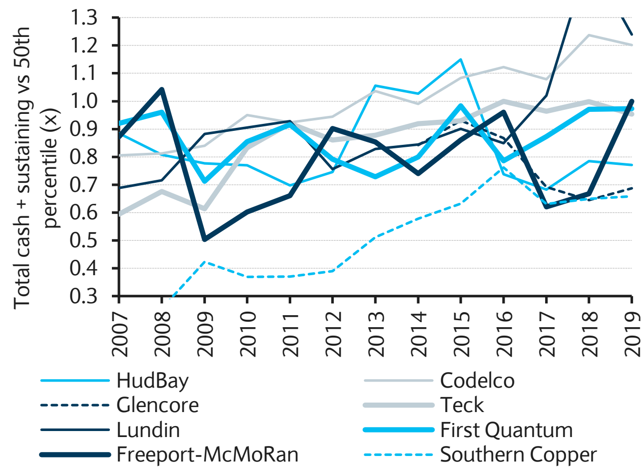
Gold producer cost curve positioning over the cycle



Source: Company reports, Barclays Research, Wood Mackenzie
Note: Barclays calculations as of 2016; pre-2016 numbers are from Wood Mackenzie

FIGURE 49

Copper producer cost curve positioning over the cycle



Source: Company reports, Barclays Research, Wood Mackenzie
Note: Barclays calculations as of 2016; pre-2016 numbers are from Wood Mackenzie

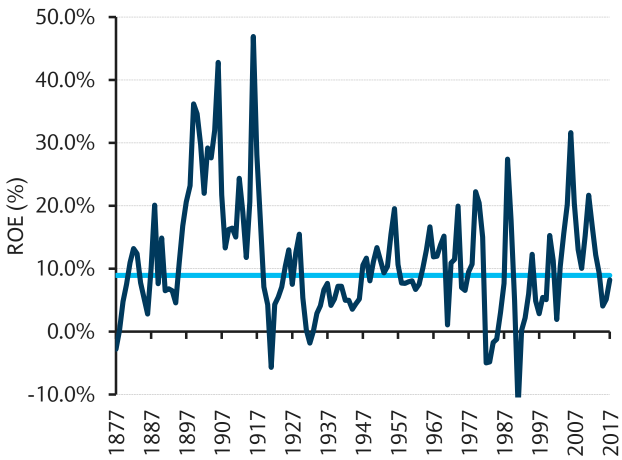
We should also point out that the same phenomenon impacting sustained excess profits should also hold for sustained excess losses. If a major technology improvement increases production and prices fall, you can expect the cost curve to also deflate. If prices fall for demand-led reasons, you can also expect deflation but for different reasons – it will be because mines move into higher cutoff grades and high cost operations shut. So it would be wrong to assume that if the gold price were to drop from $1200/oz to $800/oz that 50th percentile AISC would remain $850/oz. It would be painful, but the whole cost curve would deflate and the margin impact on the industry would be less than initially expected.

Historical ROIC has averaged ~8%, so current returns have precedent

We decided to look at historical data to understand how unusual the lack of excess returns of the past decade may be. We were not able to extract ROIC but we did calculate a long-run average ROE and ROA, as shown in Figure 50 Figure 51. Over the past 100 years the average industry ROE was ~9% and ROA was 7%. ROIC is typically somewhere in the middle of these two metrics, around ~8%, which suggests to us that current industry returns have a good historical precedent.

FIGURE 50

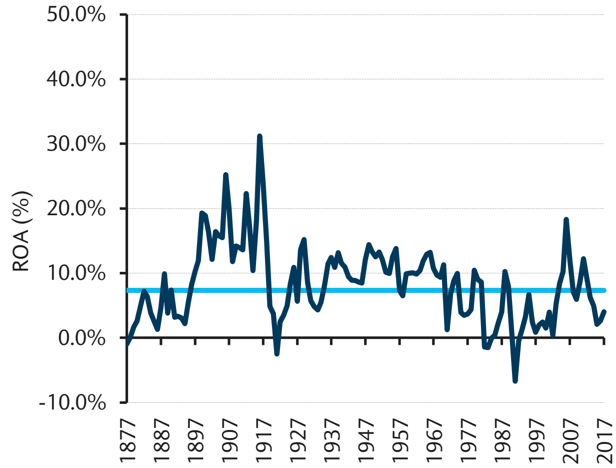
Historical mining industry ROE



Source: Barclays Research, Company reports, Financial Post

FIGURE 51

Historical mining industry ROA



Source: Barclays Research, Company reports, Financial Post

The poor returns in the mining sector should be expected given the industry's high capital intensity and undifferentiated product. However, while we shouldn't expect the industry to generate sustained excess returns as whole, we believe individual companies can create value. In the next section we lay out our view on how to create value in the sector which will lead to our framework for stock picking in the space.

OUR MONTE CARLO ANALYSIS SUGGESTS SLOW AND STEADY WINS THE RACE

"*Raymond decided to stop asking for price forecasts as part of ExxonMobil's longterm planning process. For one thing, the forecasts were so chronically inaccurate... The answer, he said, was to manage on a 'steady-as-you-go basis and try to make sure the fundamentals are right.*'" Private Empire: ExxonMobil and American Power, by Steve Coll.

Accepting the inherent difficulties of commodity price forecasting, we apply a proprietary Monte Carlo analysis to identify the optimal approach to mining sector capital deployment. Our proprietary analysis shows that a steady capital deployment approach generates superior returns to a market timing approach, often with lower risk, under a variety of stochastic commodity price models.

Testing capital deployment strategies using a Monte Carlo analysis

Range-bound commodity prices plus some balance sheet relief have finally given companies pause to consider how they may choose to deploy capital going forward. Today we divide the mining sector into two broad categories of capital deployment strategy:

- **Pro-cyclical investors –** Try to generate free cash flow in the bear market and wait for incentive prices to be reached before activating a project (or pursuing growth) in the bull market, even if that project could be financed today. This is the industry status quo.
- **Steady investors –** Maintain a pipeline of projects and steadily invest, regardless of the current price environment.

In this report we aspired to test these capital deployment strategies using a Monte Carlo analysis. Specifically, we built a virtual company run by a computer program to test capital deployment strategies under stochastic commodity price models.

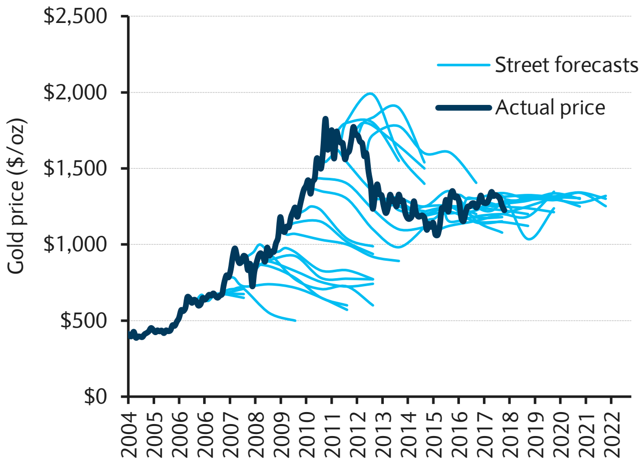
Assessing commodity price movement

An important element of our simulation was selection of an appropriate commodity price model. This does not mean we need to know where prices will go, but how they might move. For the purposes of our analysis we considered two models – mean reverting, and geometric brownian motion (GBM, a version of a random walk). Statistical tests can be performed to inform whether a mean reversion assumption is appropriate, but we believe there are flaws to a purely empirical approach. One flaw is because the commodity cycle is so long and we have only had liquid commodity markets for a few decades, the sample sizes are generally not long enough to reject non-mean-reverting models. However, we find a strong theoretical basis to assume mean reverting commodity price models – namely that at low prices, supply will shut and at high prices new supply will come on. For supply-demand driven commodities (i.e., everything other than gold), this drives a price response.

There are other factors driving mean reversion including the introduction of substitutes and demand destruction at high prices. Gold is trickier since it is not driven by supply and demand in the short and medium term. As a result, there is some rationale to assume a GBM model. In a GBM world, your best guess for where prices are headed is where they are today. Most of the time the sell-side assumes close to spot gold prices going forward as there is little rationale to assume anything different. A history of consensus forecasts is shown in Figure 52 – note that most forecast lines are relatively flat which is what you would expect with GBM; however, we would point out that there are mean reverting expectations (sloping forecasts) at extreme prices. This suggests that the street does not strictly think of prices on a GBM basis; there is some expectation of mean reversion, even if it is less rapid than copper, as shown by the steeper forecast lines in 2011-12, as shown in Figure 53.

FIGURE 52

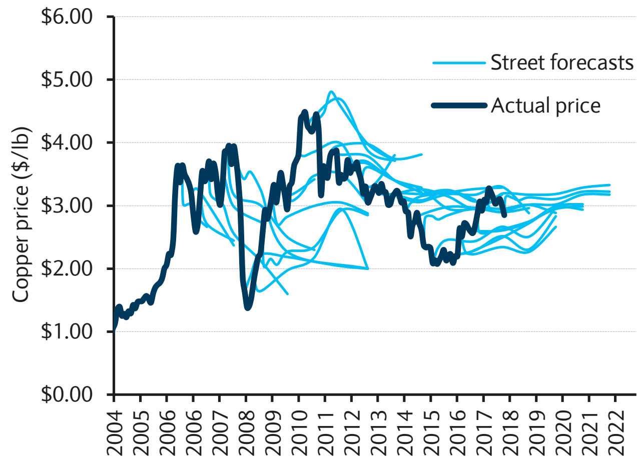
Gold – street typically forecasts spot



Source: Barclays Research, Bloomberg

FIGURE 53

Copper - street typically forecasts mean reversion



Source: Barclays Research, Bloomberg

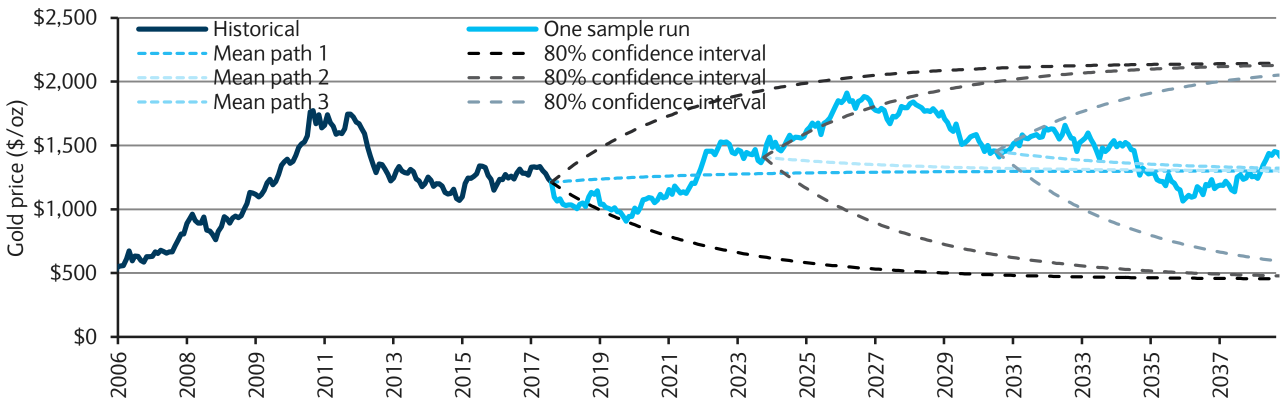
The implication of a mean reverting price model means that a cycle exists – i.e., price will oscillate around some form of long-term mean – which gives an investor some confidence that a price below the mean will improve, and a price above the mean will fall. This makes it easier to be a "steady" or counter-cyclical investor. The GBM price model muddies the waters for making capital deployment decisions in the gold space since your best guess for the future price is the current price, which means you shouldn't predict a price rebound when the gold price falls.

Generating stochastic commodity price models

With our assumption of a strongly mean reverting copper price and weakly mean reverting gold price, we generated single factor mean reverting price models for gold and copper. We also generated a gold GBM model with belief updating. The models were fitted using a ten-year history of monthly commodity price returns. Example outputs of the models are shown in Figure 54, Figure 55, and Figure 56. We show the 80% confidence intervals as well, and an illustration of a mean and confidence interval at different times to demonstrate how the model evolves over time.

FIGURE 54

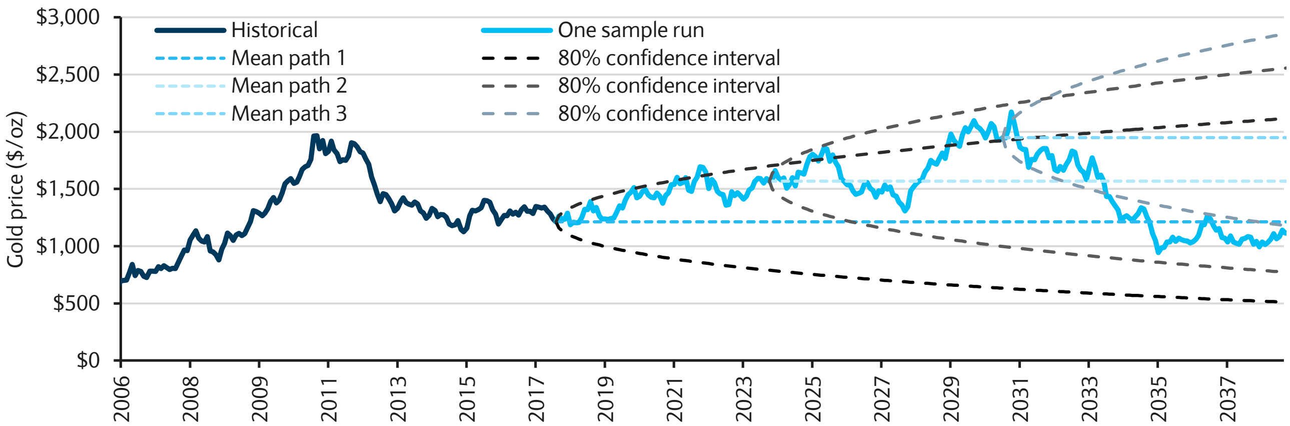
Gold – mean-reverting price model – one sample run



Source: Barclays Research2

FIGURE 55

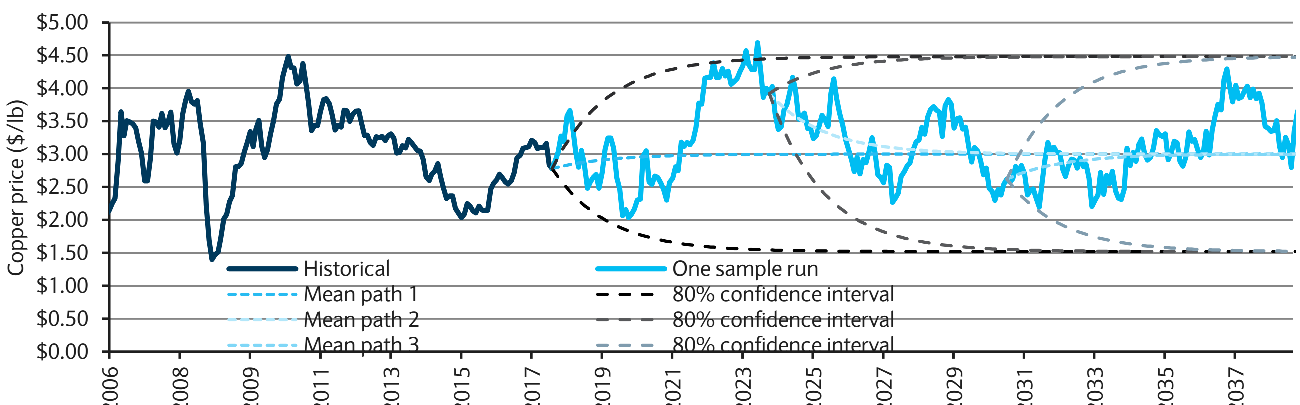
Gold – GBM (non-mean reverting) model – one sample run



Source: Barclays Research[2]

FIGURE 56

Copper – mean reverting price model – one sample run



Source: Barclays Research2

[2] Model illustration approach inspired by Samis, M., Davis, G. "Using Monte Carlo simulation with DCF and real options risk pricing techniques to analyse a mine financing proposal", Int. J. Financial Engineering and Risk Management, Vol. 1 No. 3, 2014

The management algorithm: Our proprietary model for testing capital deployment strategies

We then ran a proprietary model for testing capital deployment strategies by building a mining company financial model that resembled the industry average with respect to existing reserve life, cost structure, financing structure, and suite of project investment opportunities (which come close to a 15% IRR under the mean long-term price, except for the GBM where the IRR was established relative to the starting price). We valued this company using our valuation framework and sector multiples through the cycle to determine a market price for the company. The company starts with a market capitalization of ~$4B and is executing large projects with a five-year time lag from project approval to cash flow. The cost of the projects is sensitized slightly to the price environment at the time of project approval (a project will cost 10% more if the commodity price is more than 10% above the incentive price). Only one project can be executed at a time. The model dynamically adjusts financing and dividend decisions depending on the commodity price expectation (a forecast of mean reversion) and levels of cash and debt on hand. In effect we ran a company programmatically with the only input being updating a new commodity price update every month. We ran the models for 20 years using three different settings:

1) **Pro-cyclical:** In this model, the setting was to approve projects only when a commodity price was more than 10% above the incentive price.

2) **Counter-cyclical:** For fun, we decided to run a model that is generally the opposite of the status quo and approve projects when the price was more than 10% below the incentive price.

3) **Steady:** The steady model builds projects consecutively without consideration for the commodity price.

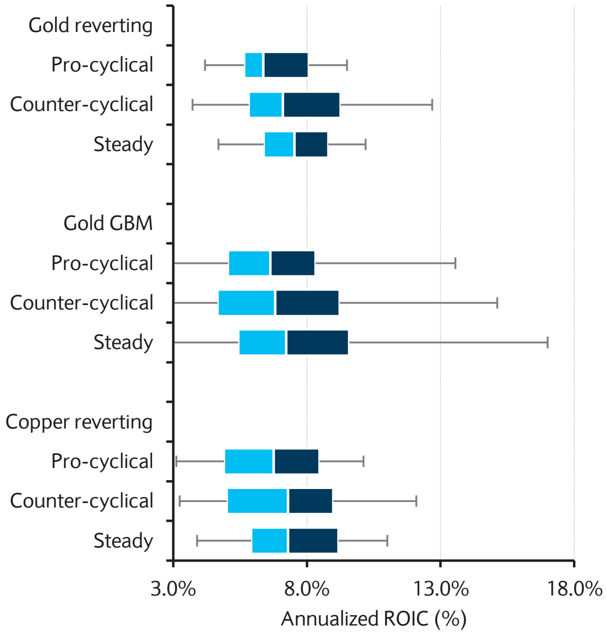
This is a complex problem and we did not know exactly what to expect when we ran it. We ran each model with 60 different commodity price scenarios, and the output is summarized in Figure 57 and Figure 58. What we found is the steady investment strategy drives superior ROIC and stock return (dividend-adjusted) outcomes with a smaller deviation of outcomes. Even the median counter-cyclical outcome is better than pro-cyclical, but with higher downside potential. Surprisingly, even the GBM model showed a superior ROIC and total stock return. However, the GBM model did have a broader range of outcomes – which means risk increased with reward. Companies were both more likely to go bankrupt (when the gold price keeps falling and the company keeps expanding) and have extremely positive outcomes (when the gold price keeps rising and the company keeps expanding). This supports the idea that risk increases when you do not assume mean reversion.

However, overall we feel this simulation adds support to the thesis that companies should be designing their organizations (capital structure and project pipeline) to be in a position to continually deploy capital rather than time the market.

We would also note in Figure 57 and Figure 58 that the spread in performance is typically on the order of 0.5-1.0%. This is not a huge improvement but it is a good step. On a 10-year compounded basis, 1% turns into ~10% outperformance. Key drags on returns under all capital allocation approaches are the substantial times required to execute projects.

FIGURE 57

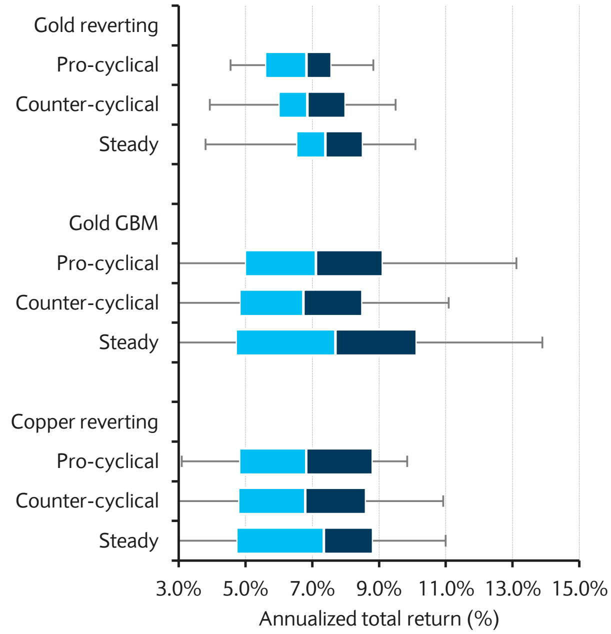
10yr annualized return on invested capital – steady wins



Source: Barclays Research

FIGURE 58

10yr annualized total return – steady wins



Source: Barclays Research

The superior results of the steady model make some intuitive sense in the real world as well.

In mining, most returns are generated at the peak of the cycle and this also happens to be when most capital is deployed. The margin opportunity appears wide open, the shareholder mandate is to grow, and hence projects are approved and acquisitions are made. The problem is that this is precisely the time when a) activity is most expensive, and b) prices are most likely to mean-revert. An alternative capital deployment model would be to build cash in the peak of the cycle and deploy in the trough. The benefit would be a model which can theoretically capture peak-cycle prices and off-cycle entry costs; however, we have already covered the flaws of this strategy which include the potential to look stupid if prices do not mean-revert on the expected schedule, irate shareholders who see disastrous returns at spot prices, and carrying idle cash which drags on returns. The optimal solution, therefore, is to not time the market at all but rather steadily deploy capital.

Secondly, we would point out that IRR assumes reinvestment, which means if I invest in a project with a 15% IRR, I will only realize a 15% annualized return if the cash flows from that project are immediately recycled into new 15% IRR opportunities. If I cannot find 15% opportunities I can return the cash to shareholders. To the extent I take returns from a good investment and sit on them, invest in value destructive projects, or conduct overpriced M&A, my ROIC will be significantly reduced. Hoarding cash and waiting for an extended period also drags on my ROIC (given the often long periods of time between investments we believe there is some merit to counting excess cash as invested capital).

STEADY CAPITAL DEPLOYERS FOCUS ON BROWNFIELDS, EXPLORATION, AND RISK MITIGATION

"*Like their mentors at Placer Development, their style was always to design 'a good workable Ford, rather than an extravagant Cadillac.' A plant that worked well from the start could always be gussied up or expanded later*." Never Rest on Your Ores: Building a Mining Company One Stone at a Time, by Norman B. Keevil.

We see a number of strategies that lend themselves particularly well to steady capital deployment in the mining space: focussing on brownfield investment in camps with significant geologic potential, syndicating exposure to megaprojects, and building value slowly with an active exploration program. The streaming/royalty companies FNV, WPM, and RGLD have the ideal business model, although competition is increasing.

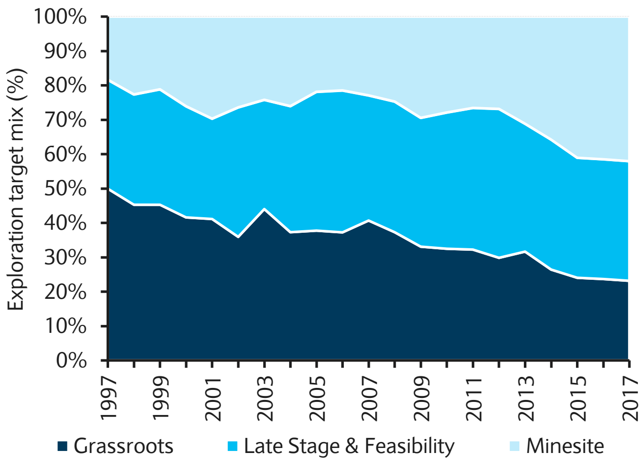
Focussing on camps with significant geologic potential

With commodity prices still in the doldrums, the mining sector has realized that the best projects are brownfields. These projects are generally faster to deliver and less capital intensive than greenfields.

The best way to achieve a brownfield expansion model is to own assets with excellent geologic potential, meaning companies can drill and scale up organically and opportunistically as capital becomes available. Companies can also take advantage of sunk capital which has become worth more and more in replacement cost as sector capital intensities appreciated – the companies with the most PP&E in districts with the most resource upside still have a tremendous advantage. Based on industry exploration trends, we think the gold industry understands this. Copper has not seen the same degree of brownfield exploration, but this is perhaps a function of geology where many of these large copper deposits are porphyries where the potential can be understood without large exploration efforts.

FIGURE 59

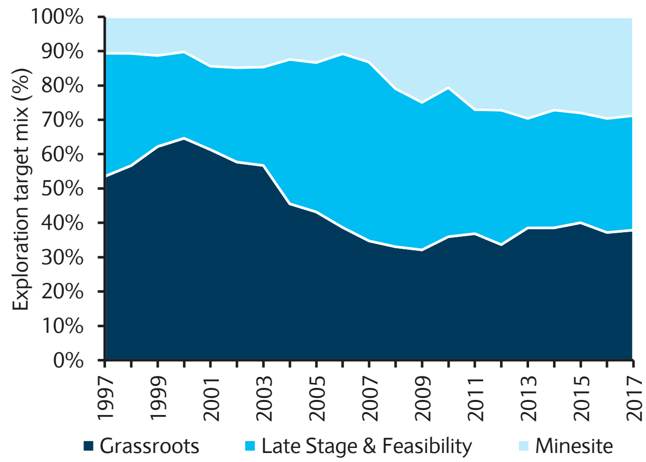
Minesite increasingly the target of exploration for gold…



Source: Barclays Research, S&P Global Market Intelligence

FIGURE 60

… slightly less-so for copper



Source: Barclays Research, S&P Global Market Intelligence

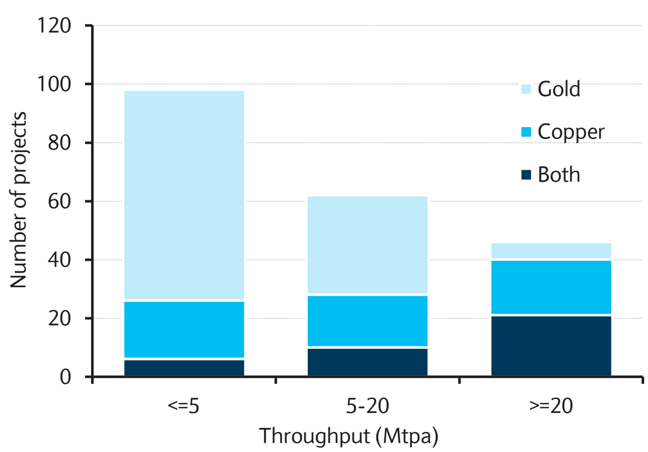
Project syndication rather than big investments

"*Where would the new copper come from? Internationally, rich Chilean copper deposits had been gutted by the 1890s. The end was in sight for the Michigan copper mines that had largely sustained the nation for the preceding decades. Even the famous rich veins of copper at Butte, Montana, could hardly keep up with demand… Ultimately, the more important copper discoveries were the low-grade ones (the copper porphyries), such as Bingham Canyon in Utah and El Teniente in Chile, which could only be mined and processed on a previously unheard-of scale.*" A Kennecott Story, Charles Hawley

If we want to evaluate the effectiveness of capital allocation going forward, the focus has to be on the megaprojects (over 20Mtpa of throughput) which are a dominant feature of the mining sector today, as shown in Figure 62.

FIGURE 61

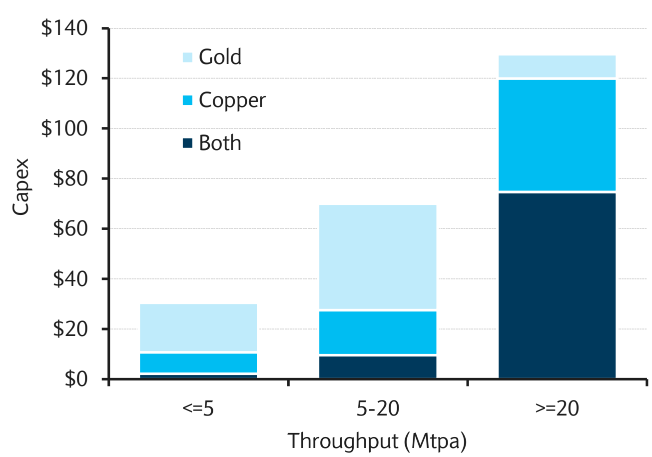
Future projects by throughput



Source: Barclays Research, Wood Mackenzie

FIGURE 62

Future capex by throughput

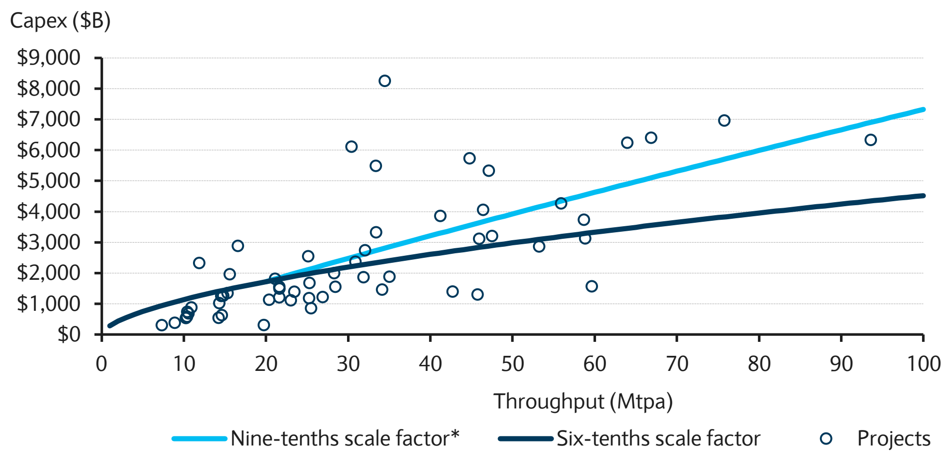


Source: Barclays Research, Wood Mackenzie

Projects have grown large in the push for economies of scale and higher production growth in a world of relatively uniform low grades. The industry is moving in somewhat uncharted waters as it executes these large projects since we don't know how capital will scale. The last wave of capital, which peaked at the end of 2012, drove significant budget blow-outs. However, it is hard to say how much of that was due to herding rather than the fundamental nature of the projects. In general we think the megaproject trend is not going away as projects become more complex (block caves, infrastructure requirements), technology intensive, and environmentally stringent. A common rule of thumb in capital equipment is the rule of six-tenths[3], but we see in Figure 63 that six-tenths does not appear to hold for the large greenfield projects that we see today – we show in Figure 63 that a nine-tenths scale factor may be more applicable at scale.

FIGURE 63

What are the industry economies of scale?



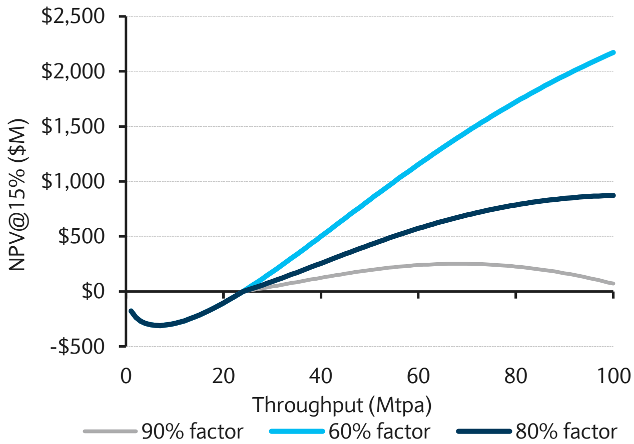
Source: Barclays Research, Wood Mackenzie *Nine-tenths scale factor starts at throughput of 25Mt

We spend time on this because the upfront capital requirement is a critical assumption when evaluating the merits of a megaproject. If we take a theoretical ore body with a 1.5Bt reserve and conventional marginal grade of ~0.5% copper or 0.8g/t gold and a 50th percentile cost curve position, we can see how the capex scale factor impacts valuation. Figure 64 shows why our definition of megaprojects starts at 20Mt – it is because that is the minimum throughput where a marginal grade project will meet the 15% hurdle rate (i.e,. NPV@15% goes positive). One popular feasibility study configuration in the industry today is ~50Mtpa throughput and we can see that on the 90% scale factor it nearly maximizes NPV. However, what Figure 64 and Figure 65 also suggest is that these projects have a very low margin of error. At the 90% capex scale factor, the NPV15% to capex ratio is less than 0.1, meaning if capex overshoots by more than 10% then the project will not meet the hurdle rate.

[3] Cost A x (Equipment size B / Equipment Size A) ^ 0.6 = Cost B

FIGURE 64

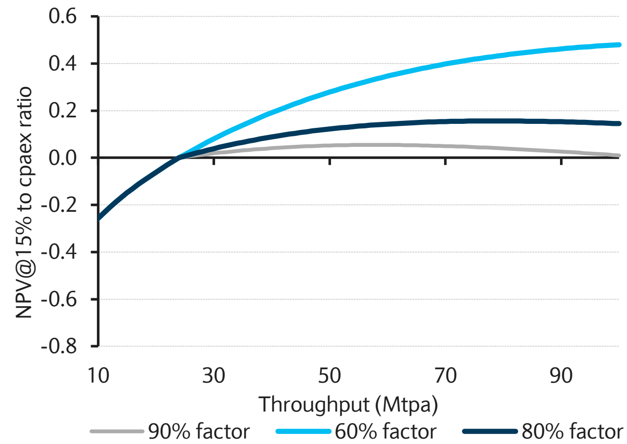
Capex scale factors have significant impacts on NPV for a 1.5Bt megaproject



Source: Barclays Research, Note: NPV Is for a 1.5 Bt ore body. NPV lines are at a 15% discount rate, hence any NPV above $0 has passed the hurdle rate.

FIGURE 65

Scale factors also impact margin of error



Source: Barclays Research, Note: NPV Is for a 1 Bt ore body

These metrics suggest the presence of significant financial risks, even before considering how these projects are financed. When you add on debt, the risks appear even larger. If a company has 1x net debt / EBITDA (as many do now) and decides to take on a project that is say 50% of its market capitalization and finance it 60% with debt, that is equivalent to taking on another 1.5x net debt (assuming a 6x EV/EBITDA multiple) bringing leverage to 2.5x. If we assume this investment is most likely to occur in a healthy market and given the time lags in Figure 38 and Figure 39, there is a decent likelihood that EBITDA will decline over the course of the investment. For example, EBITDA could drop on the order of 50% into project completion and net debt to EBITDA could be approaching 5.0x by the time production commences.

We are not anti-megaproject. These projects will continue to be necessary features of the industry, and there will be periods of the cycle where they make significant cash flow. However, we believe companies should be taking lower-leverage and more diversified risk approaches to develop these projects.

One way to convert these large projects into a steady capital deployment model is to syndicate project investment. Companies should not be taking on projects where capex is a substantial portion of their market capitalization. We would argue that even for larger firms it is better to distribute cost and risk across several firms. There will be an earn-in price to buy in, which enriches returns for the early-stage risk-taker but is not likely to significantly detract from returns of the buyer.

Building value slowly with an active exploration program

> "*Discoveries of submicroscopic gold in California, Nevada, and elsewhere put the United States in a position to surpass South Africa in gold production by the turn of the twenty-first century – news that geologists regard as only slightly less astounding than the landings on the moon*." Annals of the Former World by John McPhee.

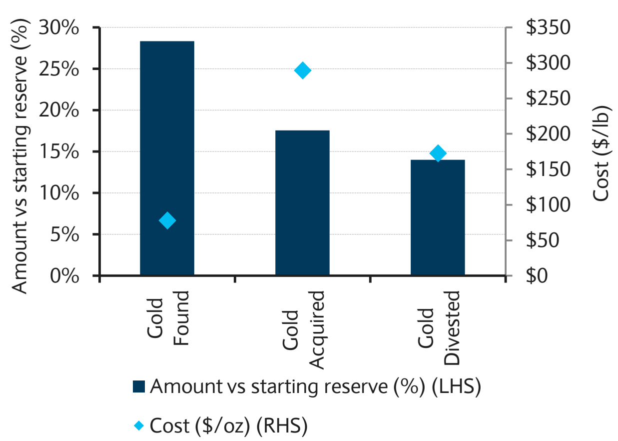
Unique assets are a key element of value creation in the mining space. We include within our "unique" categorization assets which have:

- a low cost position on the cost curve due to grade, location, or other features (low strip, ease of recovery);
- potential for life extension or expansion; and
- low capital intensities.

The only way to accumulate unique assets is to prudently acquire them (very difficult) or find them (somewhat difficult). We think finding them is by far the most accretive way to create value in the mining space and in our opinion exploration remains an important driver of long-term value. The returns on exploration are highly uncertain (see the quote at the top of the page) but on the whole exploration offers the lowest entry cost and the highest probability of value accretion. Figure 66 and Figure 67 show the amount of reserves that have come from exploration vs acquisitions over the past decade in the gold and copper sectors and the cost associated with each.

FIGURE 66

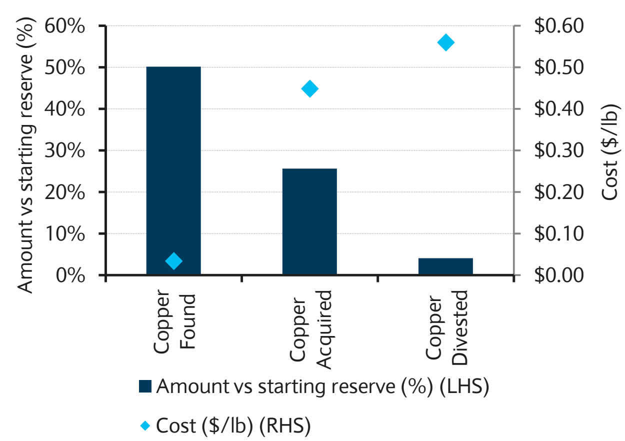
Gold reserve replacement 2007-2017



Source: Barclays Research, S&P Global Mining Intelligence

FIGURE 67

Copper reserve replacement 2006-2016



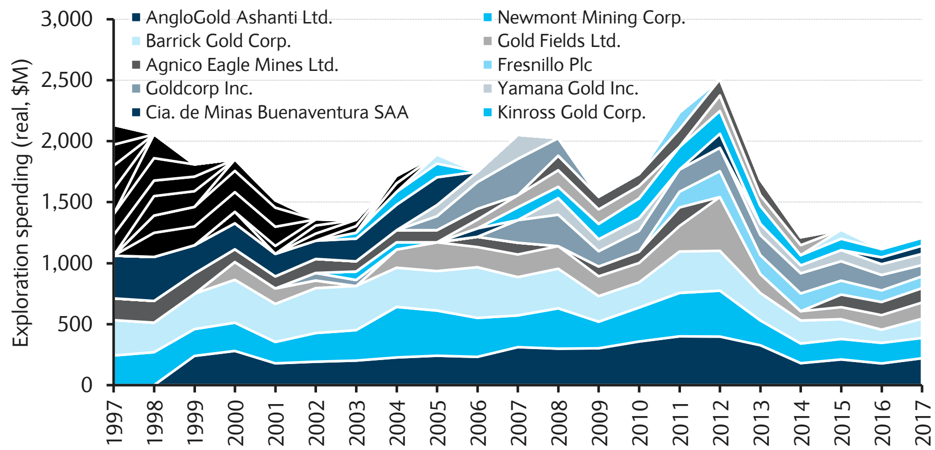
Source: Barclays Research, S&P Global Mining Intelligence

We would also point out that in our screen of all the world's mining reserves and resources in Figure 66, the only area with projects that currently exceed the hurdle rates are high grade, small to medium scale gold projects. This would suggest that the current price environment offers little excuse for those not maintaining a gold exploration program right now.

When we apply our same inflation index to exploration, it suggests to us that, although exploration bounced in 2017, the industry is still underspending versus historical levels, as shown in Figure 68 and Figure 69. The majors do appear to be carrying their weight, but the earlier stage exploration pipeline has dried up. Overall we feel companies that maintain a consistent exploration effort will be best placed to hold unique assets that they can consistently deploy capital into.

FIGURE 68

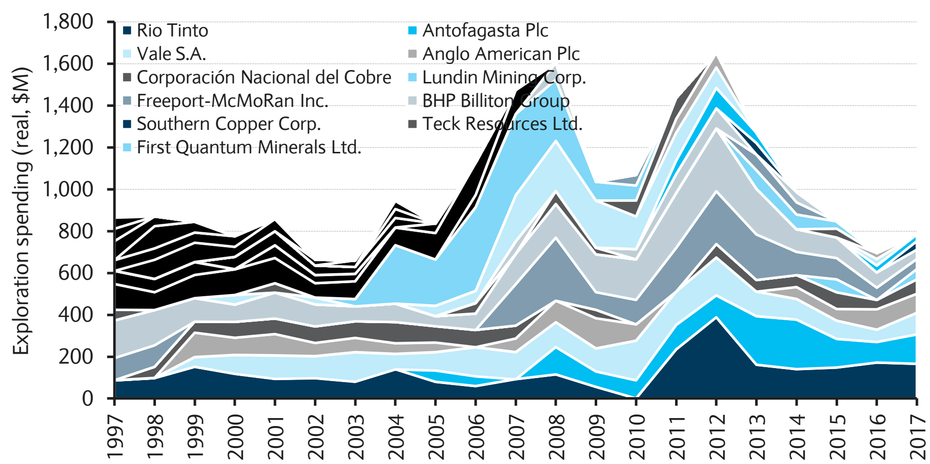
Gold company exploration budgets – still below historical norms



Source: Barclays Research, S&P Global Market Intelligence.

FIGURE 69

Copper company exploration budgets – back to historical norms



Source: Barclays Research, S&P Global Market Intelligence

Streams & royalties – better capital allocation by design

"*"…in Ricardo's world only the landlord stood to gain. The worker was forever condemned to subsistence, for he chased after every wage rise with a flock of children and thereby competed most of his gain away. The capitalist, who worked and saved and invested, found that all his trouble was for nothing: his wage costs were higher and his profits smaller. As for the landlord, who did nothing but collect his rents – he sat back and watched them increase."* Secrets of the Temple by William Greider.

In the above passage, we would suggest the reader replace: "worker" with "mining company", "children" with "mines", and "landlord" with "streaming company".

The only thing better than a *management team that understands how to allocate* capital effectively in the mining business is a *business model designed* to allocate capital effectively in the mining business. This is the streaming and royalty business model.

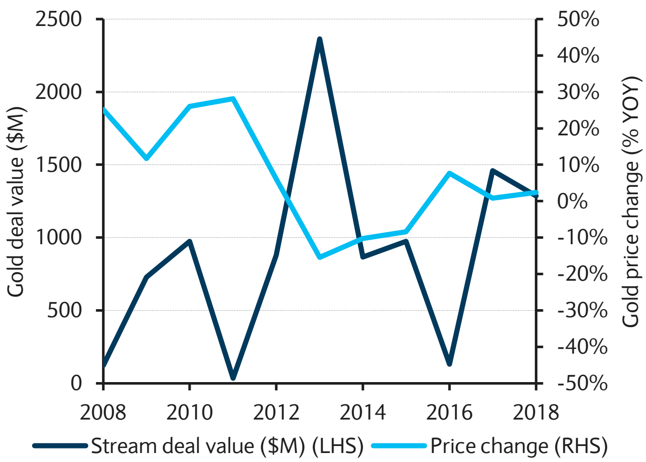
Streams and royalties are an alternative source of funding for the mining sector that have both equity and debt type characteristics. The equity characteristics include exposure to commodity price upside and asset operating decisions (throughput, mine life), and the debt characteristics include seniority and longer-term investment horizons.

Stream and royalties have several extremely useful features that have made them accretive for their creators (less so for the borrowers, although in our opinion it's not a zero-sum game):

- They can be structured to "run with the land" – This means that royalties or streams can be secured to survive a transfer of ownership or bankruptcy of the operator. This allows these capital providers to provide funds during a bear market.
- Bear market model offers negotiating leverage – When a balance sheet is too levered for banks to get comfortable, and equity would be too costly, streams are available. Being in some ways the lender of last resort, the streamers can have the deal on their terms. This means including risk-mitigating terms such as requirements for permits, make-whole provisions if timelines are delayed, and including terms that limit the ability of the asset operator to terminate its obligations (i.e., there is no prepayment risk).

FIGURE 70

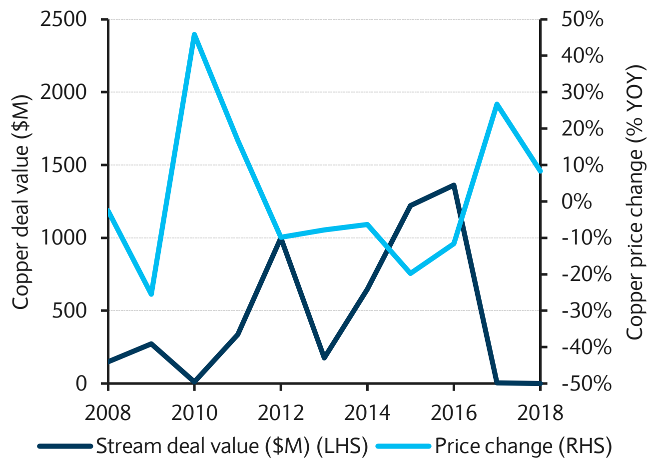
Streaming picks up when prices move down for gold…



Source: Barclays Research, S&P Global Market Intelligence

FIGURE 71

…and for copper



Source: Barclays Research, S&P Global Market Intelligence

- Inflation is less of a risk – Capex and opex inflation threaten returns for mine operators. However, for a streamer, capex inflation can actually be positive because it will give the streamer more opportunity to provide financing. The streamer is mostly indifferent to opex inflation since it has a fixed payment obligation for its metal – opex inflation only becomes concerning if it drives the mine out of business, or reduces the attractiveness of an expansion.
- Streams and royalties do not require capital to maintain – While a miner constantly needs to inject capital to build, sustain, and close operations, royalties/streamers provide financing once and harvest for the life of the asset. The ongoing payment is less than the market price of the commodity.
- Royalties/streams capture optionality for free – A DCF does not attribute much value to the long-term mine life which is heavily discounted to present, or to the expansion and extension potential of the asset which at times is difficult to assess. A stream/royalty may appear expensive (and therefore a good deal for the operator/developer) relative to the base case NAV (no extension/expansion)

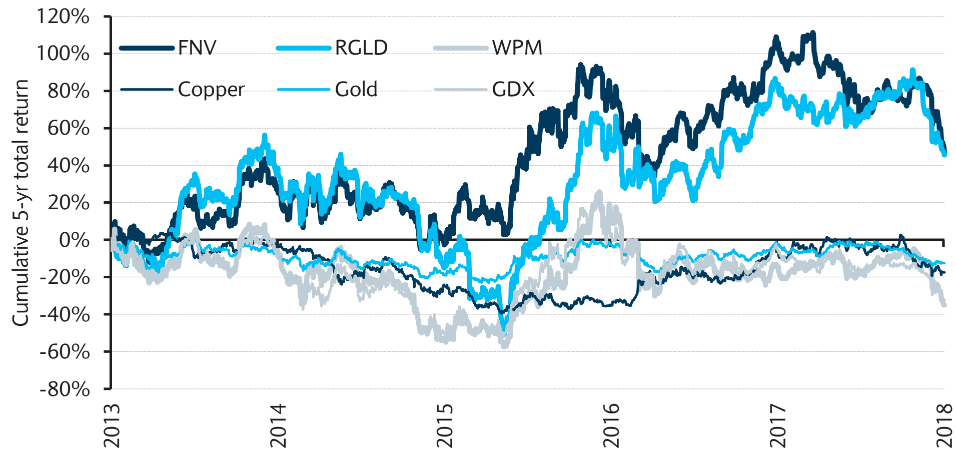
but we would argue the entry price is likely to be quite cheap relative to the asset's long-term option value.

- Diversified exposure – In theory, a streamer can have a less concentrated asset exposure than a mining company, which reduces risk and the cost of capital.
- Rapid cash recycling – The ability to frequently invest smaller amounts increases the compounding rate of return versus a miner which needs to prepare the project and the financing and then deploy, all of which occurs on a much slower time frame.

We are not saying the model is risk free. Because the royalties/streamers do not control the assets they can lose their investment if the operator does not ultimately deliver the project due to technical reasons, social/environmental concerns, or capital blow-outs. However, the streamers/royalties can distribute this risk and overall have a superior capital allocation model. The outcome of the model has become very apparent when we look at the performance of the major streaming and royalty companies versus the mining companies and the commodity price.

FIGURE 72

FNV and RGLD lead the pack

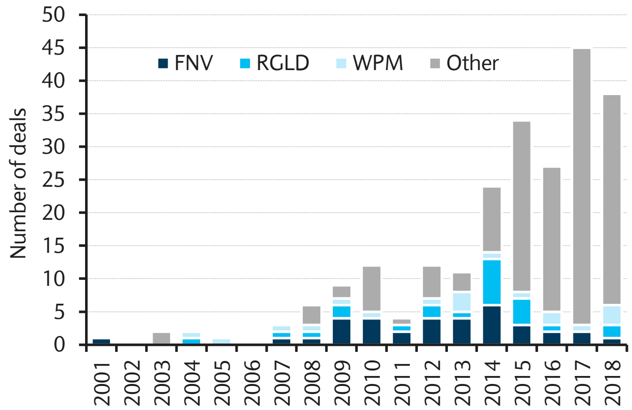


Source: Barclays Research

The advantages of the streaming/royalty business model have been accepted and are likely here to stay as a significant piece of mining company financing. However, excess returns have not gone unnoticed, and competition for deals has been heating up. While the deal values used to be dominated entirely by FNV, RGLD, and WPM, competitors actually engaged in more deals than these incumbents last year, as shown in Figure 73 and Figure 74. This could ultimately impact either the growth potential of the incumbents, or deteriorate returns as negotiating power shifts back into the hands of the mining sector.

FIGURE 73

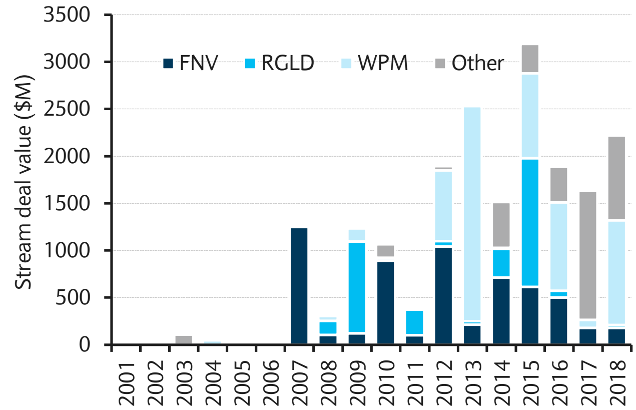
Metal stream/royalty deals by company – new entrants



Source: Barclays Research, S&P Global Market Intelligence. Note: Deals refer to transactions, which could include more than one asset. Deal list does not include energy streams/royalties.

FIGURE 74

2017 saw new entrants exceed incumbents

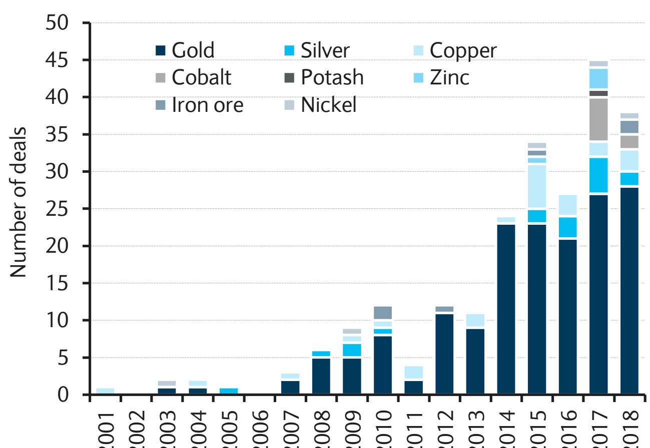


Source: Barclays Research, S&P Global Market Intelligence. Deal list does not include energy streams/royalties.

Streamers and royalties have historically been focussed on precious metals which allows the best cost of capital arbitrage – as gold industry companies, they can take a WACC of less than 5% and lend it out at 5% to a industrial-commodity company that might have a WACC of 10%. However competition for deals has led to streamers pursuing more diverse revenue streams including energy and industrial commodities, as shown in Figure 75. The risk is that the higher correlation of earnings with the market increases the cost of capital and reduces the WACC arbitrage. A diversified streamer should still be able to have a cost of capital advantage over a concentrated miner, but the degree of advantage could fade. If the streamers/royalties choose to stick mostly with gold to reduce risk to their cost of capital, they may risk slower growth as they forgo non-gold opportunities.

FIGURE 75

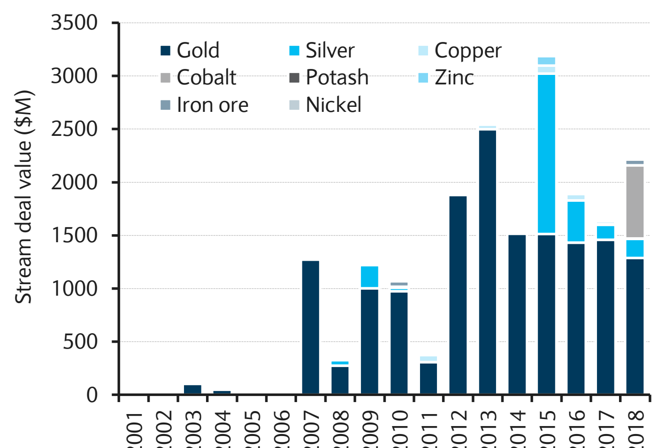
Metal stream/royalty deals by commodity - mix is changing



Source: Barclays Research, S&P Global Market Intelligence. Note: Deals refer to transactions, which could include more than one asset. Deal list does not include energy streams/royalties.

FIGURE 76

Gold deal values are in decline



Source: Barclays Research, S&P Global Market Intelligence. Deal list does not include energy streams/royalties.

We continue to view the streaming/royalty model as a superior capital allocation approach but are cognizant that there are a finite number of opportunities and a growing number of players and hence we are cautiously looking for signs of deteriorating return and growth profiles in the space.

VALUATIONS ATTRACTIVE: AEM, NEM, FNV, RGLD, WPM, & TECK DESERVE A PREMIUM

Gold equities are trading at an average P/NAV of 1.1x, at the low end of the historical range of 1.0-2.0x, while the base metal names are trading at 1.0x, within the historical range of 0.8-1.0x. We believe range-bound gold prices have caused the gold option premium to collapse; only an upward trending gold price can bring it back. The average P/NAV of 1.2x over the past few years is likely to persist. Differences in P/NAV multiples between companies are attributable to WACC, growth rates, and mine lives. Our company scorecard is used to identify business models that we feel can create sustained excess returns, which we can justify for the streamers/royalties (FNV, RGLD, and WPM) and potentially for miners who we believe have a strong capital allocation framework (AEM, NEM, TECK). A regression of historical stock prices versus estimates suggests a 70% weighting to NAV and 30% to EBITDA. Gold equities are trading at 5.9x EV/EBITDA 2019 under our $1,269/oz forecast and at 7.2x EV/EBITDA 2019 at spot, below the 10yr average of ~7.5x. Base metal equities are trading at 5.5x EV/EBITDA 2019 under our $2.84/lb forecast and at 5.8x EV/EBITDA 2019 at spot.

The gold option premium has collapsed but P/NAVs are still attractive for gold and copper

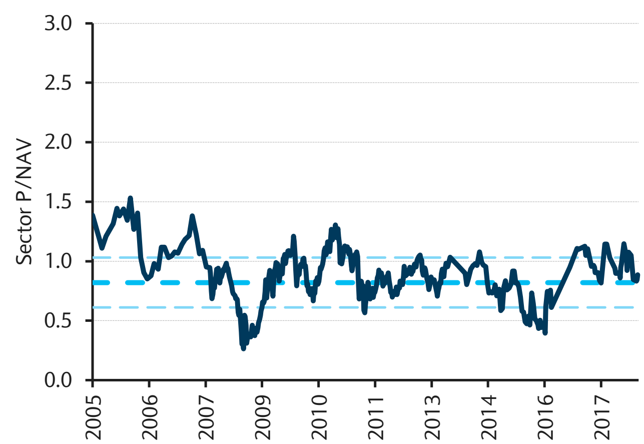
The anchor for our mining company valuations is net asset value (NAV) which is calculated using a discounted cash flow model of mine operations with a 5% discount rate for gold equities and 8% for base metals. We focus on NAV as a long-term value anchor since it takes into account not just margin but also mine life, the growth outlook, capex and leverage.

A time series of the historical price/NAV for both sectors is shown in Figure 77 and Figure 78, along with the median multiple and standard deviation. We put the two charts on the same y-axis scale to help illustrate the historical gold market premium.

FIGURE 77
Gold P/NAV history

Source: Barclays Research

FIGURE 78
Copper P/NAV history



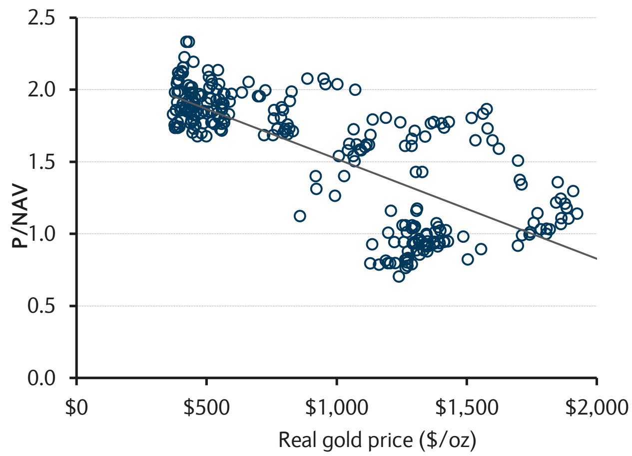
Source: Barclays Research

Typically the gold sector P/NAV has traded around 1.5x, varying between 1x and 2x, while copper will average 0.8x and vary between 0.6x and 1.0x. Analysts have grappled at times to explain gold's premium valuation, and we offer our own take in this section. In our comps in Figure 101, we can see that the gold equities are trading at an average P/NAV of 1.08x, at the low end of the historical range, while the base metal names are trading at an average P/NAV of 0.92x, near the middle of the historical range.

When you plot P/NAV versus the commodity price, the two commodities have opposite slopes. Copper P/NAVs have been positively correlated with higher commodity prices while gold P/NAVs have been negatively correlated with higher commodity prices. The relationship should be positive slope. When commodity prices are high, the market expects excess returns and this should be reflected in valuation.

FIGURE 79

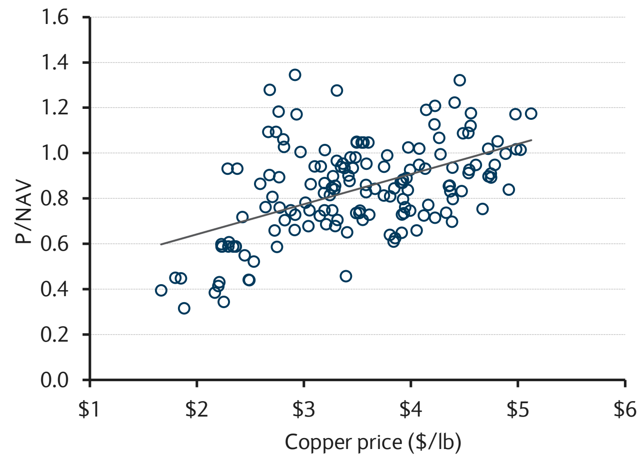
Gold P/NAV versus commodity price



Source: Barclays Research

FIGURE 80

Copper P/NAV versus commodity price



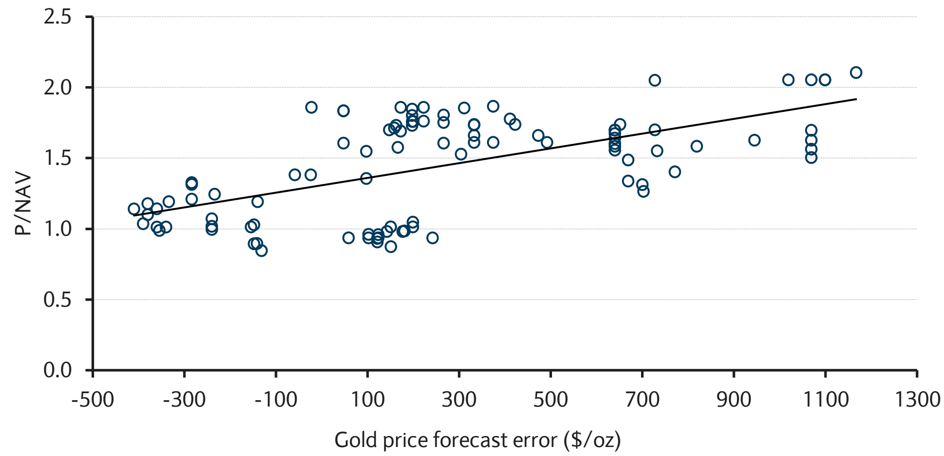
Source: Barclays Research

So how do we explain gold's negative slope? We believe the issue is one of collapsing option value. We can illustrate this by looking at gold price forecasting "error."

Referring back to Figure 52, we can look at gold price forecasting error as the difference between the ends of the light blue lines and the dark blue line. Since the gold price marched more or less steadily upwards from 2001 to 2012, the market began to assign significant option value to that potential price upside and price that into the equities. Most sell-side price forecasts continued to use something close to spot gold and the reconciling factor was the P/NAV multiple which was used to bridge together two fundamentally different valuations. One way to illustrate this is by plotting the historical forecast error versus P/NAV, as shown in Figure 81.

FIGURE 81

Historical premium multiples were due to the market assuming an upward deck vs spot



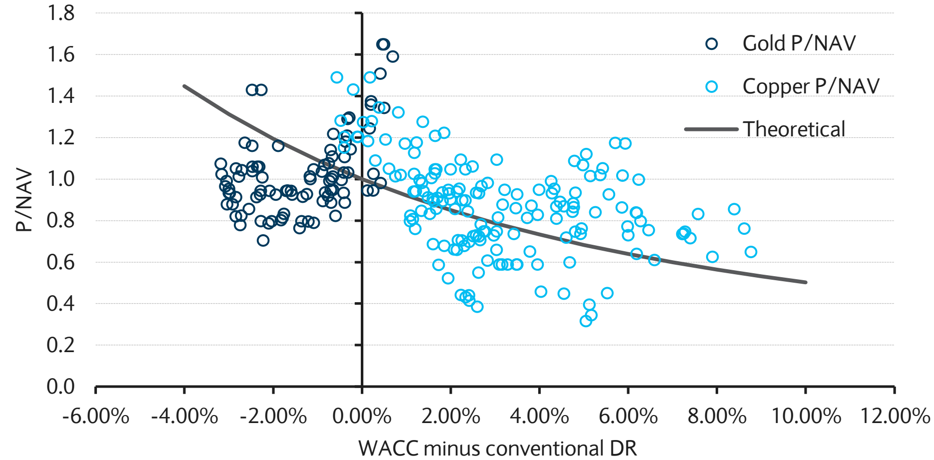
Source: Barclays Research

Gold P/NAV is negatively correlated with prices simply because historically (when prices were low and trending higher) the market priced in option value. It is easier to do this in gold than base metals because gold is often assumed to not be mean-reverting. In recent years where the gold price has been range-bound, the premium faded to a large extent as gold equities began to be priced a little more like base metal equities. The key question is whether or not this premium re-emerges. The answer probably resides in the gold price – if its historical upward price march resumes we would expect to return to the premium multiple dynamic, but in a range-bound gold price environment we believe the valuation premium would be unlikely to return.

There is still one more thing to discuss regarding P/NAVs. Figure 81 shows that when gold forecast error was near zero, the trendline for gold equities was still at ~1.3x P/NAV. Meanwhile, copper equities traditionally trade at a discount. The primary reason typically offered is that because of the geologic nature of gold deposits (less certain than many base metal deposits) there is more upside to gold DCFs that is not accurately reflected in NAV, and the market compensates for this by paying a slight premium. There is some truth to this but it doesn't really explain it since not all base metal deposits are well understood and they typically do not trade at a premium. Our explanation of the gold premium (and base metal discount) is that the market uses a different discount rate than the sell-side standard. We can see in Figure 82 that comparing the industry WACC (~3% on average for golds and ~10.4% for base metals over the last five years, generated via CAPM) and comparing it to the sell-side standard 5% discount rate for gold and 8% for base metals, there is a correlation between P/NAV and the spread between the discount rate and the WACC. The NAV premium generally disappears when the difference between the two disappears. We have also added a curve of the relative valuation of a 20-year (a typical mine life) stream of cash flows at different discount rates.

FIGURE 82

P/NAV vs the discount rate differences - apparent premium when the actual WACC is below the assumed discount rate, discount when the WACC is above the assumed discount rate

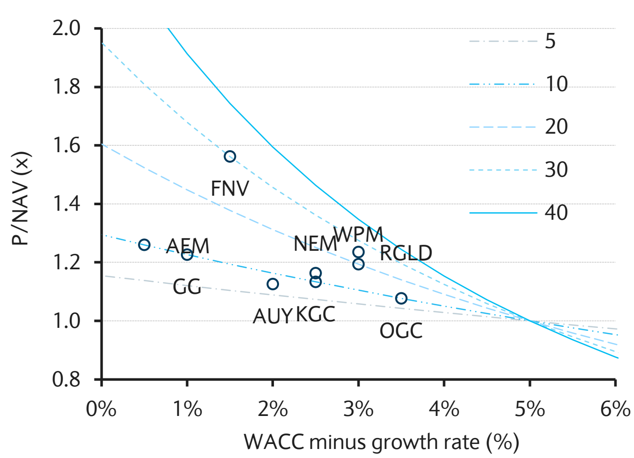


Source: Barclays Research. Note: Gold is only shown post 2011 since results pre-2011 were skewed by option valuations.

Rather than adjust our discount rate to reflect market WACCs (which vary) we propose to stick with the standard convention of 5% for gold and 8% for base metals but compensate by adjusting the P/NAV according to the difference in the market cost of capital adjusted for growth, and our valuation cost of capital. The degree of compensation required varies depending on the company's mine life. The suggested P/NAV multiples are illustrated in Figure 83 and Figure 84.

FIGURE 83

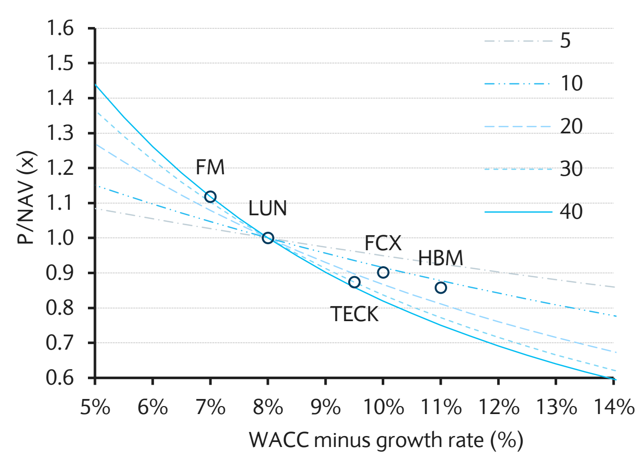
Gold P/NAVs adjusted for WACC vs 5% base case



Source: Barclays Research. How to read this chart – stocks are aligned along the x-axis according to their WACC minus adjusted growth rate. The companies are plotted where their WACC intersects their operating asset life (represented by the sloping lines), allowing us to see the theoretical P/NAV multiple it should trade at to adjust for the difference in the cost of capital.

FIGURE 84

Base metal P/NAVs adjusted for WACC vs 8% base case



Source: Barclays Research How to read this chart – stocks are aligned along the x-axis according to their WACC minus adjusted growth rate. The companies are plotted where their WACC intersects their operating asset life (represented by the sloping lines), allowing us to see the theoretical P/NAV multiple it should trade at to adjust for the difference in the cost of capital.

These multiples are not an opinion – they are just the mathematical reality of discounting different mine lives at different discount rates and plotting the ratios to the base case rate. An interesting consequence from this calculation is that when a company has a WACC greater than the discount rate, a long mine life actually drives a greater discount (see TECK, for example).

These P/NAV's can be further adjusted for the quality of the underlying businesses, which may go above and beyond just the values of the underlying assets. The above DCF discussion does not capture the inherent value of a business model (i.e., a company's ability to create sustained excess returns), which we can justify for the streamers/royalties and potentially for miners who we believe have a strong capital allocation framework.

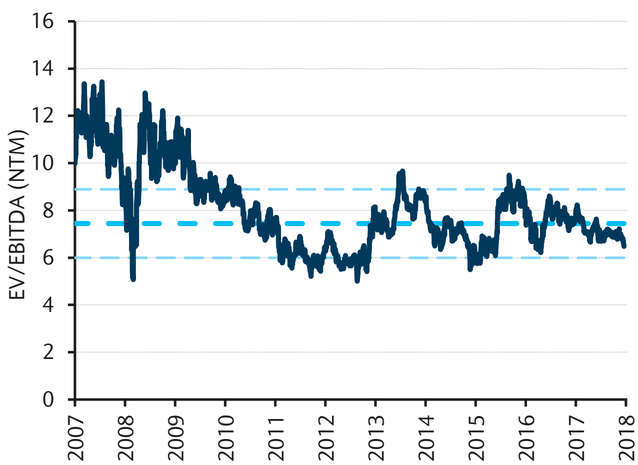
Equities cheap on EV/EBITDA as well

Equities are heavily influenced by the near-term outlook, especially in bear markets. A NAV provides a key marker for long-term value but a stock will trade at a heavy discount if the market ceases believing in the long-term cash flow. EV/EBITDA helps to capture this short term influence.

We prefer using EV/EBITDA over other short-term multiples like P/CF because it is capital structure neutral, although admittedly EV/EBITDA is a bit difficult in the gold space given the small WACC (which in theory drives up the justified multiple). However, we can take some reference from the market where gold equities have tended to trade at a 10-year average of ~7.5x and base metal equities at 5.5x.

FIGURE 85

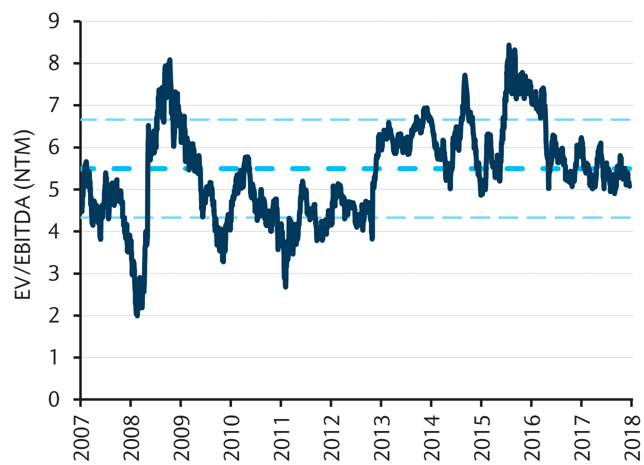
Gold – 10yr average ~7.5x



Source: Barclays Research

FIGURE 86

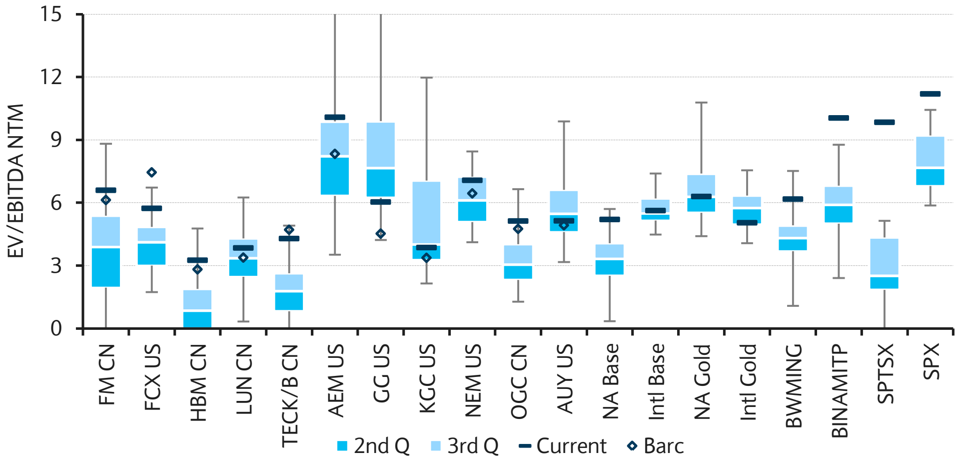
Copper – 10yr average ~5.5x, 5yr average 6x



Source: Barclays Research

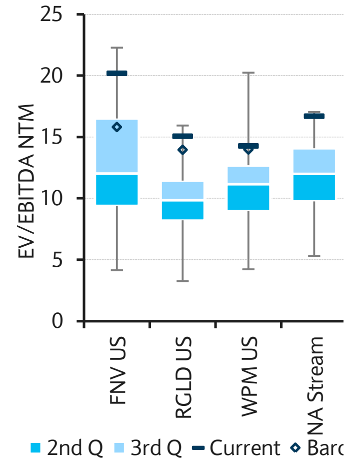
It is apparent from looking at Figure 87 that there is substantial variation between names, which is a function of their ROICs, growth rates, and expectations regarding the sustainability of returns.

FIGURE 87
EV/EBITDA – 10 year history



Source: Barclays Research,
Note: Error bars are 1-99 percentile range.

FIGURE 88
EV/EBITDA – 10 year history

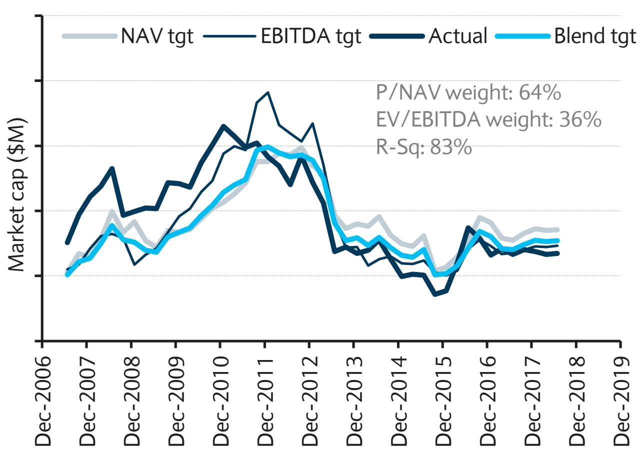


Source: Barclays Research,
Note: Error bars are 1-99 percentile range.

Determining weights

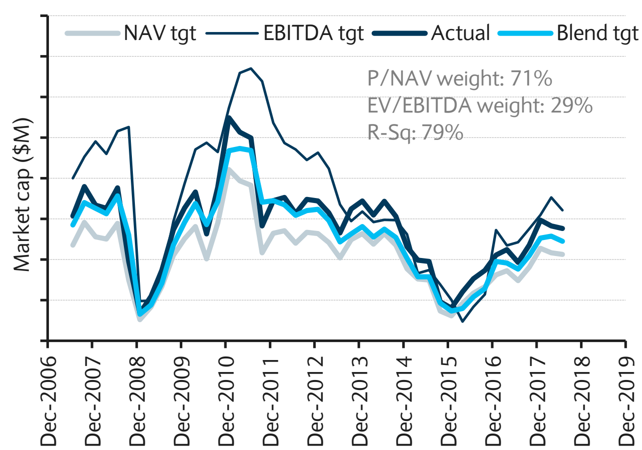
We regressed the one-year forward market caps for the gold and copper sectors against the P/NAV implied market caps and the EV/EBITDA implied market caps to validate the weights that minimize the prediction error. The regression model suggests a 70% weighting to P/NAV and 30% to EV/EBITDA. The results of the regression prediction model are shown in Figure 89 and Figure 90.

FIGURE 89
Gold regression results



Source: Barclays Research

FIGURE 90
Copper regression results



Source: Barclays Research

OUR EQUITY SCORECARD PUTS THE PREMIUM MULTIPLE TO THE TEST

A dynamic tool for testing whether a premium multiple is deserved

We developed an equity scorecard to help inform our valuations and stock selection. The results are shown in Figure 91.

FIGURE 91
Equity scorecard

	Historic scorecard					Future scorecard						Overall score	Val'n	Total
	Returns	Risk	Growth	Impair		Returns	Stability	Unique	Growth	Pipeline				
Weight	10%	5%	5%	5%	25%	15%	5%	5%	5%	10%	40%	65%	35%	100%
Gold companies														
AEM	6	5	6	2	5	3	6	5	7	4	4	5	4	4
GG	2	5	2	3	3	4	6	5	6	6	5	4	6	5
KGC	4	4	3	1	3	5	4	5	2	4	4	4	6	5
NEM	5	6	2	4	5	4	8	4	1	3	4	4	4	4
OGC	7	5	6	5	6	7	6	1	3	2	4	5	3	4
AUY	2	2	2	3	2	2	6	4	5	5	4	3	4	3
Royalties / Streamers														
FNV	5	7	8	6	6	6	6	7	8	8	7	6	5	6
RGLD	5	5	7	8	6	5	6	2	4	5	5	5	4	5
WPM	4	4	4	7	5	3	6	6	4	5	4	5	5	5
Base metal companies														
FM	5	2	3	6	4	3	4	6	7	5	4	4	4	4
FCX	3	3	3	3	3	4	6	4	1	4	4	3	2	3
HBM	2	3	8	7	5	6	6	2	4	3	4	4	5	5
LUN	7	6	5	7	6	4	4	6	6	4	4	5	5	5
TECK	5	5	3	7	5	6	8	5	4	6	6	6	5	5

Source: Barclays Research. See below for our methodology.

Our scorecard methodology

Scores are bell-curved vs peers on a scale from 0 to 10 (i.e., the average score should be 5), with a higher score being better. A high risk score in the figure above is indicative of a lower risk profile. The following were considerations in each of the scoring systems:

- Historical scorecard – Risk: WACC, beta to the commodity, and current financial leverage (net debt to EBITDA) (for all metrics, higher numbers lead to a lower score).
- Historical scorecard – Growth: 2013 to 2018 production growth.
- Historical scorecard – Impair: Impairments over the past 10 years relative to the size of the current asset base.
- Historical scorecard – Returns: 2013-2017 ROIC, EBITDA margin, and FCF as a percentage of revenue.
- Future scorecard – Returns: 2018-2020 ROIC, EBITDA margin, and FCF as a percentage of revenue.
- Future scorecard – Stability: A subjective score applied to companies which have had a major management change in the past 3 years, are engaged in a major project ramp-up, or facing a major controversy (tax or ownership disputes, or a

threat to operations at a major asset, or a publically disclosed possibility of significant M&A).

- Future scorecard – Unique: The number of assets a company has which rank high on size, grade, and metal contained relative to other assets in the same size class.
- Future scorecard – Growth: 2018-2020 production growth.
- Future scorecard – Pipeline: Reserve life, volatility of exploration spending, resource life, number of projects, and syndicated exposure to megaprojects.
- Valuation: Relative performance over the last six months, Barclays P/NAV vs justified P/NAV, spot P/NAV vs justified P/NAV, EV/EBITDA vs base multiple, spot EV/EBITDA vs base multiple, FCF yield, and model roll effect.

We look at the scorecard as a tool, and it is not static but is expected to change considerably over time. For example, company growth rates will change depending on somewhat arbitrary start and end dates, project pipelines can change when companies disclose new growth plans or get projects permitted. However, it also gives us an idea of which business may have the most underlying value beyond its asset values. Figure 92 shows our valuation framework. We have assigned incremental underlying business value to the P/NAVs of several companies: 0.1x for TECK, AEM, and NEM; and 0.2x for the streamers FNV, RGLD, and WPM. Our EV/EBITDAs are influenced by growth expectations and historical trading ranges, as well as consideration for the GAAP reporting miners (NEM and FCX) who do not capitalize stripping and therefore get a premium to their base case multiples.

Overweight AEM, GG, KGC, NEM, FNV, WPM, TECK, FM, HBM, LUN, Underweight FCX, AUY

Our price targets are set with a one-year view, meaning we want to ascertain how the market will be pricing the stocks in a year. In our attempt to capture this we apply multiples to the one-year forward NAV and the two year forward EBITDA. Our target build-up is shown in Figure 92.

FIGURE 92
Valuation build-up and ratings

Ticker	Price	Target multiples		Implied price		Weight		Price Target	Potential Upside to Target	Rating
		P/NAV	EV/ EBITDA	P/NAV	EV/ EBITDA	P/NAV	EV/ EBITDA			
Gold miners										
AEM	$34.04	1.4x	11.0x	$35.75	$45.78	70%	30%	$39.00	15%	OW
GG	$9.87	1.2x	7.0x	$12.70	$17.66	70%	30%	$14.00	42%	OW
KGC	$2.71	1.1x	5.0x	$4.22	$4.41	70%	30%	$4.00	48%	OW
NEM	$30.11	1.4x	8.0x	$31.08	$40.23	70%	30%	$34.00	13%	OW
OGC	C$3.83	1.1x	5.0x	$2.74	$3.29	70%	30%	C$4.00	4%	EW
AUY	$2.44	1.1x	5.0x	$2.78	$2.68	70%	30%	$2.50	2%	UW
Streams / Royalties										
FNV	$62.36	1.8x	18.0x	$69.18	$73.25	70%	30%	$70.00	12%	OW
RGLD	$75.29	1.4x	15.0x	$73.25	$88.35	70%	30%	$78.00	4%	EW
WPM	$16.90	1.4x	16.0x	$21.07	$20.12	70%	30%	$21.00	24%	OW
Base metal miners										
FM	C$14.60	1.1x	6.5x	$13.96	$11.83	70%	30%	C$18.00	23%	OW
FCX	$13.12	1.0x	7.0x	$11.01	$12.67	70%	30%	$12.00	-9%	UW
HBM	C$5.95	0.9x	5.0x	$4.63	$10.45	70%	30%	C$8.00	34%	OW
LUN	C$6.34	1.0x	5.5x	$5.36	$5.74	70%	30%	C$8.00	26%	OW
TECK	C$31.10	1.0x	5.5x	C$37.05	C$40.36	70%	30%	C$38.00	22%	OW

Source: Bloomberg, Barclays Research
Note: Pricing as of 3 October 2018. Industry view: Positive. Stock rating: OW = Overweight; EW= Equal Weight; UW = Underweight. Industry view: Positive

We see three approaches to picking stocks in the mining space:

- **Set it and forget it** – stick with quality, regardless of valuation.
- **Play the commodity price** – add or reduce investments depending on the stock's beta to the commodity price and your commodity price expectations (for those who like this approach, see Figure 94).
- **Look for misunderstandings** – look for cases where reward/risk relationships appear misunderstood (i.e., a company has better projects than consensus believes or the company is making better decisions than consensus believes). These opportunities can emerge due to a timing or narrative mismatch, or due to fundamentals.

Rather than invest in quality, or leverage, we look for misunderstandings. We see TECK, GG, AEM, and NEM as offering unappreciated quality at a discount. FM, KGC, LUN, and HBM are excessively discounted due to specific risks and commodity beta. We still see upside in FNV and WPM in the royalty space but see RGLD and OGC as reasonably priced under our gold price outlook. We are Underweight FCX on low-growth and a weak project pipeline, and AUY where we see short mine lives and a lack of catalysts as weighing on valuation. For thoughts on the companies, please see our company notes which follow starting on page 63.

We explore some of the key misunderstandings and opportunities in the space in the remainder of this report.

We would also like to point out here that Barrick Gold (ABX), an important peer company, is not included in this report. On September 24, 2018, Barrick announced that it had reached an agreement on the terms of a recommended share-for-share merger of Barrick and Randgold Resources Limited, which the companies expect to close in 1Q19 subject to approval by both sets of shareholders, regulatory approvals and other customary closing conditions. Under the terms of the merger, each Randgold Shareholder will receive 6.1280 New Barrick shares for each Randgold share. Following completion of the merger, Barrick shareholders will own approximately 66.6% and Randgold shareholders will own approximately 33.4% of the New Barrick Group on a fully-diluted basis.

FIGURE 93

New Barrick proposed management team

Name	Former Company	Former Position	New Barrick Group Position
John L. Thornton	Barrick	Executive Chairman	Executive Chairman
Mark Bristow	Randgold	Chief Executive Officer	President and Chief Executive Officer
Graham Shuttleworth	Randgold	Finance Director & CFO	Senior Executive Vice President & CFO
Kevin Thomson	Barrick	SEVP, Strategic Matters	SEVP, Strategic Matters
Catherine Raw	Barrick	EVP & CFO	COO North America
Willem Jacobs	Randgold	GM Ops Central & East Africa	COO Africa & Middle East

Source: Company reports

According to the release, The New Barrick Group will hold five of the world's top ten Tier One Gold Assets: Cortez, Loulo-Guounkoto, Pueblo Viejo, Kibali, and Goldstrike. Since announcing the deal, ABX is up 11% and NASDAQ:GOLD is up 11% while the GDX gold ETF is unchanged (as of October 4 2018).

Barrick's strategic partners, Shandong Gold Group and Zijin both warmly welcomed the combination of these two firms into the New Barrick group in company press releases.

The merger is subject to shareholder approvals (Barrick – majority approval; Randgold – a majority in number shareholders representing three-fourths (3/4ths) or more of the voting rights of all Randgold shares voted) which are to be scheduled for special general meetings expected in November 2018. In addition, the closing is contingent on regulatory clearance from relevant authorities in South Africa.

FIGURE 94

Equity beta to commodities/currencies

	Gold	Silver	Copper	Zinc	Nickel	WTI	1/USD
North American golds							
AEM US	2.4	1.5	0.1	0.6	0.5	0.3	1.5
ABX US	2.6	1.6	0.6	1.0	0.6	0.5	2.2
GG US	2.2	1.3	0.3	0.7	0.5	0.4	1.8
KGC US	3.1	1.8	0.5	1.0	0.6	0.4	3.6
NEM US	2.2	1.3	0.2	0.7	0.5	0.4	1.8
OGC CN	2.6	1.5	-0.1	0.5	0.2	0.3	1.4
AUY US	2.9	1.9	1.0	1.2	0.7	0.6	3.3
North American royalties							
FNV US	1.9	1.0	0.2	0.5	0.3	0.2	1.3
RGLD US	2.4	1.4	0.7	1.0	0.6	0.3	2.5
WPM US	2.3	1.5	0.3	0.7	0.5	0.2	2.1
North American base metal miners							
FM CN	1.4	1.3	2.5	1.9	1.1	1.0	5.1
FCX US	1.1	0.9	2.4	1.7	1.0	0.9	4.6
HBM CN	1.1	1.1	2.6	1.9	1.0	0.7	3.0
LUN CN	0.7	0.8	1.8	1.3	0.8	0.5	3.1
TECK/B CN	2.0	1.5	1.9	1.8	1.0	0.8	3.9
Global comps							
RRS LN	2.4	1.4	0.1	0.6	0.5	0.1	1.5
PLZL RX	0.7	0.4	0.6	0.6	0.2	0.5	2.6
GFI US	2.8	1.4	-0.1	0.7	0.6	-0.2	2.3
AU US	3.5	1.8	0.3	0.8	0.6	0.2	3.6
BVN US	2.4	1.6	0.6	1.0	0.7	0.5	2.9
KAZ LN	1.5	1.1	2.0	1.8	0.8	0.7	3.6
SCCO US	0.2	0.3	0.9	0.7	0.4	0.3	1.5
ANTO LN	0.5	0.4	1.4	0.8	0.4	0.4	1.9
GLEN LN	1.0	0.7	1.5	1.3	0.6	0.5	2.7
RIO LN	0.5	0.5	0.9	0.7	0.4	0.3	1.8
BHP AU	0.4	0.5	0.9	0.7	0.5	0.5	2.2
AAL LN	1.8	1.1	1.4	1.4	0.8	0.7	3.5
VALE US	1.1	1.0	1.8	1.5	0.9	0.7	4.2
2899 HK	1.2	0.7	0.6	0.8	0.5	0.2	1.3
1208 HK	0.6	0.5	1.2	1.3	0.7	0.5	1.7

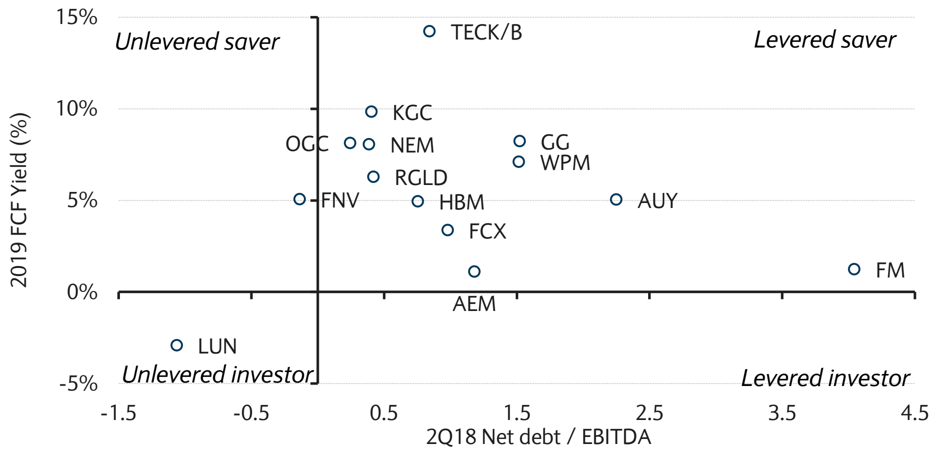
Source: Barclays Research, Bloomberg. Note: This is the covariance of the equity price to the commodity price, divided by the variance of the commodity price. The beta often has no relation to production or revenue exposures (e.g., the gold producers do not produce nickel but there is a degree of beta due to cross-correlations).

Our coverage comp sheet follows in Figure 98 to Figure 102. Our commodity price outlook is in Figure 2. We also include here some comparative Figures that may also be of interest to readers.

The first is a chart comparing leverage and free cash flow yield. We view levered investors as riskier names, but these names also typically possess the best growth profiles. The chart reveals the tight clustering of levered savers, reflecting the balance sheet recovery and low risk tolerance among companies today.

FIGURE 95

FCF yield and leverage

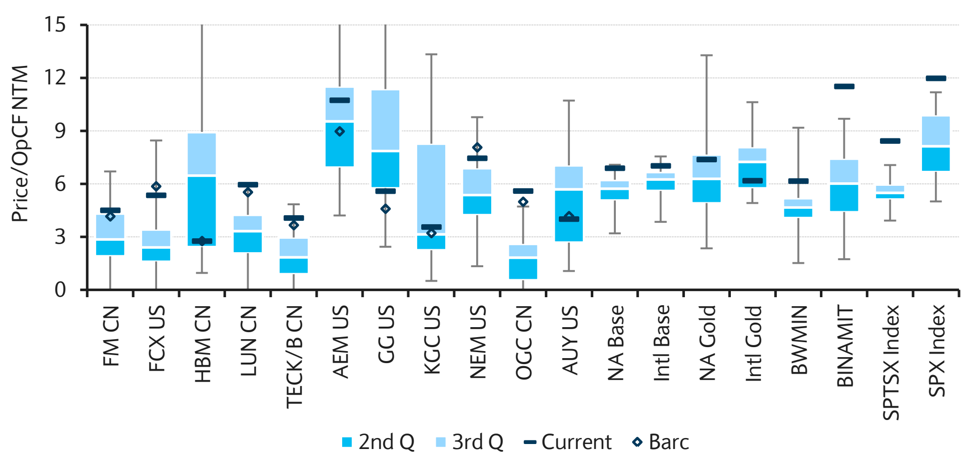


Source: Barclays Research

While we focussed on EV/EBITDA in our valuation, price to cash flow is also of interest to many investors, and hence we include the historical ranges of these multiples below.

FIGURE 96

P/CF – 10 year history

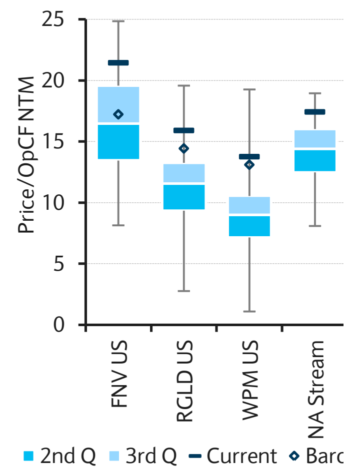


Source: Barclays Research,

Note: Error bars are 1-99 percentile range.

FIGURE 97

P/CF – 10 year history



Source: Barclays Research,

Note: Error bars are 1-99 percentile range.

North American Metals & Mining Comps

FIGURE 98

Summary and Performance

Company	Local	Rating	Price	Potential	Dividend	Dividend	Market value		Shares	Performance					52 week		% of 52 -	Beta	Float (M)	Short	Days to
	Share Price		Target	Upside	($/ sh)	Yield	Market Cap	EV (adj)	O/ S (M)	1-d	1-wk	1-mo	3-mo	1-yr	Lo	Hi	week high			Interest	Cover
Gold																					
Agnico-Eagle	$34.04	OW	$39.00	15%	$0.44	1.3%	$7,998	$9,010	234	(2.8%)	(0.5%)	4.4%	(26.3%)	(26.5%)	$32.59	$49.23	(31%)	-0.08	234	2.12%	2.7
Goldcorp	$9.87	OW	$14.00	42%	$0.08	0.8%	$8,577	$11,034	869	(3.3%)	(3.2%)	(2.9%)	(28.7%)	(26.2%)	$9.87	$15.39	(36%)	-0.09	866	2.02%	2.0
Kinross	$2.71	OW	$4.00	48%	$0.00	0.0%	$3,406	$4,257	1250	(1.6%)	0.2%	(3.4%)	(30.3%)	(36.9%)	$2.70	$4.61	(41%)	-0.09	1245	1.02%	1.5
Newmont	$30.11	OW	$34.00	13%	$0.50	1.7%	$16,106	$18,120	533	(0.9%)	(0.3%)	(0.1%)	(20.3%)	(21.4%)	$29.63	$41.94	(28%)	-0.09	531	1.74%	1.7
OceanaGold	C$3.83	EW	C$4.00	4%	$0.02	0.5%	$2,407	$1,958	618	(0.3%)	(1.8%)	3.8%	(0.8%)	(2.0%)	$2.98	$4.07	(6%)	-0.08	614	0.89%	1.6
Yamana	$2.44	UW	$2.50	2%	$0.02	0.8%	$2,318	$3,937	949	(2.0%)	(2.0%)	(2.8%)	(20.8%)	(8.6%)	$2.37	$3.68	(34%)	-0.10	941	0.82%	0.6
Median				**14%**		**0.8%**				**(1.8%)**	**(1.1%)**	**(1.4%)**	**(23.5%)**	**(23.8%)**			**(32%)**				
Mean				**21%**		**0.9%**				**(1.8%)**	**(1.3%)**	**(0.2%)**	**(21.2%)**	**(20.3%)**			**(29%)**				
Stream																					
Franco Nevada	$62.36	OW	$70.00	12%	$0.96	1.5%	$11,599	$11,527	186	(24.3%)	(22.8%)	(22.4%)	(35.3%)	(37.2%)	$77.22	$108.99	(43%)	0.03	183	0.53%	1.0
Royal Gold	$75.29	EW	$78.00	4%	$1.00	1.3%	$4,922	$5,224	66	(1.9%)	(2.3%)	1.5%	(17.8%)	(15.4%)	$72.61	$95.78	(21%)	0.03	65	3.72%	4.5
Wheaton Precious Metals	$16.90	OW	$21.00	24%	$0.45	2.6%	$7,499	$8,362	444	(1.1%)	(3.4%)	5.0%	(24.5%)	(15.6%)	$15.38	$22.68	(25%)	0.03	443	1.29%	1.8
Median				**12%**		**1.5%**				**(1.9%)**	**(3.4%)**	**1.5%**	**(24.5%)**	**(15.6%)**			**(25%)**				
Mean				**13%**		**1.8%**				**(9.1%)**	**(9.5%)**	**(5.3%)**	**(25.9%)**	**(22.8%)**			**(30%)**				
Base																					
First Quantum	C$14.60	OW	C$18.00	23%	$0.01	0.1%	$10,065	$13,633	689	(2.1%)	(0.7%)	(3.0%)	(27.0%)	(5.2%)	$14.21	$22.82	(36%)	2.27	680	1.06%	1.0
Freeport McMoRan	$13.12	UW	$12.00	(9%)	$0.05	0.4%	$19,129	$26,397	1449	(3.7%)	(5.7%)	(4.0%)	(27.6%)	(8.4%)	$13.04	$19.99	(34%)	2.01	1392	1.84%	1.4
Hudbay Minerals	C$5.95	OW	C$8.00	34%	$0.02	0.2%	$1,555	$1,807	261	(3.7%)	(9.0%)	0.0%	(18.5%)	(39.4%)	$5.59	$12.50	(52%)	2.22	261	1.13%	1.0
Lundin Mining	C$6.34	OW	C$8.00	26%	$0.12	1.5%	$4,651	$2,595	732	(2.8%)	(7.3%)	2.3%	(17.3%)	(33.4%)	$6.15	$10.20	(38%)	1.68	727	0.64%	0.9
Teck Resources	C$31.10	OW	C$38.00	22%	C$0.20	0.6%	C$18,119	C$23,521	567	2.1%	(0.1%)	6.1%	(7.0%)	7.9%	C$26.36	C$38.63	(19%)	1.83	565	0.45%	1.1
Median				**23%**		**0.4%**				**(2.8%)**	**(5.7%)**	**0.0%**	**(18.5%)**	**(8.4%)**			**(36%)**				
Mean				**18%**		**0.5%**				**(2.2%)**	**(4.6%)**	**(0.0%)**	**(19.2%)**	**(16.1%)**			**(35%)**				

Source: Company reports, Bloomberg, Barclays Research

Note: Pricing as of 5 October 2018. Industry view: Positive. Stock rating: OW = Overweight; EW= Equal Weight; UW = Underweight. Industry view: Positive

FIGURE 99

Profitability – comparative tables using Barclays commodity price forecast

Company	Reporting	NAV	EBITDA (M)			CFPS			FCF (M)			EPS			LTM (M)			Latest (M)	
	Currency	($/ sh)	2018E	2019E	2020E	2018E	2019E	2020E	2018E	2019E	2020E	2018E	2019E	2020E	EBITDA	NI	Sales	Debt	Net Debt
Gold																			
Agnico-Eagle	USD	$26.96	$748	$877	$1,107	$2.66	$3.05	$3.90	($448)	$89	$333	$0.23	$0.41	$0.59	$858	$152	$2,280	$1,721	$1,013
Goldcorp	USD	$10.37	$1,472	$2,297	$2,530	$1.12	$1.93	$2.21	($305)	$707	$1,050	$0.11	$0.48	$0.51	$1,615	$241	$3,358	$2,464	$2,457
Kinross	USD	$3.74	$1,084	$1,168	$1,287	$0.72	$0.80	$0.86	($155)	$336	$682	$0.14	$0.11	$0.16	$2,016	$317	$5,716	$1,734	$815
Newmont	USD	$22.07	$2,262	$3,002	$2,818	$2.72	$3.96	$3.77	$198	$1,300	$1,229	$0.90	$1.51	$1.66	$2,578	$721	$6,966	$4,121	$994
OceanaGold	USD	$2.50	$370	$372	$407	$0.55	$0.55	$0.59	$88	$151	$193	$0.22	$0.17	$0.21	$427	$198	$793	$233	$104
Yamana	USD	$2.42	$727	$699	$818	$0.47	$0.48	$0.61	($40)	$117	$276	$0.06	$0.09	$0.19	$704	$122	$1,853	$1,698	$1,584
Stream																			
Franco Nevada	USD	$39.14	$539	$644	$739	$2.68	$3.16	$3.67	($429)	$588	$683	$1.21	$1.47	$1.73	$528	$225	$673	$0	($72)
Royal Gold	USD	$52.87	$336	$348	$385	$5.03	$4.74	$5.34	$317	$310	$349	$1.76	$1.86	$2.33	$336	$115	$459	$351	$141
Wheaton Precious Metals	USD	$14.33	$497	$562	$611	$1.08	$1.20	$1.32	($417)	$533	$586	$0.52	$0.61	$0.72	$570	$292	$857	$957	$864
Base																			
First Quantum	USD	$11.82	$1,740	$1,747	$2,424	$2.97	$2.09	$2.72	($778)	$96	$1,415	$0.60	$0.47	$0.55	$1,451	$113	$3,696	$7,323	$5,865
Freeport McMoRan	USD	$11.01	$6,791	$3,450	$4,011	$3.31	$1.96	$2.24	$2,867	$647	$981	$1.76	$0.55	$0.78	$7,171	$2,774	$19,387	$11,127	$7,021
Hudbay Minerals	USD	$6.00	$566	$540	$648	$1.36	$1.38	$1.66	$112	$59	$217	$0.36	$0.36	$0.55	$711	$186	$1,542	$976	$536
Lundin Mining	USD	$5.36	$638	$616	$872	$0.65	$0.63	$0.89	($270)	($104)	$341	$0.26	$0.18	$0.35	$1,007	$425	$2,073	$443	($1,069)
Teck Resources	CAD	C$37.14	C$5,372	C$5,018	C$4,370	C$6.94	C$6.89	C$5.99	C$1,543	C$2,581	C$2,163	C$4.12	C$3.55	C$2.84	C$5,927	C$2,727	C$12,444	C$6,619	C$4,988

Source: Company reports, Barclays Research

Notes: Barclays 2019E price forecasts include $1,269/oz gold, $2.84/lb copper, $1.25/lb zinc, and $175/t met coal. Barclays 2020E price forecasts include $1,300/oz gold, $2.95/lb copper, $1.25/lb zinc, and $150/t met coal. Barclays long-term price forecasts include $1,350/oz gold, $3.10/lb copper, $1.20/lb zinc, and $150/t met coal.

FIGURE 100

Profitability – Comparative tables using Spot prices

Company	Reporting	NAV	EBITDA (M)			CFPS			FCF (M)			EPS			LTM (M)			Latest (M)	
	Currency	($/ sh)	2018E	2019E	2020E	2018E	2019E	2020E	2018E	2019E	2020E	2018E	2019E	2020E	EBITDA	NI	Sales	Debt	Net Debt
Gold																			
Agnico-Eagle	USD	$17.02	$712	$684	$857	$2.55	$2.58	$3.28	($474)	($22)	$188	$0.12	-$0.07	-$0.03	$858	$152	$2,280	$1,721	$1,013
Goldcorp	USD	$6.78	$1,442	$1,982	$2,050	$1.10	$1.72	$1.89	($322)	$526	$772	$0.09	$0.27	$0.19	$1,615	$241	$3,358	$2,464	$2,457
Kinross	USD	$2.08	$1,060	$956	$991	$0.71	$0.70	$0.72	($167)	$209	$503	$0.13	$0.01	$0.03	$2,016	$317	$5,716	$1,734	$815
Newmont	USD	$13.82	$2,208	$2,539	$2,213	$2.66	$3.44	$3.08	$165	$1,022	$859	$0.84	$0.99	$0.97	$2,578	$721	$6,966	$4,121	$994
OceanaGold	USD	$1.83	$365	$324	$336	$0.54	$0.48	$0.49	$82	$106	$130	$0.21	$0.11	$0.12	$427	$198	$793	$233	$104
Yamana	USD	$1.08	$709	$592	$635	$0.46	$0.42	$0.49	($50)	$55	$166	$0.05	$0.02	$0.07	$704	$122	$1,853	$1,698	$1,584
Stream																			
Franco Nevada	USD	$34.21	$535	$594	$647	$2.66	$2.94	$3.24	($432)	$546	$603	$1.19	$1.24	$1.33	$528	$225	$673	$0	($72)
Royal Gold	USD	$45.80	$336	$330	$351	$5.03	$4.51	$4.91	$317	$295	$321	$1.76	$1.64	$1.90	$336	$115	$459	$351	$144
Wheaton Precious Metals	USD	$10.52	$489	$494	$488	$1.06	$1.05	$1.05	($425)	$467	$465	$0.50	$0.45	$0.44	$570	$292	$857	$957	$864
Base																			
First Quantum	USD	$6.60	$1,718	$1,699	$2,155	$2.95	$2.04	$2.50	($791)	$67	$1,261	$0.59	$0.43	$0.36	$1,451	$113	$3,696	$7,323	$5,865
Freeport McMoRan	USD	$5.43	$6,698	$3,169	$3,461	$3.27	$1.81	$1.95	$2,798	$423	$552	$1.73	$0.43	$0.53	$7,171	$2,774	$19,387	$11,127	$7,021
Hudbay Minerals	USD	$4.64	$563	$524	$599	$1.35	$1.35	$1.56	$110	$51	$189	$0.36	$0.33	$0.44	$711	$186	$1,542	$976	$536
Lundin Mining	USD	$4.00	$625	$570	$742	$0.64	$0.58	$0.76	($279)	($136)	$250	$0.25	$0.15	$0.25	$1,007	$425	$2,073	$443	($1,069)
Teck Resources	CAD	C$44.92	C$5,290	C$4,850	C$4,907	C$6.83	C$6.64	C$6.78	C$1,477	C$2,448	C$2,631	C$4.04	C$3.39	C$3.46	C$5,927	C$2,727	C$12,444	C$6,619	C$4,988

Source: Company reports, Barclays Research

Note: Spot prices (as of 05 October 2018) include $1,188/oz gold, $2.80/lb copper, $1.21/lb zinc, and $175/t met coal.

FIGURE 101

Valuation multiples and returns – comparative tables using Barclays commodity price forecast

Company	Trading Currency	P/ NAV	EV/ EBITDA			P/ CFPS			FCF Yield			P/ E			LTM margins			LTM coverage		LTM returns		
			2018E	2019E	2020E	2018E	2019E	2020E	2018E	2019E	2020E	2018E	2019E	2020E	EBITDA (%)	NI (%)	Debt / Cap (%)	Debt/ EBITDA	Net debt/ EBITDA	ROIC (%)	ROE (%)	ROA (%)
Gold																						
Agnico-Eagle	USD	1.26x	12.0x	10.3x	8.1x	12.8x	11.2x	8.7x	(6%)	1%	4%	nm	nm	nm	38%	7%	22%	2.0x	1.2x	4.6%	2.0%	2.0%
Goldcorp	USD	0.95x	7.5x	4.8x	4.4x	8.8x	5.1x	4.5x	(4%)	8%	12%	nm	20.4x	19.3x	48%	7%	29%	1.5x	1.5x	0.8%	1.3%	1.3%
Kinross	USD	0.72x	3.9x	3.6x	3.3x	3.7x	3.4x	3.1x	(5%)	10%	20%	19.2x	24.9x	16.5x	35%	6%	51%	0.9x	0.4x	6.3%	4.8%	4.8%
Newmont	USD	1.36x	8.0x	6.0x	6.4x	11.1x	7.6x	8.0x	1%	8%	8%	33.5x	20.0x	18.2x	37%	10%	26%	1.6x	0.4x	7.3%	0.8%	0.8%
OceanaGold	CAD	1.18x	5.3x	5.3x	4.8x	5.3x	5.3x	5.0x	5%	8%	10%	13.5x	17.4x	14.2x	54%	25%	13%	0.5x	0.2x	12.8%	9.8%	9.8%
Yamana	USD	1.01x	5.4x	5.6x	4.8x	5.2x	5.1x	4.0x	(2%)	5%	12%	38.4x	26.9x	13.1x	38%	7%	73%	2.4x	2.2x	-2.8%	-3.4%	-3.4%
Median		**1.09x**	**6.5x**	**5.4x**	**4.8x**	**7.1x**	**5.2x**	**4.7x**	**(3%)**	**8%**	**11%**	**26.3x**	**20.4x**	**16.5x**	**38%**	**7%**	**27%**	**1.6x**	**0.8x**	**5.4%**	**1.6%**	**1.6%**
Mean		**1.08x**	**7.0x**	**5.9x**	**5.3x**	**7.8x**	**6.3x**	**5.5x**	**(2%)**	**7%**	**11%**	**26.1x**	**21.9x**	**16.3x**	**42%**	**10%**	**35%**	**1.5x**	**1.0x**	**4.8%**	**2.5%**	**2.5%**
Stream																						
Franco Nevada	USD	1.59x	21.4x	17.9x	15.6x	23.3x	19.7x	17.0x	(4%)	5%	6%	nm	42.5x	36.1x	78%	33%	0%	0.0x	-0.1x	5.7%	4.7%	4.7%
Royal Gold	USD	1.42x	15.5x	15.0x	13.6x	15.0x	15.9x	14.1x	6%	6%	7%	42.7x	40.6x	32.3x	73%	25%	7%	1.0x	0.4x	-2.7%	-3.9%	-3.9%
Wheaton Precious Metals	USD	1.18x	16.8x	14.9x	13.7x	15.7x	14.0x	12.8x	(6%)	7%	8%	32.3x	27.9x	23.4x	67%	34%	13%	1.7x	1.5x	1.4%	5.2%	5.2%
Median		**1.42x**	**16.8x**	**15.0x**	**13.7x**	**15.7x**	**15.9x**	**14.1x**	**(4%)**	**6%**	**7%**	**37.5x**	**40.6x**	**32.3x**	**73%**	**33%**	**7%**	**1.0x**	**0.4x**	**1.4%**	**4.7%**	**4.7%**
Mean		**1.40x**	**17.9x**	**15.9x**	**14.3x**	**18.0x**	**16.6x**	**14.6x**	**(1%)**	**6%**	**7%**	**37.5x**	**37.0x**	**30.6x**	**73%**	**31%**	**7%**	**0.9x**	**0.6x**	**1.4%**	**2.0%**	**2.0%**
Base																						
First Quantum	CAD	0.95x	7.8x	7.8x	5.6x	3.8x	5.4x	4.1x	(10%)	1%	18%	18.6x	24.2x	20.4x	39%	3%	94%	5.0x	4.0x	2.8%	0.1%	0.1%
Freeport McMoRan	USD	1.19x	3.9x	7.7x	6.6x	4.0x	6.7x	5.8x	15%	3%	5%	7.4x	23.7x	16.8x	37%	14%	58%	1.6x	1.0x	22.0%	7.8%	7.8%
Hudbay Minerals	CAD	0.76x	3.2x	3.3x	2.8x	3.4x	3.3x	2.8x	9%	5%	18%	12.6x	12.6x	8.3x	46%	12%	81%	1.4x	0.8x	11.4%	4.6%	4.6%
Lundin Mining	CAD	0.91x	4.1x	4.2x	3.0x	7.5x	7.8x	5.5x	(8%)	(3%)	10%	18.6x	27.3x	14.1x	49%	20%	12%	0.4x	-1.1x	13.6%	6.7%	6.7%
Teck Resources	CAD	0.84x	4.4x	4.7x	5.4x	4.5x	4.5x	5.2x	9%	14%	12%	7.6x	8.8x	10.9x	48%	22%	37%	1.1x	0.8x	14.1%	7.5%	7.5%
Median		**0.91x**	**4.1x**	**4.7x**	**5.4x**	**4.0x**	**5.4x**	**5.2x**	**9%**	**3%**	**12%**	**12.6x**	**23.3x**	**14.1x**	**46%**	**14%**	**58%**	**1.4x**	**0.8x**	**13.6%**	**6.7%**	**6.7%**
Mean		**0.92x**	**4.7x**	**5.5x**	**4.7x**	**4.6x**	**5.5x**	**4.7x**	**3%**	**4%**	**13%**	**13.0x**	**19.2x**	**14.1x**	**44%**	**14%**	**57%**	**1.9x**	**1.1x**	**12.8%**	**5.3%**	**5.3%**

Source: Company reports, Bloomberg, Barclays Research

FIGURE 102

Valuation multiples and returns – Comparative tables using Spot prices

Company	Trading Currency	P/ NAV	EV/ EBITDA			P/ CFPS			FCF Yield			P/ E			LTM margins			LTM coverage		LTM returns		
			2018E	2019E	2020E	2018E	2019E	2020E	2018E	2019E	2020E	2018E	2019E	2020E	EBITDA (%)	NI (%)	Debt / Cap (%)	Debt/ EBITDA	Net debt/ EBITDA	ROIC (%)	ROE (%)	ROA (%)
Gold																						
Agnico-Eagle	USD	2.00x	12.7x	13.2x	10.5x	13.3x	13.2x	10.4x	(6%)	(0%)	2%	nm	nm	-1197.9x	38%	7%	22%	2.0x	1.2x	4.6%	2.0%	2.0%
Goldcorp	USD	1.45x	7.7x	5.6x	5.4x	9.0x	5.7x	5.2x	(4%)	6%	9%	nm	35.9x	nm	48%	7%	29%	1.5x	1.5x	0.8%	1.3%	1.3%
Kinross	USD	1.30x	4.0x	4.5x	4.3x	3.8x	3.9x	3.8x	(5%)	6%	15%	20.6x	nm	nm	35%	6%	51%	0.9x	0.4x	6.3%	4.8%	4.8%
Newmont	USD	2.18x	8.2x	7.1x	8.2x	11.3x	8.7x	9.8x	1%	6%	5%	35.9x	30.4x	31.2x	37%	10%	26%	1.6x	0.4x	7.3%	0.8%	0.8%
OceanaGold	CAD	1.61x	5.4x	6.0x	5.8x	5.4x	6.2x	6.0x	4%	6%	7%	14.0x	27.2x	24.0x	54%	25%	13%	0.5x	0.2x	12.8%	9.8%	9.8%
Yamana	USD	2.26x	5.6x	6.7x	6.2x	5.3x	5.9x	5.0x	(2%)	2%	7%	46.0x	nm	32.9x	38%	7%	73%	2.4x	2.2x	-2.8%	-3.4%	-3.4%
Median		**1.81x**	**6.6x**	**6.3x**	**6.0x**	**7.2x**	**6.0x**	**5.6x**	**(3%)**	**6%**	**7%**	**28.2x**	**30.4x**	**27.6x**	**38%**	**7%**	**27%**	**1.6x**	**0.8x**	**5.4%**	**1.6%**	**1.6%**
Mean		**1.80x**	**7.2x**	**7.2x**	**6.7x**	**8.0x**	**7.3x**	**6.7x**	**(2%)**	**4%**	**8%**	**29.1x**	**31.2x**	**-277.5x**	**42%**	**10%**	**35%**	**1.5x**	**1.0x**	**4.8%**	**2.5%**	**2.5%**
Stream																						
Franco Nevada	USD	1.82x	21.6x	19.4x	17.8x	23.4x	21.2x	19.2x	(4%)	5%	5%	nm	nm	47.0x	78%	33%	0%	0.0x	-0.1x	5.7%	4.7%	4.7%
Royal Gold	USD	1.64x	15.5x	15.8x	14.9x	15.0x	16.7x	15.3x	6%	6%	7%	42.7x	46.0x	39.7x	73%	25%	7%	1.0x	0.4x	-2.7%	-3.9%	-3.9%
Wheaton Precious Metals	USD	1.61x	17.1x	16.9x	17.1x	16.0x	16.0x	16.1x	(6%)	6%	6%	33.5x	37.2x	38.4x	67%	34%	13%	1.7x	1.5x	1.4%	5.2%	5.2%
Median		**1.64x**	**17.1x**	**16.9x**	**17.1x**	**16.0x**	**16.7x**	**16.1x**	**(4%)**	**6%**	**6%**	**38.1x**	**41.6x**	**39.7x**	**73%**	**33%**	**7%**	**1.0x**	**0.4x**	**1.4%**	**4.7%**	**4.7%**
Mean		**1.69x**	**18.1x**	**17.4x**	**16.6x**	**18.1x**	**18.0x**	**16.9x**	**(1%)**	**6%**	**6%**	**38.1x**	**41.6x**	**41.7x**	**73%**	**31%**	**7%**	**0.9x**	**0.6x**	**1.4%**	**2.0%**	**2.0%**
Base																						
First Quantum	CAD	1.70x	7.9x	8.0x	6.3x	3.8x	5.5x	4.5x	(10%)	1%	16%	19.1x	26.3x	31.6x	39%	3%	94%	5.0x	4.0x	2.8%	0.1%	0.1%
Freeport McMoRan	USD	2.42x	3.9x	8.3x	7.6x	4.0x	7.2x	6.7x	15%	2%	3%	7.6x	30.7x	24.7x	37%	14%	58%	1.6x	1.0x	22.0%	7.8%	7.8%
Hudbay Minerals	CAD	0.99x	3.2x	3.5x	3.0x	3.4x	3.4x	2.9x	9%	4%	16%	12.8x	14.1x	10.5x	46%	12%	81%	1.4x	0.8x	11.4%	4.6%	4.6%
Lundin Mining	CAD	1.22x	4.2x	4.6x	3.5x	7.7x	8.4x	6.4x	(8%)	(4%)	7%	19.3x	33.6x	19.3x	49%	20%	12%	0.4x	-1.1x	13.6%	6.7%	6.7%
Teck Resources	CAD	0.69x	4.4x	4.8x	4.8x	4.6x	4.7x	4.6x	8%	14%	15%	7.7x	9.2x	9.0x	48%	22%	37%	1.1x	0.8x	14.1%	7.5%	7.5%
Median		**1.22x**	**4.2x**	**4.8x**	**4.8x**	**4.0x**	**5.5x**	**4.6x**	**8%**	**2%**	**15%**	**12.8x**	**26.3x**	**19.3x**	**46%**	**14%**	**58%**	**1.4x**	**0.8x**	**13.6%**	**6.7%**	**6.7%**
Mean		**1.36x**	**4.7x**	**5.8x**	**5.1x**	**4.7x**	**5.8x**	**5.0x**	**3%**	**3%**	**11%**	**13.3x**	**22.6x**	**18.9x**	**44%**	**14%**	**57%**	**1.9x**	**1.1x**	**12.8%**	**5.3%**	**5.3%**

Source: Company reports, Bloomberg, Barclays Research

GOLD PRODUCERS

AGNICO EAGLE MINES LTD. (AEM; OW)

AEM

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
USD 39.00

Price (05-Oct-2018)
USD 35.09

Potential Upside/Downside
+11.1%

Agnico Eagle Mines Ltd.(AEM): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.28A	N/A	0.15A	0.15A	N/A	0.02E	0.12E	-46%	-87%
Q2	0.24A	N/A	0.01A	0.01A	N/A	0.10E	0.10E	-96%	900%
Q3	0.28A	N/A	0.03E	0.05E	N/A	0.13E	0.20E	-89%	333%
Q4	0.21A	N/A	0.04E	0.10E	N/A	0.15E	0.25E	-81%	275%
Year	1.00A	N/A	0.23E	0.29E	N/A	0.41E	0.77E	-77%	78%
P/E	34.9		N/A			86.2			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Slow and steady approach pays off

Initiating coverage on AEM with $39 PT, OW rating. AEM offers investors a low beta, low risk gold play with a well established and proven approach to capital allocation in the gold mining space. AEM has unique assets anchored by its Nunavut portfolio. We see AEM offering free cash flow and dividend growth with substantial exploration upside. Our price target of $39 is based on a 1.4x P/NAV and 11.0x EV/EBITDA (NTM+1) multiples versus the peer average of 1.2x and 6.8x respectively to reflect AEM's superior value creation track record and strong growth outlook.

Ready to grow. AEM has one of the best growth profiles in the gold mining space owing to its investment in several new projects in recent years. AEM's value creation approach is to move into underappreciated regions with high-grade geological prospectivity, grow reserves through exploration, and then execute on development and operations. AEM's avoidance of mega-projects has helped it avoid capex blow-outs and liquidity issues, while still growing into a 2Mozpa gold miner by 2020, on our estimates.

Building the Nunavut platform. AEM has an expertise in far north mine development, which is a key competitive advantage. It is currently advancing two significant growth projects in Nunavut. The $900M Meliadine project (400kozpa) is 82% complete and the $330M Amaruq satellite pit at Meadowbank is well under way. AEM's infrastructure in the region becomes even more attractive when one considers the 80km of prospective greenstone belt that AEM currently controls at Meliadine. Nunavut has already developed into a key mining camp for AEM and we believe it will be an important source of both free cash flow and accretive new investments over time.

Free cash flow to pick-up. When capex steps down substantially in 2019/20, we expect free cash flow to turn meaningfully positive ($720M/yr or a yield of 9% under our $1,350/oz price deck, or $550M/yr and 7% at $1,200/oz). This should allow AEM to grow its dividend and think about additional projects. We do not expect AEM to aggressively pursue growth, and M&A appears to not be a priority. As a result, we believe AEM could be in a good position to return capital to shareholders. We see net debt peaking at $1.5B in 1Q19 for a net debt to EBITDA ratio of 2.1x. AEM could bring debt down ~$700M, double its dividend for a 2.6% dividend yield, and still have +$500M for new projects at $1,200/oz gold or $1.2B under the Barclays price deck.

North America Metals & Mining — **Industry View: POSITIVE**

Agnico Eagle Mines Ltd. (AEM)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	2,243	2,154	2,324	2,723	6.7%
EBITDA (adj)	927	748	877	1,107	6.1%
EBIT (adj)	418	195	255	329	-7.7%
Pre-tax income	339	133	166	241	-10.7%
Net income (adj)	240	66	96	139	-16.7%
EPS (adj) ($)	1.00	0.23	0.41	0.59	-16.2%
EPS (reported) ($)	1.05	0.28	0.41	0.59	-17.4%
Diluted shares (mn)	232.7	234.9	234.9	234.9	0.3%
DPS ($)	0.41	0.44	0.44	0.44	2.4%

Margin and return data					Average
EBITDA (adj) margin (%)	41.3	34.8	37.7	40.6	38.6
EBIT (adj) margin (%)	18.7	9.0	11.0	12.1	12.7
Pre-tax margin (%)	15.1	6.2	7.2	8.9	9.3
Net margin (%)	10.7	3.1	4.1	5.1	5.7
ROIC (%)	4.4	1.4	1.9	2.5	2.6
ROA (%)	3.1	0.8	1.2	1.8	1.7
ROE (%)	4.9	1.4	2.0	2.8	2.7

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	633	315	302	173	-35.1%
Total assets	7,866	8,242	8,235	7,911	0.2%
Short and long-term debt	1,372	1,719	1,719	1,359	-0.3%
Other long-term liabilities	N/A	N/A	N/A	N/A	N/A
Total liabilities	2,919	3,345	3,345	2,985	0.7%
Net debt/(funds)	739	1,403	1,417	1,186	17.1%
Shareholders' equity	4,947	4,897	4,890	4,927	-0.1%
Change in working capital	-72	-12	0	0	N/A
Cash flow from operations	768	625	717	916	6.1%
Capital expenditure	-874	-1,073	-628	-583	N/A
Free cash flow	-107	-448	89	333	N/A

Valuation and leverage metrics					Average
P/E (adj) (x)	34.9	N/A	86.2	59.4	60.2
P/E (reported) (x)	33.5	N/A	86.2	59.4	59.7
EV/EBITDA (adj) (x)	9.7	12.9	11.0	8.5	10.5
Equity FCF yield (%)	2.2	-2.0	0.9	-0.3	0.2
P/Sales (x)	3.7	3.8	3.5	3.0	3.5
P/BV (x)	1.7	1.7	1.7	1.7	1.7
Dividend yield (%)	1.2	1.3	1.3	1.3	1.2
Total debt/capital (%)	21.7	26.0	26.0	21.6	23.8

Selected operating metrics ($)					CAGR
Gold price ($/oz)	1,258.2	1,259.5	1,268.8	1,300.0	1.1%
Gold production (koz)	1,713.5	1,577.4	1,746.0	2,006.2	5.4%
Cash costs (US$/oz)	558	648	610	556	-0.1%

Price (05-Oct-2018)	USD 35.09
Price Target	USD 39.00

Why Overweight? AEM offers investors a low beta, low risk gold play with a proven approach to capital allocation, unique assets anchored by its Nunavut portfolio, free cash flow and dividend growth with substantial exploration upside.

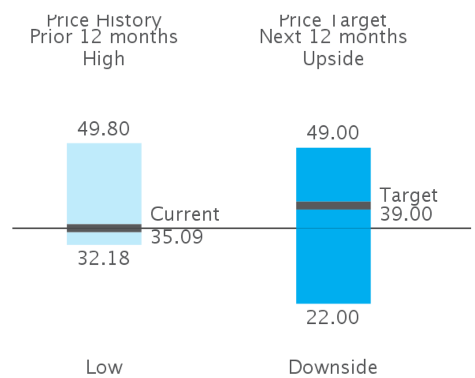
Upside case — **USD 49.00**

Our upside scenario uses a 1.5x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,400/oz gold price.

Downside case — **USD 22.00**

Our downside scenario uses a 1.3x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,100/oz gold price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

Slow and steady value accretion

AEM has developed a solid reputation for creating value in the gold sector. It has one of the best growth profiles in the gold mining space owing to its investment in several new projects in recent years. AEM's value creation approach is to move into underappreciated regions with high-grade geological prospectivity, grow reserves through exploration, and then execute on development and operations. This model has allowed AEM to successfully move from a single asset operation (LaRonde) to a company with nine operating assets, two major growth projects, and property offering significant geologic potential.

Building the Nunavut platform

To access new prospective projects in the gold space today for a reasonable entry price you either need to go remote or go to geopolitically risky jurisdictions. AEM picked the remote option when it entered Nunavut, the northernmost territory of Canada in 2007. Today AEM has one operation in the region and two significant projects. This experience has given AEM an expertise in far north mine development, which is a key competitive advantage. Key barriers for companies in the region include the ability to handle logistics, climate, permits, and successful relationships with indigenous groups. This competitive advantage, plus AEM's infrastructure in the region, becomes even more attractive when one considers the 80km of prospective greenstone belt that AEM currently controls at Meliadine. Nunavut has already developed into an important mining region for AEM and we believe it will be an important source of both free cash flow and accretive new investments over time.

Meliadine is in the midst of development. The mine is AEM's largest ever single project with capex of ~$900M. The project is 82% complete, all the critical materials and spares are on site, and AEM is planning to ramp the project up in 2019. The project has a production rate of over 400kozpa with a modular expansion in 2021 to ramp-up throughput and offset a decline in grade. The initial IRR at the project is below 15% but Meliadine already has some 10Moz of reserves and resources, and this is poised to grow as mineralization is open at depth. AEM will be actively delineating resources as it advances mining with substantial drilling planned in the next few years (Figure 103). Besides delineating and converting resources, it also plans to drill over 10,000m per year in exploration over the next five years at the property.

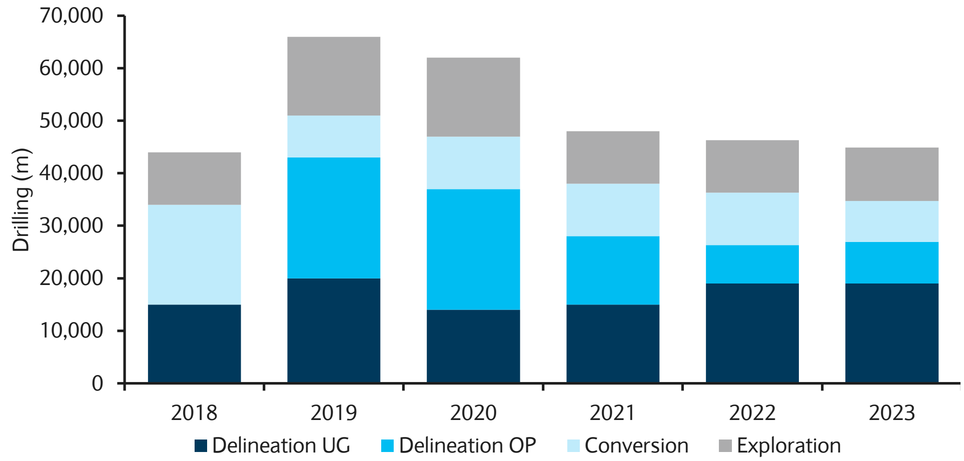
Some 300km to the northwest of Meliadine, AEM is developing the Amaruq deposit next to the maturing Meadowbank mine. This $330M project will provide feed for the Meadowbank mill with production of ~350kozpa at an AISC of ~$915/oz. Amaruq has reserves and resources of 5Moz. While there is only a six-year mine life at present there is potential for mine life extension through an underground mine.

Nunavut exploration is scheduled to pick-up as shown in Figure 103 and we believe this could be a medium-term catalyst for the stock. The pace of development in Nunavut will be contingent on gold prices, the performance of Meliadine and Amaruq, and on the discoveries made. The key risk is execution. However, we like the potential for AEM's Nunavut camp to be a continued source of potentially low-risk growth via the drill-bit. Given the size of the platform, AEM can grow organically rather than seeking acquisitions. This form of growth is slow, but generally the most accretive, and it could become more accretive as AEM's operating base in the region grows.

Execution risk does exist in the ramp-up of Meliadine and Amaruq; however, AEM's experience in the region and good execution track record contribute to our confidence in its ability to deliver.

FIGURE 103

Meliadine exploration plan



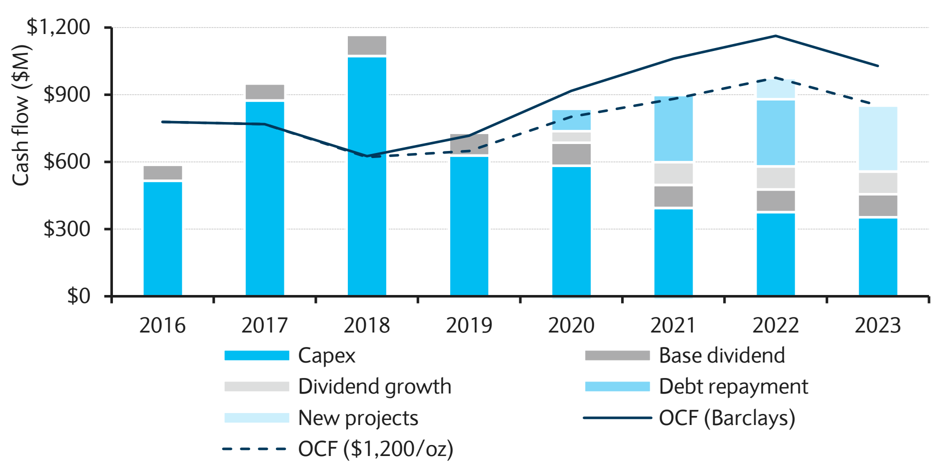
Source: Company reports, Barclays Research

Free cash flow to pick up

The ~$2B of capex spent on growth in 2017-18 has resulted in negative free cash flow. However, when this capex steps down substantially in 2021, we expect free cash flow to turn meaningfully positive ($720M/yr or a yield of 9% under our $1,350/oz price deck, or $550M/yr and 7% at $1,200/oz). This should allow AEM to grow its dividend and think about additional projects. AEM is now a 1.5Moz producer and should hit 2Moz in 2020. We do not expect AEM to aggressively pursue growth, and M&A appears to not be a priority. As a result, we believe AEM could be in a good position to return capital to shareholders. We see net debt peaking at $1.5B in 1Q19 for a net debt to EBITDA ratio of 2.1x. With the FCF profile thereafter, AEM could easily reduce debt, hike its dividend, and still have funds available for new projects, even in a $1,200/oz gold environment, as illustrated in Figure 104.

FIGURE 104

Cash flow – potential uses include dividend, debt repayment, and new projects



Source: Barclays Research. Note: Early debt repayment as shown is optional as is dividend growth and new projects.

FIGURE 105

Agnico Eagle's Project Pipeline

Project	Details	Timing	Our Expectation
Amaruq, Nunavut	(26% IRR at $1200/oz gold). Hosts 2.4Moz at 3.7g/t in reserves and 1.0 Moz at 3.6g/t in M&I resources that will be accessed via open pit. Amaruq will leverage the existing infrastructure at Meadowbank (ore trucked 64km to Meadowbank mill which requires minor modifications including addition of a continuous gravity and regrind circuit). Capex of $330M envisioned for a 9 ktpd operation that will produce ~370kozpa at cash costs of $770/oz over 2020-2024. Ore will be sourced from Whale Tail deposit (as of 2019E) in Phase 1 and from V-Zone in Phase 2 (as of 2020E) of the mine plan. An underground exploration ramp is also advancing that will provide access to test/assess potential for underground mining in these deposits.	Detailed engineering for Whale Tail infrastructure was 87% complete as of 2Q18. Type A water license permit issued in July 2018 essentially allows for construction of Whale Tail. Pre-stripping and construction of Whale Tail are underway. Ore is expected to be mined and stockpiled in 2Q19 ahead of production start up in 3Q19.	We model the project including an extended mine life to 2028 (vs. AEM's 2024) as we include 75% of the M&I resources.
Meliadine, Nunavut	(>15% IRR at $1200/oz gold). Hosts 3.7Moz at 7.1g/t in reserves and 1.2Moz at 3.5g/t in M&I resources that will be accessed via open pit and underground mining. Capex of ~$900M - Phase 1 contemplates 3.75 k tpd ore from underground over the first years. Phase 2 includes 6k tpd ore from both underground and open pit mining. Production is expected to average 400kozpa at cash costs of $590/oz over years 2-14 (2020-2034).	Construction was 74% complete at 2Q18. Production equipment is in transit to site over the current barge season and is expected to start mining and delineating stopes in 4Q18. Production is expected to start in 2Q19.	We model the project using similar parameters.
Canadian Malartic JV Barnat Extension, Quebec	50/50 percent JV between Agnico Eagle and Yamana. The Barnat extension provides access to high grade ore to be blended with Canadian Malartic (CM) pit ore (+25% higher grades than CM deposit according to the 2014 feasibility study). The project involves the deviation of Highway 117, pit preparation and tailings expansion.	Construction is ongoing. Production is expected to start late 2019.	We include Barnat in our Canadian Malartic model and we assume it will help sustain production at above 300kozpa over the next several years.
Kittila, Finland	(~14% IRR for the shaft). Capex of ~$192M (~$144M for shaft and ~$48M for mill using a US/EUR fx rate of 1.2) expansion project increases production by 50-70koz to 250-260koz p.a at cash costs of $685-700/oz over 14 years life of mine. The project includes a 1,044m deep shaft (2.7Mtpa capacity) and expansion of the process plant throughput to 2Mtpa (from 1.6Mtpa) to accommodate an integrated mine plan incorporating the Rimpi and Sisar Zones.	Construction is under way for 2021 start-up.	We model the expansion project using similar parameters.

Project	Details	Timing	Our Expectation
Goldex Akasaba West, Quebec	145koz at 0.87g/t gold and 56Mlb at 0.49% copper in reserves about 40km from Goldex. The plan will be to mine the satellite open pit deposit and use excess mill capacity (ore trucked to Goldex mill where 20% of the gold will be recovered by gravity, and the sulphide copper concentrate will be processed at LaRonde).	Federal and provincial authorization received, AEM is now proceeding with Mining Lease and Certificate of Authorization applications. AEM plans to review the potential timelines of integrating the project into Goldex production profile. The project could potentially start up in 2020 (pending permitting and sanctioning).	We ascribe an in-situ value of ~$30M for the project.
Goldex Deep 2, Quebec	Hosts 213koz at 2.3g/t in M&I resources. Deep 2 Zone is part of the Deep Zone (1200-1500m depth) at Goldex mine. The project has potential to increase production beyond the current run rate from Deep Zone 1 of 3.5k tpd.	Studies are ongoing to accelerate mining activities from Deep 2 Zone which could enhance the Goldex production/cost profile. An exploration ramp is under development to assess the potential to mine portions of Deep 2 Zone. (In addition, studies are also under way to expand mining rates at Deep 1 Zone beyond ~3.5k tpd).	We model all the reserves and 75% of the M&I resources at Goldex mined over time as we assume our estimated sustaining capex (~$150/oz produced) will also cover future underground development costs.
Kirkland Lake, Ontario	The key underground deposits on the property are Upper Beaver (910koz at 4.6g/t in M&I and inferred resources) and Upper Canada (876koz at 4.5g/t in M&I and inferred resources). A previous conceptual study envisioned +250koz from a central process plant.	AEM is in the process of completing a technical review of the project which includes evaluating potential mining scenarios at Upper Beaver and Upper Canada.	We ascribe an in-situ value of ~$500M for all the Kirkland lake assets (including Upper Beaver, Upper Canada, Anoki-McBean, and Amalgamated Kirkland project).
El Barqueno, Mexico	Hosts 327koz at 1.2g/t gold and 1.3Moz at 5.0g/t silver in M&I resources. AEM believes the project could be potentially developed as a series of open pits utilizing heap leach/mill processing (similar to Pinos Altos).	AEM continues to test satellite targets and advance conceptual mining studies.	We ascribe an in-situ value of $240M for the project.

Source: Company reports and Barclays Research

AEM Valuation: $39 price target, Overweight/Positive rating

AEM offers investors a low beta, low risk gold play with a well established and proven approach to capital allocation in the gold mining space. AEM has unique assets anchored by its Nunavut portfolio. We see AEM offering free cash flow and dividend growth with substantial exploration upside potential. Our price target of $39 is based on a 1.4x P/NAV and 11.0x EV/EBITDA (NTM+1) multiples weighted 70/30% versus the peer average of 1.2x and 6.8x respectively to reflect AEM's superior value creation track record and strong growth outlook (our NTM+1 EBITDA estimate is $1,107M).

FIGURE 106
AEM NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating Mines					
Canada					
LaRonde	100%	$1,333	$5.67	5%	16%
Meadowbank incl. Amaruq	100%	$888	$3.78	5%	11%
Lapa	100%	$0	$0.00	5%	0%
Goldex	100%	$456	$1.94	5%	6%
Canadian Malartic	50%	$863	$3.67	5%	10%
Canada Total		**$3,540**	**$15.07**		**43%**
Mexico					
Pinos Altos incl. CM	100%	$552	$2.35	5%	7%
La India	100%	$245	$1.04	5%	3%
Mexico Total		**$797**	**$3.39**		**10%**
Finland					
Kittila	100%	$824	$3.51	5%	10%
Finland Total		**$824**	**$3.51**		**10%**
Total Ops NAV		**$5,160**	**$21.96**		**62%**
Development & Exploration A					
Meliadine	100%	$2,009	$8.55		24%
Ellison	100%	$56	$0.24		1%
Hammond Reef	50%	$158	$0.67		2%
Odyssey	50%	$64	$0.27		1%
Barsele	55%	$68	$0.29		1%
Akasaba West	100%	$29	$0.12		0%
El Barqueno	100%	$240	$1.02		3%
Kirkland Lake assets	100%	$495	$2.11		6%
In-situ NAV		**$3,118**	**$13.27**		**38%**
Total Ops + In-situ		**$8,278**	**$35.23**		**100%**
Corporate/ Balance Sheet					
Investments		$39	$0.17		
Corporate		($379)	($1.61)	10%	
Reclamation and Provisions		($187)	($0.80)		
Cash		$302	$1.29		
Debt		($1,719)	($7.32)		
Total NAV Corp and		**($1,944)**	**($8.27)**		
Total NAV		**$6,334**	**$26.96**		

Source: Company Reports, Barclays Research estimates

AEM Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold prices; failure to deliver Nunavut projects (including Meliadine and Amaruq) on time and budget, and to ramp up of the projects to targeted operating rates

GOLDCORP INC. (GG; OW)

GG

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
USD 14.00

Price (05-Oct-2018)
USD 9.99

Potential Upside/Downside
+40.1%

Goldcorp Inc.(GG): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.10A	N/A	0.07A	0.08A	N/A	0.11E	0.14E	-30%	57%
Q2	0.11A	N/A	0.02A	0.05A	N/A	0.12E	0.15E	-82%	500%
Q3	0.13A	N/A	-0.01E	0.04E	N/A	0.12E	0.16E	N/A	1300%
Q4	0.05A	N/A	0.03E	0.09E	N/A	0.13E	0.16E	-40%	333%
Year	0.40A	N/A	0.11E	0.25E	N/A	0.48E	0.58E	-73%	336%
P/E	25.2		91.7			20.7			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Execution to deliver re-rate

Initiating coverage of GG with $14 PT, OW/Pos rating. We believe Goldcorp is well on the way to delivering low-risk production growth and operating cost reductions largely driven by brownfield projects. With the company delivering on expectations, we think the stock is on the cusp of a re-rating and expect it to trade at higher multiples compared to the peer average. Our price target of $14 is based on 1.2x P/NAV and 7.0x EV/EBITDA (NTM+1), roughly in line with the peer average.

Projects largely leveraging existing infrastructure. GG's project pipeline has an attractive risk profile as almost all of its near-term growth projects (with the exception of Coffee) will leverage infrastructure at existing assets thereby reducing execution risk. The growth is expected to come from existing assets including Penasquito (Pyrite Leach project, and access to higher grades post stripping), Musselwhite (Materials Handling project), Cerro Negro (ramp up) and Eleonore (ramp up); while greenfield projects will include Borden (underground mine to provide trucked ore feed to an existing mill at Porcupine) and Coffee (new 200kozpa heap leach mine in Yukon with expansion potential).

Ideal approach to mega-projects. Investors remain nervous about exposure to greenfield gold projects, especially of the low-grade mega-project variety. However, these projects are a necessary feature of the mining world going forward and offer the potential for significant NAV growth if well executed. We believe GG is approaching Norte Abierto and Nueva Union the best way possible: through JV's and with phased expansion. There will be periods of the cycle where these projects hold large option value, and, once built, where they can generate significant cash flow.

Growth and margin improvement not priced in. GG's 20/20/20 goal lays out an ambitious production and reserve growth plan to be delivered by 2021. However, despite being one of the few gold producers with such an attractive volume and margin growth outlook, the stock has continued to trade at a discount of 4.8x EV/2019 EBITDA and a P/NAV of only 0.95x, vs our 1.2x justified multiple. As targets are met and growth is delivered, we expect the market to begin to re-rate the stock.

North America Metals & Mining — Industry View: POSITIVE

Goldcorp Inc. (GG) — Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	3,423	3,207	4,236	4,583	10.2%
EBITDA (adj)	1,707	1,472	2,297	2,530	14.0%
EBIT (adj)	678	338	941	969	12.6%
Pre-tax income	4	-3	546	636	441.7%
Net income (adj)	658	-49	420	444	-12.3%
EPS (adj) ($)	0.40	0.11	0.48	0.51	8.8%
EPS (reported) ($)	0.40	0.11	0.48	0.51	8.8%
Diluted shares (mn)	869.0	869.0	869.0	869.0	0.0%
DPS ($)	0.08	0.08	0.08	0.08	0.0%

Margin and return data					Average
EBITDA (adj) margin (%)	31.1	36.0	45.2	47.9	40.0
EBIT (adj) margin (%)	14.9	7.7	20.0	19.4	15.5
Pre-tax margin (%)	0.1	-0.1	12.9	13.9	6.7
Net margin (%)	19.2	-1.5	9.9	9.7	9.3
ROIC (%)	2.7	0.9	2.4	2.4	2.1
ROA (%)	3.0	-0.2	1.9	2.0	1.7
ROE (%)	4.6	-0.4	2.9	3.0	2.6

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	186	-27	310	1,290	90.7%
Total assets	21,685	21,530	21,580	21,954	0.4%
Short and long-term debt	2,483	2,625	2,325	2,325	-2.2%
Other long-term liabilities	242	237	237	237	-0.7%
Total liabilities	7,501	7,504	7,204	7,204	-1.3%
Net debt/(funds)	2,297	2,652	2,015	1,035	-23.3%
Shareholders' equity	14,184	14,026	14,376	14,750	1.3%
Change in working capital	145	-120	0	0	-100.0%
Cash flow from operations	1,211	973	1,679	1,919	16.6%
Capital expenditure	-1,075	-1,278	-972	-869	N/A
Free cash flow	136	-305	707	1,050	97.6%

Valuation and leverage metrics					Average
P/E (adj) (x)	25.2	91.7	20.7	19.6	39.3
P/E (reported) (x)	25.2	91.7	20.7	19.6	39.3
EV/EBITDA (adj) (x)	6.4	7.7	4.7	3.8	5.7
Equity FCF yield (%)	3.2	1.3	3.3	12.1	5.0
P/Sales (x)	2.5	2.7	2.0	1.9	2.3
P/BV (x)	0.6	0.6	0.6	0.6	0.6
Dividend yield (%)	0.8	0.8	0.8	0.8	0.8
Total debt/capital (%)	17.5	18.7	16.2	15.8	17.0

Selected operating metrics ($)					CAGR
Gold price ($/oz)	1,266.5	1,262.2	1,268.8	1,300.0	0.9%
Gold production (koz)	2,569.8	2,403.5	2,709.5	2,923.5	4.4%
Cash costs (US$/oz)	499	541	374	392	-7.7%

Price (05-Oct-2018) USD 9.99

Price Target USD 14.00

Why Overweight? We believe GG is well on the way to delivering low-risk production growth and operating cost reductions largely driven by brownfield projects. With the company delivering on expectations, we think the stock is on the cusp of a re-rating.

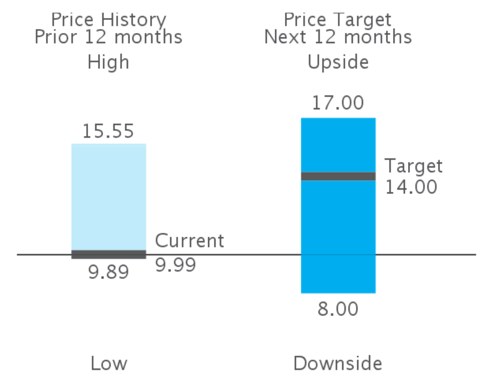
Upside case USD 17.00

Our upside scenario uses a 1.3x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,400/oz gold price.

Downside case USD 8.00

Our downside scenario uses a 0.9x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,100/oz gold price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

Execution to deliver re-rate

In 2016, David Garofalo took over as the CEO of Goldcorp, refreshed the management team and re-set operations after a thorough review of the asset base. These efforts culminated in the identification of operational improvements and project approvals aimed at achieving the 20/20/20 goal: achieving 20% production growth (to 3Mozpa), a 20% decline in all-in sustaining costs (AISC) (to $700/oz), and 20% reserve growth (to 60Moz) by 2021. We believe the production and cost goals are achievable. Reserve growth could be achievable although management refers to it as an aspirational target.

However, despite GG being one of the few gold producers with such an attractive volume and margin growth outlook, the stock has continued to trade at low forward multiples, including 4.8x EV/2019 EBITDA and at a P/NAV of only 0.95x, vs our 1.2x justified multiple. We believe the market may be worried about execution risk, given the not-too-distant past experience of missed expectations and the failed Cochenour project (now being slowly rebooted). However, as targets are met and growth is delivered, we expect the market to begin to re-assess execution.

GG completed two projects in 2Q18 that contribute to its margin and production targets: a cost reduction and productivity improvement project targeting $250M in sustainable annual efficiencies, and the completion of the Penasquito Pyrite Leach project. Looking ahead, there are further opportunities in 2H18 for GG to demonstrate execution (Figure 107).

FIGURE 107

Off to a good start, more check marks should help solidify the track record

Operational target scorecard	Target Completion	Actual Completion	Status	Comments
$250M sustainable annual efficiencies (achieved through cost reduction and productivity improvements)	Mid-2018	2Q18	✔	Sustainable $250M run rate target achieved. An additional $100M identified and targeted for completion by end of 2019, bringing total to $350M annually going forward.
Penasquito Pyrite Leach Project construction (incremental production of 100 -140koz gold and 5-6Moz silver annually)	1Q19	2Q18	✔	Construction completed ahead of schedule and under budget of $420M. The market is watching how the ramp up will progress as commissioning/commercial production were each brought forward by two quarters to 3Q18/4Q18 respectively
Eleonore ramp up to 400koz annual production run-rate	4Q18	TBA	WIP	With Horizon 5 now in production, additional mining fronts are expected to provide more ore to the mill and increase production to a sustainable annual rate of 400koz.
Cerro Negro ramp up to 4k tpd run-rate	4Q18	TBA	WIP	The development of Mariana Norte (4th mine) and Emilia (5th mine) are expected to supplement declining ore from Eureka. First ore from Mariana Norte is expected to be delivered to the mill in 3Q18.
Musselwhite Materials Handling Project (increases production by 20% and lowers operational costs by 10%)	Mid-2019	TBA	WIP	At 2Q18, construction was 76% complete and tracking 10% below budget of $90M. Commissioning is expected 1Q19.

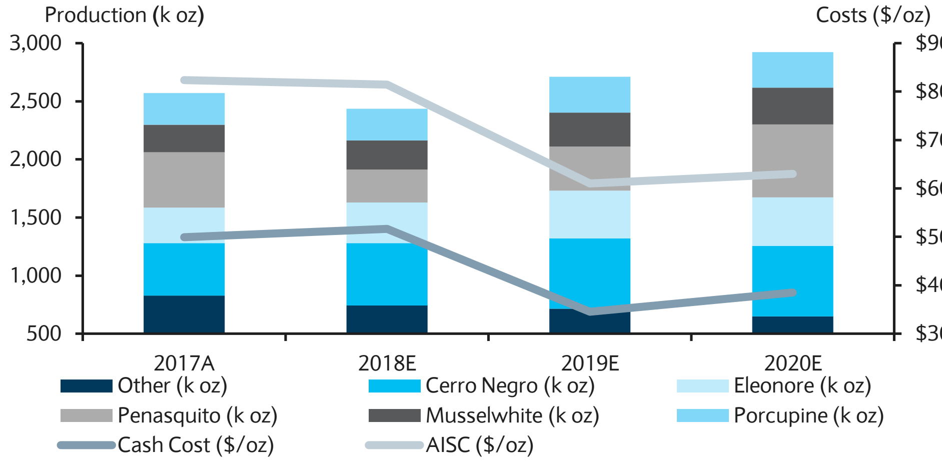
Source: Company reports, Barclays Research estimates

Notes: Details on ongoing projects provided in GG's project list table below; WIP is work-in-progress.

We expect Goldcorp to meet its guidance and believe the stock can achieve a re-rate with the combination of production growth, margin growth, a solid pipeline of projects, a healthy balance sheet, and one of the lowest costs of capital in the business.

FIGURE 108

Increasing production and decreasing costs



Source: Company reports, Barclays Research estimates

Note: Our cost estimates may differ from GG guidance due to different by-product metal pricing assumptions and production mixes

Projects largely leveraging existing infrastructure

We see GG's project pipeline as having a very attractive risk profile as almost all of its near-term growth projects (with the exception of Coffee) leverage infrastructure at existing assets thereby reducing execution risk. The growth is expected to come from existing assets including Penasquito (Pyrite Leach project, and access to higher grades post stripping), Musselwhite (Materials Handling project), Cerro Negro (ramp up) and Eleonore (ramp up); while greenfield projects will include Borden (underground mine to provide trucked ore feed to an existing mill at Porcupine) and Coffee (new 200kozpa heap leach mine in Yukon). With its exploration potential, Coffee could also support the brownfield expansion model by developing into a larger scale operation, thereby supporting the company's long-term vision of sustainable annual production of 3-4Mozpa from 6-8 camps.

Partnering on mega-projects that host significant amounts of gold and copper provides optionality

Given the soft gold market conditions of recent years, investors have been nervous about exposure to greenfield gold projects, especially of the low-grade mega-project variety. The market was therefore not especially thrilled when GG acquired Exeter (Caspiche project) and bought into Cerro Casale in early 2017 joining ABX in the Norte Abierto mega-project JV, in a similar structure to GG's Nueva Union JV with Teck. This could be a contributing factor to Goldcorp's discounted valuation.

Both projects are located in Chile, a well established mining jurisdiction. While we outlined the dangers of mega-projects (risks of capex overshoot can wipe out skinny returns) earlier in the note we also highlighted that these projects will continue to be necessary features of the industry, and there will be periods of the cycle where they hold large option value, and, once built, where they can generate significant cash flow. The JV structure is ideal for these projects as it reduces both the financial burden and prevents construction of superfluous PP&E. Breaking the projects up into several expansion phases also reduces risk. While these projects are not in the 2020 growth plan, they provide optionality longer term and will likely extend the duration of GG's weighted mine life significantly if/when built.

We would note that the economics of these megaprojects are considerably reliant on copper prices. As long-term copper bulls we like these projects; however, gold investors need to be cognizant that a substantial amount of GG's gold content is tied to copper (Figure 109) and hence GG's gold reserve base is being supported towards its 2021 target of 60Moz by 16Moz of relatively low grade gold (0.56g/t Au). Excluding bulk tonnage greenfield projects from reserve calculations reveals a ~40% higher gold grade of 1.25g/t in reserves from the remaining assets, which compares favourably with peers. Finally, it is also worth highlighting that these mega-projects host almost all of GG's copper reserve/M&I resource (~16 Blb) as depicted in the table below.

FIGURE 109

GG's gold grades improve significantly ex-bulk tonnage greenfield projects which host almost all the copper resource

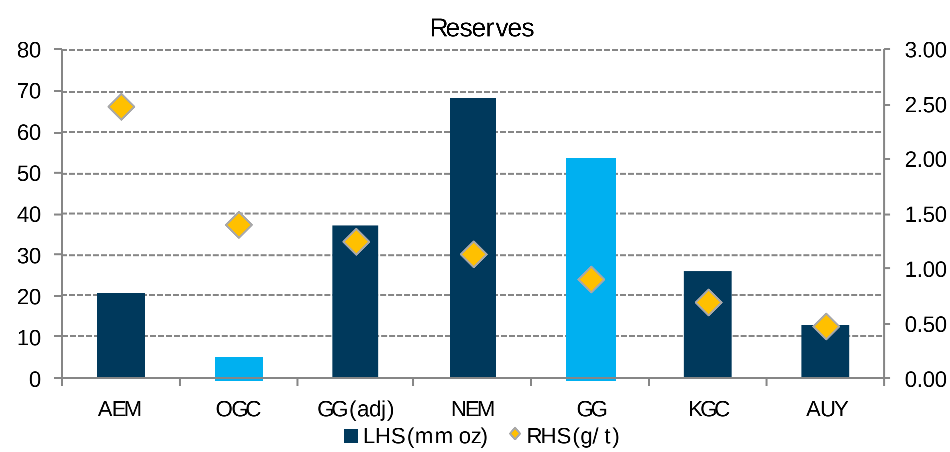
	Goldcorp (reported)		Mega-projects		Goldcorp (adjusted)		Variance	
Gold	**mm oz**	**g/t**	**mm oz**	**g/t**	**mm oz**	**g/t**	**Ounces (%)**	**Grades (%)**
Reserves	53.5	0.91	16.1	0.56	37.4	1.25	-30%	38%
M&I resources	37.1	0.72	13.9	0.48	23.1	1.01	-38%	40%
Copper	**Blb**	**%**	**Blb**	**%**	**Blb**	**%**	**Pounds (%)**	**Grades (%)**
Reserves	11.4	0.33%	11.2	0.34%	0.2	0.13%	-98%	-62%
M&I resources	5.5	0.22%	5.2	0.23%	0.2	0.12%	-96%	-45%

Source: Company reports, Barclays Research

Notes: Reported/Adjusted – include/exclude attributable contributions from mega-projects; Variance compares Goldcorp's adjusted vs. reported companywide reserves/M&I resources

FIGURE 110

Greenfield mega-projects expand gold ounces at the expense of grades in reserves



Source: Company reports, Barclays Research

Note: GG shown adjusted to exclude Cerro Casale and El Morro

FIGURE 111

Goldcorp's Project Pipeline

Project	Details	Timing	Our Expectations
Penasquito Pyrite Leach, Mexico	The pyrite leach increases gold recoveries by unlocking precious metal from pyrite, providing an incremental 100-140koz gold and 4-6Moz silver annually to GG's production profile.	Construction is complete and commissioning has commenced (3Q18). Commercial production is expected in 4Q18. We note that GG has signaled that low grade ore from stockpiles will be processed in 3Q18 as commissioning will entail low throughput and recoveries, resulting in a weak transitional quarter.	We expect Penasquito recoveries to move from 67% to 77% in 2019 with the commissioning of the pyrite leach. Goldcorp does expect potentially lower recoveries due to processing of low-grade material during commissioning.
Musselwhite Materials Handling, Ontario	This project is focused on improving movement of ore to the mill through the addition of a haulage winze allowing more efficient access to deeper zones, and will see mine throughput expand from 3.6k tpd to 4.3k tpd. At full throughput Musselwhite is anticipated to deliver 300kozpa at $700/oz AISC.	The raisebore phase of this $90M project is now complete, with the overall project 76% complete. Hoist commissioning is expected in 4Q19 followed by commercial production in 1Q19. The system should be fully ramped-up by 1Q20.	This project reduces haulage distance, ventilation cost, and increases production. It appears as though it will be delivered below budget.
Century, Ontario	Goldcorp has conceived a large-scale open pit at Porcupine that would require new surface infrastructure. A new mill would be constructed with throughput on the order of 50k tpd; mining a 5.7Moz reserve over the course of 14 years. Capex is estimated at ~$1B with ~$375M in sustaining capex. The 2017 PFS results suggested an IRR in the low double digits. Goldcorp has indicated that operating costs could be reduced 15% from the base case with a revised mill circuit design. Ore sorting and autonomous haulage could drive further savings.	The concept has gone through several trade-off studies and an optimized prefeasibility study should be complete by 4Q18. The goal thereafter is to finish feasibility in late 2019 and move into construction upon receipt of permits. Hollinger ends in late 2021 and hence there is an effort to keep Century on an accelerated path.	We also expect that a further ~1Moz of inferred mineral resources could be brought into the mine plan. This project is "foundational" to Goldcorp's profile beyond 2021. With the contribution from Borden and Century, the Porcupine camp is expected to push to 500koz pa with AISC of $700/oz with the full contribution of Century.
Coffee, Yukon	Hosts 2.15Moz at 1.45g/t in reserves. Permitting is being applied for based on open pit mining and heap leach processing producing 200koz pa but it could be expanded over time. Initial capex is estimated at $300M.	The scope of exploration has been expanded since Goldcorp acquired the project in July 2016. A project proposal was submitted to the Yukon Environmental Assessment Board in December 2017. A collaboration agreement has been signed with First Nations. Engineering is 15% complete. Permitting could be complete by the end of the year, with engineering at 90%. Construction should commence in 2020 and first production could be achieved in 2021.	Goldcorp acquired the asset with the idea that it could grow to 10Moz and become a large district-scale operation. The resource has actually shrunk since the acquisition (higher "geological rigor and discipline") and now stands at 850koz in measured and indicated and 990koz in inferred, in addition to 2.2Moz in reserve. Additional satellite deposits are being discovered, including AmeriKona mineralization, which has been confirmed over a long strike. We believe there are good prospects to ultimately support higher production at double-digit returns, though perhaps not to 400kozpa.
Borden, Ontario	Borden is a greenfield site 160km east of Porcupine. The conceptual plan for the site would see throughput at ~2k tpd shipping ore to the Porcupine complex in Timmins, targeting production of ~100-120koz pa. Capex is on the order of $225M.	Surface infrastructure is in place, ramp development has reached 1,523m, and bulk sample extraction began in August 2018. The mine is scheduled to begin commercial production in 2H19 and contribute one-third of Porcupine production in 2020.	Borden has an eight-year mine life based on reserves of 0.95Moz grading 6.2g/t. It will help keep the Timmins mill topped up, driving down AISC to ~$800/oz.

Project	Details	Timing	Our Expectations
Cochenour, Ontario	Cochenour is a brownfield mine site 5km from Red Lake. The project includes the Bruce Channel gold discovery, connected to Red Lake via a haulage drift. The project has a 146koz reserve with potential to double.	A pre-feasibility study has been completed on the project. Work has shifted from drilling to lateral development. A ramp-up is currently under way from 5-10koz in 2018 to 30-50koz in 2019 based on throughput of 450tpd.	Cochenour has had several false starts. We believe the project has been derisked and is likely to hit the ramp-up expectations this time around. The ultimate goal is to ramp-up both Cochenour and HG Young to help maintain Red Lake production above 300kozpa beyond 2020.
HG Young optionality, Ontario	This deposit is at the Red Lake mine and is located 1.5km northwest of the Campbell complex. It has been a significant exploration target for a few years and could provide supplemental high grade feed to the mills - the current resource opportunity is estimated at 827kt at 20g/t.	Plans to complete a concept study have been continually pushed back while Goldcorp worked to understand the geology. There is a 72,500m drill program under way this year. A concept study is expected to be completed in 1H19 with a pre-feasibility study including a reserve by late 2019. Rehabilitation of underground drifts is ongoing.	We expect HG Young to play a critical but low return role in the future of the Red Lake camp.
NuevaUnion JV, Chile	50/50 percent JV between Goldcorp and Teck that would see the combined and phased development of the two ore-bodies (40km apart) feeding a mill at Relincho which hosts (100% basis) 10Blb at 0.37% copper and 478Mlb at 0.017% moly and El Morro hosts (100% basis) 6.5Blb at 0.49% copper and 9Moz at 0.46g/t gold in reserves. Total LOM project capex is expected to be in the $7B area (or $3.4-3.5B/$2.6-2.7B/$1.0B for each of the three phases)	The PFS completed in 1Q18 envisions for the combined project with production averaging about 345/400/480 Mlb copper annually in three phases over a mine life of 36 years as well as 395koz during the second phase (years 4-18). A feasibility study is expected to be completed by late 2019, allowing engineering and permitting to commence. Construction could start in 2020 for operation in 2023.	We ascribe an in-situ value of ~$0.5B for the project in our model. We are strong advocates of the JV development model that helps avoid construction of superfluous processing capacity. We believe the project can exceed hurdle rates despite the ongoing development capex during the early years of mine life.
Norte Abierto JV, Chile	50/50 percent JV between Goldcorp and Barrick. Cerro Casale hosts (100% basis) 23Moz at 0.60g/t gold and 5.8Blb at 0.22% copper in reserves; Caspiche hosts (100% basis) 23Moz at 0.51g/t gold and 5.7Blb at 0.20% copper in M&I resources.	A PFS on combined optimised project is planned. A three-year voluntary easement was signed with the local community in December 2017 to allow site access. A review of project geology is under way, as well as trade-off engineering studies. Goldcorp is expected fund expenditures amounting to $520M total (less ~$90M attributable Caspiche acquisition cost for ABX) over the next several years.	We currently ascribe a $0.5 billion (net of GG's required funding requirements over the next few years) in-situ value to the project in our model pending further derisking (feasibility studies, permitting) of the project. We note that these projects form a huge system and have the potential to be a long-life megaproject. However, there is also potential for a phased approach starting with an oxide heap leach. Development would be in the next capital investment cycle.
Cerro Negro expansion, Argentina	While Cerro Negro finishes its ramp-up, ongoing orebody discovery and development has prompted an expansion study to determine the optimum size of the project.	Expansion is still in the concept phase with a study likely to be complete by the end of 2018 and development years after. Exploration is ongoing with a number of targets becoming more advanced. Once these deposits are in resource, feasibility work can commence.	We believe the near-and-medium-term focus is likely to be focused on grade maximization rather than throughput expansion, however assuming a growing resource justifies a mill expansion, we could see throughput growing to 5-6k tpd for low capex, resulting in a fairly high return project.
Pueblo Viejo JV plant expansion, Dominican Republic	60/40 percent JV between Barrick and Goldcorp. To mitigate impacts to production from increasing low grade stock pile processing as called for by the mine plan, JV is looking at increasing ore feed 50% to 12Mtpa through a dual processing step of mill/float (4Mtpa) and pre-oxidation heap (8Mtpa). Roughly 3Mtpa of waste tonnes would be removed through the pre-float. The existing plant would then follow (autoclaves and CIL).	PFS and some proof of concept in 2018, if approved could be in place by 2022 and help maintain production profile at ~800koz/year (100% basis)	This project is not currently approved and is subject to other capex decisions including expansion of tailings facilities. We do not presently model the expansion; however, we note that ABX has called the project "extremely promising and very interesting".

Source: Company reports, Barclays Research estimates

GG Valuation: $14 price target, Overweight/Positive rating

We believe Goldcorp is well on the way to delivering low-risk production growth and operating cost reductions largely driven by brownfield projects. With the company delivering on expectations and continuing to focus on the execution of the more tangible/visible operational targets that are due at year-end, we think the stock is on the cusp of a re-rating and should trade at higher multiples compared to peers. Our price target of $14 is based on 1.2x P/NAV and 7.0x EV/EBITDA (NTM+1), slightly above the peer average.

FIGURE 112

GG NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating Mines					
North America					
Red Lake	100%	$592	$0.68	5%	5%
Porcupine	100%	$659	$0.76	5%	5%
Musselwhite	100%	$333	$0.38	5%	3%
Eleonore	100%	$1,141	$1.31	5%	9%
Pueblo Viejo	60%	$1,913	$2.20	5%	16%
Penasquito	100%	$2,815	$3.24	5%	23%
North America Total		**$7,454**	**$8.58**		**62%**
South America					
Cerro Negro	100%	$1,671	$1.92	5%	14%
Alumbrera (37.5%)	38%	$0	$0.00	5%	
South America Total		**$1,671**	**$1.92**		**14%**
Total Ops NAV		**$9,126**	**$10.50**		**76%**
Exploration/ Development					
Noche Buena	100%	$33	$0.04		0%
Cochenour	100%	$645	$0.74		5%
Borden (Porcupine)	100%	$382	$0.44		3%
Cerro Casale/ Caspiche JV	50%	$553	$0.64		5%
Nueva Union	50%	$497	$0.57		4%
Coffee project	100%	$810	$0.93		7%
Exploration (In-situ) Total		**$2,919**	**$3.36**		**24%**
Total Ops + In-situ		**$12,044**	**$13.86**		**100%**
Corporate/ Balance Sheet					
Investments		$127	$0.15		
Corporate		($372)	($0.43)	10%	
Reclamation and Provisions		($294)	($0.34)		
Cash		$310	$0.36		
Debt		($2,807)	($3.23)		
Balance Sheet		**($3,035)**	**($3.49)**		
Total GG NAV		**$9,010**	**$10.37**		

Source: Company reports, Barclays Research estimates

GG Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold, silver and zinc prices; failure to ramp up mines to targeted operating rates (including Penasquito, Eleonore, and Cerro Negro).

KINROSS GOLD CORP. (KGC; OW)

KGC

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
USD 4.00

Price (05-Oct-2018)
USD 2.76

Potential Upside/Downside
+44.9%

Kinross Gold Corp.(KGC): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.02A	N/A	0.10A	0.10A	N/A	0.02E	0.03E	400%	-80%
Q2	0.04A	N/A	0.03A	0.03A	N/A	0.03E	0.04E	-25%	0%
Q3	0.07A	N/A	0.01E	0.02E	N/A	0.03E	0.03E	-86%	200%
Q4	0.01A	N/A	0.01E	0.03E	N/A	0.03E	0.03E	0%	200%
Year	0.14A	N/A	0.14E	0.17E	N/A	0.11E	0.15E	0%	-21%
P/E	19.4		19.6			25.3			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Attractive valuation, steady production, political risk appears priced

Initiating coverage on KGC with a $4 price target, OW/Pos rating. Our primary attraction to KGC stems from its valuation, where it trades at a P/NAV of 0.72x versus comps at 1.08x and an EV/EBITDA 2019E of 3.6x versus comps at 5.9x. It has been our experience that investors can do well buying into higher geopolitical risk names when that risk appears priced in. The lack of escalation at Tasiast to-date keeps us hopeful that the outcome of the present discussion on mutual benefits will reach a reasonable conclusion. Regardless, we do not model Tasiast Phase II and the stock remains attractive without it. Our price target of $4.00 is based on 1.1x P/NAV and 5.0x EV/EBITDA (NTM+1) versus peer average of 1.2x and 6.8x respectively.

Resolution at Tasiast would offer upside. We have removed Tasiast Phase II from our model while KGC engages in "mutually beneficial discussions" with the Mauritanian government. This is a conservative approach, and could be improved upon should Phase II be restarted or be divided into several phases. Including Phase II adds ~$0.55/sh to our NAV (+13%), which would improve our valuation by ~10% when applying our 70% NAV weight. Meanwhile KGC is taking steps to mitigate country risk with the help of project finance and political risk insurance backed by the World Bank and other institutions.

2020 FCF yield 15% at spot. With the initial expansion at Tasiast (Phase 1 expansion to 12k tpd) now complete and new heap leach projects under way at Bald Mountain (Vantage Complex expands production), Round Mountain (Phase W extends mine life to ~2027), and Fort Knox (Gilmore extends mine life to 2030), we think KGC will be able to deliver production in the 2.6M GEO range annually at AISC below $950/GEO and generate significant free cash flow over the next five years.

Solid production profile over the next 5 years, then new projects needed. Our modelling suggests a significant decline in production around the 2023 timeframe as the mature Kupol and Chirano assets reach the end of mine life. Tasiast Phase II is presently halted; however, if the project build is resumed in the near future then KGC may still have enough time to complete it before the pending production decline sets-in. Without Phase II, we will have to see new projects prioritized in the pipeline to avoid a potentially significant drop in production. In the meantime, KGC is also taking a fresh look at its projects in Chile, La Coipa and Lobo Marte, which are in feasibility and scoping respectively.

North America Metals & Mining — **Industry View: POSITIVE**

Kinross Gold Corp. (KGC)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	3,303	3,254	3,415	3,488	1.8%
EBITDA (adj)	1,177	1,084	1,168	1,287	3.0%
EBIT (adj)	358	281	295	407	4.4%
Pre-tax income	419	212	225	343	-6.5%
Net income	445	123	137	206	-22.6%
EPS (adj) ($)	0.14	0.14	0.11	0.16	4.9%
Diluted shares (mn)	1,257	1,259	1,259	1,259	0.1%
DPS ($)	0.00	0.00	0.00	0.00	N/A
Margin and return data					**Average**
EBITDA (adj) margin (%)	35.6	33.3	34.2	36.9	35.0
EBIT (adj) margin (%)	10.8	8.6	8.6	11.7	9.9
Pre-tax margin (%)	12.7	6.5	6.6	9.8	8.9
Net margin (%)	13.5	3.8	4.0	5.9	6.8
ROIC (%)	8.7	2.4	2.3	3.2	4.2
ROA (%)	8.0	2.2	2.1	3.0	3.8
ROE (%)	4.3	3.9	2.9	4.4	3.9
Balance sheet and cash flow ($mn)					**CAGR**
Cash and equivalents	1,026	556	892	1,573	15.3%
Total assets	8,157	8,236	8,372	8,577	1.7%
Short and long-term debt	1,733	1,734	1,734	1,734	0.0%
Other long-term liabilities	134	151	151	151	3.9%
Total liabilities	3,538	3,575	3,575	3,575	0.3%
Net debt/(funds)	707	1,178	842	161	-39.0%
Shareholders' equity	4,584	4,628	4,765	4,971	2.7%
Change in working capital	-27	-62	0	0	N/A
Cash flow from operations	952	911	1,008	1,085	4.5%
Capital expenditure	-898	-1,066	-673	-404	N/A
Equity free cash flow	691	-103	275	682	-0.4%
Valuation and leverage metrics					**Average**
P/E (adj) (x)	19.4	19.6	25.3	16.8	20.3
EV/EBITDA (adj) (x)	3.6	4.3	3.7	2.8	3.6
Equity FCF yield (%)	19.9	-3.0	7.9	19.6	11.1
P/Sales (x)	1.1	1.1	1.0	1.0	1.0
P/BV (x)	0.8	0.8	0.7	0.7	0.7
Dividend yield (%)	0.0	0.0	0.0	0.0	0.0
Total debt/capital (%)	27.4	27.3	26.7	25.9	26.8

Price (05-Oct-2018)	**USD 2.76**
Price Target	**USD 4.00**

Why Overweight? Our primary attraction to KGC stems from an attractive valuation. It has been our experience that investors can do well buying into higher geopolitical risk names when that risk appears priced in. KGC has a solid production profile over the next 5 years.

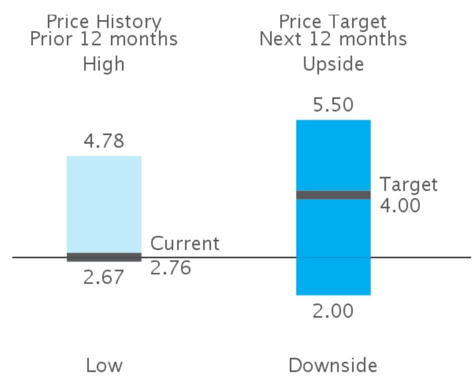
Upside case — **USD 5.50**

Our upside scenario uses a 1.2x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,400/oz gold price.

Downside case — **USD 2.00**

Our downside scenario uses a 0.9x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,100/oz gold price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

Tasiast Phase 2 expansion on hold; resolution offers upside

Tasiast is one of KGC's most important assets making up ~20% of the company's 2.6M GEOpa production, 26% of the NAV, and 30% of reserves, at ~3x the grade of the company average. More importantly, two of KGC's assets, Chirano and Kupol, come to an end in 2023 and Tasiast Phase II was to have been an important source of production at that time.

KGC recently finished the Tasiast Phase I expansion from 8 ktpd to 12 ktpd throughput and has been ramping up the mill this summer. Construction on the larger phase 2 expansion was to have started this year and would have taken mill throughput from 12 ktpd to 30 ktpd by mid-2020, bringing production to 810koz at an AISC of $655/oz over its first 5 years (2020-2024), for capex of $590M and a 24% IRR.

KGC disclosed in May 2018 that the Mauritania government had rejected KGC's request for an exploitation permit at a satellite resource, Tasiast Sud, due to failure to meet feasibility criteria, but the exact reasoning was unclear. Separately, KGC also received a letter from the Government stating a desire to enter "mutually beneficial discussions" with respect to KGC's operations in Mauritania. Discussions are to be initiated by a proposal from KGC offering greater overall economic benefits to Mauritania. By August, KGC had disclosed that it was pausing Phase II activities while it engaged with the government.

With next steps still unclear, we have removed Phase II from our model. This is a conservative approach, and could be improved upon should Phase II be restarted or divided into several phases. Including Phase II adds ~$0.55/sh to our NAV, or ~13%, which would improve our valuation by ~10% when applying our 70% NAV weight.

Reducing country risk via multilateral institution financing; no significant impact expected from new mining tax code which is yet to be passed

KGC has been seeking to improve its negotiating position in Mauritania by aligning itself with major financial institutions. In 1Q18 it entered a $300M political risk insurance policy with the Multilateral Investment Guarantee Agency (MIGA), a branch of the World Bank, which would be a last-resort approach to recovering losses if there was a change in the mine's contract terms. It is also working to put in place a $300M project finance facility with recourse to Phase I with the International Finance Corporation (IFC), a member of the World Bank, Export Development Canada, and potentially commercial banks. As KGC has $2.5B in liquidity and no debt due before 2021, we think KGC has a strong balance sheet and does not necessarily need the additional liquidity but a successful completion of the project financing could help mitigate Mauritania country risk downside.

According to KGC it is still unclear what the Government of Mauritania wants but CEO Paul Rollinson provided a guess of "more cash sooner". It does not appear that the Government wishes to escalate the dispute or re-open KGC's mining convention (the tax framework) with Mauritania. We also note that there is a preliminary draft of a new tax code that was funded by the European Union and prepared with the help of the French tax administration (the current one is from 1982). Because of the stabilization clauses in its mining conventions, KGC's initial takeaway is that it does not expect significant changes to its tax position at Tasiast with the exception of payroll and minimum taxes and would likely not apply until 2019.

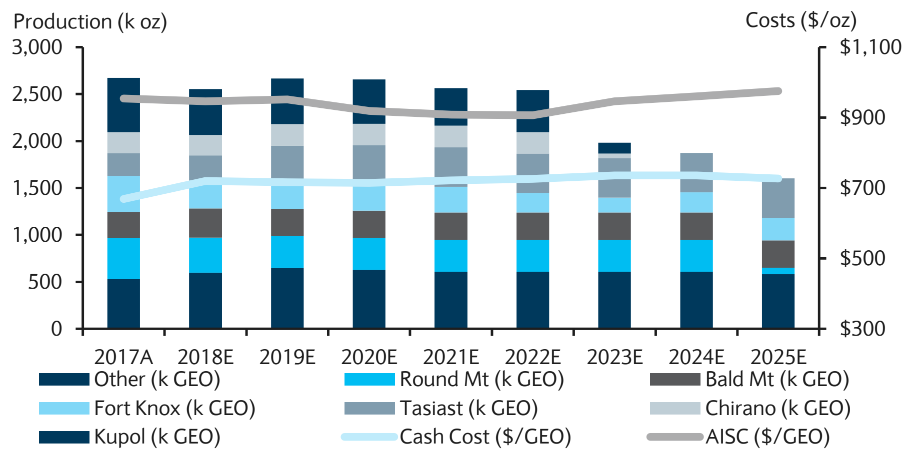
We have not assumed any change to taxation or royalties. Under its Mining Convention, Tasiast pays a 25% income tax rate, 3% NSR royalty, a 1.25% fixed minimum tax, 16% VAT on imports, and income tax on expatriates of 20% (standard is 40%). For reference, every 1% of royalty is worth ~$40M of Tasiast NAV in our model.

Set up to generate significant free cash flow over the next five years

With the initial expansion at Tasiast (Phase 1 expansion to 12k tpd) now complete and new heap leach projects under way at its mines in the United States, including Bald Mountain (Vantage Complex expands production), Round Mountain (Phase W extends mine life to ~2027), and Fort Knox (Gilmore extends mine life to 2030), we think KGC will be able to deliver production in the 2.6M GEO range annually at AISC below $950/GEO and generate significant free cash flow over the next five years.

FIGURE 113

Solid production profile over the next 5 years



Source: Company reports, Barclays Research

However, our modelling suggests a precipitous decline in production around the 2023 timeframe as the mature Kupol and Chirano assets reach the end of mine life. Tasiast Phase II is presently halted; however, if the project build is resumed in the near future then KGC may still have enough time to complete it before the pending production decline sets in. Without Phase II, we will have to see new projects prioritized in the pipeline to avoid a potentially significant drop in production.

Going back to Chile for next phase of development projects

KGC is taking a fresh look at its projects in Chile: La Coipa and Lobo Marte.

KGC is conducting a feasibility study at La Coipa that could see the existing mill refurbished and operations restarted processing high grade material from Phase 7 of the deposit.

Lobo Marte is 80km from La Coipa. KGC is conducting a scoping study that could see the larger Lobo Marte deposit (7Moz, 1.2g/t M&I) brought in after La Coipa with the potential to realize synergies via sharing of resources such as water, mining fleet and the camp. The scoping study will also include new technologies and lessons learned from its heap leach mines (Maricunga and Fort Knox). We view these projects as offering optionality, and they could be developed over the next investment cycle.

FIGURE 114

Kinross' Project Pipeline

Project	Details	Timing	Our Expectations
Tasiast Phase 2, Mauritania	(24% IRR at $1200/oz gold) Phase 2 expansion increases mill throughput to 30k tpd (from 12k tpd) through the addition of a larger ball mill and leaching capacity. $590M initial capex envisioned will increase Tasiast production to 634k GEO p.a. at cash costs of $530/GEO over the life of mine between 2020-2029 (incl. 812k GEO p.a. at cash costs of $440/GEO between 2020-2024)	Previously expected to be completed by 3Q20 but development activities have been paused as the company analyses "alternative throughput approaches to expand Tasiast" and continues to engage the government of Mauritania.	We do not include the second expansion project. We only model the expansion to 12ktpd for Phase 1 which was completed 2Q18. We include $130M/$70M of stripping capex in 2018/2019 of the $438M which was guided to for Phase 1 over 2016-2019.
Round Mountain Phase W, USA	(13% IRR at $1200/oz gold). Initial capex of $230M plus $215M for capitalized stripping for a new heap leach, Carbon-In-Column (CIC) plant and relocation of infrastructure. The project is expected to deliver a total of 1.5mm GEO and extend mine life by 5 years, and increases production to 253k GEO p.a. at cash costs of $765/GEO over the life of mine between 2018-2027 (including 341k GEO p.a. at cash costs of $765/GEO between 2018-2024).	Detailed engineering is 95% complete. Pre-stripping started late 2017 after receiving permits (Record of Decision) in 4Q17. Construction of CIC plant underway. First ore is expected mid-2019.	We include the project in our model.
Bald Mountain Vantage Complex, USA	Vantage Complex is in the South Area of Bald Mountain (whereas current operations are in the North Area) and hosts over 1.1mm GEO in reserves and M&I resources combined. Capex of $105M to establish a new heap leach pad and processing facilities that will increase production at the mine.	Engineering is 95% complete. Construction is under way for 1Q19 start-up.	We include the project in our model which should help sustain production at/close to the recently established annual rate of 283k GEO in 2017 (vs. 130k GEO in 2016).
Fort Knox Gilmore expansion, Alaska	(17% IRR at $1200/oz gold). The Gilmore project includes a layback of the existing pit and construction of a new heap leach pad. $100M capex plus $60M capitalised stripping is envisioned to unlock total production of 1.51mm GEO, extending the operation from 2021 to 2030. Over the remaining life of mine, Fort Knox is expected to produce an average of 205k GEO p.a. at cash costs of $745/GEO (incl 245k GEO p.a. at $735/GEO between 2018-2027 prior to residual leaching).	The heap leach project was sanctioned in June 2018, dewatering started in 3Q18, stripping is expected to start in 2019 and initial production in early 2020 (Fort Knox milling ends in late 2020).	We include the project in our model per the feasibility study production/cost profiles.
Kupol, Russia	At Moroshka, 4km from Kupol, twin declines are being developed. At Dvoinoye Zone 1 deposit, the portal construction is complete and work on mine/surface infrastructure is ongoing. Overall, these satellite deposits extend Kupol mine life by one year to 2022.	Production is expected in 4Q18 from Moroshka and mid-2019 from Dvoinoye Zone 1	We do include the satellite projects plus 75% of M&I resources which extend the mine life to early 2023 (vs. KGC's 2022).

Project	Details	Timing	Our Expectations
La Coipa Restart Project, Chile	(IRR of 20% at $1200/oz gold). Phase 7 and Puren deposits host 844koz at 1.7g/t in reserves and 903koz at 1.9g/t in M&I resources. Restart PFS envisioned capex of $94M plus $105M for prestripping for a 13k tpd operation producing 207k GEO p.a at cash costs of $674/oz over 5.5 years	Remaining two sectorial permits expected 2H18. Feasibility study expected to be completed 2H19.	We do not ascribe any value to the project in our model.
Lobo Marte, Chile	Hosts 7.0Moz at 1.2g/t in M&I resources. Lobo Marte is located 80km from La Coipa. A 2009 PFS contemplated capex of $575-650M for a 47k tpd heap leach operation producing 350-400k GEO over first 5 years. In 2014, KGC withdrew its permit application due to changes in plan of operations, project economics and stringent permitting requirements.	A scoping study to assess the start-up of production at the end of La Coipa Restart mine life is being advanced and expected to be completed 1H19.	We ascribe an in-situ value of $177M to the project in our model.

Source: Company reports, Barclays Research estimates

KGC Valuation: $4.00 price target, Overweight/Positive rating

Our primary attraction to KGC stems from its valuation, where it trades at a P/NAV of 0.72x versus comps at 1.08x and an EV/EBITDA 2019E of 3.6x versus comps at 5.9x. It has been our experience that investors can do well buying into higher geopolitical risk names when that risk appears priced in. The lack of escalation at Tasiast to-date keeps us hopeful that the outcome of the present discussion on mutual benefits will reach a reasonable conclusion. Regardless, we do not model Tasiast Phase II and the stock remains attractive without it. Our price target of $4.00 is based on 1.1x P/NAV and 5.0x EV/EBITDA (NTM+1) versus peer average of 1.2x and 6.8x respectively.

FIGURE 115

KGC NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating Mines					
North America					
Fort Knox	100%	$429	$0.34	5%	7%
Bald Mountain	100%	$566	$0.45	5%	9%
Round Mountain	100%	$470	$0.37	5%	8%
Total North America		**$1,466**	**$1.16**		**24%**
South America					
Paracatu	100%	$1,741	$1.38	5%	28%
La Coipa	100%	$0	$0.00	5%	
Maricunga	100%	$7	$0.01	5%	0%
Total South America		**$1,748**	**$1.39**		**28%**
Russia					
Kupol / Dvoinoye	100%	$793	$0.63	5%	13%
West Africa					
Tasiast	100%	$1,617	$1.28	5%	26%
Chirano	90%	$403	$0.32	5%	6%
Total West Africa		**$2,020**	**$1.60**		**33%**
Total Operating Mines		**$6,027**	**$4.79**		**97%**
Exploration					
Lobo-Marte		$177	$0.14		3%
Total Exploration (in-situ)		**$177**	**$0.14**		**3%**
Total Ops + In-situ		**$6,204**	**$4.93**		**100%**
Corporate					
Corporate		($323)	($0.26)	10%	
Reclamation and Provisions		($423)	($0.34)		
Investments		$91	$0.07		
Total Debt		($1,734)	($1.38)		
Cash		$892	$0.71		
Total Corporate		**($1,497)**	**($1.19)**		
Total NAV		**$4,707**	**$3.74**		

Source: Company reports, Barclays Research estimates

KGC Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold prices; failure to ramp up brownfield expansion projects to targeted operating rates (including recently completed Tasiast Phase 1 expansion, and new heap leach projects at mines in the US); unfavorable resolution of the ongoing negotiations with the government of Mauritania.

NEWMONT MINING CORP. (NEM; OW)

NEM

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
USD 34.00

Price (05-Oct-2018)
USD 30.58

Potential Upside/Downside
+11.2%

Newmont Mining Corp.(NEM): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.25A	N/A	0.35A	0.35A	N/A	0.35E	0.36E	40%	0%
Q2	0.46A	N/A	0.27A	0.26A	N/A	0.38E	0.35E	-41%	41%
Q3	0.34A	N/A	0.15E	0.23E	N/A	0.39E	0.34E	-56%	160%
Q4	0.39A	N/A	0.14E	0.32E	N/A	0.39E	0.35E	-64%	179%
Year	1.45A	N/A	0.90E	1.22E	N/A	1.51E	1.47E	-38%	68%
P/E	21.1		34.0			20.3			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

A high quality gold miner

Initiating coverage on NEM with $34 PT, OW/Pos rating. Given NEM's strong portfolio of assets and accretive investment opportunities, we apply premium target multiples of 1.4x P/NAV and 8.0x EV/EBITDA (NTM+1) resulting in our $34 target. We see NEM as a high quality gold miner and rate the stock Overweight.

NEM already offers a strong platform: Newmont has a global asset base of established gold and copper operations and a number of expansion options in its project pipeline. The diverse asset base paired with a comprehensive capital allocation framework has seen it execute eight projects in the last four years generating an average IRR of over 20%.

What is the upside surprise potential? Yanacocha and Ghana: Our NEM model has a slightly declining production profile with increasing costs, as shown in Figure 116. However, NEM has a number of projects that could allow it to maintain production. We see three particular upside opportunities. Yanacocha is an asset which the market attributes little value to given the maturing of oxide reserves; however, we expect further details on Yanacocha sulfides to provide visibility on a multi-phase investment plan, turning the project back into a growth asset. In Ghana, we think the geological upside of Ahafo and the potential for investment in the Ahafo underground should provide an ongoing source of value accretion for NEM. Both of these projects could have upside surprise potential in 2019 as more details become available. Lastly, comments regarding the "unification of Nevada" from the New Barrick management team re-open the possibility of realizing long sought synergies in the region, if the terms are sufficiently positive for NEM.

Free cash flow could suggest funds for off-cycle M&A: NEM has used excess free cash flow to boost its dividend but we still expect it to grow its cash balance by ~$1Bpa through 2021. Net debt hits zero by late 2019 in our current model. It has already boosted its dividend, and in combination with a small buyback it could be positioned to return some $350M in cash to shareholders this year. NEM has outlined the potential to replace reserve depletion through M&A, and we have just seen an example of that as NEM acquired 50% of Galore Creek (JV with Teck). We expect NEM to continue to look at M&A opportunities, including at Kalgoorlie where it had previously expressed interest in consolidating the asset.

North America Metals & Mining — **Industry View: POSITIVE**

Newmont Mining Corp. (NEM)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	7,379	6,997	7,585	7,195	-0.8%
EBITDA (adj)	2,653	2,262	3,002	2,818	2.0%
EBIT (adj)	1,397	1,044	1,691	1,686	6.5%
Pre-tax income	1,093	930	1,520	1,537	12.0%
Net income (adj)	774	481	807	886	4.6%
EPS (adj) ($)	1.45	0.90	1.51	1.66	4.6%
EPS (reported) ($)	-0.18	1.18	1.51	1.66	N/A
Diluted shares (mn)	535	535	535	535	0.0%
DPS ($)	0.25	0.52	0.40	0.40	17.0%

Margin and return data					Average
EBITDA (adj) margin (%)	36.0	32.3	39.6	39.2	36.8
EBIT (adj) margin (%)	18.9	14.9	22.3	23.4	19.9
Pre-tax margin (%)	14.8	13.3	20.0	21.4	17.4
Net margin (%)	-1.3	9.1	10.6	12.3	7.7
ROIC (%)	3.4	3.6	6.0	5.8	4.7
ROA (%)	3.1	3.4	5.5	5.5	4.4
ROE (%)	7.2	4.5	7.4	7.7	6.7

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	3,259	3,014	3,492	4,524	11.6%
Total assets	20,563	20,762	20,730	21,403	1.3%
Short and long-term debt	4,065	4,121	3,495	3,495	-4.9%
Other long-term liabilities	342	284	284	284	-6.0%
Total liabilities	8,933	8,822	8,196	8,196	-2.8%
Net debt/(funds)	806	1,107	3	-1,029	N/A
Shareholders' equity	10,609	10,920	11,514	12,187	4.7%
Change in working capital	-183	-510	0	0	N/A
Cash flow from operations	2,348	1,457	2,118	2,019	-4.9%
Capital expenditure	-866	-1,264	-818	-790	N/A
Free cash flow	1,497	198	1,300	1,229	-6.4%

Valuation and leverage metrics					Average
P/E (adj) (x)	21.1	34.0	20.3	18.5	23.5
P/E (reported) (x)	N/A	25.8	20.3	18.5	21.5
EV/EBITDA (adj) (x)	6.5	7.7	5.5	5.4	6.3
Equity FCF yield (%)	-3.1	5.9	1.0	7.5	2.8
P/Sales (x)	2.2	2.3	2.2	2.3	2.2
P/BV (x)	1.5	1.5	1.4	1.3	1.5
Dividend yield (%)	0.8	1.7	1.3	1.3	1.3
Total debt/capital (%)	27.7	27.4	23.3	22.3	25.2

Selected operating metrics ($)					CAGR
Gold price ($/oz)	1,256	1,258	1,269	1,300	1.2%
Gold production (koz)	5,266	4,955	5,389	5,036	-1.5%
Cash costs (US$/oz)	692	731	659	699	0.3%

Price (05-Oct-2018)	USD 30.58
Price Target	USD 34.00

Why Overweight? Newmont is a top quality gold miner with a global asset base of established gold and copper operations and a number of expansion options in its project pipeline. The diverse asset base paired with a comprehensive capital allocation framework justify the stock's premium valuation.

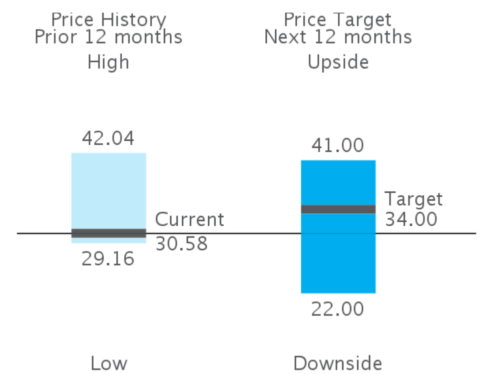
Upside case USD 41.00

Our upside scenario uses a 1.5x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,400/oz gold price.

Downside case USD 22.00

Our downside scenario uses a 1.2x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,100/oz gold price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

A high quality gold miner

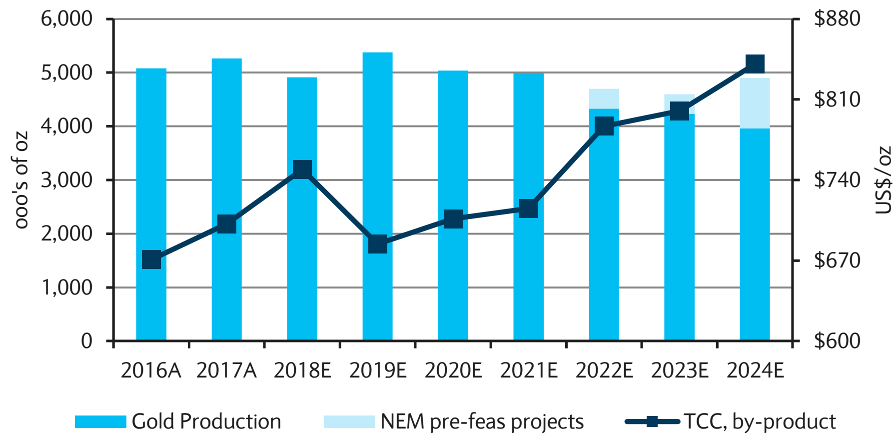
We see NEM as a top quality gold miner deserving of premium multiples. A key focus for us is gauging whether NEM could have further upside potential on projects or exploration and what uses it could have for its excess free cash flow.

What is the upside surprise potential?

Our current outlook for NEM has a slightly declining production profile with increasing costs, as shown in Figure 116. However, NEM has presented a flatter production profile including medium-term projects and pre-feasibility projects that would allow it to maintain production.

FIGURE 116

NEM production and cost profile



Source: Company reports and Barclays Research estimates
Notes: NEM pre-feasibility projects incremental production is for illustrative purposes only and is not included in our estimates

We have included a list of NEM's projects in Figure 117; however, we want to flag three particular upside opportunities.

Renewing Yanacocha: Newmont has been mining oxide ore at Yanacocha for 25 years and has been studying the long-term sulphide potential for almost as long. Yanacocha today has a fading production profile and NEM will be investing in the low-returning Quecher Main project to keep the asset alive while it continues to advance studies of Yanacocha sulphides. Due to uncertainty over the sulphide future at Yanacocha, we only carry the asset at a NAV of $213M. However, recently NEM has highlighted a technical solution to deal with arsenic in the sulphides using a twin autoclave. It has put rough parameters around a $2B (100%) capex project producing 350k gold equivalent ounces (51% attributable) over the life of mine, with a front-end weighted grade profile. We don't think this will be an especially high returning investment but we believe this first wave of sulphide processing could open up a number of additional projects and bring more resource into play at Yanacocha with progressively improving IRRs.

Opportunities in Ghana: Ahafo North is also in definitive feasibility and not yet in our model; however, we could have a better idea of economics by the end of 2019. We would expect a NAV above our current in-situ valuation of $51M. A 3.5-4Mtpa mill could be producing by 2023. NEM is also ramping up Subika underground, which is serving as a test case for a future underground option at Ahafo. The Ahafo underground is an exciting exploration prospect which could ultimately tie in Apensu North and Apensu South as well.

Unification of Nevada: The New Barrick management team has commented that it would like to again explore how to unlock value in Nevada. Given the size of NEM and ABX's footprints and combined infrastructure in the region, we believe better cooperation could realize cost savings and upside to throughput. Discussions regarding Nevada are likely contingent on approval of the New Barrick transaction, and will take time to realize, but NEM has acknowledged the potential. If the New Barrick deal is completed, we see a higher probability of NEM realizing long-sought synergies in Nevada.

We see these projects as having upside surprise potential in 2019 as more details become available.

What will NEM do with its excess free cash?

NEM has boosted its dividend but we still expect it to grow its cash balance by ~$1Bpa through 2021. Net debt hits zero by late 2019 in our current model. It has already boosted its dividend, and in combination with a small buyback it could be positioned to return some $350M in cash to shareholders this year.

One use of cash is M&A. NEM had stated at its analyst day in late 2017 that it had a goal of replacing two-thirds of its reserve depletion organically from its near-mine portfolio, but would look to fill the remainder with M&A. This could include producing assets or exploration stage assets.

In July 2018, Newmont reached an agreement with Novagold to acquire their 50% stake in the Galore Creek project for a cash payment of $275M, entering into a 50/50 ownership structure with Teck Resources. The project sits on one of the world's largest undeveloped copper-gold-silver deposits in a favourable mining jurisdiction. However this project is likely to be on the 10- to 15-year time horizon and hence is outside the investment horizon of most investors. Newmont has stated that the project provides the company with long-term optionality and a multi-decade production profile. The company plans to deliver a prefeasibility study in the next 3-4 years.

Newmont has also expressed an interest in consolidating Kalgoorlie, which is operated as a JV with ABX. ABX has called the asset non-core and commenced a sale process in 2016. Press reports indicated a $1.3B deal had been agreed upon but it was never completed as the winning bidder could not raise the funds. We view the $1.3B valuation from that deal as highly excessive versus our current ~$0.5B valuation which also takes into account the depletion of the asset since 2016 when the deal was announced. We believe any deal agreed to by NEM would be at a much lower valuation.

FIGURE 117

Newmont's Project Pipeline

Project	Details	Timing	Our Expectations
Subika Underground, Ghana	(IRR>20% at $1200/oz gold price). Subika underground is the continuation of the Subika surface mine. The deposit was drilled significantly ahead of the investment decision. The mine is expected to ramp to 1.1Mtpa using long-hole open stoping, accessed via dual declines. The high grade feed has synergies with the Ahafo Mill Expansion project.	NEM produced first gold in June 2017. The ramp-up has had some minor delays but NEM still expects to reach commercial production in 4Q18. As of 2Q18, some $130M of the ~$180M budget has been sunk. The mine is expected to contribute ~150-200kozpa for the first five years of operation.	The high grade ore at Subika will help improve unit economics at Ahafo in the near and medium-term. The deposit remains open at depth and strike and hence this investment could have further upside as exploration continues. We currently include the production in our numbers but do not allocate value for exploration upside.
Ahafo Mill Expansion, Ghana	(IRR>20% at $1200/oz gold price). The Ahafo mill expansion includes a new primary crusher, coarse ore stockpile, SAG mill and two leach tanks. With throughput of 3.5Mtpa it increased throughput by 55%.	The project commenced end of 2017. Progress has been delayed by a construction tragedy involving 6 fatalities in early 2Q18. Commercial production is anticipated in 2H19. As of 2Q18, some $83M of the ~$150M budget has been spent. The project will allow additional production of 75-100kozpa with minimal additional overhead.	Assuming the construction restarted in August 2018, we believe the timeline is achievable. The mill expansion will reduce unit costs and allow accelerated processing of stockpiles. NEM expects this and Subika to allow profitable production until at least 2029, which is in-line with our expectations. These expansions also led to extension of tax and royalty stability.
Ahafo North, Ghana	The project is a new district at Ahafo, 30km north of the existing operations. The district includes 7 surface deposits along a 14km strike. There are 3.4Moz in reserves and 1Moz in resources, likely to be processed with a stand-alone mill at 3.5-4Mtpa.	Ahafo North has advanced to definitive feasibility and NEM expects to reach a decision to fund this project in 2H19. We would assume a three-year development timeline allowing for production ramp-up into 2023.	The mill investment is currently estimated at $750M with a potential production level of 250kozpa over a 13-year mine life. We attribute $51M in value to this project through an in-situ resource valuation in our model.
Ahafo Underground, Ghana	The Subika underground is a test case for Ahafo underground which NEM has described as "one of our best exploration prospects". The mine has an 11Mt probable reserve grading 3.7g/t. NEM made a blind discovery 1.5km north of Subika with good thickness and grade, which could become an independent underground mine. Recently another 0.5Moz maiden resource was announced at Apensu North.	This is an active exploration area for Newmont. NEM also recently found a new deposit adjacent to Deeps called Apensu North. These deposits will be assessed together, delaying the development timeline.	We believe NEM has good potential to add economic ounces at Ahafo. This opportunity is too early in the pipeline for us to value at present.
Akyem Underground, ghana	This project had a maiden resource in 2017 of 1.2Mt at 4.7g/t with mineralization extending ~500m below the ultimate pit limit.	Akyem underground progressed to pre-feasibility study in 2Q18. The next phase will be focused on permitting and increasing resource confidence. If approved, a decline could be developed starting in 2020.	This project is in the early stage of resource definition.
Kalgoorlie Morrison Layback, Australia	The Kalgoorlie JV had been assessing a sustaining capital project consisting of a layback of the super pit to access the Morrison extension for some time. The project would cost ~$125M and allow access to 1.8Moz of gold.	Approval of the project was delayed several times to attain new drill data and metallurgical testing, and then delayed in order to accommodate other permitting efforts at the site. The pit was then affected by an east wall slip which took out a ramp that was to have been used for the layback. The JV is now assessing alternative approaches.	The approach might be clarified with 2019 guidance. NEM has stated that a combination of ore from the south and west walls of the pit, combined with stockpiled ore, will keep the mills full. We expect laybacks to ultimately be delivered, extending the mine life to 2026 (stockpiles to 2034).

Project	Details	Timing	Our Expectations
NW Exodus, Nevada	(IRR>40% at $1200/oz gold price). This project extended the life of the Exodus underground operation in Carlin North for 10 years. It was approved in 2017 and completed in 2Q18 for capex of $69M, with an anticipated rate of return of over 40%.	NEM anticipates reaching commercial production later this year.	NW Exodus adds lower cost production at Carlin and serves as an exploration platform for future growth, while also providing NEM with a platform to test autonomous technology.
Tanami Power Project, Australia	(IRR>50% at $1200/oz gold price). This project will see the conversion of the site power generation from diesel (trucked) to natural gas (via a 450km pipeline).	The mine will be running on natural gas by early 2019. The gas supply and power purchase agreements are for a 10-year term with options to extend.	Power was ~25% of the local cost structure and the diesel is expected to save ~20%, so the overall costs at Tanami are likely to drop ~5%. We do not explicitly model the cost improvement but note that our model cost forecast is lower than 2Q18 levels.
Quecher Main, Peru	This project is adding oxide production at Yanacocha for ~$300M in capex, generating average annual gold production of ~200kozpa with cash costs of $750-850/oz and AISC of $900-1,000/oz over the 2020-2025 time frame (all 100% basis). The project generates a fairly low IRR of ~10% at $1,200/oz gold.	First production is expected in late 2018 leading to commercial production in 2H19.	This is a low return project but it is a key bridge from current operations into Yanacocha's potential sulfide future. We currently model production of ~260kozpa and costs in line with NEM's parameters.
Chaquicocha oxides, Peru	This project consists of two mill-grade deposits (North and South) in close proximity to the Chaquicocha surface mine.	This is still in the exploration stage with an exploration drift already established to south deposit, and one under way to the north deposit.	We think these deposits have good potential to come into production, with conceptual production numbers being released possibly in 2019. We do not currently account for this in our model.
Yanacocha sulphides /Chaquicocha underground/ Yanacocha Verde, Peru	NEM has been studying the Yanacocha sulfides project for years. The project is represented in resource by the Chaquicocha and Yanacocha Verde resources totaling 3.8Moz. The sulphide resources lie below certain oxide pits. The project revenue split would be roughly 50% gold, 40% copper, and 10% silver. One constraining factor has been the presence of arsenic, however NEM now feels it has a technical solution in the form of a twin autoclave. Capex has been estimated at $2B. Infrastructure could include a copper heap leach, copper flotation mill for processing high-grade copper from Verde open pit, and autoclave for processing high grade gold from Chaquicocha underground.	The project has advanced into feasibility, which could be completed by the end of 2018. This could allow for a go-ahead decision in 2019. Sumitomo Corp. recently acquired 5% of the Yanacocha partnership with interest in participating in the Yanacocha Sulfides project.	The deposit should have a low strip. The project would extend the life of Yanacocha to 2039. We don't think this will be an especially high returning investment but we believe this first wave of sulphide processing could open up a number of additional projects and bring more resource into play at Yanacocha with progressively improving IRRs.
Sabajo, Suriname	This is a saprolite deposit located 30km west of Merian, which could supply oxide feed to the mill at Merian.	A maiden resource of 0.8Moz was declared in 2017.	The resource grade of 1.8g/t is slightly below that of the Merian proven reserve and hence the feed wouldn't necessarily be useable as a grade sweetener, however it is softer, which could allow higher mill throughput by blending with Merian ore.
Tanami expansion 2, Australia	This is an expansion program currently being examined and would likely involve a shaft to improve production efficiency, and potentially a mill expansion.	NEM has been advancing studies and will be drilling a shaft pilot hole that could help inform the company's approach.	This project follows quickly on the heels of the first Tanami expansion. Tanami is certainly a high margin operation and it could get even better with an expansion. However we believe further drilling is required before we can make an opinion on the upside from further investment at Tanami.

Project	Details	Timing	Our Expectations
Long Canyon Phase 2, Nevada	Long Canyon Phase 1 is an open pit mine with a heap leach (carbon is shipped to Carlin for stripping) which achieved commercial production in November 2016. Phase 2 would represent an extension to the open pit and possibly an underground portion to exploit the high grade ore which will likely require a mill to be built onsite or transported about 100 miles to Newmont's Nevada operations for processing (1.6mmoz at 3.52g/t in M&I).	NEM has been drilling Phase 2 for the past two years and this project has advanced to pre-feasibility. NEM plans to complete an environmental impact statement in 2019, commence stripping in 2021 and achieve first production in 2024.	The current timeline should allow production to come in from Phase 2 before Phase 1 is depleted. Phase 2 would likely be followed by a third phase which would be focused more on underground resources - the exploration effort here is ongoing. However, we do not model Phase 2 as we await it to be de-risked (project definition, permitting).
Galore Creek JV, British Columbia	(IRR of 7.4% at $2.50/lb copper). 50/50 JV between Teck and Newmont. Hosts (100% basis) 9Blb at 0.50% copper, 8Moz at 0.31g/t gold and 136Moz silver at 5.21g/t in M&I resources. A 2011 PFS envisioned $5.2B capex for an operation producing ~320Mlb copper, 208koz gold and 3Moz silver annually over a mine life of 18.5 years.	The JV partners will each spend $10-15M annually over the next few years to advance an updated pre-feasibility study to completion in 2021/2022	We ascribe an in-situ value of ~$0.3B to the project in our model. NEM had looked at the asset several times and reached an agreement to acquire NovaGold's 50% stake in the project for staged cash payments of $275M in July 2018.

Source: Company reports and Barclays Research estimates

NEM Valuation: $34 price target, Overweight/Positive rating

Newmont has an extensive and global asset base of established gold and copper operations through the Americas, Africa, and Australia in addition to value-accretive growth projects and a global exploration portfolio spanning over five continents. Newmont's advantage is in its wide portfolio of assets creating diversification benefits. 2018 production is split through North America (40%), South America (12%), Africa (17%), and Australia (31%). It has executed eight projects in the last four years generating an average IRR of over 20%. The company's capital allocation process involves re-designing mine plans under a variety of gold prices every year, which demonstrates a level of contingency planning we don't often see in the industry. The shares trade at 1.36x P/NAV making it the most expensive gold stock in our coverage space; however, we feel the premium is deserved and value the stock with a 1.4x P/NAV and 8.0x EV/EBITDA (NTM+1) resulting in our $34 price target. We rate the stock Overweight/Positive.

FIGURE 118

NEM NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating Gold Mines					
North America					
Nevada and Long Canyon		$3,921	$7.33	5%	32%
CC&V	100%	$630	$1.18	5%	5%
North America Total		**$4,551**	**$8.51**		**38%**
South America					
Yanacocha	51%	$203	$0.38	5%	2%
Austral-Asian					
Boddington	100%	$2,878	$5.38	5%	24%
Kalgoorlie	50%	$430	$0.80	5%	4%
Tanami	100%	$1,075	$2.01	5%	9%
Austral-Asian Total		**$4,383**	**$8.19**		**36%**
Africa					
Ahafo	100%	$1,438	$2.69	5%	12%
Akyem	100%	$799	$1.49	5%	7%
Merian	75%	$681	$1.27	5%	6%
Africa Total		**$2,918**	**$5.45**		**24%**
Total Ops NAV		**$12,056**	**$22.53**		**100%**
Exploration					
Minas Conga	51%	$351	$0.66		3%
Galore Creek	50%	$336	$0.63		3%
Ahafo North	100%	$51	$0.10		0%
Exploration (In-situ) total		**$738**	**$1.38**		**6%**
Total Ops + In-situ		**$12,107**	**$22.63**		**100%**
Corporate/ Balance Sheet					
Corporate		($293)	($0.55)	10%	
Reclamation and Provisions		($1,185)	($2.21)		
Total Debt		($3,495)	($6.53)		
Total Cash		$3,492	$6.53		
Investments		$494	$0.92		
Balance Sheet		**($987)**	**($1.84)**		
Total NEM NAV		**$11,807**	**$22.07**		

Source: Company reports, Barclays Research estimates

NEM Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold prices; failure to ramp up Ghana projects (including Ahafo mill expansion and Subika underground) to targeted operating rates.

OCEANAGOLD CORP. (OGC; EW)

OGC

Stock Rating
EQUAL WEIGHT

Industry View
POSITIVE

Price Target
CAD 4.00

Price (05-Oct-2018)
CAD 3.83

Potential Upside/Downside
+4.4%

OceanaGold Corp.(OGC): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.09A	N/A	0.06A	0.06A	N/A	0.04E	0.06E	-33%	-33%
Q2	0.04A	N/A	0.07A	0.07A	N/A	0.05E	0.06E	75%	-29%
Q3	0.03A	N/A	0.04E	0.04E	N/A	0.04E	0.06E	33%	0%
Q4	0.15A	N/A	0.05E	0.05E	N/A	0.04E	0.06E	-67%	-20%
Year	0.31A	N/A	0.22E	0.23E	N/A	0.17E	0.20E	-29%	-23%
P/E	9.6		13.6			17.4			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Organic growth and exploration the focus; awaiting clarity in New Zealand

Initiating coverage on OGC with a C$4.00 price target and Equal Weight rating: After completing construction at Haile, OGC is limiting its focus to exploration and brownfield investment. We believe these efforts will help grow FCF and maximize returns on capital. The key remaining risk in our view is extending the life of Waihi and potential at Macraes. OGC has outperformed peers by ~20% over the last 3 months. Pending further derisking of the projects we see the stock as fairly priced using target multiples of 1.1x P/NAV and 5.0x EV/EBITDA (NTM+1) (weighted 70/30%) resulting in our C$4.00 price target.

All eyes on 2021: The ramp-up at Haile is well under way and the transition to underground mining (from open pit) at Didipio has been successfully executed. However, we currently model OGC's New Zealand projects coming offline after 2020. While OGC's production has increased to over 500kozpa, based on the two years of life remaining at each of Waihi and Macraes OGC runs the risk of returning to a pre-2017 production run-rate.

Life extension potential in New Zealand: In light of the short mine lives at Waihi and Macraes, OGC has laid out a plan to add reserves, which could be a key near-term catalyst. Exploration and permitting is under way at Waihi for the Martha Project (underground deposit below the Martha open pit) that hosts 140koz at 5.8g/t in indicated and 339koz at 4.3g/t in inferred resources. OGC has set an exploration target to delineate 1.0-1.5Moz. Exploration also continues at the WKP satellite deposit. At Macraes, OGC is studying the potential for a 10-year gold/tungsten project. While we see good potential for these projects, we need further clarity before we can assume any mine life extension. There is some potential for this outlook to become more clear when the company hosts an analyst tour of the assets at the end of October.

Unlocking value at Haile: OGC is now in the process of unlocking further value from Haile through an expansion of capacity and processing of higher grade underground ore. We see most ramp-up hiccups as having been addressed. Haile is expected to grow its production base from 140-155koz in 2018 to over a 200kozpa run rate after the ongoing $254M expansion project is complete (2018-2020). Haile remains highly prospective and we see strong potential for OGC to continue to identify and add low-cost ounces to reserves, which have increased 70% since acquisition.

North America Metals & Mining — **Industry View: POSITIVE**

OceanaGold Corp. (OGC)

Stock Rating: EQUAL WEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	724	766	835	860	5.9%
EBITDA (adj)	399	370	372	407	0.6%
EBIT (adj)	207	175	155	189	-3.0%
Pre-tax income	169	170	146	183	2.6%
Net income (adj)	194	137	107	131	-12.3%
EPS (adj) ($)	0.31	0.22	0.17	0.21	-12.4%
EPS (reported) ($)	0.27	0.23	0.17	0.21	-8.7%
Diluted shares (mn)	626.7	627.7	628.5	628.5	0.1%
DPS ($)	0.02	0.04	0.02	0.02	0.8%

Margin and return data					Average
EBITDA (adj) margin (%)	56.4	49.0	44.7	47.4	49.4
EBIT (adj) margin (%)	29.8	23.4	18.6	22.1	23.5
Pre-tax margin (%)	23.4	22.2	17.4	21.3	21.1
Net margin (%)	23.7	18.6	12.8	15.2	17.6
ROIC (%)	15.3	9.5	6.6	7.7	9.8
ROA (%)	8.4	6.7	4.9	6.2	6.6
ROE (%)	11.5	9.0	6.3	7.3	8.5

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	73	127	215	244	49.4%
Total assets	2,046	2,116	2,160	2,128	1.3%
Short and long-term debt	240	232	181	31	-49.8%
Other long-term liabilities	330	333	182	151	-22.9%
Total liabilities	555	529	478	328	-16.1%
Net debt/(funds)	167	105	-33	-214	N/A
Shareholders' equity	1,491	1,587	1,682	1,800	6.5%
Change in working capital	-33	-15	0	0	N/A
Cash flow from operations	358	341	341	367	0.9%
Capital expenditure	-240	-242	-190	-174	N/A
Free cash flow	87	88	151	193	30.2%

Valuation and leverage metrics					Average
P/E (adj) (x)	9.6	13.6	17.4	14.2	13.7
P/E (reported) (x)	10.8	13.0	17.4	14.2	13.9
EV/EBITDA (adj) (x)	5.0	5.2	4.8	4.0	4.8
Equity FCF yield (%)	13.1	13.5	12.0	11.5	12.5
P/Sales (x)	2.5	2.4	2.2	2.1	2.3
P/BV (x)	1.2	1.2	1.1	1.0	1.1
Dividend yield (%)	0.7	1.3	0.7	0.7	0.8
Total debt/capital (%)	16.1	14.6	10.8	1.7	10.8

Selected operating metrics					CAGR
Gold price ($/oz)	1,260	1,261	1,269	1,300	1.0%
Gold production (koz)	575	527	587	589	0.8%
Cash costs (US$/oz) ($)	347	454	540	567	17.8%

Price (05-Oct-2018)	**CAD 3.83**
Price Target	**CAD 4.00**

Why Equal Weight? After completing construction at Haile, OGC is limiting its focus to exploration and brownfield investment. We believe these efforts will help grow FCF and maximize returns on capital. The key remaining risk in our view is extending the life of Waihi and Macraes.

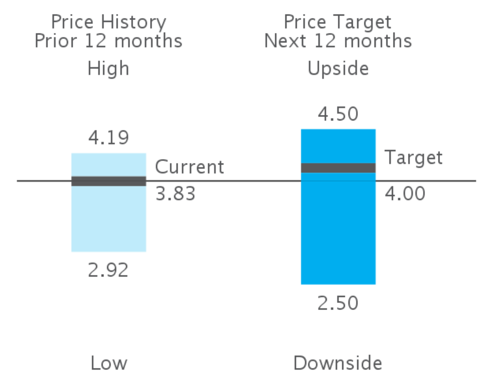
Upside case — **CAD 4.50**

Our upside scenario uses a 1.2x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,400/oz gold price.

Downside case — **CAD 2.50**

Our downside scenario uses a 0.9x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,100/oz gold price.

Upside/Downside scenarios



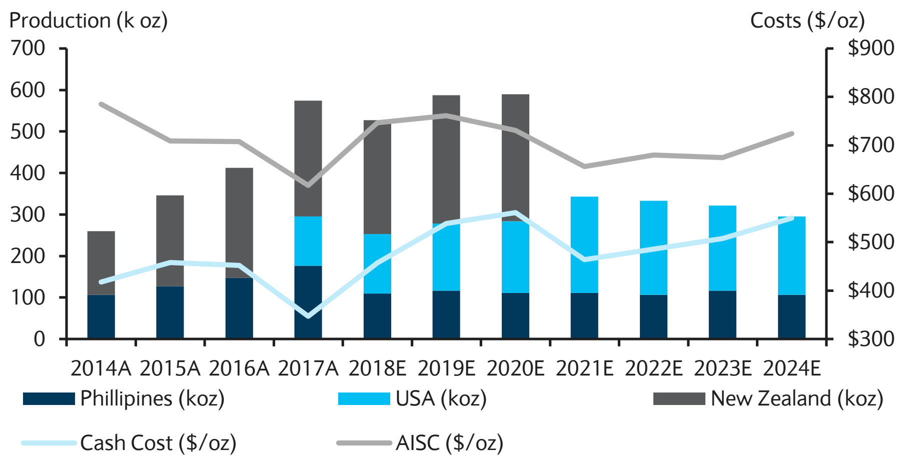
Source: Company data, Barclays Research
Note: FY End Dec

Organic growth and exploration the focus; awaiting clarity in New Zealand

OceanaGold's first foray into the Americas with the new Haile mine in South Carolina significantly increased its production base to over 500kozpa, inclusive of its mines in the Philippines and New Zealand. OGC is now in the process of unlocking further value from Haile through an expansion of capacity and plans to supplement open pit ore with higher grade underground ore. A critical risk to the current profile is from its New Zealand operations that have short remaining mines lives of roughly two years based on reserves. However, management is increasing its focus on projects that have the potential to extend these lives by 10 years beyond 2020. Without life extension, OGC runs the risk of returning to its pre-2017 production run-rate. While cash costs climb into 2020, we see costs at an attractive level overall with the help of significant copper by-products at its Didipio mine in the Philippines.

FIGURE 119

Exploration success at New Zealand is necessary



Source: Company reports, Barclays Research estimates

Potential 10-year mine life extensions at New Zealand assets

Efforts are under way on initiatives to possibly extend the life of mine (LOM) at Waihi and possibly at Macraes in New Zealand by 10 years. These operations have mine lives through 2020 based on delineated reserves. There is some potential for the long-term outlook of these assets to become more clear when the company hosts an analyst tour of the assets at the end of October.

At Waihi, permitting is under way for the Martha Project (underground deposit below the Martha open pit) that hosts 140koz at 5.8g/t in indicated and 339kozs at 4.3g/t in inferred resources. OGC has set an exploration target to delineate 1.0-1.5Moz. In addition, exploration continues at WKP, a satellite deposit located to the north of the Waihi where the company conceptually estimates (based on 6 diamond drill holes) the East Graben vein exploration target has an average 7m width at a grade of 12g/t Au and 750m strike length.

At Macraes, the Round Hill/Golden Point resource contains 1.31Mozs gold but requires relocation of the Macraes mill as the deposit is located underneath its current location. The company is in the process of advancing a technical study on this gold/tungsten project with a potential mine life of 10 years. We view life extension at Macraes as being an option on higher gold prices.

Pursuing organic growth at Haile to unlock value

Start-up hiccups at Haile seem largely to have been addressed. We view the successful ramp-up of Haile as instrumental to the company's vision and believe OGC can deliver on optimizing and expanding the plant.

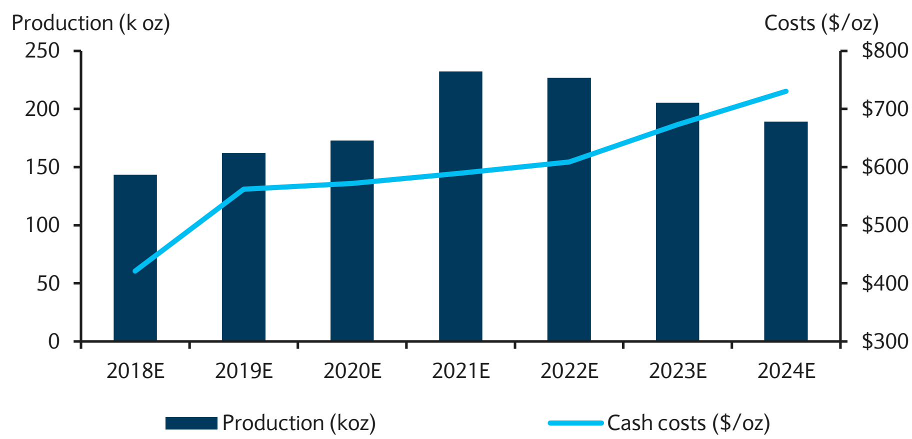
Haile is expected to grow its production base from 140-155koz in 2018 to over a 200kozpa run rate after the ongoing $254M expansion project is complete (2018-2020). The expansion involves several elements:

- Permitting activities (ongoing): consolidation/expansion of open pits, development of the Horseshoe underground mine, and increasing the project's footprint (from 4,552 to 5,432 acres).
- Throughput expansion from 3Mtpa to 4Mtpa (1Q19E completion): The mill expansion is progressing well with the pebble crusher and upgraded thickener now complete; and the upgrade of the regrind circuit through the installation of a Tower mill and an Isa mill should be complete by 1Q19.
- New underground mine (2020E completion): The Horseshoe underground deposit hosts 440koz at 4.38g/t (vs. 3.2Moz at 1.77g/t including open pit ore) and is expected to provide high grade ore to the mill at 0.7Mtpa (80-100koz annually) over the 2020-2026 period. Development activities are expected to start upon permit approval.

Essentially this expansion adds an incremental 1Mtpa mill capacity to accommodate additional high grade ore from underground with grades that are 2.5x higher than reserves. The property remains highly prospective and exploration is focused on near-mine targets that could potentially add low-cost ounces. We see strong potential for OGC to continue to identify and add low-cost ounces to reserves, which have increased 70% since acquisition.

FIGURE 120

OCG's Haile expanding to ~200kozpa



Source: Company reports, Barclays Research

FIGURE 121

OceanaGold's Project Pipeline

Project	Details	Timing	Our Expectation
Haile expansion, South Carolina	Capex of $254M envisioned for an expanded operation including $67M for the open pit mine, $55M for underground development (Horseshoe deposit), $67M for the process plant and $65M for other infrastructure. The project is expected to increase annual production to more than 200koz gold. The processing plant capacity will be increased to 4Mtpa (from 3Mtpa) including the addition of a pebble crusher (already installed) and upgrading the regrind circuit with Tower and Isa miles (increases recoveries).	Plant expansion is ongoing for 1Q19 completion. Permitting is under way for the underground mine and mining expansion. The project is expected to be completed by 2020E.	We model the project using similar parameters.
Didipio underground, Philippines	As Didipio transitions from open pit to underground mining, ore from underground (along with grades) is expected to ramp up from 0.55mm t in 2018 to over 1.6Mtpa run-rate by end of 2019. A buffer of 20mm t of stockpiled ore available is for processing as of 2Q18.	Development of Panel 2 is ongoing; target run rate expected to be achieved by the end of 2019.	We model the project using similar parameters.
Waihi Martha Project, New Zealand	Potential 10-year life of mine extension from Martha project. Hosts 140koz at 5.8g/t in M&I resources and 339koz at 4.3g/t in inferred resources based on 30% of planned drill meters through December 2019. OGC has a "conceptual' exploration target of 1.0-1.5Moz at 4-6g/t based on its assessment of surface and underground drilling data, historical data and data mining of over 100 years mining activity data.	Permitting and further drilling are under way.	We do not model the project subject to further derisking by OGC. Our modelling suggests mine life ends in 2020E based on the current reserve base (we ascribe ~$100M in-situ value to the M&I resources).
Macraes, New Zealand	Potential 10-year life of mine extension from Round Hill/Golden Point. Hosts 1.4Moz gold (and some tungsten) which would require the existing process plant to be relocated.	Work on a technical study is ongoing (construction of smaller process plant with a tungsten circuit)	We do not model the project subject to further derisking by OGC. Our modelling suggests mine life ends in 2020E based on the current reserve base (we do not ascribe any in-situ value to the remaining 2.4Moz at 1.25g/t in M&I resources which includes Round Hill/Gold Point).

Source: Company reports and Barclays Research

OGC Valuation: C$4 price target, Equal Weight/Positive rating

After completing construction at Haile, OGC is limiting its focus to exploration and brownfield investment. We believe these efforts will help grow FCF and maximize returns on capital. Start-up hiccups at Haile have been largely addressed and the transition to underground mining (from open pit) at Didipio has been successfully executed. The key remaining risk in our view is extending the life of Waihi and potentially at Macraes. The company has laid out a plan to add reserves at these assets, which could be a key near-term catalyst. However, we need further clarity before we can assume any life extension and pending further derisking of the projects we see the stock as as fairly priced using target multiples of 1.1x P/NAV and 5.0x EV/EBITDA (NTM+1) (weighted 70/30%) resulting in our C$4 target.

FIGURE 122

OGC NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops NAV
Operating Mines					
Philippines					
Didipio	100%	$439	$0.70	6%	29%
New Zealand					
Waihi	100%	$82	$0.13	5%	12%
Macraes	100%	$80	$0.13	5%	5%
New Zealand Total		**$162**	**$0.26**		**11%**
USA					
Haile	100%	$903	$1.44	5%	60%
Total Operating		**$1,504**	**$2.39**		**100%**
Exploration					
Waihi		$96	$0.15		
Total Exploration	**100%**	**$96**	**$0.15**		
Corporate					
Corporate		($74)	($0.12)	10%	
Reclamation and Provisions		($55)	($0.09)		
Current debt		($181)	($0.29)		
Current cash		$215	$0.34		
Investments		$70	$0.11		
Total Corporate		**($26)**	**($0.04)**		
Total OGC NAV		**$1,574**	**$2.50**		

Source: Company reports, Barclays Research estimates

OGC Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold and copper prices; failure to deliver and ramp up the ongoing Haile mine expansion project; unsuccessful exploration efforts/ failure to extend mine lives at New Zealand assets (Waihi and Macraes).

YAMANA GOLD INC. (AUY; UW)

AUY

Stock Rating
UNDERWEIGHT

Industry View
POSITIVE

Price Target
USD 2.50

Price (05-Oct-2018)
USD 2.50

Potential Upside/Downside
0.0%

Yamana Gold Inc.(AUY): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	-0.01A	N/A	0.01A	0.01A	N/A	0.02E	0.04E	200%	100%
Q2	0.00A	N/A	0.02A	0.06A	N/A	0.03E	0.04E	2%	50%
Q3	0.03A	N/A	0.01E	0.03E	N/A	0.02E	0.03E	-67%	100%
Q4	0.06A	N/A	0.02E	0.04E	N/A	0.02E	0.04E	-67%	0%
Year	0.09A	N/A	0.06E	0.14E	N/A	0.09E	0.15E	-33%	50%
P/E	26.9		39.1			27.5			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Turnaround priced in

Initiating coverage on AUY with $2.50 PT, UW/Pos rating: AUY has outperformed comps by ~12% over the last year and although it is sitting not far off of its lows we don't see it as cheap. Under spot gold prices the P/NAV is 2.26x, making it the most expensive name in our gold miner coverage. Our $2.50 price target is based on 1.1x P/NAV and 5.0x EV/EBITDA (NTM+1) multiples (weighted 70/30%).

Deleveraging the focus: AUY has the highest leverage among gold peers in our coverage list with a Net Debt/EBITDA of 2.2x compared to the industry average of 1.0x. The company has stated that it hopes to clean up its balance sheet as it enters a cash harvest phase. While we anticipate significant improvement in its leverage position as Cerro Moro ramps up, outside of Chapada we see the pipeline as fairly weak and low exploration spend does not suggest a near-term improvement.

Not an ideal time for portfolio rationalization: AUY has a large quantity of reserves held at non-operating assets and is looking at rationalizing assets worth ~15% of our NAV estimate. While we agree with the idea of cleaning up the portfolio, the market is not helping and past evidence suggests realizing value may not be easy.

There are some bright spots: We like that AUY is diving deeper into development at Chapada (29% of NAV) where continued exploration at the Suruca and Sucupira deposits indicates reserve replacement potential. Coupling this with a phased expansion plan AUY believes it could sustain production of 100-110kozpa of gold and 150-160mlbpa of copper to at least 2034. At present we model Chapada Phase 1 and Suruca but not the mill expansion which still needs to be sanctioned. AUY has a somewhat checkered past of missed expectations. Another potential bright spot could be the new CEO, Daniel Racine. However with limited visibility over what changes may occur in strategy and few catalysts in the pipeline we are avoiding AUY.

North America Metals & Mining | **Industry View: POSITIVE**

Yamana Gold Inc. (AUY)

Stock Rating: UNDERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	1,804	1,788	1,791	1,905	1.8%
EBITDA (adj)	591	727	699	818	11.4%
EBIT (adj)	176	273	259	407	32.2%
Pre-tax income	-318	-21	144	295	N/A
Net income (adj)	-188	-114	86	177	N/A
EPS (adj) ($)	0.09	0.06	0.09	0.19	26.2%
EPS (reported) ($)	-0.20	-0.12	0.09	0.19	N/A
Diluted shares (mn)	948	950	950	950	0.1%
DPS ($)	0.02	0.02	0.02	0.02	0.0%

Margin and return data					Average
EBITDA (adj) margin (%)	32.8	40.6	39.1	42.9	38.8
EBIT (adj) margin (%)	9.8	15.3	14.5	21.4	15.2
Pre-tax margin (%)	-17.6	-1.2	8.0	15.5	1.2
Net margin (%)	-10.4	-6.4	4.8	9.3	-0.7
ROIC (%)	-2.5	-1.5	1.1	2.3	-0.1
ROA (%)	-2.3	-1.4	1.1	2.2	-0.1
ROE (%)	-4.2	-2.6	2.1	4.2	-0.1

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	149	92	189	362	34.5%
Total assets	8,763	8,185	8,182	8,246	-2.0%
Short and long-term debt	1,858	1,697	1,696	1,612	-4.6%
Other long-term liabilities	86	85	85	85	-0.2%
Total liabilities	4,316	4,001	3,931	3,837	-3.8%
Net debt/(funds)	1,709	1,605	1,507	1,250	-9.9%
Shareholders' equity	4,313	4,150	4,217	4,375	0.5%
Change in working capital	-14	-139	0	0	N/A
Cash flow from operations	484	447	458	578	6.1%
Capital expenditure	-644	-487	-341	-302	N/A
Free cash flow	-160	-40	117	276	N/A

Valuation and leverage metrics					Average
P/E (adj) (x)	26.9	39.1	27.5	13.4	26.7
P/E (reported) (x)	N/A	N/A	27.5	13.4	20.4
EV/EBITDA (adj) (x)	6.9	5.5	5.6	4.4	5.6
Equity FCF yield (%)	-4.2	-7.7	1.9	8.5	-0.4
P/Sales (x)	1.3	1.3	1.3	1.2	1.3
P/BV (x)	0.5	0.6	0.6	0.5	0.6
Dividend yield (%)	0.8	0.8	0.8	0.8	0.8
Total debt/capital (%)	30.1	29.0	28.7	26.9	28.7

Selected operating metrics ($)					CAGR
Gold price ($/oz)	1,263	1,261	1,269	1,300	1.0%
Gold production (koz)	1,096	912	942	990	-3.4%
Cash costs (US$/oz)	692	611	611	580	-5.7%

Price (05-Oct-2018)	**USD 2.50**
Price Target	**USD 2.50**

Why Underweight? AUY has the highest leverage versus gold peers but plans to enter a cash harvest phase. We anticipate improvement as Cerro Moro ramps up, but outside of Chapada we see the pipeline as fairly weak and low exploration spend does not suggest a near-term improvement

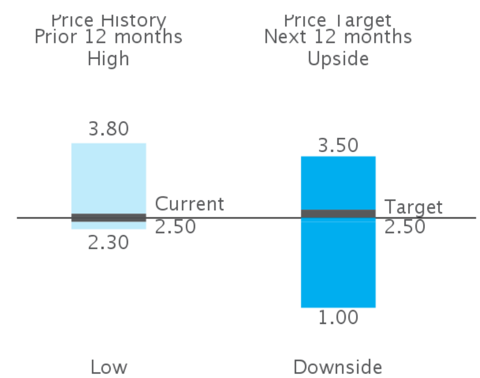
Upside case — **USD 3.50**

Our upside scenario uses a 1.2x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,400/oz gold price.

Downside case — **USD 1.00**

Our downside scenario uses a 0.9x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,100/oz gold price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

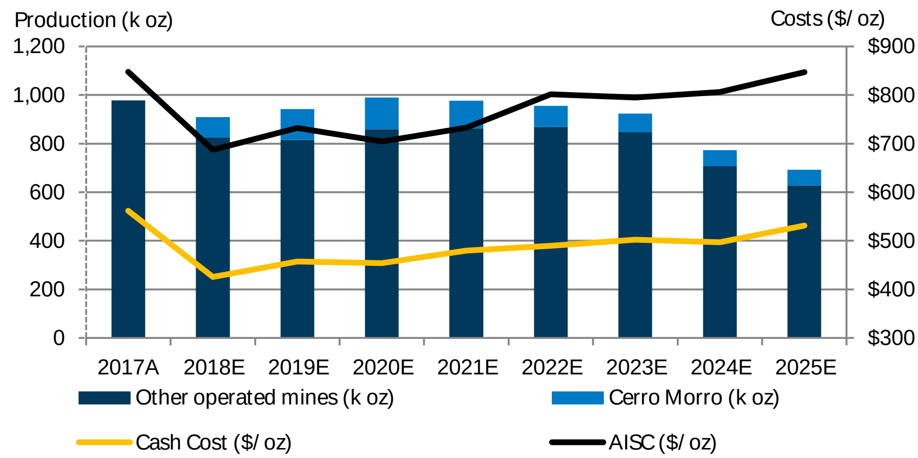
Limited options as balance sheet strengthening is a priority

Short mine lives a concern

The ongoing ramp up of the low cost Cerro Moro asset should lift production of both gold and silver, and we expect brownfield projects at both Canadian Malartic (Barnat deposit) and Chapada (recovery optimization) to add positively to this profile over the next five years.

FIGURE 123

Steady growth ahead before the step down begins



Source: Company reports, Barclays Research estimates

However, our expectation of depletion of current reserves/M&I resource inventory at El Penon in 2023 and potential exhaustion of Minera Florida and Cerro Moro in 2026 shows a fairly high mine depletion rate. While we believe El Penon remains a prospective property, without a greater exploration focus driving potential mine life extensions, sustainability remains in question.

15% of NAV is under evaluation for rationalization

AUY has a long list of non-core assets under review, AUY could potentially surprise the market. However, in the current environment of depressed asset option values we are cautious of the value realization that could be achieved.

The Gualcamayo mine was put up on sale last year as it approaches the end of its life based on heap leachable oxide reserves (2018 guidance of 110koz at cash costs of $1080/oz). While the asset also has a large sulphide resource base (M&I of 2.3Moz at 2.16g/t) that includes the Deep Carbonates project being studied, we do not include it in our model as it still requires further derisking. In addition to Gualcamayo, AUY has several other assets under evaluation for "portfolio rationalization and other strategic alternatives" that together make up ~$0.6B or 15% of our operating and exploration NAV estimate (see AUY project list). We don't expect rich valuations to be received in the near-term due to the current soft commodity price environment and general lack of apparent appetite for smaller assets in the space.

Potential hike in Argentina export taxes could be punitive

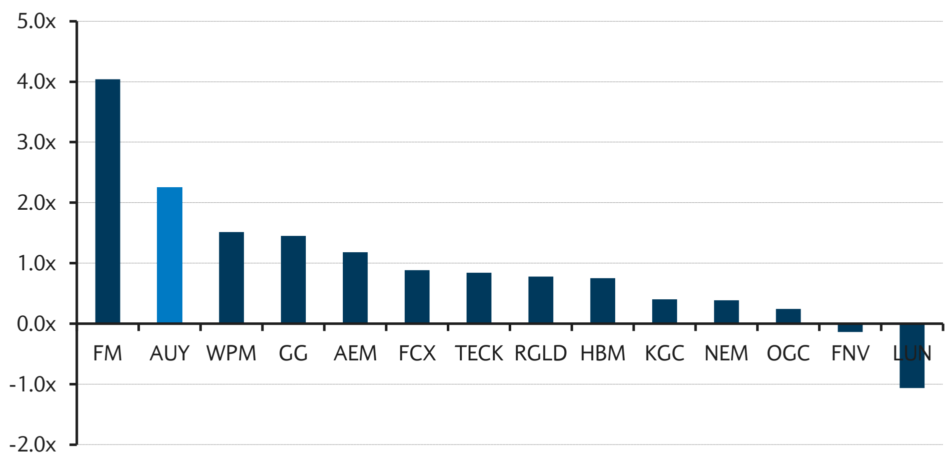
AUY recently reported that Argentina through its Executive Branch "*...issued Executive Order No. 793/2018 establishing an export tax of 12% over all goods exported from Argentina, applicable from September 4, 2018, to December 31, 2020. The tax is capped at AR$ 4 per U.S. dollar for bullions and unrefined gold, and at AR$ 3 per U.S. dollar for unrefined silver and zinc, copper and precious metal ores and their concentrates*". Yamana plans to challenge this potential export tax hike as its mining agreements have tax stability clauses that entitle it to recover taxes in excess of overall tax burden at the time of filing of feasibility studies for the assets. AUY's assets in Argentina constitute 15% of our operating NAV estimate and include the new Cerro Moro mine that is ramping up and maturing Gualcamayo mine. We have not adjusted our model for this export tax hike that runs over the next 2.3 years as the company plans to challenge it in the courts. For illustrative purposes, at current spot prices (AR$/US$ = 0.025, $1,200/oz gold), we estimate that the export tax cap of AR$4 per USD of bullion and unrefined gold implies up to $120/oz or 10% is shaved-off the top for each gold ounce exported from the country, amounting to ~$70M for Cerro Moro over the period.

Deleveraging the focus

AUY has the highest leverage compared to peers in our coverage, at 2.2x compared to the industry average of 1.0x (net debt/EBITDA LTM). As the Cerro Moro build is completed, the company expects to deliver on a step-change in FCF in to 2019 that should help to reduce debt and targets a ~1.5x net debt/EBITDA target in the medium term.

FIGURE 124

AUY is targeting reduction of leverage to ~1.5x (net debt/EBITDA TTM)

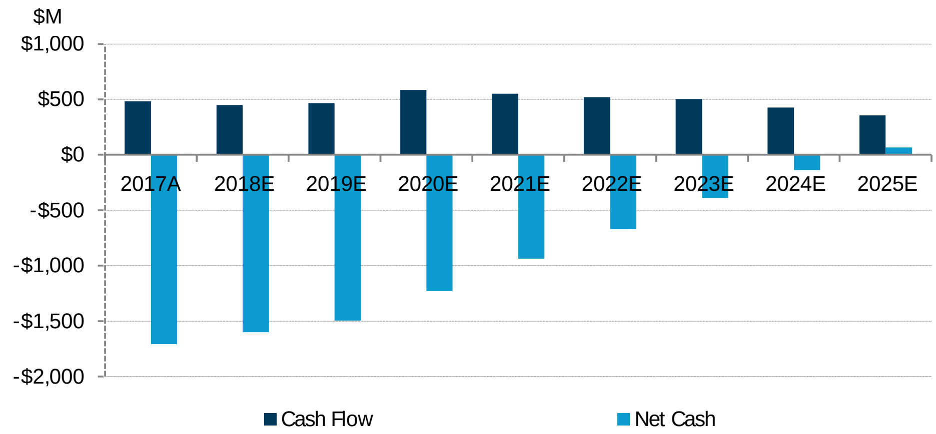


Source: Company reports, Barclays Research

Our modelling suggests that leverage will be below this target by the end of 2020 and could be in a net cash position by 2025.

FIGURE 125

It will take time to swing back to positive net cash position



Source: Company reports, Barclays Research estimates

FIGURE 126

Yamana's Project Pipeline

Project	Details	Timing	Our Expectations
Canadian Malartic JV Barnat Extension, Quebec	50/50 percent JV between Agnico Eagle and Yamana. The Barnat extension provides access to high grade ore to be blended with Canadian Malartic (CM) pit ore (+25% higher grades than CM deposit according to the 2014 feasibility study). The project involves the deviation of Highway 117, pit preparation and tailings expansion.	Construction is ongoing. Production is expected to start late 2019.	We include Barnat in our Canadian Malartic model and we assume it will help sustain production at above 300kozpa over the next several years.
Chapada Phase 1, Brazil	Capex of $9M for the process plant optimisation to improve gold and copper recoveries. Targeting an additional 2% increase in gold and copper recoveries to 65% and 85% respectively.	Phase 1 is expected to be completed by mid-2019.	AUY surpassed its targeted recoveries in 2Q18 due to favorable ore blending (achieved recoveries of 66.5% gold/86.2% copper). We model sustainable recoveries at the targeted rates going forward which we assume will be achieved via ore blending in the interim and through completion of the mill optimisation as of mid-2019.
Chapada Phase 2, Brazil	Capex of $140M for an expansion of the process plant to 32Mtpa (from 23Mtpa).	A feasibility study is expected to be completed by mid-2019, which would potentially allow for a development decision around mid-2020, construction start-up by early 2021 and commissioning by the end of 2022.	We do not model Phase 2 expansion as we await the project to be derisked and sanctioned.
Chapada Phase 3, Brazil	Capex of ~$100M for a series of pushbacks of the north wall of Chapada pit to access Sucupira deposit. Hosts ~400koz at 0.27g/t and ~300M lbs at 0.31% copper in reserves (vs. 0.20g/t gold and 0.25% copper in reserves at Chapada) - and lies at a depth of 180-240m from surface.	A feasibility study is expected to be completed by mid-2019. The potential timeline for a development decision is end of 2023, which would allow the pit pushbacks to start early 2024 and commissioning by the end of 2025. Infill drilling at Baru has the potential to reduce stripping ratio at Sucupira (from 2.8x).	AUY believes that execution of all three phases would result in sustained annual production of 100-110koz gold and 150-160Mlb copper through at least 2034 (vs. 2018 guidance of 110koz gold and 120Mlb copper). Our modeling suggests average annual production of ~100koz gold and ~100 Mlb copper over the same period, with a life of mine extending to 2060 as we also include 75% of the M&I resource in future years.
Suruca, Brazil	Oxide satellite deposit (7km from Chapada). Capex of $51M envisioned for an open pit mine with a heap leach producing 40kozpa over five years. Focus has been on expanding the sulphide deposit (beneath the oxide mineralization) which is expected to reduce the strip ratio of the project.	While it didn't materialise, AUY previously expected to issue a formal construction decision by 1Q18 to enable first production by 2Q19. Studies ongoing for Suruca oxides and sulfides including processing options (heap leach only/ heap leach + CIL processing) including expansion of Chapada CIL plant from 8k tpd to 13k tpd.	We include the Suruca heap leach project in our Chapada model with construction in 2019 and production starting up early 2020 (contributes 40kozpa over the 2020-2024 period).
Gualcamayo, Argentina	Hosts 0.5Moz at 1.5g/t in reserves (oxides) and 2.3Moz at 2.2g/t in M&I resources. Gualcamayo is an open pit and underground mining operation with heap leach processing. The M&I resources includes mineralization below the QDD pit limits - the Deep Carbonate project (sulfides) - a potential bulk tonnage underground operation.	Currently held under "Available-For-Sale assets". AUY is in the process of evaluating (1) opportunities to maximise value of the asset, (2) potential sale/monetization of the asset	Our DCF value for the project is ~$30M based on remaining reserves which we assume are all oxides and heap leachable (mine life to 2019) and does not include the M&I resources which we assume predominantly contains the Deep Carbonates sulfide ores. AUY sees opportunity for exploration to "catch up" as a plan has been developed to keep on producing from the heaps three years after mining ceases.

Project	Details	Timing	Our Expectations
Agua Rica, Argentina	Hosts 6.6Moz at 0.22g/t and 9.8Blb at 0.49% copper in reserves and 0.9Moz at 0.14/t gold and 1.7Blb at 0.39% copper in M&I resources. Two development scenarios being pursued including (1) large scale open pit integrated operation, and (2) Smaller but scalable standalone operation. AUY believes the project could be developed as a small pit and plant, and scaled over time; and would prefer a partnership in which AUY will not own a majority share of the project and will not operate it as it is predominantly a copper project.	Currently under evaluation for "portfolio rationalization and other strategic alternatives".	We ascribe an in-situ value of ~$150M to the project.
Suyai, Argentina	Hosts 2.3Moz at 15g/t in M&I resources. AUY continues to pursue an application for an Environmental Impact Study (EIS) for exploration and development. Capex of $220M was previously envisioned for an operation with initial throughput of 1.15k tpd (expandable over time) producing 150koz gold annually at costs within the AUY's cost structure (as at 2014). The latest scoping study (2Q17) calls for production in excess of 200kozpa	Currently under evaluation for "portfolio rationalization and other strategic alternatives". AUY is (1) advancing active engagements at national and provincial levels, (2) continuing to seek social licence to operate from local stakeholders, and (3) evaluating strategic alternatives including development.	We ascribe an in-situ value of ~$250M to the project. AUY continues to engage the community to demonstrate the benefits of underground mining and offsite processing or direct sale of concentrates. In 2003, the Province of Chubut passed a law that prohibits open pit mining and the use of cyanide in mineral processing which remains in effect to date.
LaPepa, Chile	Hosts 2.8 oz at 0.6g/t in M&I resources.	Currently under evaluation for "portfolio rationalization and other strategic alternatives".	We ascribe an in-situ value of ~$50M to the project.
Monument Bay, Manitoba	Hosts 1.8Moz at 1.52g/t in M&I resources. Trade-off studies for open pit/underground mine and processing under way.	Currently under evaluation for "portfolio rationalization and other strategic alternatives".	We ascribe an in-situ value of ~$55M to the project.
Jeronimo (57.3%), Chile	Is within the broader area covered by the 57.3/42.7 percent Agua de la Falda JV between Yamana and Codelco (Chilean state copper producer). Hosts 1.1Moz at 3.9g/t in M&I resources. The JV previously evaluated the potential of re-processing historical heaps and other near surface oxide ore through the existing oxide plant (which has been idle). Preliminary findings suggested minimal capex and production of more than 40koz annually over an initial five-year timeframe, which could potentially generate funds for exploration and possible development efforts at Agua de la Falda.	Currently under evaluation for "portfolio rationalization and other strategic alternatives".	We ascribe an in-situ value of ~$40M to the project.
Arco Sul, Brazil	No M&I resource, only inferred resource of 0.6Moz at 4.0g/t.	Currently under evaluation for "portfolio rationalization and other strategic alternatives".	We ascribe no value to the project.
Lavra Velha, Brazil	No M&I resource, only inferred resource of 0.5Moz at 4.3g/t.	Currently under evaluation for "portfolio rationalization and other strategic alternatives".	We ascribe no value to the project.

Source: Company reports, Barclays Research estimates

AUY Valuation: $2.50 price target, Underweight/Positive rating

Initiating coverage on AUY with $2.50 PT, UW rating: AUY has outperformed comps by ~12% over the last year and although it is sitting not far off of its lows we don't see it as cheap. Under spot gold prices the P/NAV is 2.26x, making it the most expensive name in our gold miner coverage. Our $2.50 price target is based on 1.1x P/NAV and 5.0x EV/EBITDA (NTM+1) multiples (weighted 70/30%).

FIGURE 127

AUY NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating Mines Detail					
North America					
Canadian Malartic	50%	$948	$1.00	5%	24%
South America					
Chapada	100%	$1,171	$1.23	5%	29%
Jacobina	100%	$446	$0.47	5%	11%
Gualcamayo	100%	$19	$0.02	5%	0%
Cerro Moro	100%	$446	$0.47	5%	11%
El Penon	100%	$187	$0.20	5%	5%
Minera Florida	100%	$182	$0.19	5%	5%
Alumbrera	13%	$0	$0.00	5%	0%
Total Ops NAV		**$3,399**	**$3.58**		**85%**
Exploration Assets Detail					
Agua Rica	100%	$149	$0.16		4%
Jeromino	57%	$41	$0.04		1%
Suyai	100%	$256	$0.27		6%
Monument Bay	100%	$54	$0.06		1%
La Pepa	100%	$51	$0.05		1%
Odyssey	50%	$64	$0.07		2%
Exploration (In-situ) total		**$614**	**$0.65**		**15%**
Total Ops + in-situ		**$4,014**	**$4.22**		**100%**
Corporate/ Balance Sheet					
Corporate		($297)	($0.31)	10%	
Reclamation and Provisions		($105)	($0.11)		
Debt		($1,696)	($1.78)		
Cash		$189	$0.20		
Investments		$195	$0.21		
Balance Sheet		**($1,714)**	**($1.80)**		
Total NAV		**$2,299**	**$2.42**		

Source: Company reports, Barclays Research estimates

AUY Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: Higher gold and copper prices; successful monetization of non-core assets; exploration success at key properties including Cerro Moro and El Penon.

STREAMING AND ROYALTY COMPANIES

FRANCO-NEVADA CORP. (FNV; OW)

FNV

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
USD 70.00

Price (05-Oct-2018)
USD 63.16

Potential Upside/Downside
+10.8%

Franco-Nevada Corp.(FNV): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.25A	N/A	0.34A	0.34A	N/A	0.34E	0.29E	36%	0%
Q2	0.25A	N/A	0.29A	0.29A	N/A	0.36E	0.31E	16%	24%
Q3	0.30A	N/A	0.29E	0.27E	N/A	0.37E	0.32E	-3%	28%
Q4	0.28A	N/A	0.29E	0.28E	N/A	0.39E	0.33E	4%	34%
Year	1.08A	N/A	1.21E	1.19E	N/A	1.47E	1.35E	12%	21%
P/E	58.3		52.1			43.0			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Step increase in cash generation on the horizon

Initiating coverage on FNV with $70 PT, OW/Pos rating. With an extremely low cost of capital, a base of long-life operating assets, and a large portfolio of exploration stage assets, we see FNV as the go-to streaming/royalty vehicle. Adding to the story is the impending ramp-up of Cobre Panama, which should drive up FNV's precious metals output by about a third. We believe FNV deserves the highest multiple in the space. Our $70 price target is based on 1.8x P/NAV and 18.0x EV/EBITDA (NTM+1) weighted 70/30%. We initiate coverage with an Overweight rating.

All eyes on the Cobre Panama ramp up. FNV is on the verge of completing its $1B Cobre Panama funding commitments and we expect the asset to have a relatively successful commissioning and ramp up at a measured pace in 2019. Cobre Panama is key to the company's portfolio as we see potential for the asset to contribute in excess of 160k GEO annually, nearly a third of FNV's total GEO profile. FM plans to expand the mine to 100Mtpa from 85Mtpa throughput after 2022. Our forecasts for Cobre Panama include these sequential expansions, which will flow through to FNV without any additional investment requirements as the streams are linked to the amount of copper produced.

Revenue mix to stay mostly precious. FNV has completed five oil & gas investments over the past few years totalling $864M (including future funding commitments), bringing it close to its self-imposed limit of ~$1B total investment in the oil & gas sector. Despite the growth of this non-gold revenue stream, we expect the ramp up of Cobre Panama to support FNV's goal of maintaining at least 80% of revenue from precious metals.

Seeking mining deals. With FNV's pristine balance sheet with no debt, the cash flows from Cobre Panama could be reinvested directly into new opportunistic growth investments. Assuming FNV does not make any further deals/new funding commitments, we see cash balances (net of dividends) growing by ~$500M annually over 2019-2025. While recent investments have been in oil & gas assets, we think the focus for future investments will likely return to mining deals. Over its 2Q18 call, the company highlighted it continued to see potential non-gold opportunities in mining.

North America Metals & Mining **Industry View: POSITIVE**

Franco-Nevada Corp. (FNV)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	675	680	812	929	11.2%
EBITDA (adj)	516	539	644	739	12.7%
EBIT (adj)	243	277	329	378	15.8%
Pre-tax income	236	273	325	378	17.0%
Net income (adj)	198	225	273	321	17.5%
EPS (adj) ($)	1.08	1.21	1.47	1.73	16.8%
EPS (reported) ($)	1.06	1.22	1.47	1.73	17.5%
Diluted shares (mn)	183	186	186	186	0.6%
DPS ($)	0.91	0.95	0.96	0.96	1.8%

Margin and return data					Average
EBITDA (adj) margin (%)	76.5	79.3	79.4	79.5	78.7
EBIT (adj) margin (%)	36.0	40.7	40.6	40.7	39.5
Pre-tax margin (%)	35.0	40.1	40.1	40.7	39.0
Net margin (%)	28.8	33.3	33.7	34.6	32.6
ROIC (%)	4.8	4.8	5.6	6.3	5.4
ROA (%)	4.1	4.5	5.4	6.1	5.0
ROE (%)	4.2	4.8	5.7	6.5	5.3

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	511	119	528	1,032	26.4%
Total assets	4,788	5,001	5,095	5,238	3.0%
Short and long-term debt	0	200	200	200	N/A
Other long-term liabilities	60	60	60	60	0.0%
Total liabilities	83	282	282	282	50.4%
Net debt/(funds)	-511	81	-328	-832	N/A
Shareholders' equity	4,706	4,719	4,813	4,956	1.7%
Change in working capital	-7	0	0	0	N/A
Cash flow from operations	489	499	588	683	11.8%
Capital expenditure	-501	-928	0	0	N/A
Free cash flow	-11	-429	588	683	N/A

Valuation and leverage metrics					Average
P/E (adj) (x)	58.3	52.1	43.0	36.6	47.5
P/E (reported) (x)	59.3	51.9	43.0	36.6	47.7
EV/EBITDA (adj) (x)	17.1	17.5	14.0	11.5	15.0
Equity FCF yield (%)	-0.2	-2.1	5.0	5.8	2.1
P/Sales (x)	13.8	13.7	11.5	10.1	12.3
P/BV (x)	2.5	2.5	2.4	2.4	2.4
Dividend yield (%)	1.4	1.5	1.5	1.5	1.5
Total debt/capital (%)	0.0	4.1	4.0	3.9	3.0

Selected operating metrics ($)					CAGR
Gold price ($/oz)	1,257	1,262	1,269	1,300	1.1%
Gold equivalent contributions (k GEO)	498	472	553	612	7.1%
Oil & gas revenue ($mn)	47	81	100	112	33.6%

Price (05-Oct-2018)	USD 63.16
Price Target	USD 70.00

Why Overweight? FNV is on the verge of harvesting significant amounts of cash as the much awaited Cobre Panama project is in the final stretch of construction. Longer-term we see a nice growth profile based on already spent capital, and further growth opportunities as cash builds up.

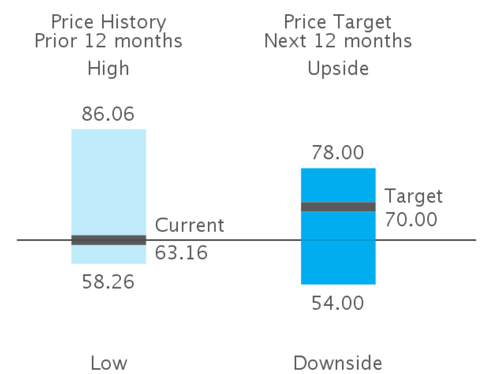
Upside case USD 78.00

Our upside scenario uses a 2.0x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,400/oz gold price.

Downside case USD 54.00

Our downside scenario uses a 1.4x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,100/oz gold price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

Step increase in cash generation on the horizon

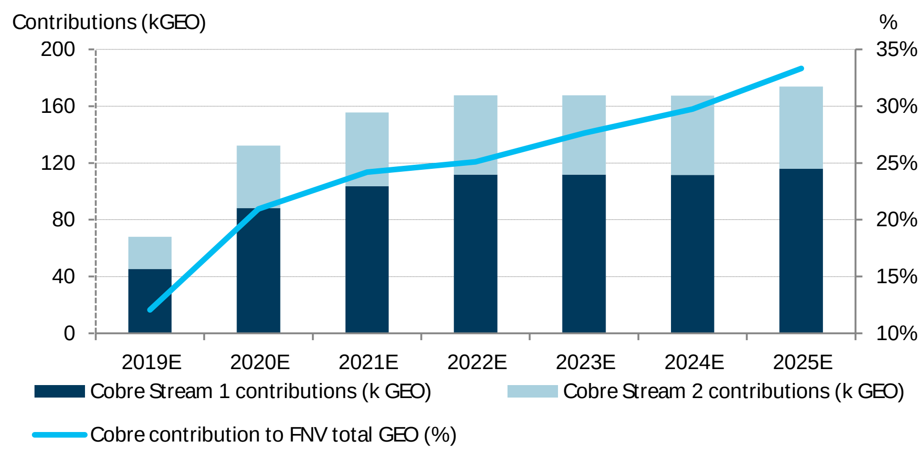
Cobre Panama ramp up essential as first revenues are expected early 2019

Franco Nevada is on the verge of completing its $1B Cobre Panama funding commitments. The project will significantly increase FNV's precious metals contribution base. We expect a relatively successful commissioning and ramp up at a measured pace in 2019.

Cobre Panama is key to the company's portfolio as we see potential for the asset to contribute in excess of 160k GEO annually, nearly a third of FNV's total GEO profile, lifting FNV's annual cash flow to the $600-800M range. FM plans to expand the mine to 100Mtpa from 85Mtpa throughput after 2022. Our forecast for Cobre Panama includes these sequential expansions, which will flow through to FNV without any additional investment requirements as the streams are linked to the amount of copper produced.

FIGURE 128

Cobre Panama starts contributing early 2019



Source: Company reports, Barclays Research
Notes: see the First Quantum section for more details on Cobre Panama

For more information on our expectations on Cobre Panama, please refer to the First Quantum section of this note.

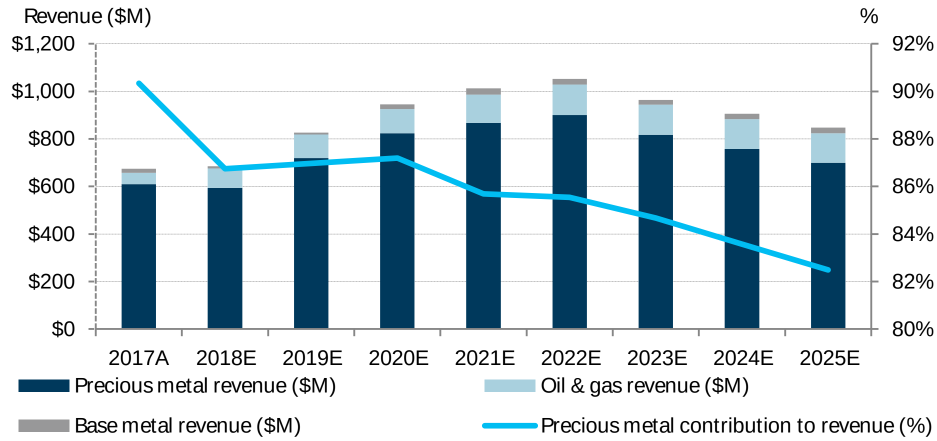
Precious metal revenue thresholds look intact despite energy deals

FNV has completed five oil & gas investments over the past few years totalling $864M (including future funding commitments), bringing it close to its self imposed limit of ~$1B total investment in the oil & gas sector. This includes the recently entered strategic relationship with Continental Resources where FNV will have to make an upfront payment of $220M by 4Q18 (incremental annual revenue in the ~$30-35M range targeted), and has committed to provide an additional $300M over the next three years for the acquisition of more acreage. In our modelling, we do not include the future funding commitments as we have no basis to estimate the potential increase in revenues that may come from incremental acreage the JV may acquire using those funds.

Despite the growth of this non-gold revenue stream, we expect the ramp up of Cobre Panama to support FNV's goal of maintaining at least 80% of revenue from precious metals.

FIGURE 129

Precious metal contributions expected to remain above 80% threshold



Source: Company reports, Barclays Research

FNV has a solid growth profile based on capital that has largely been spent. FNV guides to its gold equivalent (GEO) profile increasing from 440-470k GEO in 2018 to 565-595k GEO by 2022. Oil and gas revenue contributions are expected to increase from $65-75M in 2018 to $120-140M by 2022 including ~$30M from the recently announced strategic investment expected of $220M with Continental Resources in the SCOOP/STACK area to close in 4Q18.

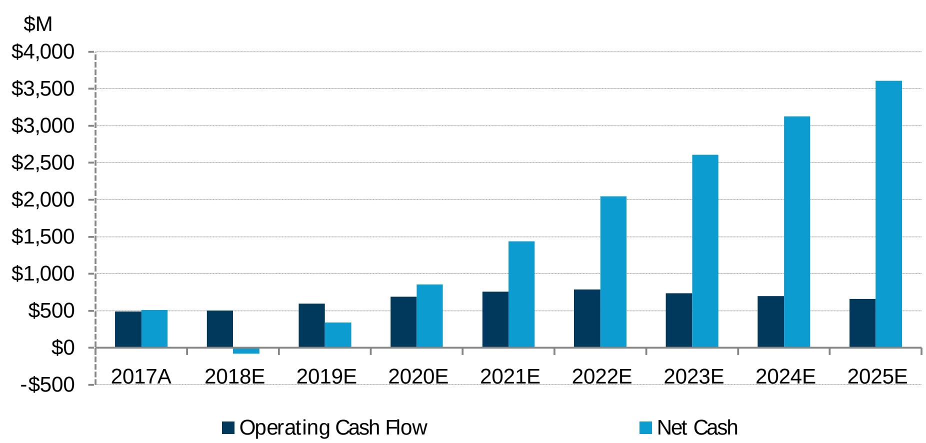
Already pristine balance sheet only getting stronger

Assuming FNV does not make any further deals/new funding commitments, we see cash balances (net of dividends) growing by ~$500M annually over 2019-2025.

With FNV's pristine balance sheet with no debt, the cash flows from Cobre Panama could be reinvested directly into new opportunistic growth investments. While the recent investments have been in oil & gas assets, we think the focus for future investments will likely return to mining deals. Over its 2Q18 call, the company highlighted it continued to see potential non-gold opportunities in mining.

FIGURE 130

Step increase in cash on the horizon (assuming no new investments made)



Source: Company reports, Barclays Research

FIGURE 131

Franco-Nevada's Project Pipeline

Project	Details	Timing	Our Expectations
Cobre Panama, Panama	(Two gold and silver streams indexed to copper production over 100% of the mine payable by First Quantum 90%/Korea Resources 10%). Essentially FNV receives a certain amount of gold and silver for every 1Mlb copper FM produces until certain thresholds are met. First stream - FNV agreed to provide $1B in funding to FM in exchange for a "fixed ongoing payment stream" covering FM's original 80% interest in the mine (in place since 2015). Second stream - FNV provided upfront funding of $356M "floating ongoing payment stream" covering the remaining 20% interest in the mine to FM and KORES (agreed to in 2018).	As at 2Q18, FNV had only $114M remaining payments of the committed $1B funding for the first stream; the project is 76% complete. Phased commissioning is expected during 2018; ramp up is expected in 2019. FM guides to first ore production in January 2019 and first shipment of concentrates in March 2019. FM announced plans to increase throughput from 74Mtpa to 85Mtpa (3Q19E), and then to 100Mtpa (after 2022)	We model the project using similar parameters (including planned expansions announced by FM) but with a slightly slower ramp-up. Our modeling suggests gold equivalent ounces (GEO) delivered to FNV averaging ~145k GEO annually for ongoing payments of ~$375/GEO over the 2019-2025 period.
NuevaUnion JV, Chile	(1.5% NSR royalty on copper and moly from Relincho deposit payable by Teck). A prefeasibility study completed in 1Q18 envisions the combined project (Relincho + El Morro) in production over a mine life of 36 years with Relincho producing an average of ~345Mlb copper annually in the first phase (years 1-3) and ~480Mlb copper annually in the third phase (years 19-36).	A feasibility study is expected to be completed by late 2019, allowing engineering and permitting to commence. Construction could start in 2020 for operation in 2023.	We do not currently model this project subject to further derisking (project definition, permitting and financing) by the JV. We note that royalty payments commence only four years after commercial production.
Rosemont, Arizona	(1.5% NSR royalty on copper, moly, gold and silver on the project operated by Hudbay). The feasibility (March 2017) on the project envisions average annual production of ~220Mlb copper, ~4Mlb moly and ~3Moz silver over 19 years life of mine. The Final Record of Decision for the project was received in June 2017.	The final permit (Section 404 water permit) is expected shortly, but is not guaranteed. HBM has not sanctioned the project	We do not include production contributions from this project subject to further derisking (permitting and financing) by the operator
Strategic Relationship with Continental Resources, Oklahoma	FNV made an upfront payment of $220M for the acquisition of oil and gas mineral rights in the SCOOP/STACK owned by a subsidiary of Continental Resources (CLR). FNV targets revenue to reach $30-35M within the next 10 years. A funding vehicle (80% FNV/20% CLR) will be set up to acquire additional mineral rights; FNV will be expected to fund its pro-rata share of (up to $100M/year) over the next three years to the vehicle; FNV will be entitled to receive variable revenues (50-75%) from the vehicle depending on performance against target volumes.	Transaction expected to close in 4Q18; First revenue contributions expected in 2019.	We have modeled in line with FNV's 5-year oil and gas guidance. However, we do not model FNV's committed $300M to the funding vehicle as we have no guidance on associated production from any additional acreage that may be acquired

Source: Company reports, Barclays Research

Valuation: $70 price target; rating Overweight/Positive

With an extremely low cost of capital, a base of long-life operating assets, and a large portfolio of exploration stage assets, we see FNV as the go-to streaming/royalty vehicle. Adding to the story is the impending ramp-up of Cobre Panama, which will drive FNV's precious metals output up by about a third. We believe FNV deserves the highest multiple in the space. Our $70 price target is based on 1.8x P/NAV and 18.0x EV/EBITDA (NTM+1) weighted 70/30%. We initiate coverage on FNV with an Overweight rating.

FIGURE 132

FNV NAV (US$)

Asset	Current NAV ($M)	NAV/ sh	Discount Rate	% of total Ops + in-situ NAV
Gold & Silver				
Cobre Panama	$1,667	$8.96	5%	23%
Antapaccay	$575	$3.09	5%	8%
Candelaria	$554	$2.98	5%	8%
Antamina	$398	$2.14	5%	5%
Sabodala & OJVG	$111	$0.60	5%	2%
Goldstrike	$136	$0.73	5%	2%
Detour Lake	$170	$0.92	5%	2%
Palmarejo	$57	$0.31	5%	1%
Gold Quarry	$70	$0.38	5%	1%
MWS	$91	$0.49	5%	1%
Bald Mountain	$42	$0.23	5%	1%
Sudbury Gold	$87	$0.47	5%	1%
Tasiast	$93	$0.50	5%	1%
Ahafo (Subika)	$91	$0.49	5%	1%
Marigold	$35	$0.19	5%	0%
Golden Highway	$2	$0.01	5%	0%
Other Gold & Silver Assets	$373	$2.00	5%	5%
Total NAV for Gold & Silver	**$4,552**	**$24.47**		**63%**
PGM				
Stillwater	$363	$1.95	5%	5%
Sudbury PGM	$176	$0.95	5%	2%
Total NAV for PGM	**$539**	**$2.90**		**7%**
Base Metals				
Rosemont	$110	$0.59	5%	2%
Mt. Keith	$10	$0.05	5%	0%
Peculiar Knob	$0	$0.00	5%	
Other Base Metal Assets	$54	$0.29	5%	1%
Total NAV for Base Metals	**$174**	**$0.93**		**2%**
Oil & Gas				
Weyburn Unit	$375	$2.02	5%	5%
Midale Unit	$14	$0.07	5%	0%
Edson	$6	$0.03	5%	0%
Other O&G Assets	$1,155	$6.21	5%	16%
Total NAV for Oil & Gas	**$1,550**	**$8.33**		**21%**
Other Assets				
Non-producing properties	$150	$0.81		2%
Total NAV for Other Assets	**$150**	**$0.81**		**2%**
Corporate/ Balance Sheet				
Corporate	($12)	($0.07)	10%	
LT Debt	($200)	($1.08)		
Cash	$528	$2.84		7%
Total Corp NAV	**$316**	**$1.70**		**4%**
Total FNV NAV	**$7,280**	**$39.14**		**100%**

Source: Company reports, Barclays Research estimates

FNV Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold and oil prices; and failure to ramp up production to targeted rates at new assets (including Cobre Panama).

ROYAL GOLD INC. (RGLD; EW)

RGLD

Stock Rating
EQUAL WEIGHT

Industry View
POSITIVE

Price Target
USD 78.00

Price (05-Oct-2018)
USD 76.37

Potential Upside/Downside
+2.1%

Royal Gold Inc.(RGLD): Quarterly and Annual EPS (USD)

	2018	2019			2020			Change y/y	
FY Jun	Actual	Old	New	Cons	Old	New	Cons	2019	2020
Q1	0.44A	N/A	0.39E	0.39E	N/A	0.59E	0.51E	-11%	51%
Q2	0.41A	N/A	0.37E	0.50E	N/A	0.59E	0.55E	-10%	59%
Q3	0.48A	N/A	0.54E	0.52E	N/A	0.58E	0.58E	13%	7%
Q4	0.43A	N/A	0.56E	0.52E	N/A	0.58E	0.58E	30%	4%
Year	1.76A	N/A	1.86E	1.93E	N/A	2.33E	2.38E	6%	25%
P/E	43.3		41.2			32.7			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Risk overhang potentially easing, but valuation upside limited

Initiating coverage on RGLD with $78 PT, EW rating. RGLD distinguishes itself as the last pure-play precious streamer, as FNV has increased its share of oil-related streams and WPM has a larger share of non-gold metals. Despite a robust portfolio of precious streams and royalties, we see the company still facing operational and execution risks at Mt. Milligan and Rainy River – which together contribute ~35% to the top line. Nevertheless, we see RGLD as deserving premium multiples and value the company using 1.4x P/NAV and 15x EV/EBITDA (NTM+1) multiples weighted 70/30%, resulting in our $78 price target. With insufficient return to target, we rate the stock Equal Weight.

Modest improvements to the risk profile. RGLD remains in the midst of rectifying operational challenges at two of its streamed assets. Most prominently, Mt. Milligan (~33% of 2017A revenues) was hampered by water shortages this past winter which have prompted the need for permitting to acquire additional water licenses; progress is being made but there remain risks to the production profile. New Gold (NGD; not covered) faces an uphill battle getting Rainy River back on track despite attempts at a turnaround. We see potential operational overhangs continuing to weigh on the stock.

Voisey's Bay, the good and the bad. RGLD has reached a settlement on the base metal NSR from Voisey's Bay that will see it receive approximately 50% of gross metal value in concentrate going forward. While we now have visibility over RGLD's future payments, the terms of the settlement were confidential and we are unclear whether RGLD was compensated for past missed payments. RGLD expects to receive ~$2M to its account in October 2018 in relation to the June 2018 quarter. By our conservative estimate, the NSR will contribute incremental revenues (at no additional upfront or ongoing cost) of ~$6.5Mpa in the near-term and lift up to ~$14Mpa once the new underground mine is complete.

Embedded growth from brownfield investment. RGLD stands to benefit from incremental royalty income as brownfield projects at its assets are slated for completion over the next 12 months, which should help it to maintain its contribution profile at around 350k GEO. The projects that will add to its profile with no additional investment requirements are at already operational assets including Penasquito (Pyrite Leach Project), Cortez Hills (Crossroads) and Canadian Malartic (Barnat). While we see RGLD's contribution mix moving down to the 85% stated precious metals revenue limit, our model suggests the mix will remain generally in the desired range.

North America Metals & Mining — Industry View: POSITIVE

Royal Gold Inc. (RGLD)

Stock Rating: EQUAL WEIGHT

Income statement ($mn)	2018A	2019E	2020E	2021E	CAGR
Revenue	459	466	506	497	2.7%
EBITDA (adj)	336	348	385	381	4.3%
EBIT (adj)	165	160	189	193	5.4%
Pre-tax income	-105	148	186	197	N/A
Net income (adj)	115	121	153	162	11.9%
EPS (adj) ($)	1.76	1.86	2.33	2.48	11.9%
EPS (reported) ($)	-1.73	1.86	2.33	2.48	N/A
Diluted shares (mn)	65	65	65	65	0.0%
DPS ($)	0.98	1.00	1.00	1.00	0.6%

Margin and return data	2018A	2019E	2020E	2021E	Average
EBITDA (adj) margin (%)	73.2	74.7	76.2	76.6	75.2
EBIT (adj) margin (%)	35.9	34.3	37.3	38.8	36.6
Pre-tax margin (%)	-22.8	31.7	36.8	39.7	21.3
Net margin (%)	-24.6	26.0	30.2	32.5	16.0
ROIC (%)	-2.0	5.0	6.7	6.8	4.1
ROA (%)	-1.9	4.9	5.7	5.8	3.6
ROE (%)	5.1	5.8	7.2	7.6	6.4

Balance sheet and cash flow ($mn)	2018A	2019E	2020E	2021E	CAGR
Cash and equivalents	89	102	386	570	85.9%
Total assets	2,682	2,507	2,594	2,591	-1.2%
Short and long-term debt	351	100	100	0	-100.0%
Other long-term liabilities	14	14	14	14	0.0%
Total liabilities	541	290	290	190	-29.5%
Net debt/(funds)	262	-2	-286	-570	N/A
Shareholders' equity	2,102	2,158	2,245	2,342	3.7%
Change in working capital	55	0	0	0	-100.0%
Cash flow from operations	329	310	349	350	2.1%
Capital expenditure	-12	0	0	0	N/A
Free cash flow	317	310	349	350	3.3%

Valuation and leverage metrics	2018A	2019E	2020E	2021E	Average
P/E (adj) (x)	43.3	41.2	32.7	30.9	37.0
P/E (reported) (x)	N/A	41.2	32.7	30.9	34.9
EV/EBITDA (adj) (x)	15.7	14.4	12.2	11.6	13.5
Equity FCF yield (%)	-0.6	2.3	2.0	-0.0	0.9
P/Sales (x)	10.9	10.7	9.9	10.1	10.4
P/BV (x)	2.4	2.3	2.2	2.1	2.3
Dividend yield (%)	1.3	1.3	1.3	1.3	1.3
Total debt/capital (%)	14.3	4.4	4.3	0.0	5.8

Selected operating metrics ($)	2018A	2019E	2020E	2021E	CAGR
Gold price ($/oz)	1,297	1,234	1,284	1,325	0.7%
Gold equivalent contributions (k GEO)	354.0	376.9	392.9	375.6	2.0%

Price (05-Oct-2018)	USD 76.37
Price Target	USD 78.00

Why Equal Weight? RGLD distinguishes itself as the last pure-play precious streamer, as FNV has gone into oil and WPM has begun to expand into industrial metals. The company is facing operational risks at several assets (Mt. Milligan and Rainy River). We see the outlook as positive but the current valuation appears fair.

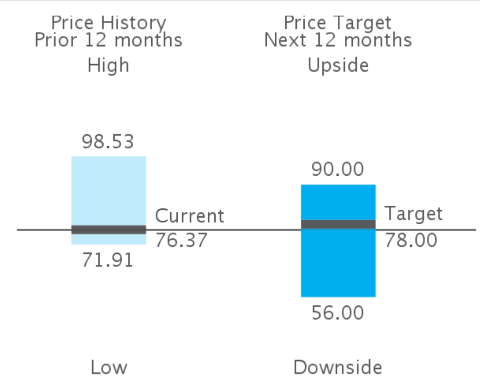
Upside case — **USD 90.00**

Our upside scenario uses a 1.6x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,400/oz gold price.

Downside case — **USD 56.00**

Our downside scenario uses a 1.0x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,100/oz gold price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Jun

Risk overhang potentially easing, but valuation upside limited

Modest improvements to the risk profile

As a result of its relatively steady profile from operational assets in its portfolio, our modelling suggests RGLD is set to deliver revenue in the $450-500M range and cash flow in excess of $350M annually for the foreseeable future. We do note, however, that some of RGLD's assets continue to face challenges.

- Rainy River's development has faced significant execution issues on the road to commercial production. New Gold adjusted Rainy River's guidance down by 100kozs in July 2018 as a result of lower-than-expected grades and recoveries, and subsequently made a management change with the CEO departing after only five months on the job. The new CEO Renaud Adams has a solid track record in the industry and plans to focus on operational performance improvement. While Rainy River continues to face possible liquidity concerns and could face potential impairments, the appointment may raise the possibility of a turn-around.

- Mt. Milligan faced a two-month processing shut-down beginning in December 2017 in response to water shortages as a result of a dry year and deep-freeze conditions during the winter. Since then, operations have been restarted at partial capacity with the most recent disclosure stating that throughput was running at about 40k tpd, ~64% of design capacity of 62.5k tpd. In response to the shortage, the operator, Centerra Gold (CG; not covered) has been seeking amendments to the Environmental Assessment Certificate and additional permitting to access groundwater wells as well as surface water from surrounding lakes and creeks. After consultations with regulatory bodies and indigenous groups, CG recently announced that short-term water sources were approved, including from tailings and a groundwater well over the life-of-mine, and water from a nearby lake until mid-November 2018. An application to extend water access from the lake is under review. CG is also seeking additional groundwater wells and could be granted permission by Dec-18. These additional water sources will be important to sustain operations. While we believe there's a good likelihood of an improvement in operations at Mt. Milligan, we'd note that because of a six-month lag time between material being shipped from Mt. Milligan and delivery to RGLD, the impacts of reduced production at the asset in early 2018 are likely to be felt in the upcoming September 2018 quarter (FQ1/2019) by RGLD.

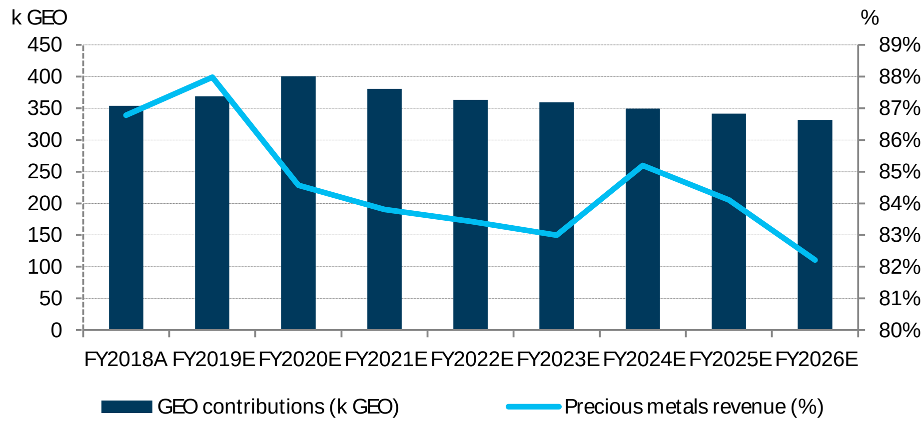
- Royal Gold and Altius Minerals (not covered) have a 90%/10% interest in the Labrador Nickel Royalty Limited Partnership (LNRLP) which has a 3% net smelter return royalty on nickel, cobalt and copper at Voisey's Bay. A dispute had arisen on the calculation of royalties as RGLD alleged that Vale incorrectly calculated the net smelter return royalty (NSR) by deducting full operating costs, depreciation, and cost of capital for the concentrates processed at Vale's Long Harbour Processing Plant, when it should have been only deducting TC/RCs. RGLD has not been recording any revenue for its 2.7% NSR on nickel, cobalt and copper production that used to contribute ~$25Mpa to RGLD's account in the past. The long-running litigation just recently settled and while exact terms are confidential, it appears the ongoing NSR will be applicable to ~50% of the gross metal value in concentrate. RGLD expects to receive ~$2M to its account in October 2018 in relation to the June 2018 quarter. By our conservative estimate, the NSR will contribute incremental revenues (at no additional upfront or ongoing cost) of ~$6.5Mpa in the near-term and lift up to ~$14Mpa once the new underground mine is complete. In addition to the positive resolution, our forecasts assume RGLD will also benefit from the ongoing development of a new underground mine by Vale (largely funded by Wheaton Precious Metals and Cobalt27 via cobalt streaming arrangements with Vale) which extends mine life from 2023 to 2034.

Incremental contributions without need for additional investment funding

RGLD stands to benefit from incremental royalty income as brownfield projects at its assets are slated for completion over the next 12 months, which should help maintain its contribution profile in the area of 350k GEO. The projects that will add to its profile with no additional investment requirements are at already operational assets including Penasquito (Pyrite Leach Project), Cortez Hills (Crossroads) and Canadian Malartic (Barnat). While we see RGLD's contribution mix moving down to its self-imposed 85% precious metals revenue limit, our model suggests the mix will remain generally in the desired range.

FIGURE 133

Maintaining ~350k GEO profile without any further investments



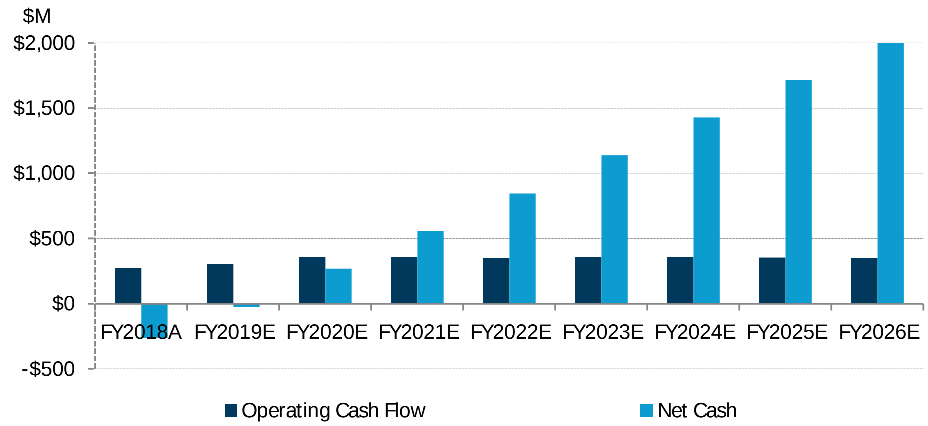
Source: Company reports, Barclays Research

Capital allocation focused on debt and returning cash to shareholders

RGLD is in cash harvest mode and has reduced debt by over $285M and increased its dividend twice (now at $1.00/sh) over the past 6 quarters. With the remaining debt due within the next 12 months (~$350M senior notes), we are of the view that repayment could be pushed out as net cash only swings positive next fiscal year by our estimates (early FY2020 or September 2019 quarter). While its balance sheet remains strong enough to consider further investment opportunities, we do not see the company engaging in deal above the $500M level.

FIGURE 134

In a net cash position by 2020



Source: Company reports, Barclays Research estimates

FIGURE 135

Royal Gold's Project Pipeline

Project	Details	Timing	Our Expectations
Rainy River, Canada	(6.5% gold and 60% silver streams on New Gold's 100% stake until certain thresholds are met). The latest feasibility (July 2018) has a revised mine plan that calls for increasing throughput from 21k tpd to 24k tpd and for gold production to average 340kozpa over the next 9 years of operation	The increase in throughput to 24k tpd is expected to be completed by the beginning of 4Q18	We model the project using similar parameters
Cortez Hills Crossroads, Nevada	(4.5% NVR and 5% GSR royalty on Barrick's 100% stake). Crossroads hosts 3.2mmoz of gold. Initial ore has been stacked on the pad (as of Aug 2018) and is expected to ramp up over CY2019	Steady heap leach production is expected in CY2019	We model the project using similar parameters
Penasquito Pyrite Leach project, Mexico	(2% NSR royalty on gold, silver, zinc and lead on Goldcorp's 100% stake). The Project provides incremental 100-140koz gold and 4-6Moz silver to GG's annual production profile	Commissioning fast-tracked to 3Q18; First production expected 4Q18	We include the project in our model
NuevaUnion JV, Chile	(1.4% NSR royalty on gold and copper from El Morro deposit payable by Goldcorp). The prefeasibility study completed in 1Q18 envisions the combined project (El Morro + Relincho) in production over a mine life of 36 years with El Morro producing an average of ~400Mlb copper and 395koz gold annually in the second phase (years 4-18)	A feasibility study is expected to be completed by late 2019, allowing engineering and permitting to commence. Construction could start in 2020 for operation in 2023.	We do not include production contributions from this project subject to further derisking (including project definition, permitting and financing) by the JV
Pueblo Viejo JV Pre-oxidation Project, Dominican Republic	(7.5% gold and 75% silver streams on Barrick's 60% stake until certain thresholds are met). ABX is looking into increasing throughput to help maintain production profile at ~800koz/year (100% basis) through addition of a pre-oxidation heap leach (8 mmtpa), a new mill and flotation concentrator (4 Mtpa) and additional tailings capacity. The project has potential to upgrade 7Moz in to reserves (from M&I resources).	A prefeasibility study and some proof of concept (pilot pre-oxidation heap leach pad) are under way; if approved could be in place by 2022	We do not include production contributions from this project subject to further derisking (including project definition, permitting and financing) by the JV
Illovica, Macedonia	(Option on 25% payable gold stream on Euromax's 100% stake until certain thresholds are met). RGLD agreed to advance an upfront payment of $160M (excluding $15M early deposit) towards construction subject to certain conditions. The feasibility study for the project envisions capex of $474M for an open pit operation producing an average of 81koz gold and 35Mlb copper p.a. over 20 years	No timelines have been given yet on this project by the operator	We do not include production contributions from this project subject to further derisking (including permitting and financing) by the JV

Project	Details	Timing	Our Expectations
Peak JV, Alaska	Peak JV - (29.1% IRR at 1,250/oz Au) September 2018 PEA completed envisions $294M initial capex for a 3.5ktpd open pit/CIL operation producing 1.1Moz Au total over 8 years at cash costs of $428/oz.	No timelines have been given yet on this project by the operator.	We do not include production contributions from this early stage project subject to further derisking (including project definition, permitting, financing) by the JV

Source: Company reports, Barclays Research estimates

Valuation: $78 price target, Equal Weight/Positive rating

RGLD distinguishes itself as the last pure-play precious streamer, as FNV has increased its exposure to oil and WPM has a larger share of non-gold metals. We see RGLD as deserving premium multiples and value RGLD using 1.4x P/NAV and 15x EV/EBITDA (NTM+1) multiples weighted 70/30%, resulting in our $78 price target. With insufficient return to target, we rate the stock Equal Weight.

FIGURE 136

RGLD NAV (US$)

Asset	Current NAV ($M)	NAV/ sh	Discount Rate	% of total Ops + in-situ NAV
GOLD				
Mt. Milligan (British Columbia)	$830	$12.69	6%	25%
Andacollo, Region IV (Chile)	$531	$8.12	5%	16%
Pueblo Viejo (Dominican Republic)	$469	$7.17	5%	14%
Pascua-Lama (Chile)	$472	$7.23	5%	14%
Peñasquito (Mexico)	$177	$2.71	5%	5%
Rainy River (Canada)	$185	$2.82	5%	6%
Golden Star Properties (1)	$96	$1.46	5%	3%
Holt (Ontario)	$53	$0.82	5%	2%
Canadian Malartic (Quebec)	$67	$1.02	5%	2%
Cortez - Pipeline & Goldrush (Nevada)	$70	$1.07	5%	2%
Other	$194	$2.96	5%	6%
Total NAV for Gold Assets	**$3,143**	**$48.08**		**94%**
BASE METALS				
Voisey's Bay (Canada)	$60	$0.91	8%	2%
Robinson (Nevada)	$87	$1.34	8%	3%
Other	$11	$0.17	5%	0%
Total NAV for Base Metal Assets	**$158**	**$2.41**		**5%**
POTASH				
Allan (Saskatchewan)	$26	$0.40	8%	1%
Total NAV for Potash Assets	**$26**	**$0.40**		**1%**
Total Mine NAV	**$3,327**	**$50.89**		**100%**
CORPORATE/ BALANCE SHEET				
Corporate	($38)	($0.58)	10%	
Reclamation and Provisions (50%)	$0	$0.00		
Investments	$19	$0.28		
Cash	$249	$3.80		
Debt	($100)	($1.53)		
Total Corp NAV	**$129**	**$1.98**		
Total RGLD NAV	**$3,457**	**$52.87**		

Source: Company reports, Barclays Research estimates

RGLD risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold prices and failure to secure long-term water supply at the key Mt. Milligan asset.

WHEATON PRECIOUS METALS CORP. (WPM; OW)

WPM

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
USD 21.00

Price (05-Oct-2018)
USD 17.05

Potential Upside/Downside
+23.2%

Wheaton Precious Metals Corp.(WPM): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.14A	N/A	0.16A	0.16A	N/A	0.15E	0.17E	14%	-6%
Q2	0.15A	N/A	0.16A	0.16A	N/A	0.15E	0.17E	7%	-6%
Q3	0.15A	N/A	0.10E	0.11E	N/A	0.15E	0.17E	-33%	50%
Q4	0.19A	N/A	0.10E	0.12E	N/A	0.16E	0.17E	-47%	60%
Year	0.63A	N/A	0.52E	0.56E	N/A	0.61E	0.67E	-17%	17%
P/E	27.3		32.6			28.2			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Levered stream exposure

Initiating coverage on WPM with $21 PT, OW rating. Our $21 price target is based on 1.4x P/NAV and 16x EV/EBITDA (NTM+1) multiples. The valuation is attractive and with substantial upside to our price target we have an Overweight rating on WPM.

Time for Salobo III? We see a few catalysts in WPM's project portfolio in the next 12 months including a potential expansion decision at Salobo that could see the mill expand 50% to 36Mtpa (with the help of ~$600M in capital contribution from WPM, payable after the expansion reaches commercial production). We expect HBM to get access to Pampacancha in 2019, which carries richer gold and silver grades and should boost precious metal production by mid-year. HBM has been waiting until after local community elections to continue the negotiation process for access to the property. Goldcorp's pyrite leach is expected to reach commercial production in 4Q18 with higher recoveries substantially boosting WPM's attributable silver production. While the perpetual waiting game continues at Rosemont there is still a possibility of a positive permitting surprise.

Activity year-to-date raises leverage, but very manageable. It has been an active year thus far for WPM with the $390M acquisition of Voisey's Bay cobalt (stream starting in 2021), the $500M acquisition of the gold and palladium stream at Stillwater, and the restructuring of the San Dimas streaming agreement from silver to gold. Including the $500M Stillwater deal, net debt could finish Q3/18 at $1.3B for a net debt / trailing EBITDA ratio of 2.4x. With some $500-600M in FCF per year, this leverage is easily manageable, but it can subject WPM to slightly more volatility in the current bear market.

Tangled up with the CRA. There have been a series of tax disputes in the Canadian resource sector in recent years with the Canada Revenue Agency (CRA) targeting what it sees as aggressive tax planning schemes. WPM has its own unique circumstances, but we do see the recent CRA trial decision in favour of Cameco as a potentially positive indicator. However, with a best case liability of $0, a worst case liability of $1.3B (including assessments on years not even targeted by the CRA yet), and probably a $300-600M liability already priced in, we still see some degree of tax overhang remaining for several years, unless an early settlement can be negotiated.

North America Metals & Mining — **Industry View: POSITIVE**

Wheaton Precious Metals Corp. (WPM)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	843	774	871	922	3.0%
EBITDA (adj)	565	497	562	611	2.6%
EBIT (adj)	302	256	297	345	4.5%
Pre-tax income	57	475	275	327	79.2%
Net income	58	476	269	320	77.0%
EPS (adj) ($)	0.63	0.52	0.61	0.72	4.8%
Diluted shares (mn)	442	444	444	444	0.1%
DPS ($)	0.28	0.32	0.34	0.38	11.8%

Margin and return data					Average
EBITDA (adj) margin (%)	67.0	64.3	64.5	66.2	65.5
EBIT (adj) margin (%)	35.9	33.1	34.1	37.4	35.1
Pre-tax margin (%)	6.7	61.4	31.6	35.5	33.8
Net margin (%)	6.8	61.5	30.8	34.7	33.5
ROIC (%)	4.1	4.5	5.2	5.4	4.8
ROA (%)	4.9	3.4	3.9	4.6	4.2
ROE (%)	5.6	4.4	5.0	5.8	5.2

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	99	228	613	1,028	118.5%
Total assets	5,683	6,730	6,850	6,999	7.2%
Short and long-term debt	770	1,457	1,457	1,457	23.7%
Other long-term liabilities	0	0	0	0	N/A
Total liabilities	784	1,481	1,481	1,481	23.6%
Net debt/(funds)	671	1,228	844	429	-13.9%
Shareholders' equity	4,900	5,248	5,368	5,518	4.0%
Change in working capital	-7	-5	0	0	N/A
Cash flow from operations	539	472	533	586	2.8%
Capital expenditure	-2	-1,115	0	0	N/A
Equity free cash flow	-91	287	529	586	N/A

Valuation and leverage metrics					Average
P/E (adj) (x)	27.3	32.6	28.2	23.6	27.9
EV/EBITDA (adj) (x)	14.6	17.7	15.0	13.1	15.1
Equity FCF yield (%)	-1.2	3.8	7.0	7.7	4.3
P/Sales (x)	9.0	9.8	8.7	8.2	8.9
P/BV (x)	1.5	1.4	1.4	1.4	1.4
Dividend yield (%)	1.6	1.9	2.0	2.3	1.9
Total debt/capital (%)	13.6	21.7	21.3	20.9	19.4

Selected operating metrics ($)					CAGR
Gold price ($/oz)	1,258	1,262	1,269	1,300	1.1%
Gold equivalent contributions (k GEO)	671.6	604.2	666.7	687.2	0.8%

Price (05-Oct-2018)	**USD 17.05**
Price Target	**USD 21.00**

Why Overweight? WPM has underperformed owing to slightly elevated leverage of 2.4x net debt/EBITDA and a higher proportion of non-gold streams. However with some $500-600M in FCF per year we expect deleveraging to occur rapidly. WPM has several catalysts ahead and CRA risks appear priced in.

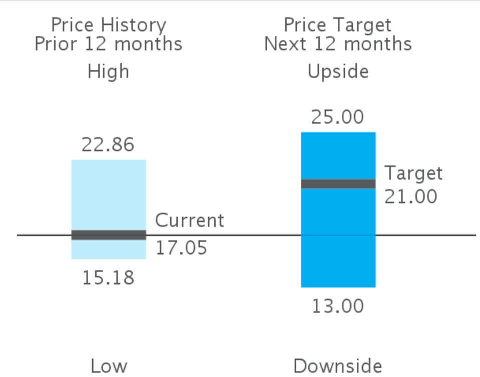
Upside case — **USD 25.00**

Our upside scenario uses a 1.6x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,400/oz gold price.

Downside case — **USD 13.00**

Our downside scenario uses a 1.0x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $1,100/oz gold price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

Levered stream exposure

Time for Salobo III?

We see a few potential catalysts ahead in WPM's project portfolio in the next year:

- Salobo III – Salobo is WPM's most important asset, accounting for 30% of the firm's asset value. In mid-2016 WPM entered an agreement with Vale that saw its share of gold production from Salobo move up to 75% for an upfront payment of $800M plus a sliding payment that depended on the size and timing of the Salobo III expansion (36Mtpa). For example, a small expansion in 2036 would require $113M while a large expansion in 2021 would require $953M from SLW. Another scenario was an expansion to 36Mtpa between 2021-2025 supported by a WPM capex contribution in the neighbourhood of US$600M, payable upon the expansion reaching commercial production. Vale is concluding the third feasibility stage-gate for Salobo III in this quarter and expects to get Board approval for the project in Q4/18. The project is expected to cost ~$1B with $600M provided by WPM upon achievement of commercial production.

- Constancia – We expect HBM to get access to Pampacancha in 2019, which carries richer gold and silver grades and should boost precious metal production by mid-year. HBM has been waiting until after local community elections to continue the negotiation process for access to the property.

- Penasquito – Goldcorp's pyrite leach is expected to reach commercial production in 4Q18. While commissioning is being performed with low-grade material, the high grade material and higher recoveries are poised to substantially boost WPM's attributable silver production.

- Rosemont – While the perpetual waiting game continues, we nevertheless think it is worth highlighting that HBM and WPM continue to await a Section 404 Clean Water Act permit from the U.S. Army Corps of Engineers. We remain hopeful that this will be forthcoming in 2018.

Activity year-to-date raises leverage, but very manageable

It has been an active year thus far for WPM with the $390M acquisition of Voisey's Bay cobalt (stream starting in 2021), the $500M acquisition of the gold and palladium stream at Stillwater, and the restructuring of the San Dimas streaming agreement from silver to gold. Including the $500M Stillwater deal, net debt could finish 3Q18 at $1.3B for a net debt / trailing EBITDA ratio of 2.4x. With some $500-600M in FCF per year, this leverage is easily manageable, but it can subject WPM to slightly more volatility in the current bear market.

Tangled up with the CRA

There have been a series of tax disputes in the Canadian resource sector in recent years with the Canada Revenue Agency (CRA) targeting what it sees as aggressive tax planning schemes. In particular CRA has targeted companies using subsidiary companies in low-tax foreign jurisdictions. The CRA contends that the offshore subsidiaries exist only for offshore purposes, and that transfer pricing has been used to create taxable income outside of Canada.

WPM was notified of a reassessment of the 2005-2010 tax years in 2015. It has opposed the claim and the issue is headed to the Tax Court of Canada. The trial is currently in discovery and is scheduled to commence in mid-September 2019 and should last 2 months.

Another company in the resource space, Cameco, has already had a trial for a tax avoidance dispute and recently had a positive decision on a $2.1B tax bill. In 2017 Cameco settled a

$122M tax dispute with the IRS for $122,000. A decision in another trial, Canada vs Oxford Properties Group, recently went in favour of the CRA.

WPM obviously has its own unique circumstances, making it difficult to look at other cases as precedents. Barring any settlement we expect the tax debate to be a drawn-out affair, with likely appeals by each side depending on who wins. In the meantime, the potential tax liability remains an overhang.

The potential liabilities are as follows:

- 2005-2010: CRA has issued notices of reassessment totalling $272M in tax, penalties and interest. WPM has already posted security in the form of letters of guarantee totalling $162M.
- 2011-2015: This period is under audit with unknown timing. If the CRA were to assess these years on a similar basis, WPM estimates potential additional tax of $384M, plus penalties and interest of $297M, for a total potential liability of $681M.
- 2016-2017: This period remains open to audit. If assessed similarly to 2005-2010 the tax increase could be $149M, plus penalties and interest of $67M.

In July 2018 WPM also received a Notice of Reassessment for 2013 challenging the timing of the deduction of upfront payments with respect to WPM's precious metal purchase agreements. WPM does not see this notice leading to any material taxes, interest or penalties.

We therefore see a worst-case liability of $1.3B (US$3/sh) and a best-case liability of $0. We cannot justify any probabilities but there is a downside skew however you cut it. For now we have applied a $350M liability (roughly equivalent to $600M paid after 10 years trials and appeals, discounted at 5%). However we note that given WPM's substantial underperformance since mid-2015, we think a substantial amount of potential tax liability is priced in. Should the market's perceptions of WPM's chances improve, the stock could re-rate upwards.

FIGURE 137

Wheaton Precious Metals' Project Pipeline

Project	Details	Timing	Our Expectations
Salobo III, Brazil	Salobo has substantial reserves and WPM's deal structure for Salobo III included payments from WPM to Vale to incentivize a large expansion, sooner rather than later. Vale has been studying an expansion of Salobo from throughput of 24Mtpa to 36Mtpa for several years. The project would enable production of an incremental 50ktpa copper for Vale over the first 5 years.	Vale is concluding the third feasibility stage-gate for Salobo III in this quarter and expects to get Board approval for the project in 4Q18.	The project is expected to cost ~$1B with $600M provided by WPM. We model capex ramping up in mid-2019 and the expanded mill capacity being reached in 2022.
Voisey's Bay, Newfoundland and Labrador	(42.4% cobalt stream on Vale's 100% stake until certain thresholds are met). WPM made an upfront payment of $390M and will make ongoing payments at 18% of the spot cobalt price per cobalt pound delivered until certain thresholds are met. WPM expects to receive 2.6Mlb cobalt annually over the first 10 years once the operation transitions from open pit to underground mining in the Reid Brook and Eastern Deeps deposits under development.	The delivery of cobalt is effective January 1, 2021.	We model the project using similar parameters.
Rosemont, Arizona	(100% silver and gold streams on the project operated by Hudbay which holds an 80% stake). WPM agreed to make upfront cash payments totalling $230M to Hudbay towards construction of the project subject to certain conditions (including permitting) and to make ongoing payments of $4/oz of silver and $450/oz of gold delivered to its account. The feasibility on the project completed in 2017 suggests WPM would receive ~3Moz silver and ~16koz gold annually over 19 years life of mine. The Final Record of Decision for the project was received in June 2017.	The final permit (Section 404 water permit) remains expected in 2018. HBM has not sanctioned the project	We do not include production contributions from this project subject to further derisking (including permitting and financing by the operator).
Pascua Lama, Argentina/ Chile	(25% silver stream on Barrick's 100% stake). Hosts 184Moz at 52g/t silver attributable M&I resources. WPM made an upfront payment of $625M and committed make ongoing payments at $4/oz per silver ounce delivered. WPM expected to receive 9Moz silver annually over the first 5 years. Due to a delay and subsequent halt of construction on the project, WPM received silver from ABX's other mines including Veladero, Lagunas Norte and Pierina through expiration of the arrangement in March 2018.	ABX does not include this project in its production plan.	We do not include production contributions from this project subject to further derisking (including project definition, permitting and financing) by the operator.
Navidad, Argentina	(12.5% silver stream on the project operated by Pan American Silver (PAAS)). Hosts 19.8Moz at 169g/t silver attributable M&I resources. In 2003, the Province of Chubut passed a law that prohibits open pit mining and the use of cyanide in mineral processing, which remains in effect to date. In 2010, WPM elected to convert its debenture with PAAS in to an agreement to acquire 12.5% of production from the Loma de la Plata zone of Navidad project. WPM agreed to make upfront cash payments totalling $32.4M to PAAS towards construction of the project subject to certain conditions and to make ongoing payments of $4/oz of silver delivered to its account.	Activities to satisfy the legal requirements necessary to maintain property interests under the current mining law are ongoing.	We do not include production contributions from this project subject to further derisking (including permitting and financing) by the operator.

Project	Details	Timing	Our Expectations
Toroparu, Guyana	(50% silver and 10% gold streams on the project operated by Sandspring Resources (SSP)). WPM agreed to make upfront cash payments totalling $138M (excluding an early deposit of $15.5M) to SSP towards construction of the project subject to certain conditions and to make ongoing payments of $4/oz of silver and $400/oz of gold delivered to its account. A PFS completed in 2013 envisioned capex of $464M for an open pit operation producing an average of 228koz gold annually over 16 years life of mine.	A definitive feasibility study incorporating 2017/2018 exploration results is required by December 2018. If WPM decides to opt out of the deal after reviewing the feasibility study, SSP can either return $11.5M (from the early deposit) and terminate the deal or reduce the gold stream to 0.909% and the silver stream to nil.	We do not include production contributions from this project subject to further derisking (including permitting and financing) by the operator.
Mestates, Mexico	(1.5% NSR royalty on gold, silver, zinc and copper on Chesapeake Gold's 100% stake). The 2016 PFS envisions total project capex of $3.5B (two-phase construction) for an open pit operation producing 445koz gold, 8.8Moz silver and 88Mlb zinc annually over 37 years life of mine.	No timelines have been given yet on this project by the operator.	We do not include production contributions from this project subject to further derisking (including permitting and financing) by the operator.

Source: Company reports and Barclays Research estimates

WPM Valuation: $21 price target, Overweight/Positive rating

Our $21 price target is based on 1.4x P/NAV and 16x EV/EBITDA (NTM+1) multiples. We are Overweight rated on WPM with substantial upside to our price target.

FIGURE 138

WPM NAV (US$)

Asset	Current NAV ($M)	NAV/ sh	Discount Rate	% of total Ops + in-situ NAV
Silver (primary metal)				
Antamina (Peru)	$542	$1.22	5%	7%
Penasquito (Mexico)	$604	$1.36	5%	8%
Constancia (Peru)	$396	$0.89	5%	5%
San Dimas (Mexico)	$168	$0.38	5%	2%
Yauliyacu (Peru)	$192	$0.43	5%	3%
Neves-Corvo (Portugal)	$185	$0.42	5%	2%
Zinkgruvan (Sweden)	$142	$0.32	5%	2%
Stratoni (Greece)	$29	$0.07	5%	0%
Minto (Canada)	$13	$0.03	5%	0%
Los Filos (Mexico)	$11	$0.02	5%	0%
Aljustrel (Portugal)	$0	$0.00	5%	
Total - primarily silver mines	**$2,284**	**$5.15**		**31%**
Gold (primary metal)				
Salobo (Brazil)	$2,654	$5.98	5%	36%
Stillwater (USA)	$584	$1.32	5%	8%
Sudbury (Canada)	$256	$0.58	5%	3%
777 (Canada)	$28	$0.06	5%	0%
Total - primarily gold mines	**$3,522**	**$7.94**		**47%**
Development				
Pascua Lama (Chile/ Argentina)	$711	$1.60	8%	10%
Metates (Mexico)	$190	$0.43	8%	3%
Navidad (Argentina)	$68	$0.15	8%	1%
Toroparu (Guyana)	$36	$0.08	8%	0%
Keno Hill (Canada)	$0	$0.00	8%	0%
Total development	**$1,669**	**$3.76**		**22%**
Total assets	**$7,475**	**$16.84**		**100%**
Corporate				
Corporate	($96)	($0.22)	10%	
Reclamation and Provisions (50%)	($350)	($0.79)		
Investments	$175	$0.39		
Total Debt	($1,457)	($3.28)		
Cash	$613	$1.38		
Total NAV corp and Balance Sheet	**($1,115)**	**($2.51)**		
Total NAV	**$6,360**	**$14.33**		

Source: Company Data, Barclays Research estimates

WPM Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold and silver prices; unfavorable resolution of tax disputes in Canada; failure to ramp up production to targeted rates at new assets and expansions (including Stillwater, Voisey's Bay and Salobo III).

BASE METAL COMPANIES

FIRST QUANTUM (FM.TO; OW)

FM CN / FM.TO

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
CAD 18.00

Price (05-Oct-2018)
CAD 14.60

Potential Upside/Downside
+23.3%

First Quantum(FM.TO): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	-0.04A	N/A	0.07A	0.07A	N/A	0.15E	0.18E	275%	114%
Q2	-0.03A	N/A	0.19A	0.19A	N/A	0.17E	0.25E	733%	-11%
Q3	-0.04A	N/A	0.16E	0.19E	N/A	0.12E	0.28E	500%	-25%
Q4	-0.05A	N/A	0.19E	0.23E	N/A	0.03E	0.36E	480%	-84%
Year	-0.16A	0.74E	0.60E	0.71E	1.23E	0.47E	1.22E	475%	-22%
P/E	N/A		18.7			24.3			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 09-Oct-2018; 13:35 GMT

Free cash flow in sight

Assuming coverage on FM with C$18 PT, OW rating. We are assuming coverage of First Quantum. FM offers potent copper exposure courtesy of its significant financial leverage, size, and growth profile. We view FM as a particularly aggressive capital allocator in the base metal space. While FM still has a degree of vulnerability from the downside risks of the cycle, we see risks as manageable and this could change rapidly to upside when the copper market's descent reverses. Our C$18.00 price target is based on 1.1x P/NAV and 6.5x EV/EBITDA (NTM+1) target multiples weighted 70/30%. Given sufficient upside to target we initiate with an Overweight rating.

Pressing towards the finish line at Cobre Panama. We think Cobre Panama will have a relatively smooth ramp-up, but potentially at a slightly slower rate than initially expected. We model first meaningful ore through the mill in 1Q19, ramping through the year for 42Mt of ore processed in 2019. If costs progress as planned (in the $1.40/lb range), we could see the FM 2020 free cash flow cranking up to ~$1.2B/yr even at only $2.75/lb Cu, which translates to a 12% FCF yield. If copper is $3.00/lb, FCF could average $1.5B/yr for a ~14% FCF yield. This would allow for rapid deleveraging.

Some risks to be cognizant of: covenants, Zambia, Panama Law 9. We see some potential of covenant breach below $2.60/lb copper. However, we do find some reassurance with Cobre Panama almost complete and recent precedent of amendments to covenant terms. In a bear-case, FM could potentially sell the Cobre Panama coal power plant to relieve liquidity constraints. The lack of significant debt maturities until 2021 gives us confidence that FM will weather potential market headwinds. Under our model, 3Q19 is FM's last quarter with negative free cash flow. The second risk pertains to Zambian taxes with FM defending itself from the Zambian Revenue Authority and facing further tax grabs. We view serious tax issues as low-probability but important to be cognizant of. Lastly, we flag the recent Supreme Court decision in Panama that found the Law governing the contract unconstitutional. However, the mining concession contract remains intact.

Where next for growth – a path to lower risk? As we near completion of one of the largest copper projects ever built, it may seem absurd to ask "where's the next project". However, we think it is a logical question to consider. In a world of soaring PP&E inflation, companies with superior project execution have the greatest potential to excel. In our opinion, there is no better company at projects than FM. We believe the market will be curious to assess whether FM's project execution capability can continue to be extrapolated into the future.

With further growth at Cobre Panama and additional potential at Taca Taca, we see some potential for FM's center of gravity to shift to South America in the medium and long-term.

North America Metals & Mining — **Industry View: POSITIVE**

First Quantum (FM.TO)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	3,310	3,921	4,199	5,471	18.2%
EBITDA	1,044	1,740	1,747	2,424	32.4%
EBIT	99	899	831	1,385	141.0%
Pre-tax income	60	863	670	931	149.4%
Net income	-316	422	321	380	N/A
EPS (adj) ($)	-0.16	0.60	0.47	0.55	N/A
EPS (reported) ($)	-0.46	0.61	0.47	0.55	N/A
Diluted shares (mn)	685.9	689.4	689.4	689.4	0.2%
DPS ($)	0.01	0.01	0.01	0.01	11.1%

Margin and return data					Average
EBITDA margin (%)	31.5	44.4	41.6	44.3	40.5
EBIT margin (%)	3.0	22.9	19.8	25.3	17.8
Pre-tax margin (%)	1.8	22.0	16.0	17.0	14.2
Net margin (%)	-9.5	10.8	7.6	6.9	4.0
ROIC (%)	-1.7	2.5	2.3	4.1	1.8
ROA (%)	-1.5	2.3	2.2	3.7	1.7
ROE (%)	-1.2	4.4	3.3	3.7	2.5

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	702	410	85	303	-24.5%
Total assets	21,623	23,048	22,536	22,415	1.2%
Short and long-term debt	6,277	6,537	6,469	6,117	-0.9%
Other long-term liabilities	0	0	0	0	N/A
Total liabilities	11,495	12,354	11,510	11,023	-1.4%
Net debt/(funds)	5,575	6,127	6,384	5,814	1.4%
Shareholders' equity	8,960	9,493	9,807	10,181	4.3%
Change in working capital	-274	-94	-132	-132	N/A
Cash flow from operations	914	2,036	1,431	1,870	26.9%
Capital expenditure	-1,652	-1,826	-1,078	-587	N/A
Free cash flow	-1,093	-778	96	1,415	N/A

Valuation and leverage metrics					Average
P/E (adj) (x)	N/A	18.7	24.3	20.5	21.2
P/E (reported) (x)	N/A	18.5	24.3	20.5	21.1
EV/EBITDA (x)	12.8	8.0	8.1	5.6	8.6
Equity FCF yield (%)	0.0	0.0	0.0	0.0	0.0
P/Sales (x)	2.4	2.0	1.9	1.4	1.9
P/BV (x)	0.9	0.8	0.8	0.8	0.8
Dividend yield (%)	0.1	0.1	0.1	0.1	0.1
Total debt/capital (%)	41.2	40.8	39.7	37.5	39.8

Selected operating metrics ($)					CAGR
Copper price ($/lb)	2.81	3.00	2.84	2.95	1.6%
Nickel price ($/lb)	4.7	6.2	6.5	7.0	13.8%
Gold price ($/oz)	1,258	1,262	1,269	1,300	1.1%
Copper production (mln lb)	1,265.2	1,293.3	1,600.1	1,839.3	13.3%
Nickel production (mn lb)	39	0	0	0	-100.0%
Gold production (mln oz)	0.2	0.2	0.3	0.3	16.3%
Copper cash costs, by product ($/lb)	1.22	1.28	1.35	1.36	3.6%

Price (05-Oct-2018)	**CAD 14.60**
Price Target	**CAD 18.00**

Why Overweight? FM offers potent copper exposure courtesy of its significant financial leverage, size, and growth profile. While FM still has a degree of vulnerability from the downside risks of the cycle, this could change rapidly to upside when the copper market's descent reverses.

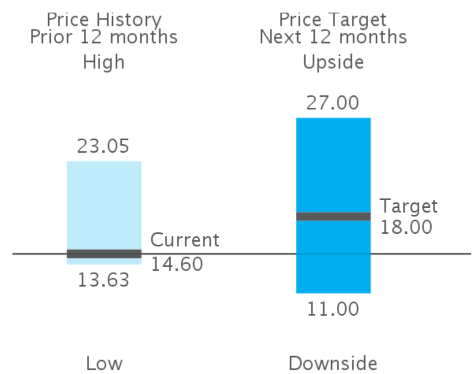
Upside case — **CAD 27.00**

Our upside scenario uses a 1.2x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $3.50/lb copper price.

Downside case — **CAD 11.00**

Our downside scenario uses a 1.0x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $2.50/lb copper price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

Free cash flow in sight

Cobre Panama – some slippage potential, but FCF not far away

FM has been pressing towards the finish line at Cobre Panama. The project was 76% complete with 87% of the budget spent at the end of 2Q18 (the budget was expected to lead completion given significant capital equipment already on site). The first commissioning activities are under way at the process plant and installation of overland conveyors and pipelines was advancing well. One of the 150MW coal power plants was commissioned and synchronized to the Panamanian grid. One of our more significant concerns has been the readiness of the tailings dam and in 2Q18 the readiness of tailings earthworks was moved to 70% from 79% in 1Q18. FM had guided to phased commissioning in 2018 and ramp-up continuing in 2019, reaching 85Mtpa by 2020. We model a start to the mill in 1Q19, ramping through the year for 50Mt of ore processed in 2019. We think FM will have a relatively smooth ramp-up, but given the still significant amount of work required and the size of the plant, we could envisage the rate of construction hand-over to operations being at a slightly slower rate than initially expected.

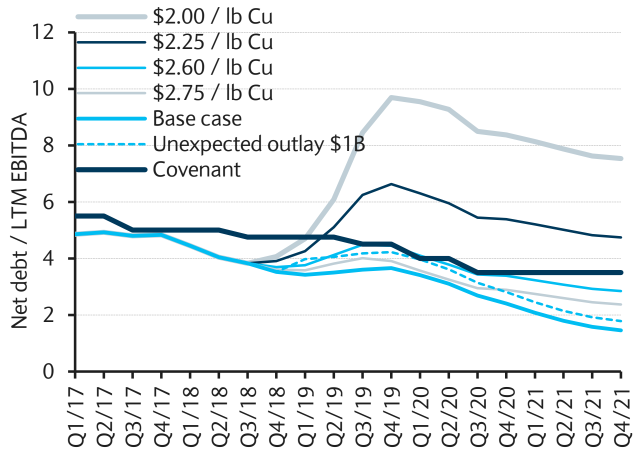
The ramp-up of Cobre Panama will give us the first chance to see how operating costs compare to prior expectations. Cobre Panama is relatively low-grade and its mid-cost curve performance is based on an assumption of significant economies of scale and the benefits of a nearby port and consolidated power supply. If costs progress as planned (in the $1.40/lb range), we could see the FM free cash flow cranking up to ~$1.2B/yr even at only $2.75/lb Cu, which translates to a ~12% FCF yield. If copper is $3.00/lb it could average $1.5B/yr or a ~14% yield. This would allow fairly rapid repayment of the ~$7.3B in debt that we expect FM to have at year end, or the next wave of growth projects.

Covenant risk below $2.60/lb copper, but major issues unlikely

FM has a declining net debt / EBITDA ratio covenant on its term loan and revolving credit facility of 4.75x through June 2019, falling to 4.5x until the end of 2019, then 4.0x until mid-2020, and 3.5x until maturity. At the end of 2Q18 FM had $7.3B in debt and $1.5B in cash, and net debt of $5.9B. Net debt to EBITDA stood at 4.0x. FM still has some $570M in attributable capex remaining to spend on Cobre Panama but under our model 3Q19 is the last quarter with negative free cash flow. Our price deck has copper at $2.90/lb in 4Q18, $2.88/lb in 1Q19, and progressively climbing back to $3.00/lb by 2020. Under this scenario FM's net debt ratio continues to improve and the covenants are not a problem. We see a greater likelihood of covenant breach below $2.60/lb copper. Given that copper has dipped as low as ~$2.60/lb recently this would be some cause for concern. However, we do find some reassurance in the fact that Cobre Panama is almost complete. FM had also successfully had covenant terms amended in 2016 and if the copper price does sustain prices below $2.60/lb we believe FM could do so again. In a bear-case, FM could also look to sell the Cobre Panama coal power plant to a third-party or spin it out as a utility to help relieve liquidity. So while FM's equity value would obviously be impacted by a bear case, we view the debt as generally manageable, especially when we consider the repayment schedule which has the first significant maturities in 2021. This repayment schedule would even be manageable if $2.60/lb copper persisted.

FIGURE 139

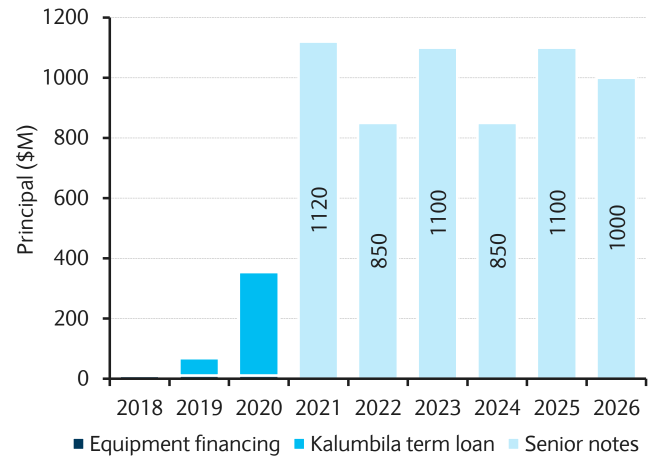
Net debt ratio – covenant issues below $2.50/lb



Source: Barclays Research

FIGURE 140

Repayment schedule achievable



Source: Barclays Research

Zambia taxes – risks out in the open

Other than Cobre Panama and the balance sheet, we see one other source of risk that the market should continue to consider and this risk pertains to Zambian taxes. FM is presently defending itself on several fronts:

1) The $7.6B claim – Following an audit by the Zambian Revenue Authority (ZRA), FM received a letter in March 2018 with preliminary findings of a $7.6B claim consisting of $150M in claims, $5.5B in interest, and $2.0B in penalties. The claim pertains to alleged errors on duty rates paid by FM on $540M of mining equipment in 22,700 import transactions. FM refuted the claim and hired an accounting firm and shipping agent to review audited documentation. The review was completed in 2Q18 and provided to the ZRA.

2) Budget deficit – The Zambian Minister of Finance announced the 2019 budget at the end of September and assumed a 27% increase in mining corporate income tax and 23% increase in mineral royalty in 2019, notwithstanding unchanged copper price assumptions and copper production growing 4%. The boost comes from new tax policies including higher mineral royalty rates, the loss of royalty income tax deductibility, export levies on precious metals, removal of VAT, and the introduction of a non-refundable sales tax. We have factored these higher taxes into our model. At spot exchange rates the budget sees mining tax revenue going to $240M from $189M and royalty going to $420M from $342M in 2019.

3) Slow progress with ZCCM – FM is also continuing to deal with legal proceedings from its 20% shareholding partner at Kansanshi, ZCCM. ZCCM sued FM for $1.4B in late 2016 claiming FM borrowed money from Kansanshi without notifying ZCCM. The claim includes $228M in interest and 20% of the alleged principal of the loans ($570M).

Given the absurdity of the penalty and interest claimed by the ZRA we believe there could be a tax settlement of a much lower magnitude, if anything. Although it is low probability, we still view it as a threat that needs to be acknowledged, given the tax grabs we have seen in emerging markets of late (Tanzania and DRC to name a few). If the Zambian tax issue is resolved we would expect to see modest short-term outperformance from FM.

Panama Law 9

The other geopolitical risk in FM's asset portfolio is Law 9, which the Supreme Court of Panama recently found to be unconstitutional. FM's concession rights were outlined by the Law, which was established in 1997. The initial challenge to the Law arose from an NGO in 2009 which sought to limit environmental damage from a gold project on the Cobre Panama concession. FM has disclosed its understanding that the ruling does not affect the Cobre Panama concession contract. We believe Cobre Panama is not being targeted in this ruling, although we do acknowledge that the striking down of Law 9 could impact FM's legal protections against future changes to taxes and royalties. FM is working to understand the ruling and its applicability, and identify the required legal remedies. Overall we see the Law 9 decision as relatively benign, but do flag it as another risk in the company asset portfolio.

Where next for growth – a path to lower risk?

As we near completion of one of the largest copper sulphide projects ever attempted, it may seem absurd to ask "where's the next project?". However, we think it is a logical question to consider. In a world of soaring PP&E inflation, companies with superior project execution have the greatest potential to excel. In our opinion, there is no better company at projects than FM. In the past 15 years we have seen FM build Bwana Mkubwa, Kansanshi (the original company cash-cow), Frontier, Guelb Moghrein, Ravensthorpe (effectively a rebuild), Sentinel, Kevitsa, and then the crown-achievement of them all, the soon-to-be 85Mtpa (on its way to 100Mtpa) beast known as Cobre Panama. On paper, FM's project execution skills translate into a massive advantage and certainly FM has a long list of achievements. However, there have been mitigating factors that have limited upside along the way including the loss of FM's DRC portfolio in 2010, the prolonged nickel bear market which made Ravensthorpe a loss maker, the cash crunch of 2016 that forced FM to put a "material uncertainty" notice in its 1Q16 financials, and the need to build a smelter in Zambia. As a result, today FM sits roughly halfway below its high of the last 10 years despite a strong production growth outlook, record PP&E, and record revenue. We believe the market will be curious to assess whether FM's historical project execution capability can be extrapolated into the future, or whether Cobre Panama will represent the pinnacle. Can FM's competitive advantage survive a growth pause? Included in this question are unanswered questions about succession planning.

Given that Cobre Panama is still in the hectic phases of project completion, FM probably has a year before the market's curiosity becomes more piqued. The potential opportunities of future projects like Taca Taca or Haquira, vs Kansanshi S2.5 or S3 are interesting to consider. There are also smaller opportunities like Las Cruces sulphides or Enterprise in Zambia. Kansanshi may be less appealing for expansion, given the need to expand the smelter. If Kansanshi production is allowed to decline, FM's center of gravity would shift to South America and the focus would likely shift to Taca Taca. We believe a move like this could help lift some of the Zambian risk discount, but it is still too far away to influence the stock this year in our opinion.

FIGURE 141

First Quantum's Project Pipeline

Project	Details	Timing	Our Expectations
Cobre Panama, Panama	The project is owned 90/10 percent by First Quantum and Korea Resources (KORES). Hosts 26.7Blb at 0.38% copper, 418Mlb moly at 0.006%, 7Moz at 0.07g/t gold and 138Moz at 1.35g/t silver in reserves. Production is expected to start-up at 330Mlb (150kt) in 2019 and to ramp up to 595-660Mlb (270-300kt) in 2020. With FM's plan to increase throughput from 74Mtpa to 85Mtpa (by adding an eighth mill which is included in the total project capex of $6.3B), production is expected to further ramp up to 770Mlb (350kt) at cash costs of $1.20/lb by 2021. A further throughput increase to 100Mtpa is contemplated after 2022 which would drive annual production from the mine to a peak of ~875Mlb (397kt).	As at 2Q18, the project was 76% complete. Phased commissioning is expected during 2018. FM guides to first ore production in January 2019 and first concentrate shipments in March 2019, with production expected to ramp up in 2019. The expansion to 85Mtpa is expected to start in 3Q18 and to be completed by 3Q19.	We model the project using similar parameters (including planned expansions announced by FM) but with a slightly slower ramp-up. We assume capex of $300M for the expansion from 85Mtpa to 100Mtpa capacity after 2022.
Haquira, Peru	Hosts 7Blb at 0.56% copper in M&I resources. The project is located in Apurimac Department of southern Peru and was acquired in 2010.	Relocation program re-activated with the communities.	We ascribe an in-situ value of ~$0.1B to the project in our model.
Taca Taca, Argentina	Hosts 21Blb at 0.44% copper, 573Mlb at 0.012% moly, and 5.6Moz at 0.08g/t gold in M&I resources. The project is located in Salta Province and was acquired in 2014.	Currently conducting EIA studies and proving water supply; engagement with communities and relevant authorities is ongoing.	We ascribe an in-situ value of ~$0.7B to the project in our model.
Las Cruces, Spain	The Las Cruces operation processes secondary copper mineralization which currently is scheduled to end in 2022; however, mine life could be extended with processing of primary mineralization. FM has been conducting pilot plant test work on the ore to evaluate the feasibility of extending the mine life into the primary ore body. There are also inventories of gossan mineralization at surface that have potential for processing.	FM last disclosed that it is developing proprietary technology on a poly-metallurgical refinery to recover metal from primary ore. Results have been positive but FM is working to determine operational feasibility. We would hope to get an idea of project economics by 2020 at the latest or the mine may close before the plant can be built.	We do not currently ascribe any value to the project.
Enterprise, Zambia	The project is located 12km from Sentinel. Hosts 757Mlb at 0.97% nickel in reserves. A 4Mtpa nickel processing plant (SAG mill/ball mill/Flotation configuration) was completed in 2016 leveraging infrastructure at Sentinel. The plan would be to mine and transport ore from the deposit to the processing facility at Sentinel with annual production capacity of 38kt of nickel in concentrate with a grade of 24-30% (with scope to expand to 60kt depending on market conditions). The project is shovel ready as it received an environmental approval.	Pre-stripping expected to begin when market conditions improve.	We ascribe an in-situ value of ~$0.2B to the project in our model.

Source: Company reports and Barclays Research estimates

FIGURE 142

FM NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating assets					
Copper					
Cobre Panama	90%	$8,637	$12.53	8%	55%
Sentinal	100%	$1,080	$1.57	8%	7%
Kansanshi	80%	$3,471	$5.03	8%	22%
Las Cruces	100%	$1,689	$2.45	8%	11%
Guelb Moghrein	100%	$192	$0.28	8%	1%
Cayeli	100%	$168	$0.24	8%	1%
Pyhasalmi	100%	$75	$0.11	8%	0%
Nickel					
Ravenscthorpe	100%	$56	$0.08	8%	0%
Copper Smelter	100%	$183	$0.26	8%	1%
Hedge Book (CP stream)		$823	$1.19	8%	5%
Operating Assets NAV		**$14,749**	**$21.40**		**94%**
Non-operating assets					
Haquira	100%	$117	$0.17		1%
Taca Taca	100%	$679	$0.99		4%
Enterprise	100%	$186	$0.27		1%
Total Other Assets NAV		**$982**	**$1.42**		**6%**
Total Ops + in-situ NAV		**$15,731**	**$22.82**		**100%**
Corporate					
Corporate Expenses		($361)	($0.52)	10%	
Reclamation and Provisions (50%)		($840)	($1.22)		
Total debt		($6,469)	($9.38)		
Total cash		$85	$0.12		
Corporate NAV		**($7,585)**	**($11.00)**		
Net Asset Value		**$8,147**	**$11.82**		

Source: Company reports, Barclays Research estimates

FM Valuation: C$18 price target, Overweight/Positive

FM offers potent copper exposure courtesy of its significant financial leverage, size, and growth profile. We view FM as a particularly aggressive capital allocator in the base metal space. While FM still has a degree of vulnerability from the downside risks of the cycle, we see risks as manageable and this could change rapidly to upside when the copper market's descent reverses. Our C$18 price target is based on 1.1x P/NAV and 6.5x EV/EBITDA (NTM+1) target multiples weighted 70/30%. Given sufficient upside to our price target we assume coverage of FM with an Overweight/Positive rating.

FM Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower copper prices; failure to deliver Cobre Panama project on time and budget, and to ramp up the project to targeted operating rates; unfavorable resolution of the tax dispute in Zambia.

FREEPORT-MCMORAN INC. (FCX; UW)

FCX

Stock Rating
UNDERWEIGHT

Industry View
POSITIVE

Price Target
USD 12.00

Price (05-Oct-2018)
USD 13.27

Potential Upside/Downside
-9.6%

Freeport-McMoRan Inc.(FCX): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.15A	N/A	0.47A	0.46A	N/A	0.19E	0.23E	213%	-60%
Q2	0.17A	N/A	0.59A	0.58A	N/A	0.22E	0.24E	247%	-63%
Q3	0.34A	N/A	0.35E	0.40E	N/A	0.10E	0.23E	3%	-71%
Q4	0.52A	N/A	0.36E	0.30E	N/A	0.04E	0.24E	-31%	-89%
Year	1.17A	N/A	1.76E	1.79E	N/A	0.55E	0.99E	50%	-69%
P/E	11.3		7.5			23.9			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Delevered but lacking catalysts

Initiating coverage on FCX with $12 PT, UW rating. FCX is emerging from crisis mode. It has delevered to net debt to EBITDA of 0.9x. However, FCX received a low score in our ranking framework with key areas of weakness including the project pipeline and growth profile. We value FCX with a 1.0x P/NAV and 7.0x EV/EBITDA (NTM+1) multiple weighted 70/30% for a $12/sh price target and negative return to target, hence our Underweight rating.

Assessing optionality in the Americas. FCX could have potential, but it is hard to see right now. Despite substantial mineralized inventory in the Americas, FCX has outlined few investment opportunities. FCX's only clearly articulated growth project is Lone Star which is a relatively advanced oxide project a few miles from the Safford leach project. We might infer from FCX's past foray into oil and gas that its brownfield investment opportunities are marginal and are not going to be sources of punchy returns unless the commodity price really helps FCX out. What FCX does have going for it in the Americas, however, is low risk, proximity to existing infrastructure, and access to tax loss pools (for U.S. projects).

Will Grasberg risk perceptions ease? It is without question that Grasberg is a world-class deposit; however, its full value has been suppressed for years due to concerns over the share of production likely to be realized. With the new divestment agreement we see these risks as much reduced; however, we continue to have some technical concerns related to the transition to 100% block caving. We also see softer production in 2019/20 and the need to still arrange for another smelter as potential drivers of a persistent discount.

Awaiting capital allocation ideas. Either FCX's brownfield investment options do not exceed hurdle rates, or FCX is awaiting a bull market to invest. The former scenario would be an obvious negative, but the latter scenario runs counter to our steady investment framework. Our price deck has FCX net debt remaining in the neighbourhood of $6-7B, while the leverage ratio increases to 2.2x on weaker Grasberg production and lower trailing commodity prices. FCX will not experience meaningful FCF until 2021 when Grasberg starts to pick back up. We hope to see more indications of accretive opportunities to redeploy those cash flows before then.

North America Metals & Mining | Industry View: POSITIVE

Freeport-McMoRan Inc. (FCX)

Stock Rating: UNDERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	16,403	19,516	15,546	16,322	-0.2%
EBITDA (adj)	5,283	6,791	3,450	4,011	-8.8%
EBIT (adj)	3,569	5,029	1,869	2,387	-12.5%
Pre-tax income	2,902	4,611	1,411	1,928	-12.7%
Net income (adj)	1,703	2,571	809	1,140	-12.5%
EPS (adj) ($)	1.17	1.76	0.55	0.78	-12.6%
EPS (reported) ($)	1.25	1.78	0.55	0.78	-14.4%
Diluted shares (mn)	1,454.0	1,458.0	1,458.0	1,458.0	0.1%
DPS ($)	0.00	0.05	0.05	0.05	N/A

Margin and return data					Average
EBITDA (adj) margin (%)	32.2	34.8	22.2	24.6	28.4
EBIT (adj) margin (%)	21.8	25.8	12.0	14.6	18.5
Pre-tax margin (%)	17.7	23.6	9.1	11.8	15.6
Net (adj) margin (%)	-1.7	-2.1	-1.4	-1.6	-1.7
ROIC (%)	7.5	9.7	4.1	5.3	6.6
ROA (%)	6.5	8.7	3.6	4.6	5.8
ROE (%)	15.1	18.5	5.5	7.3	11.6

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	4,447	5,172	4,885	3,934	-4.0%
Total assets	37,302	38,062	38,344	37,998	0.6%
Short and long-term debt	13,117	11,127	11,127	10,130	-8.3%
Other long-term liabilities	9,265	8,980	8,412	7,844	-5.4%
Total liabilities	26,006	23,956	23,496	22,039	-5.4%
Net debt/(funds)	8,670	5,955	6,242	6,196	-10.6%
Shareholders' equity	11,296	13,859	14,601	15,712	11.6%
Change in working capital	589	-213	0	0	-100.0%
Cash flow from operations	4,682	4,833	2,861	3,272	-11.3%
Capital expenditure	-1,410	-1,966	-2,215	-2,292	N/A
Equity free cash flow	-957	1,010	-38	-525	N/A

Valuation and leverage metrics					Average
P/E (adj) (x)	11.3	7.5	23.9	17.0	14.9
P/E (reported) (x)	10.6	7.4	23.9	17.0	14.7
EV/EBITDA (adj) (x)	5.3	3.7	7.4	6.3	5.7
Equity FCF yield (%)	-5.0	5.2	-0.2	-2.7	-0.7
P/Sales (x)	1.2	1.0	1.2	1.2	1.1
P/BV (x)	1.7	1.4	1.3	1.2	1.4
Dividend yield (%)	0.0	0.4	0.4	0.4	0.3
Total debt/capital (%)	53.7	44.5	43.2	39.2	45.2

Selected operating metrics (mn)					CAGR
Copper price ($/lb) ($)	2.81	3.00	2.84	2.95	1.6%
Copper production (mln lb)	3,159	3,184	2,631	2,755	-4.5%
Moly production (mln lb)	79	78	75	75	-2.1%
Gold production (koz)	1,544	2,741	624	720	-22.5%
Copper cash costs, by product ($/lb) ($)	1.24	0.71	1.50	1.45	5.3%

Price (05-Oct-2018)	**USD 13.27**
Price Target	**USD 12.00**

Why Underweight? We see FCX's project pipeline and growth profile as lacking. FCX's properties in the Americas could have expansion potential, but it is hard to see right now. Meanwhile at Grasberg, we see ownership risks fading but have technical concerns on the transition to block caving.

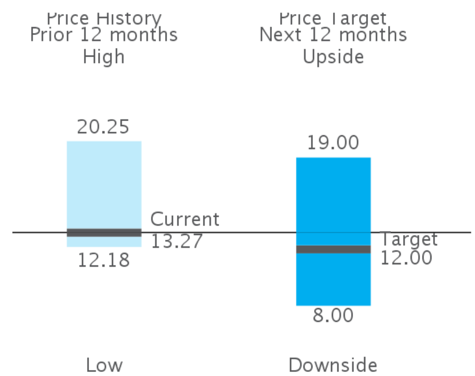
Upside case — **USD 19.00**

Our upside scenario uses a 1.1x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $3.50/lb copper price.

Downside case — **USD 8.00**

Our downside scenario uses a 0.9x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $2.50/lb copper price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

Delevered but lacking catalysts

FCX is emerging from crisis mode. Following its ill-fated acquisition of Plains Exploration & Production in mid-2013, which saw it effectively lose ~$15B in value, it has delevered to net debt of $7.3B for net debt to EBITDA of 0.9x. It also appears to have reached the conclusion of negotiations at Grasberg that will finally see its interests aligned with the local government. It has achieved all of this with its portfolio of mining assets largely intact. With its eye back firmly on the copper business and given FCX's consistently bullish copper view, we expect FCX to increasingly highlight its growth prospects in North America. However, FCX has indicated most of these projects will only be actionable at much higher copper prices which means catalysts are lacking for now.

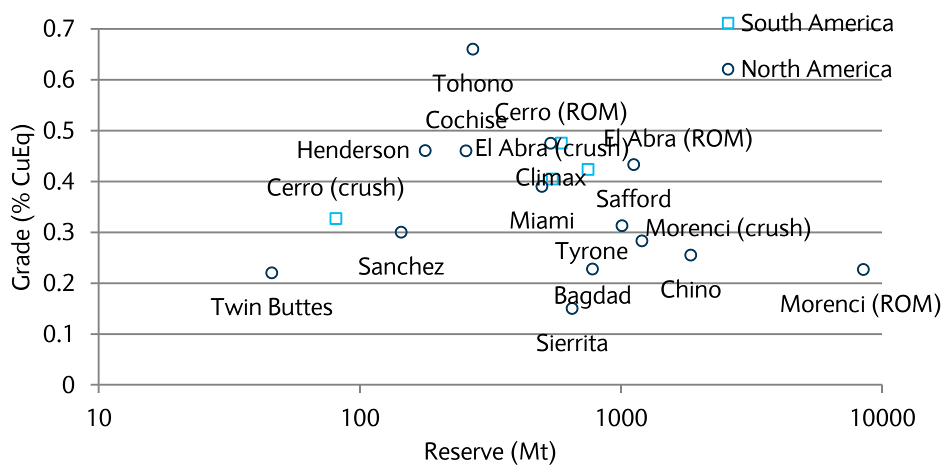
Assessing optionality in the Americas

Putting a value on these potential projects is difficult as FCX has not disclosed a great deal of information. We might also take some signalling from FCX's foray into oil and gas that, given the long delivery timelines on these projects and the somewhat marginal nature of the investment, these projects are not going to be sources of punchy returns unless the commodity price really helps FCX out. What FCX does have going for it in the Americas, however, is low risk, proximity to existing infrastructure, and access to tax loss pools (for U.S. projects).

We have included a project list in Figure 144, but it is noticeably short. FCX's only clearly articulated growth project is Lone Star which is a relatively advanced oxide project a few miles from the Safford leach project. Safford oxide reserves are almost depleted and the leach infrastructure will be filled with the Lone Star ore. The shared infrastructure means the project only costs $850M in capex, mostly for mine equipment and stripping, for ~200Mlb of annual copper production, translating to a very attractive capital intensity of $4.25/lb. Opex is estimated at ~$1.75/lb. The investment should also benefit from the large tax loss pools created as a result of the Plains acquisition. It should be noted however that rather than being a growth project, this is replacing production that is being lost from Safford.

FIGURE 143

Lots of resource, but how many can be a project?



Source: Company reports and Barclays Research

Will Grasberg risk perceptions ease?

It is without question that Grasberg is a world-class deposit; however, its full value has been suppressed for years due to concerns over:

- the forced conversion of the Contract of Work (CoW) to a special operating license (IUPK),
- Indonesia's desire for a majority stake in the asset,
- risks over disruptions to exports due to the requirement for local processing,
- ESG risks, and
- technical concerns as operations move from open pit to underground.

The major recent development was FCX's divestiture agreement with Indonesian state-owned enterprise Inalum and JV partner Rio Tinto that would see Rio receive $3.5B for its JV share (40% of production starting after 2022) and FCX receive $350M plus roughly $110M in dividends in 2018 for its subsidiary PT-II which owns 9.36% of Grasberg. Closure of this transaction would satisfy the conversion to the IUPK, Inalum owning 51% of the asset at a mutually agreeable valuation, and it allows FCX to proceed with the smelting commitment and the required investments to secure the mine's long-term production profile. It also allows FCX to remain the project operator and replicate the existing economics of the Rio Tinto JV through a dividend allocation agreement with Inalum. The agreement did not have a significant impact on the stock price, which tells the terms of the agreement were in-line with expectations (press reports of varying accuracy had provided valuation goal-posts over the course of negotiations). The transaction is currently scheduled to close in Q1/19.

While the ownership risks are reaching resolution, we do continue to have some technical concerns about Grasberg and we believe these will be somewhat persistent. Mining at Grasberg has always been a technical challenge, but the transition from open pit to underground mining brings additional challenges. While FCX has a largely successful operating history in block caving, the mining method has had a few negative surprises in recent years including Codelco's need to re-engineer the new mining level at El Teniente, seismic issues at Newcrest's Cadia operations which have at times compromised the underground mine and tailings, and FCX's issues with mining-induced seismic activity in the Deep Mill Level Zone (DMLZ). The DMLZ issue is due to rock that is more competent than expected. FCX believes the issue is unique to the DMLZ and it plans to use hydraulic fracturing to relieve stress. While this issue may indeed be unique to the DMLZ, we continue to see block caving as possessing some unique challenges, especially at Grasberg where FCX has had to deal with issues like stuck muck and failed draw points at Deep Ore Zone (DOZ) for a long time. It is very possible different challenges will exist in the Grasberg block cave. While it is also possible that everything proceeds smoothly, the market will not know that in advance and hence we believe some technical risk discount will remain.

FIGURE 144

Freeport-McMoRan's Project Pipeline

Project	Details	Timing	Our Expectations
Lone Star oxide, Arizona	Hosts 4.4Blb copper in reserves. Lone Star is a porphyry deposit located 7 miles from Safford. FCX has begun to pre-strip the deposit in preparation for mining and processing of the oxide cap using existing infrastructure at Safford.	Pre-stripping is under way. First copper is expected by the end of 2020. Production will ramp to 200Mlbpa as production at Safford falls due to ore depletion.	FCX has estimated capex at $850M which drives an attractive capital intensity of $4.25/lb Cu. This appears reasonable given the use of existing infrastructure at Safford. FCX estimated a $1.2B NPV at $3.50/lb Cu and costs of $1.75/lb but we note this included taxes and given FCX's ~$10B in net operating losses we would not expect the mine to be paying cash taxes for a long time.
Lone Star sulphide, Arizona	Below the Lone Star oxide cap is a sulphide porphyry. There is also a sulphide deposit below Safford that would be tied into any sulphide mill plans.	FCX continues to drill the sulphide with 6 rigs in 2Q18 and it had several notable intercepts in the order of 1km at 0.46% copper extending below the current orebody model. The FCX development team is in the early stages of project definition, which likely means any development would be 10+ yrs away.	Building a new mill would require substantial capex. We see this project as an option on a sustainably higher copper price. At current prices the project is likely to be relatively marginal.
El Abra sulphide, Chile	51/49 percent JV between Freeport and Codelco (Corporación Nacional del Cobre de Chile). The El Abra mine is an oxide operation, but it sits on top of a large sulphide porphyry which has a current mineralized material estimate of 1.9Bt at 0.44% Cu. FCX's project team has been looking at the most capital efficient development approaches, and talking with local stakeholders.	El Abra sulfide is likely at the front of the sulphide development queue but production would still be ~7yrs away if FCX began to seriously focus on it today.	El Abra would be a large sulfide milling project, of similar magnitude to the Cerro Verde project, and it would require infrastructure including a desalination plant. FCX provided rough parameter of 240ktpd throughput, producing 750Mlbpa copper. Cerro Verde was a 240ktpd expansion that cost $4.6B.
Other sulphides	FCX has mentioned sulphide potential at Chino, Bagdad, and expansion potential at Sierrita. Existing large sulphide milling operations Morenci and Cerro Verde could also be candidates for expansion.	FCX has noted it has substantial undeveloped resources but has not articulated any details aside from its mineralized material estimates.	In our view, these projects would require a much higher copper price.

Source: Company reports and Barclays Research estimates

FCX Valuation: $12 price target, Underweight/Positive rating

FCX could have potential, but it is hard to see right now and hence FCX received a low score in our ranking framework. Key areas of weakness include the project pipeline and growth profile. We can infer from the lack of growth projects being highlighted in the Americas today either that FCX's investment options do not exceed hurdle rates, or FCX is awaiting a bull market to invest. The latter scenario runs counter to our steady investment framework. While Grasberg appears to be en route to political derisking, we still see the block cave transition as technically risky, and priced in to the stock. Our price deck has FCX net debt remaining in the neighbourhood of $6-7B (including $300M in cash attributable to minority interest), while the leverage ratio increases to 2.2x on weaker Grasberg production and lower trailing commodity prices. FCX will not experience meaningful FCF until 2021 when Grasberg starts to pick back up. We hope to see more indications of accretive opportunities to redeploy those cash flows before then. In the meantime we value FCX with a 1.0x P/NAV and 7.0x EV/EBITDA (NTM+1) multiple weighted 70/30% for a $12/sh target and negative return to target, hence our Underweight rating.

FIGURE 145

FCX NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating Mines					
North America Copper					
Morenci	72%	$5,489	$3.76	8%	21%
Bagdad	100%	$1,510	$1.04	8%	6%
Safford/ Lone Star	100%	$1,494	$1.02	8%	6%
Sierrita	100%	$1,571	$1.08	8%	6%
Miami	100%	$107	$0.07	8%	0%
Chino	100%	$1,328	$0.91	8%	5%
Tyrone	100%	$410	$0.28	8%	2%
NA copper assets		**$11,908**	**$8.17**	**8%**	**45%**
Molybdenum					
Henderson	100%	($277)	($0.19)	8%	
Climax	100%	$225	$0.15	8%	1%
Molybdenum assets		**($51)**	**($0.04)**	**8%**	
South America					
El Abra	51%	$255	$0.17	8%	1%
Cerro Verde	54%	$4,645	$3.19	8%	18%
South America assets		**$4,900**	**$3.36**	**8%**	**19%**
Indonesia					
Grasberg	49%	$8,266	$5.67	8%	31%
Processing					
Processing operations		$421	$0.29	8%	2%
FCX total		**$25,444**	**$17.45**	**8%**	**97%**
Development & Exploration /					
Mineralized Material		$803	$0.55		3%
Exploration NAV		**$803**	**$0.55**		**3%**
Total Ops + in-situ		**$26,247**	**$18.00**		**100%**
Corporate/ Balance Sheet					
Investments		$625	$0.43		
Corporate		($2,768)	($1.90)	10%	
Reclamation and Provisions		($1,816)	($1.25)		
Cash		$4,885	$3.35		
Debt		($11,127)	($7.63)		
Balance Sheet		**($10,201)**	**($7.00)**		
Total NAV		**$16,046**	**$11.01**		

Source: Company reports, Barclays Research estimates

FCX Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: higher copper and gold prices; improvement of political climate and resolution of ongoing challenges in Indonesia; successful underground development and ramp up at Grasberg using block caving (bulk tonnage underground mining method)

HUDBAY MINERALS INC. (HBM; OW)

HBM

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
CAD 8.00

Price (05-Oct-2018)
CAD 5.96

Potential Upside/Downside
+34.2%

Hudbay Minerals Inc.(HBM): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.02A	N/A	0.17A	0.17A	N/A	0.10E	0.08E	750%	-41%
Q2	0.10A	N/A	0.09A	0.09A	N/A	0.11E	0.09E	-10%	22%
Q3	0.21A	N/A	0.03E	0.03E	N/A	0.09E	0.11E	-86%	200%
Q4	0.26A	N/A	0.08E	0.05E	N/A	0.06E	0.11E	-69%	-25%
Year	0.59A	N/A	0.36E	0.36E	N/A	0.36E	0.46E	-39%	0%
P/E	7.8		12.7			12.7			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Playing the waiting game, but cheap in the meantime

Initiating coverage on HBM with C$8 PT, OW rating. HBM is trading at a P/NAV of 0.76x vs comps at 0.92x and EV/EBITDA 2019 of 3.3x vs comps at 5.5x. We see this as a significant discount and do not believe the market is pricing in a high probability of Rosemont permit approval, making this a potentially favourable risk-reward trade. In the meantime we expect a relatively stable production plan over the next five years and continued free cash flow. HBM has an estimated 18% free cash flow yield in 2020. Our price target of C$8.00 is based on target multiples of 0.9x P/NAV and 5.0x EV/EBITDA (NTM+1) weighted 70/30% and suggests substantial upside to target.

Five years of strong cash flow, but clock is ticking on project pipeline: HBM should be able to achieve copper production of 250-300Mlbpa through 2023, with the development of the high-grade satellite Pampacancha deposit at Constancia in Peru next year and the continued ramp-up of Lalor to its full throughput (4.5ktpd) largely offsetting the depletion of Reed and 777. Beyond 2023, HBM's copper production will decrease significantly. Rosemont is key to HBM's post-2023 production profile. In the absence of Rosemont, HBM will have work to do to rebuild its long-term project pipeline. HBM has resumed a slightly higher rate of exploration spend, but it still remains far too low in our opinion. It also appears HBM is considering other uses of cash given recent press on a potential acquisition of Mantos Copper, which has triggered objections from a shareholder with activist undertones.

Permitting remains the key obstacle to unlocking the value of Rosemont. The project has an IRR of 15.5% at $3.00/lb copper based on an achievable capex estimate of $1.9B. With attributable capex of only $1.1B (assuming the Koreans exercise their option to own 20%), we believe HBM could self-fund its share with cash on hand, cash from operations, and potentially high yield debt. Rosemont has the potential to more than double our currently modelled production profile post 2023 while maintaining a similar cost structure as its mine plan calls for copper production of 180Mlbpa (HBM's 80% share) at cash costs of $1.39/lb.

Balance sheet strengthened to fund the next phase of growth. As of the end of 2Q18, HBM had $440M in cash and $976M in total debt on its balance sheet. Net debt has fallen by ~$700M since the end of 2015, primarily driven by cash flow generated from its mines, an equity financing ($187M net at C$10.10/share) and a sale and leaseback of equipment ($67M). With such a profile, we believe the company is in a good position to fund its $1.1B share of Rosemont capex should the project be approved for development.

North America Metals & Mining — **Industry View: POSITIVE**

Hudbay Minerals Inc. (HBM)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	1,363	1,370	1,298	1,398	0.9%
EBITDA (adj)	567	566	540	648	4.6%
EBIT (adj)	274	269	244	325	5.9%
Pre-tax income	199	170	158	240	6.5%
Net income (adj)	147	95	95	144	-0.6%
EPS (adj) ($)	0.59	0.36	0.36	0.55	-2.3%
EPS (reported) ($)	0.65	0.36	0.36	0.55	-5.4%
Diluted shares (mn)	243.5	261.3	261.3	261.3	2.4%
DPS ($)	0.02	0.02	0.02	0.02	-0.7%
Margin and return data					**Average**
EBITDA (adj) margin (%)	41.6	41.3	41.6	46.4	42.7
EBIT (adj) margin (%)	20.1	19.7	18.8	23.3	20.5
Pre-tax margin (%)	14.6	12.4	12.2	17.2	14.1
Net margin (%)	12.0	6.9	7.3	10.3	9.1
ROIC (%)	5.7	3.5	3.4	4.5	4.3
ROA (%)	5.2	3.2	3.2	4.2	4.0
ROE (%)	6.8	4.4	4.4	6.7	5.6
Balance sheet and cash flow ($mn)					**CAGR**
Cash and equivalents	356	410	465	678	23.9%
Total assets	4,649	4,640	4,616	4,638	-0.1%
Short and long-term debt	980	976	976	976	-0.1%
Other long-term liabilities	87	85	85	85	-0.7%
Total liabilities	2,504	2,498	2,481	2,492	-0.2%
Net debt/(funds)	623	566	511	298	-21.8%
Shareholders' equity	2,144	2,141	2,134	2,146	0.0%
Change in working capital	9	-35	0	0	-100.0%
Cash flow from operations	540	355	362	435	-7.0%
Capital expenditure	-250	-197	-216	-132	N/A
Free cash flow	228	112	59	217	-1.6%
Valuation and leverage metrics					**Average**
P/E (adj) (x)	7.8	12.7	12.7	8.4	10.4
P/E (reported) (x)	7.1	12.8	12.7	8.4	10.2
EV/EBITDA (adj) (x)	3.0	2.9	3.0	2.2	2.8
Equity FCF yield (%)	-2.1	8.8	4.9	18.0	7.4
P/Sales (x)	0.9	0.9	0.9	0.9	0.9
P/BV (x)	0.5	0.6	0.6	0.6	0.6
Dividend yield (%)	0.3	0.3	0.3	0.3	0.3
Total debt/capital (%)	31.4	31.3	31.4	31.3	31.3
Selected operating metrics					**CAGR**
Copper price ($/lb)	2.81	3.00	2.84	2.95	1.6%
Copper production (mln lb)	351	316	294	297	-5.4%
Cash costs, by product ($/lb)	0.84	0.99	0.98	0.75	-3.4%

Price (05-Oct-2018)	CAD 5.96
Price Target	CAD 8.00

Why Overweight? HBM is awaiting two key developments in its asset portfolio: permitting at Rosemont, and community agreement to access the high grade Pampacancha satellite pit at Constancia. In the meantime the stock is trading at a significant discount, making for an attractive risk-reward trade.

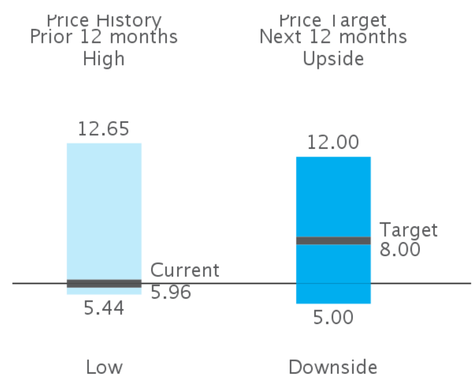
Upside case — **CAD 12.00**

Our upside scenario uses a 1.0x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $3.50/lb copper price.

Downside case — **CAD 5.00**

Our downside scenario uses a 0.9x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $2.50/lb copper price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

Playing the waiting game, but cheap in the meantime

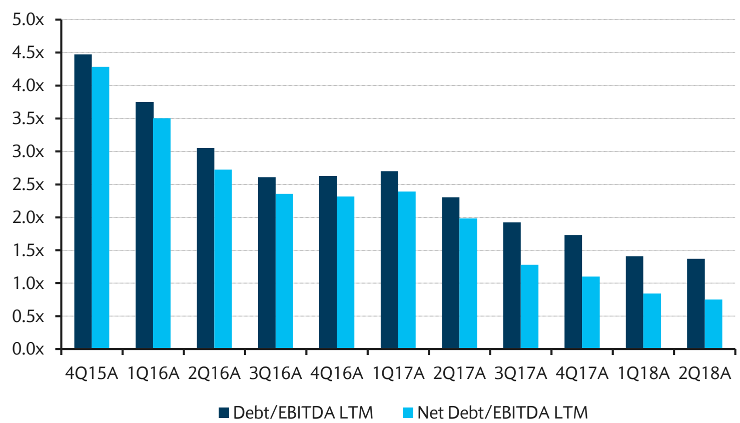
HBM is awaiting two key developments in its asset portfolio: permitting at Rosemont, and community agreement to access the high grade Pampacancha satellite pit at Constancia. We see both events as potential catalysts for the stock, although Pampacancha is likely priced-in to a large degree. In the meantime HBM is continuing to ramp-up throughput at Lalor and delever the balance sheet.

Balance sheet strengthened in preparation for the next development phase

Since the end of 2015, HBM's leverage has improved significantly from 4.3x to 0.8x currently (net debt/LTM EBITDA) as the company prepares for the possible sanctioning of its next development project, Rosemont in Arizona. As of the end of 2Q18, HBM had $440M in cash and $976M in total debt on its balance sheet compared to $54M cash and $1,275M total debt at the end of 2015. This translates to a net debt reduction of ~$700M primarily driven by cash flow generated from its mines, an equity financing ($187M net at C$10.10/share) and a sale and leaseback of equipment ($67M). We believe with such a profile, the company is in a good position to fund Rosemont should the project be approved for development.

FIGURE 146

Balance sheet strengthened for next development cycle



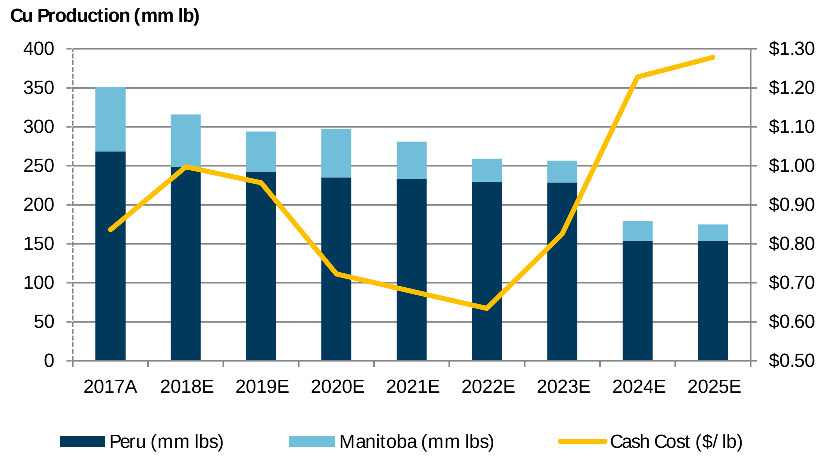
Source: Company reports, Barclays Research

Five years of strong cash flow, but clock is ticking on project pipeline

With a copper production profile in the range of 250-300Mlbpa through 2023, we expect HBM to continue to generate significant free cash flow and reduce net debt. We think the development of the high-grade satellite Pampacancha deposit at Constancia in Peru next year and the continued ramp-up of Lalor to its full throughput (4.5ktpd) will largely offset the production loss from the two Manitoba mines including Reed JV this year and 777 in 2021. Beyond 2023 our modelling also suggests that HBM's copper production will decrease significantly to the ~160Mlbpa level as of 2024 as Constancia transitions to lower grades. For context, Constancia is currently processing ~0.40-0.50% copper which is well above the mine's reserve grade of 0.29%.

FIGURE 147

Churning out 250-300mm lb copper annually



Source: Company reports, Barclays Research

Rosemont is key to HBM's post-2023 production profile. In the absence of Rosemont, HBM will have work to do to rebuild its long-term project pipeline. With its improved liquidity, HBM has resumed a slightly higher rate of exploration spend, but it still remains far too low in our opinion. It recently acquired several properties near Constancia to seek sources of additional high grade feed beyond the life of Pampacancha and is working on negotiating exploration agreements with local communities.

Awaiting permits at Rosemont

Rosemont is a rare undeveloped copper porphyry of decent grade (0.45%) in Arizona; however, it is still not clear whether this project will be able to be built. The project is in the late stages of a long and difficult permitting process, and is currently awaiting a Section 404 Water Permit from the U.S. Army Corps of Engineers.

The project would have capex of $1.9B (100% basis) and is expected to produce 225Mlb of copper annually at cash costs of $1.29/lb over 19 years.

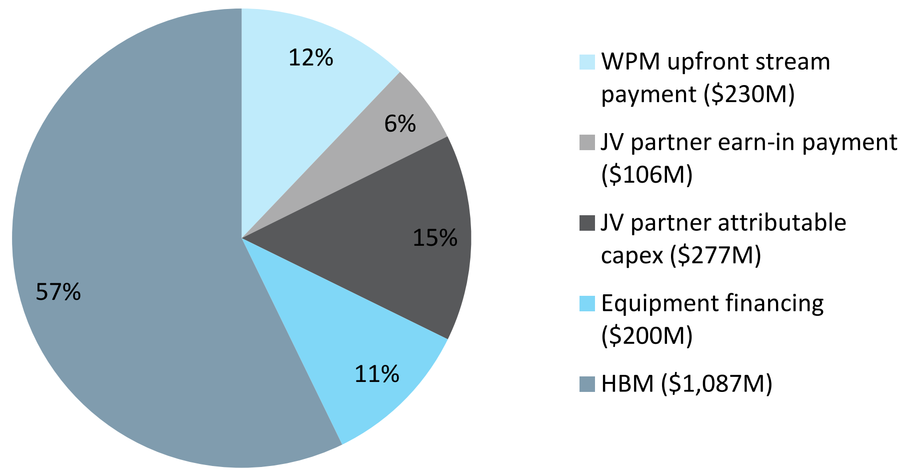
Rosemont is 7.95% owned by United Copper and Moly LLC, a Korean consortium (KORES and LG International), which has an option to increase its ownership in the project from 7.95% to 20% for $106M. We are unsure whether the Koreans would choose to exercise the option, but if they do we expect Rosemont would contribute ~180Mlb copper annually to HBM's account.

More importantly on capex, HBM would need to fund less than 60% of the project's capex (~$1.3B) from its own sources with the remainder coming from the Koreans and WPM which has a stream on the property. An equipment financing package could reduce HBM's share of capex to $1.1B. We think the project's $1.9B capex estimate is likely to be achievable and we think HBM could fund its share of Rosemont using existing cash ($440M at present), operating cash flow over the course of construction (potentially supported by hedging), and high yield debt. Alternatively, further syndication could also reduce risk and enable HBM to seek diversified growth elsewhere.

In the meantime, permitting remains the key obstacle to unlocking the value of the project. The project has an IRR of 15.5% at $3/lb copper. We would view permitting and sanctioning of the project in the current environment as a significant positive catalyst for the stock.

FIGURE 148

Potential sources of funding for the $1.9B Rosemont project



Source: Company reports, Barclays Research

Notes: WPM is Wheaton Precious Metals; JV partner at Rosemont is United Copper and Moly, LLC.

Growth search triggering shareholder intervention?

A Bloomberg article on October 4th 2018 ("Hudbay Minerals Is in Talks to Buy Chile's Mantos") suggested Hudbay was in talks to buy Mantos Copper. Mantos is a private-equity backed miner which acquired the Mantos Blancos and Mantoverde copper mines from Anglo American in 2015. Press reports have suggested Mantos Copper is seeking to raise ~$1B for expansion (Reuters, "Chilean miner Mantos Copper seeks buyer to help finance expansion," October 5th, 2018). On October 5th, private equity fund Waterton Global Resource Management (which owns ~4.8% of HBM) demanded an acquisition moratorium "in order for the Board to fully understand the views and deep concerns of its shareholders". It also stated in a letter to the Board that it had lost confidence in management and the Board. While the letter appears mostly focused on preventing material transactions, the activist undertones suggest that there will be further discussions to come.

FIGURE 149

Hudbay Minerals' Project Pipeline

Project	Details	Timing	Our Expectations
Rosemont, Arizona	(15.5% IRR at $3.00/lb copper). Hudbay will own 80% of the project assuming the JV partner (United Copper & Moly LLC) elects to increase its stake from 7.95% to 20% by contributing required earn-in payments. Hosts 5.3Blb at 0.45% copper in reserves and 3.4Blb at 0.29% copper in M&I resources. 2017 feasibility study outlined capex of $1.9B for an operation producing ~225Mlb copper annually at cash costs of $1.29/lb over 19 years life of mine.	The final permit (Section 404 water permit) continues to be advanced in 2018. Once the final permit is granted, HBM noted that it would take an additional 4-6 months to "operationalize" the permits. (HBM previously expected the final permit early 2018, which would have led to a construction decision by 2H18 and production start-up by 2022)	We currently ascribe $342M in-situ value for the project in our model pending further derisking (permitting and financing) of the project. HBM has already identified potential funding amounting to $813M from various stakeholders (including $230M from Wheaton Precious Metals for by-product streaming, $106M from 20% JV partner earn-in payments; $277M from 20% JV partner attributable share of capex, $200M from equipment financing). HBM expects to fund its share of remaining capex of ~$1.1B using available cash, cash flow from existing operations (will hedge some production) and high yield debt.
Pampacancha, Peru	Pampacancha (5km from Constancia) is a satellite deposit with significantly higher grades than Constancia (2x for copper, 10x for gold). Hosts 528Mlb at 0.60% copper in reserves (vs. 2.9Blb copper at 0.29% copper in reserves at Constancia). Capex of $45M is envisioned to develop the deposit and truck high grade mill feed for blending at the mill.	Surface rights negotiations ongoing. Mining is expected to start in 2019.	We model the project using similar parameters which results in Constancia maintaining average annual production in the 230Mlb area through 2023 before declining due to lower grades. We note that HBM continues exploration efforts at recently acquired properties near Constancia with potential to provide high-grade mill feed once Pampacancha is mined out.

Source: Company reports, Barclays Research estimates

HBM Valuation: C$8 price target, Overweight/Positive rating

HBM is trading at a P/NAV of 0.76x vs comps at 0.92x and EV/EBITDA 2019 of 3.3x vs comps at 5.5x. We see this as a significant discount and do not believe the market is pricing in a high probability of Rosemont permit approval, making this a potentially favourable risk-reward trade. We do not include Rosemont in our model but allow for $340M in resource value. In the meantime we expect a relatively stable production plan over the next five years and continued free cash flow, hitting an 18% free cash flow yield in 2020. Our price target of C$8.00 is based on 0.9x P/NAV and 5.0x EV/EBITDA (NTM+1) weighted 70/30%. With substantial upside to target we rate HBM Overweight/Positive.

FIGURE 150

HBM NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating assets					
Manitoba					
777	100%	$145	$0.55	8%	6%
Reed	70%	$0	$0.00	8%	0%
Lalor	100%	$586	$2.24	8%	24%
Total Manitoba		**$731**	**$2.80**		**31%**
Peru					
Constancia	100%	$1,718	$6.58	8%	72%
Hedge Book (777+Constancia)		($444)	($1.70)	5%	
Operating assets NAV		**$2,005**	**$7.67**		**84%**
Other Assets					
Rosemont	80%	$342	$1.31		14%
Other exploration assets		$48	$0.18		2%
Total Other Assets NAV		**$390**	**$1.49**		**16%**
Total Ops + in-situ NAV		**$2,395**	**$9.17**		**100%**
Corporate					
Corporate Expenses		($219)	($0.84)	10%	
Reclamation and Provisions (50%)		($98)	($0.38)		
Total Debt		($976)	($3.73)		
Total Cash		$465	$1.78		
Investments		$0	$0.00		
Corporate NAV		**($828)**	**($3.17)**		
Total HBM NAV		**$1,567**	**$6.00**		

Source: Company reports, Barclays Research estimates

HBM Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower copper and zinc prices; failure to deliver Pampacancha satellite project (at Constancia) on time and budget, and to ramp up the projects to targeted operating rates; failure to receive Rosemont permit.

LUNDIN MINING CORP. (LUN; OW)

LUN

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
CAD 8.00

Price (05-Oct-2018)
CAD 6.34

Potential Upside/Downside
+26.2%

Lundin Mining Corp.(LUN): Quarterly and Annual EPS (USD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	0.13A	N/A	0.11A	0.11A	N/A	0.05E	0.09E	-15%	-55%
Q2	0.10A	N/A	0.11A	0.11A	N/A	0.05E	0.09E	10%	-55%
Q3	0.18A	N/A	0.01E	0.06E	N/A	0.04E	0.09E	-94%	300%
Q4	0.18A	N/A	0.04E	0.06E	N/A	0.04E	0.09E	-78%	0%
Year	0.58A	N/A	0.26E	0.36E	N/A	0.18E	0.38E	-55%	-31%
P/E	8.4		18.6			27.4			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

Proactive patience

Initiating coverage with a C$8.00 PT, Overweight rating. LUN is trading at 4.2x 2019 EV/EBITDA, attractive versus the sector's mean multiple of 5.5x, which is somewhat surprising given the fact that LUN has the second-best growth profile among peers off of a low 2018 base. An investment in Lundin reflects a view that management will do a good job deploying its $1.5B in cash. A softer metals price environment favors LUN in some ways as the cash offers a degree of downside protection, and a greater ability to be opportunistic. Despite the frustrations of a lack of a deal to-date, we still see LUN as a good steward of capital backed by operations that are on the path to improvement. Our C$8.00 price target is based on 1.0x P/NAV and 5.5x EV/EBITDA (NTM+1) multiples, weighted 70/30%.

CEO succession not expected to bring significant changes. LUN President and CEO Paul Conibear retired at the end of 3Q18 after a seven-year tenure running LUN. He was replaced by former SVP and CFO Marie Inkster who has 20 years of industry management experience, 10 of which have been with LUN. We have confidence Ms. Inkster will be seen in much the same light as Mr. Conibear: as a prudent allocator of capital. However there is some potential that after likely missing out on Timok for a second time, Lundin will be approaching M&A more aggressively. LUN also recently hired a new head of Corporate Development, Peter Rockandel. Both Ms. Inkster and Chairman Lukas Lundin have noted a willingness to spend up to $3B on M&A, which is large relative to LUN's historical deal sizes and would drastically change the complexion of this $4.7B market cap company.

Brownfield investments continue through transition year. We have LUN generating negative free cash flow in 2018/19 as it invests in brownfield operations. While the degree of spending on Candelaria was a negative surprise in 2017, a renewed fleet and intensive exploration focus should position the mine to outperform in the future. LUN's assets all still have brownfield potential: the Neves Corvo zinc expansion project will be operating by the end of 2019, Eagle development has almost reached Eagle East, and Zinkgruvan continues to show potential at depth including a new mineral resource at Dalby.

All eyes remain focussed on cash deployment. With LUN likely to miss out on Timok for a second consecutive time, LUN is continuing to seek accretive uses for its $1.5B cash balance. Its goal is to develop a base metal portfolio dominant in copper, with a good cost position, in low risk jurisdictions. LUN's production profile hits a steep decline past 2022. It remains difficult for us to gauge LUN's likelihood of accretively deploying capital in a market where quality assets continue to go for a premium, but we expect LUN to continue being proactive and patient as it seeks its next growth asset.

North America Metals & Mining — **Industry View: POSITIVE**

Lundin Mining Corp. (LUN)

Stock Rating: OVERWEIGHT

Income statement ($mn)	2017A	2018E	2019E	2020E	CAGR
Revenue	2,077	1,771	1,753	2,073	-0.1%
EBITDA (adj)	1,082	638	616	872	-6.9%
EBIT (adj)	700	331	308	534	-8.6%
Pre-tax income	638	324	282	508	-7.3%
Net income	426	193	131	254	-15.9%
EPS (adj) ($)	0.58	0.26	0.18	0.35	-16.0%
EPS (reported) ($)	0.58	0.26	0.18	0.35	-16.0%
Diluted shares (mn)	729.7	733.3	733.6	733.6	0.2%
DPS ($)	0.09	0.11	0.12	0.12	9.0%

Margin and return data					Average
EBITDA (adj) margin (%)	52.1	36.0	35.1	42.1	41.3
EBIT (adj) margin (%)	33.7	18.7	17.6	25.8	23.9
Pre-tax margin (%)	30.7	18.3	16.1	24.5	22.4
Net margin (%)	20.5	10.9	7.5	12.3	12.8
ROIC (%)	8.6	4.2	3.2	5.4	5.3
ROA (%)	7.9	3.9	3.0	5.0	4.9
ROE (%)	11.6	5.2	3.5	6.5	6.7

Balance sheet and cash flow ($mn)					CAGR
Cash and equivalents	1,567	1,239	1,009	1,211	-8.2%
Total assets	6,286	6,231	6,255	6,427	0.7%
Short and long-term debt	450	443	443	443	-0.5%
Other long-term liabilities	11	11	11	11	-0.6%
Total liabilities	2,135	2,052	2,033	2,038	-1.5%
Net debt/(funds)	-1,117	-796	-566	-768	N/A
Shareholders' equity	3,668	3,682	3,725	3,891	2.0%
Change in working capital	76	3	0	0	-100.0%
Cash flow from operations	903	473	458	649	-10.5%
Capital expenditure	-479	-800	-638	-357	N/A
Free cash flow	349	-270	-104	341	-0.8%

Valuation and leverage metrics					Average
P/E (adj) (x)	8.4	18.6	27.4	14.2	17.1
P/E (reported) (x)	8.4	18.6	27.4	14.2	17.1
EV/EBITDA (adj) (x)	2.3	4.4	4.9	3.2	3.7
Equity FCF yield (%)	-5.7	-9.4	-5.0	8.1	-3.0
P/Sales (x)	1.7	2.0	2.0	1.7	1.9
P/BV (x)	1.0	1.0	1.0	1.0	1.0
Dividend yield (%)	1.9	2.2	2.4	2.4	2.2
Total debt/capital (%)	10.9	10.7	10.6	10.2	10.6

Selected operating metrics					CAGR
Copper price ($/lb)	2.81	3.00	2.84	2.95	1.6%
Zinc price ($/lb)	1.31	1.32	1.20	1.20	-2.9%
Nickel price ($/lb)	4.74	6.24	6.50	7.00	13.8%
Copper production (mln lb)	448	386	407	443	-0.3%
Zinc production (mn lb)	329	332	388	538	17.8%
Nickel production (mn lb)	49	37	27	33	-12.2%

Price (05-Oct-2018)	CAD 6.34
Price Target	CAD 8.00

Why Overweight? LUN remains a stock to watch in the base metals space as it has a good capital allocation track record, a desire to grow, a $1.5B cash pile it has twice failed to deploy, and a new CEO. In the meantime it is reinvesting in its anchor assets, Candelaria and Neves Corvo.

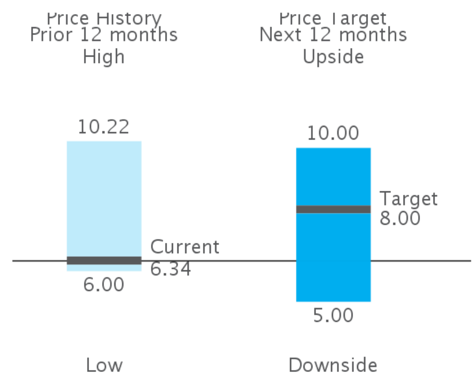
Upside case CAD 10.00

Our upside scenario uses a 1.1x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $3.50/lb copper price.

Downside case CAD 5.00

Our downside scenario uses a 0.9x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $2.50/lb copper price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

Proactive Patience

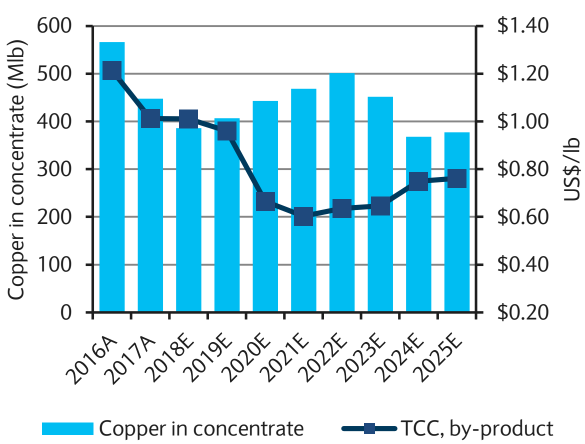
Brownfield investments continue through transition year

We have LUN generating negative free cash flow in 2018/19 as it invests in brownfield operations. Candelaria spending is the biggest portion of the $850M 2018 capex budget as the mine spent on stripping, exploration, and substantial fleet renewal including 38 new haul trucks and new excavators on order. The investor reaction to the guidance in late 2017 was extremely negative. However, by significantly renewing the site with respect to fleet and the condition of the pit we do see the investment as setting up Candelaria to potentially beat future expectations. Candelaria is not the only asset offering upside. LUN's assets all have brownfield potential: the Neves Corvo zinc expansion project will be operating by the end of 2019, Eagle development has almost reached Eagle East, and Zinkgruvan continues to show potential at depth including a new mineral resource at Dalby.

We also see LUN as committed to exploration, which has helped to bring life and/or throughput expansion opportunities to all of its projects. It has drilled 82,000m at Candelaria alone in 1H18. This has generated successes like La Espanola, a new open pit orebody at Candelaria with a maiden reserve of 32Mt at 0.42% copper and 0.09g/t gold, and a strip ratio of 2.62:1. This will help to displace processing of stockpiles until later in the mine life.

FIGURE 151

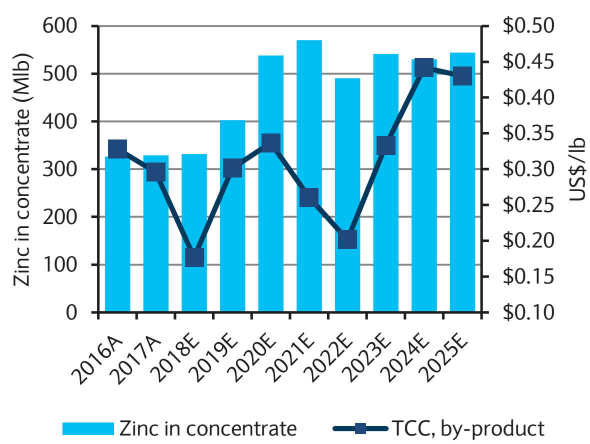
LUN's Copper Production Profile



Source: Company reports, Barclays Research estimates

FIGURE 152

LUN's Zinc Production Profile



Source: Company reports, Barclays Research estimates

CEO succession not expected to bring significant changes

LUN President and CEO Paul Conibear retired at the end of 3Q18 after a seven-year tenure running LUN. He was replaced by former SVP and CFO Marie Inkster who has 20 years of industry management experience, 10 of which have been with LUN. We have confidence Ms. Inkster will be seen in much the same light as Mr. Conibear: as a prudent allocator of capital. However, there is some potential that after likely missing out on Timok for a second time, Lundin will be approaching M&A more aggressively.

LUN also recently hired a new head of Corporate Development and IR, Peter Rockandel. Mr. Rockandel was a former banker in the mining sector.

Both Ms. Inkster and Chairman Lukas Lundin have noted a willingness to spend up to $3B on M&A, which is large relative to LUN's historical deal sizes and would drastically change the complexion of this $4.7B market cap company.

All eyes remain focussed on cash deployment

LUN is continuing to seek accretive uses for its $1.5B cash balance. Its goal is to develop a base metal portfolio dominant in copper, with a good cost position, in low risk jurisdictions. LUN's copper production profile hits a steep decline past 2022. It remains difficult for us to gauge LUN's likelihood of accretively deploying capital in a market where quality assets continue to go for a premium, but we expect LUN to continue being proactive and patient as it seeks its next growth asset and we see the current market as being one where capital still has potential to be accretively deployed.

FIGURE 153
Lundin's Project Pipeline

Project	Details	Timing	Expectation
Neves Corvo Zinc Expansion Project (ZEP), Portugal	(IRR of 21.5% at $1.00/lb zinc and $3.00/lb copper). The ZEP capex of €270M (vs. €257M in the 2017 feasibility study) to expand the zinc plant capacity to 2.5Mtpa (from 1.1Mtpa), and entails development of Lombador Phase 2 area (~1.2km below surface) and upgrading of material handling systems including crushing, conveying and shaft hoisting. Production is expected to average 143kt zinc and 33kt copper annually between 2020 and 2030 (vs. 71kt zinc and 34kt copper achieved in 2017A)	Construction under way; ZEP expected to be complete by end of 2019.	We model the project using similar parameters.
Candelaria mill optimization, Chile	(>20% IRR) Lundin and Sumitomo have and 80/20 percent ownership in Candelaria (which also owns port facilities with excess capacity - 3.5mm wmt capacity vs. maxmum production of ~600k wmt p.a current/planned production capacity). Capex of $80M for incremental capacity of ~4k tpd and copper recoveries of ~1.7%. Optimization includes upgrades to primary crusher motor, pebble circuit, cyclone and feed pump, and flotations circuits and improvements desalination plant and pipeline.	Project remains on track for end of 2019 completion.	We model the operation using similar parameters as set out in the December 2017 feasibility which includes the mill optimization project.
Candelaria underground expansion, Chile	Candelaria underground (~1.9Blb at 0.85% in reserves) production is ramping up toward its permitted 14k tpd limit. The North sector was at 9k tpd in 2Q and is ramping up towards a 10k tpd run-rate. Capex of $47M is budgeted for the new South sector underground development that is expected to deliver 4k tpd.	North sector ramp up to 10k tpd is expected in 2019; The new South Sector is expected to start up in 2019 and to ramp up to 4k tpd is expected in 2021	We model the operation using similar parameters as set out in the December 2017 feasibility which includes the underground mine expansions.
Eagle East, Michigan	Eagle East hosts ~125Mlb at 3.7% nickel and ~100Mlb at 3.0% copper in reserves. 2017 feasibility study envisioned capex of $102M for development of the underground mine that would be mined from 2020 to 2023, extending the life of the asset. Two declines are being constructed in order to access the deposit from Eagle mine.	Production is expected to start-up in early 2020	We model the project using similar parameters.

Source: Company reports, Barclays Research

LUN Valuation: C$8.00 price target, Overweight/Positive rating

LUN is trading at 4.2x 2019 EV/EBITDA, attractive versus the sector's mean multiple of 5.5x, which is somewhat surprising given that LUN has the second-best growth profile among peers off of a low 2018 base. An investment in Lundin reflects a view that management will do a good job deploying its $1.5B in cash. A softer metals price environment favors LUN in some ways as the cash offers a degree of downside protection, and a greater ability to be opportunistic. Despite the frustrations of a lack of a deal to-date, we still see LUN as a good steward of capital backed by operations that are on the path to improvement. Our C$8.00 price target is based on 1.0x P/NAV and 5.5x EV/EBITDA (NTM+1) multiples, weighted 70/30%.

FIGURE 154

LUN NAV (US$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating assets					
Candelaria	80%	$2,338	$3.19	8%	63%
Neves-Corvo	100%	$1,226	$1.67	8%	33%
Zinkgruvan	100%	$328	$0.45	8%	9%
Eagle	100%	$363	$0.49	8%	10%
Hedge Book (Candelaria)		($539)	($0.74)	5%	
Operating Assets NAV		**$3,716**	**$5.06**		**100%**
Corporate					
Corporate Expenses		($219)	($0.30)	10%	
Reclamation and Provisions (50%)		($128)	($0.17)		
Total debt		($443)	($0.60)		
Total Cash		$1,009	$1.38		
Investments		$0	$0.00		
Corporate NAV		**$219**	**$0.30**		
Net Asset Value		**$3,935**	**$5.36**		

Source: Company reports, Barclays Research estimates

LUN Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower copper and zinc prices; failure to deliver projects (including Neves Corvo zinc expansion, Candelaria underground expansion, and Eagle East deposit) on time and budget, and to ramp up the projects to targeted operating rates.

TECK RESOURCES LTD. (TECK/B; OW)

TECK/B

Stock Rating
OVERWEIGHT

Industry View
POSITIVE

Price Target
CAD 38.00

Price (05-Oct-2018)
CAD 31.10

Potential Upside/Downside
+22.2%

Teck Resources Ltd.(TECK/B): Quarterly and Annual EPS (CAD)

	2017	2018			2019			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2018	2019
Q1	1.13A	N/A	1.31A	1.31A	N/A	0.90E	0.94E	16%	-31%
Q2	1.00A	N/A	1.12A	1.12A	N/A	0.91E	0.87E	12%	-19%
Q3	1.07A	N/A	0.76E	1.07E	N/A	0.88E	1.04E	-29%	16%
Q4	1.21A	N/A	0.93E	1.07E	N/A	0.86E	1.02E	-23%	-8%
Year	4.43A	N/A	4.12E	4.56E	N/A	3.55E	3.82E	-7%	-14%
P/E	7.0		7.6			8.8			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters received on 08-Oct-2018; 13:35 GMT

The free cash flow machine (coal) is still running

Initiate coverage with a C$38 price target, Overweight rating. Sustained high coking coal prices continue to work wonders on Teck's balance sheet and outlook. The company has been substantially de-risked and appears to be ready to activate the steady investment model, positioning it well for the next cycle. In addition to the recently announced buyback, we see the door open for further potential cash returns to shareholders. Our price target of C$38 is based on 1.0x P/NAV and 5.5x EV/EBITDA (NTM+1) multiples. With substantial upside to our price target from current levels we initiate coverage with an Overweight rating.

Significant free cash flow from the coal business unit alone at US$180/t met coal price. Assuming a spot met coal price of US$180/t and total costs including sustaining capex of US$100/t, we estimate the coal business unit's annual coal production profile of 27Mt generates ~US$1.5B or C$2.0B in free cash flow (FCF) annually, or a 12% FCF yield from just the coal division. FCF from the copper, zinc and energy business units would be incremental. We estimate a 2019 FCF yield of ~11%.

Deleveraging, dividends, and growth. We estimate 3Q18 net debt at C$3.6B and leverage at 0.6x (net debt/EBITDA LTM). With significant free cash flow continuing to come in Teck recently announced a 40M class B share buyback (7.1%) and we believe further cash returns could be forthcoming after Teck's November 2018 Board meeting. The second primary use of capital will be growth. We expect Quebrada Blanca Phase 2 (QB2) to be sanctioned in 4Q18. The project returns are modest with an IRR of ~12% at US$3.00/lb copper; however, it fits the bill as a long life asset that can be operated over multiple price cycles.

Further de-risking of QB2 as development partner is expected to be announced by year end. The potential for a partner earn-in could also serve to enrich Teck's returns. We see QB2 capex as escalating relatively slowly, meaning Teck can likely continue to generate FCF in 2019/20 even if QB2 construction is under way. We like Teck's decision to syndicate exposure as it reduces both technical and financial risks associated with development of such large projects.

North America Metals & Mining — **Industry View: POSITIVE**

Teck Resources Ltd. (TECK/B)

Stock Rating: OVERWEIGHT

Income statement (CADmn)	2017A	2018E	2019E	2020E	CAGR
Revenue	12,015	11,822	11,575	10,962	-3.0%
EBITDA (adj)	5,780	5,372	5,018	4,370	-8.9%
EBIT (adj)	4,316	3,964	3,503	2,840	-13.0%
Pre-tax income	3,959	3,721	3,240	2,595	-13.1%
Net income (adj)	2,556	2,388	2,067	1,655	-13.5%
EPS (adj) (CAD)	4.43	4.12	3.55	2.84	-13.7%
EPS (reported) (CAD)	4.26	4.08	3.55	2.84	-12.6%
Diluted shares (mn)	577.5	573.9	573.9	573.9	-0.2%
DPS (CAD)	0.60	0.20	0.20	0.20	-30.7%

Margin and return data					Average
EBITDA (adj) margin (%)	48.1	45.4	43.3	39.9	44.2
EBIT (adj) margin (%)	35.9	33.5	30.3	25.9	31.4
Pre-tax margin (%)	33.0	31.5	28.0	23.7	29.0
Net margin (%)	20.8	20.1	17.9	15.1	18.5
ROIC (%)	7.7	7.0	5.9	4.5	6.3
ROA (%)	7.2	6.6	5.5	4.3	5.9
ROE (%)	12.9	10.8	8.6	6.5	9.7

Balance sheet and cash flow (CADmn)					CAGR
Cash and equivalents	952	2,127	4,507	6,439	89.1%
Total assets	37,028	38,390	40,675	42,395	4.6%
Short and long-term debt	6,369	5,282	5,202	5,092	-7.2%
Other long-term liabilities	0	0	0	0	N/A
Total liabilities	17,035	16,092	16,425	16,604	-0.8%
Net debt/(funds)	5,417	3,155	695	-1,348	N/A
Shareholders' equity	19,851	22,170	24,122	25,663	8.9%
Change in working capital	95	-294	0	0	-100.0%
Cash flow from operations	5,066	4,264	4,296	3,769	-9.4%
Capital expenditure	-2,299	-2,387	-1,432	-1,328	N/A
Free cash flow	2,272	1,543	2,581	2,163	-1.6%

Valuation and leverage metrics					Average
P/E (adj) (x)	7.0	7.6	8.8	10.9	8.6
P/E (reported) (x)	7.3	7.6	8.8	10.9	8.7
EV/EBITDA (adj) (x)	4.1	4.0	3.7	3.8	3.9
Equity FCF yield (%)	1.4	2.5	14.0	11.5	7.4
P/Sales (x)	1.5	1.5	1.6	1.7	1.6
P/BV (x)	1.0	0.8	0.8	0.7	0.8
Dividend yield (%)	1.9	0.6	0.6	0.6	1.0
Total debt/capital (%)	24.3	19.2	17.7	16.6	19.5

Selected operating metrics ($)					CAGR
Coal price ($/t)	209	196	175	150	-10.5%
Copper price ($/lb)	2.81	3.00	2.84	2.95	1.6%
Zinc price ($/lb)	1.31	1.32	1.20	1.20	-2.9%
Oil price ($/bbl)	50.82	66.44	65.50	70.00	11.3%
Coal production (mn tonnes)	26.6	26.2	27.1	27.3	0.9%
Copper production (mln lb)	584.9	595.2	608.9	619.4	1.9%
Zinc production (mn lb)	1,918.1	1,959.6	1,912.7	1,813.5	-1.9%
Bitumen production (mn barrels)	0.0	6.8	12.0	14.3	N/A

Price (05-Oct-2018)	**CAD 31.10**
Price Target	**CAD 38.00**

Why Overweight? Teck has the best free cash flow in the mining space with a yield of ~15% in 2019 at spot commodity prices, largely driven its long-life metallurgical coal business. Teck also looks strongly positioned for syndication and off-cycle development of its QB2 copper project.

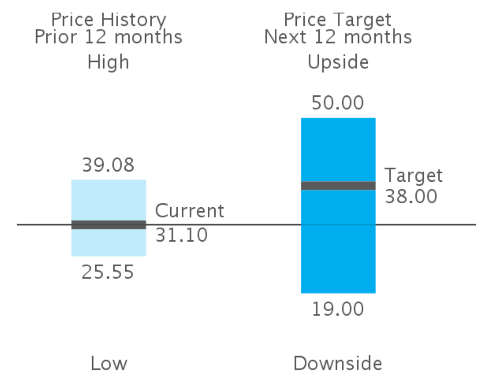
Upside case — **CAD 50.00**

Our upside scenario uses a 1.1x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $3.50/lb copper price.

Downside case — **CAD 19.00**

Our downside scenario uses a 0.9x P/NAV (70%) with our base case EV/EBITDA (30%) multiple and a sustained $2.50/lb copper price.

Upside/Downside scenarios



Source: Company data, Barclays Research
Note: FY End Dec

The free cash flow machine (coal) is still running

Met coal continues to generate significant FCF

While the non-ferrous complex has been impacted by the strong USD and tariff concerns, the seaborne coking coal market remains relatively robust. Trades for premium low-vol cargoes have been reported in early October at prices above US$200/t FOB Australia, and Dalian January futures are trading at ~US$192/t CFR China. We see spot prices as slightly rich but we believe the market remains tight, supported by ongoing strong demand in India, and pressure on Australian supply (rail dispute) and Chinese supply (environmental). Ongoing China pollution controls are also driving demand of premium product including iron lump and pellets and high strength metallurgical coal.

All the while, Teck is continuing to enjoy significant free cash flow from its coal assets. Assuming spot pricing of US$180/t, a conservative total cost (including sustaining capex) of US$100/t , and availability of tax shields (i.e. no federal tax), the rough math suggests that the 27Mt of annual met coal production generates free cash flow of ~US$1.5B or C$2.0B annually. Under our long-term price of $150/t, annual cash flow drops to US$0.9B or C$1.1B. We remind investors that the coal business unit is a long life asset with ~100 years remaining based on resources, and that makes a perpetuity not far off the actual valuation. Our segment NPV of C$11.5B includes higher taxes once tax pools are used up and we do not assume mine life extension at Cardinal River or development of Quintette.

While some investors have held off investing in Teck due to anticipated weakness in coking coal, we would note that Teck is a diversified miner and not just a coal producer. There have been two instances in the past 10 years when Teck went up ~40-50% even as coking coal declined 20-30%. In the event that coking coal gradually moves down to our long-term price of US$150/t, we still see coal as a very positive story for Teck.

Despite the recent downturn in base metal prices, TECK is set to continue generating significant free cash flow from its coal business unit. Met coal remains at a relatively robust price level, and this margin translates straight to the bottom line given substantial Canadian tax shields that could last through 2023. FCF will be further boosted by the end of cash calls at Fort Hills as the project is now essentially complete and ramping up. The company has significantly reduced its debt load and has returned some cash to shareholders via dividends and buybacks. The next project on the horizon is Quebrada Blanca Phase 2 (QB2), where Teck is seeking a partner to participate in the project (likely by the end of 2018). Despite the project having a modest IRR, the development of the project will be consistent with the company's strategy of deploying capital on long life assets that can be operated over multiple price cycles with the potential to return the initial investments several times over during the project's life. This is clearly the case with QB2 where the current mine plan is based on only 25% of the resource.

FIGURE 155

Met coal FCF back-of-the-envelope

	Formula	Unit	USD	CAD
Met coal price	A	$/t	US$180	C$234
Realization	B	%	92%	92%
Realised met coal price	**C = A * B**	**$/t**	**US$166**	**C$215**
Site and transportation costs	D	$/t	US$80	C$104
Sustaining Capex	E	$/t	US$20	C$26
Total cost	**F = D + E**	**$/t**	**US$100**	**C$130**
Free cash flow (pre-tax)	G = C-F	$/t	US$66	C$85
Tax rate	H	%	15%	15%
Free cash flow (post tax)	**I = G* (1 - H)**	**$/t**	**US$56**	**C$72**
Annual met coal production	J	mm t	27	27
Free cash flow (post tax)	**K = I* J**	**$B**	**US$1.5**	**C$2.0**

Source: Company reports, Barclays Research

Notes: Assuming CAD/USD fx rate of 1.3

We note that our total cost assumption includes sustaining capex of US$20/t which takes into account ~US$5/t for the construction of three active water treatment facilities (AWTF) at the coal operations over the 2018-2022 time frame (total spend of C$850-900M over five years) before declining to C$65M p.a. over 2023-2032. There is potential to cut these costs as TECK is in the process of investigating a lower capex option with conclusive results expected by the end of 2019 - saturated rock fill (SRF) which would cost C$50M to built (vs. C$310M for an AWTF) with operating costs/year of C$10M (vs. C$33M for an AWTF).

Deleveraging, dividends, and growth

With a significantly de-levered balance sheet and no near-term debt obligations, the market's thoughts hover around capital allocation. Net debt finished 2Q18 at C$5.0B and subsequent to the quarter this net debt balance has been further reduced as proceeds of ~C$1.2B from the Waneta Dam sale came in the door. We estimate 3Q18 net debt at C$3.6B and leverage at 0.6x (net debt/EBITDA LTM).

Last year Teck returned some cash to shareholders via dividends and buybacks, and we believe further cash returns could be forthcoming after Teck's November 2018 Board meeting. The total return (regular plus supplemental plus buyback) last year of C$578M or ~C$1.00/sh represented a yield approaching 5%. We estimate free cash flow to the firm will be down ~30% y/y this year, but lower debt repayments mean that free cash flows to equity will be over 80% this year to ~C$450M. While we don't expect Teck to do a significantly larger return of capital, based on the solid free cash flow to equity we believe there is a good possibility that the return would be an improvement from 2017.

Teck recently disclosed its intention to make a normal course issuer bid for up to 40M class B shares over the course of a year starting on October 10 2018. This represents 7.1% of the outstanding shares.

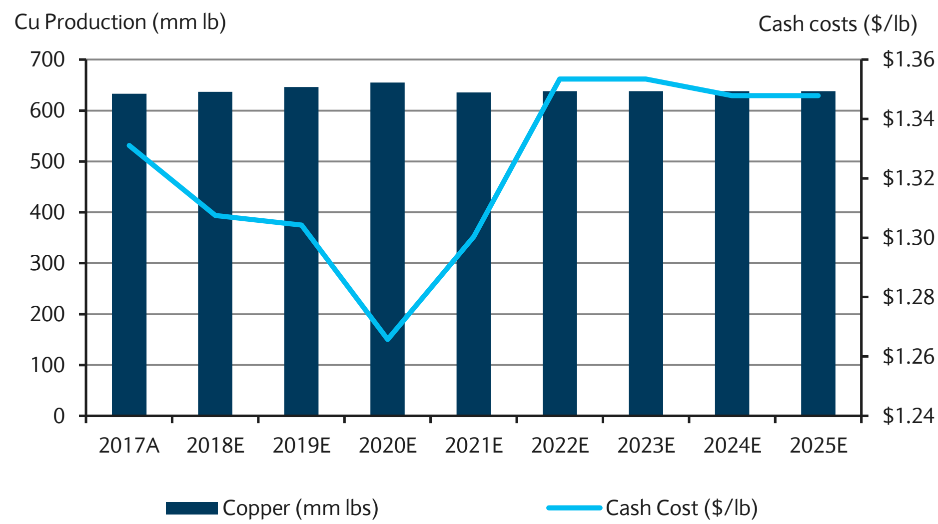
The second primary use of capital will be growth, which is mostly focussed on the copper business unit that has a ~40-year remaining life based on resources. We expect Quebrada Blanca Phase 2 (QB2) to likely be sanctioned in 4Q18 as it is the most advanced copper project in TECK's copper project portfolio and is fully permitted. The project only returns a modest IRR of ~12% at US$3.00/lb copper; however, it fits the bill as a long life asset that can be operated over multiple price cycles with the potential to recoup its investment several times over. The potential for a partner earn-in could also serve to enrich Teck's returns. We see QB2 capex as escalating relatively slowly, meaning Teck can likely continue to generate FCF in 2019/20 even if QB2 construction is under way.

Seeking a joint development partner for QB2 to derisk the project

The US$4.7B Quebrada Blanca Phase 2 (QB2) comprises a large sulphide resource and would be developed as a 140k tpd operation with annual production averaging ~525Mlb (238kt) copper at cash costs of US$1.39/lb over 24 years life of mine. With permitting now completed, TECK intends to announce a partner for joint development of the project by 4Q18. Given the large upfront capex requirements and a mine plan based on only ~25% of the global resource base, we believe these qualities make it a suitable project for the partnership and joint development model that is becoming a trend in the mining industry amongst the majors – including projects such as NuevaUnion (TECK/GG JV in Chile), Galore Creek (TECK/NEM JV in British Columbia), and Norte Abierto (GG/ABX JV in Chile). We are fans of this model as it reduces both technical and financial risks associated with development of such large projects. Even if ownership is reduced to ~60%, the incremental production to the copper business unit output will remain significant (Teck's current profile is running at ~595-660Mlb or 270-300ktpa).

FIGURE 156

Teck copper profile ex-growth - QB2 would offer significant production upside



Source: Company reports, Barclays Research
Note: QB2 is not included in Barclays Research estimates

FIGURE 157

Teck's Project Pipeline

Project	Details	Timing	Our Expectations
Quebrada Blanca Phase 2 (sulfide), Chile	(IRR of 11.7% at $3.00/lb copper). Teck owns 90% and the remaining 10% is owned by ENAMI (a Chilean State agency and is not required to fund capital spending). Hosts 14.2Blb at 0.51% copper and 527Mlb at 0.019% moly in reserves. A 2017 feasibility envisions capex of $4.7B for a 140k tpd operation with annual production averaging 525Mlb (238kt) copper at cash costs of $1.39/lb over 24 year life of mine (based on 25% of the global resource base). Regulatory approvals for the EIA were received in August 2018.	"Partnership transaction" and construction decision are likely in 4Q18; construction is expected to take approximately three years	We ascribe an in-situ value of ~$1.4B to the project in our model. Teck has disclosed it could seek a strategic partner to invest $2B for a 30-40% stake in the project.
NuevaUnion JV, Chile	50/50 percent JV between Goldcorp and Teck that would see the combined and phased development of the Relincho and El Morro (La Fortuna) orebodies (40km apart) feeding a mill at Relincho. Relincho hosts (100% basis) 10Blb at 0.37% copper and 478Mlb at 0.017% moly in reserves; El Morro hosts (100% basis) 6.5Blb at 0.49% copper and 9Moz at 0.46g/t gold in reserves. The PFS completed in 1Q18 envisions for the combined project with production averaging about 345/400/480 Mlb copper annually in three phases over a mine life of 36 years as well as 395koz during the second phase (years 4-18). Total project capex is expected to be in the $7B range (or $3.4-3.5B/$2.6-2.7B/$1.0B for each of the three phases)	A feasibility study is expected to be completed by late 2019, allowing engineering and permitting to commence. Construction could start in 2020 for operation in 2023.	We ascribe an in-situ value of ~$0.5B to the project in our model. We are strong advocates of the JV development model that helps avoid construction of superfluous processing capacity. We believe the project can exceed hurdle rates despite the ongoing development capex during the early years of mine life.
Galore Creek JV, British Columbia	(IRR of 7.4% at $2.50/lb copper). 50/50 percent JV between Teck and Newmont. Hosts (100%) 9Blb at 0.50% copper, 8Moz at 0.31g/t gold and 136Moz silver at 5.21g/t in M&I resources. A 2011 PFS envisioned $5.2B capex for an operation producing ~320Mlb copper, 208koz gold and 3Moz silver annually over a mine life of 18.5 years.	The project became part of Teck's Project Satellite with the goal of surfacing the value of the asset. The JV partners will each spend $10-15M annually over the next few years to advance an updated prefeasibility study to completion in 2021/2022	We ascribe an in-situ value of ~$0.3B to the project in our model. This is a large porphyry which has been studied several times by Teck already.
Zafranal, Peru	(IRR of 15.9% at $3.00/lb copper). The project is owned 80/20 percent by TECK and Mitsubishi Materials. Hosts (100%) 3.9Blb at 0.38% copper and 1.1Moz at 0.07g/t gold in M&I resources. A PFS envisions a 65k tpd operation producing 75kt copper at cash costs of $1.59/lb over 19 years life of mine.	The project became part of Teck's Project Satellite with the goal of surfacing the value of the asset. A feasibility study is expected to be completed in 4Q18E; submission of the social and environmental impact assessment (SEIA) is expected in 4Q18E	We ascribe an in-situ value of ~$40M to the project in our model.

Project	Details	Timing	Our Expectations
San Nicolas, Mexico	VMS deposit that hosts 2.5Blb at 1.24% copper and 3.4Blb at 1.68% zinc (plus 1.4Moz at 0.46g/t gold and 79Moz at 26.7g/t silver) in M&I resources.	The project became part of Teck's Project Satellite with the goal of surfacing the value of the asset. A PFS is expected to be completed in 2H19E	We ascribe an in-situ value of ~$360M to the project in our model.
Schaft Creek, British Columbia	(IRR of 8.3% at $3.25/lb copper). The project is owned 75/25 percent by TECK and Copper Fox. Hosts 6Blb at 0.27% copper in reserves. The 2013 PFS contemplated a 130k tpd operation producing 105kt copper at cash costs of $1.02/lb over 21 years life of mine.	The project became part of Teck's Project Satellite with the goal of surfacing the value of the asset. TECK is evaluating staged development opportunities.	We do not ascribe any value to the project in our model
Mesaba, Minnesota	Hosts an historic/non-compliant resource of +11Blb at 0.43% copper (plus Ni-PGE). Located between NorthMet and Duluth Complex projects; TECK developing proprietary CESL hydrometallurgical process.	The project became part of Teck's Project Satellite with the goal of surfacing the value of the asset. TECK is evaluating partnership opportunities. A resource update is expected in 2018.	We do not ascribe any value to the project in our model

Source: Company reports, Barclays Research

TECK Valuation: C$38 price target, Overweight/Positive rating

Sustained high coking coal prices have worked wonders on Teck's balance sheet and outlook. The company has been substantially de-risked and appears ready to activate the steady investment model, positioning it well for the next cycle. We also see the door open for further potential cash returns to shareholders. Our price target of C$38 is based on 1.0x P/NAV and 5.5x EV/EBITDA (NTM+1) multiples. With sufficient upside to our price target from recent levels we initiate coverage on TECK with an Overweight rating.

FIGURE 158
TECK NAV (C$)

Asset	Ownership	Current NAV ($M)	NAV $/ sh	Discount Rate	% of total Ops + in-situ NAV
Operating Mines					
Copper					
Highland Valley, Canada	100%	$2,321	$4.04	8%	10%
Antamina, Peru	23%	$2,510	$4.37	8%	11%
Quebrada Blanca, Chile	90%	$80	$0.14	8%	0%
Andacollo, Chile	90%	$732	$1.28	8%	3%
Copper unit total		**$5,644**	**$9.83**		**24%**
Zinc					
Trail, Canada	100%	$173	$0.30	8%	1%
Red Dog, USA	100%	$1,787	$3.11	8%	8%
Zinc unit total		**$1,960**	**$3.42**		**8%**
Coking Coal unit		$11,541	$20.11	8%	49%
Energy unit		$1,524	$2.66	8%	7%
Operating Assets NAV		**$20,669**	**$36.02**		**89%**
Exploration/ Development					
Exploration assets		$2,678	$4.67		11%
Total Other Assets NAV		**$2,678**	**$4.67**		**11%**
Total Assets		**$23,347**	**$40.68**		**100%**
Corporate/ Balance Sheet					
Corporate Expenses		($431)	($0.75)	10%	
Reclamation and Provisions		($908)	($1.58)		
Total Debt		($5,202)	($9.06)		
Total Cash		$4,507	$7.85		
Corporate NAV		**($2,033)**	**($3.54)**		
Total TECK NAV		**$21,313**	**$37.14**		

Source: Company Data, Barclays Research estimates

TECK Risks

Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower met coal, copper, zinc and oil prices; unsuccessful ramp up of Fort Hills oil sands project.

Valuation Methodology and Risks

North America Metals & Mining

Agnico Eagle Mines Ltd. (AEM)

Valuation Methodology: Our $39.00 target is based on 1.4x P/NAV and 11x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold prices; failure to deliver Nunavut projects (including Meliadine and Amaruq) on time and budget, and to ramp up of the projects to targeted operating rates

First Quantum (FM CN / FM.TO)

Valuation Methodology: Our C$18.00 target is based on 1.1x P/NAV and 6.5x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower copper prices; failure to deliver Cobre Panama project on time and budget, and to ramp up the project to targeted operating rates; unfavorable resolution of the tax dispute in Zambia

Franco-Nevada Corp. (FNV)

Valuation Methodology: Our $70.00 target is based on 1.8x P/NAV and 18x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold and oil prices; failure to ramp up production to targeted rates at new assets (including Cobre Panama)

Freeport-McMoRan Inc. (FCX)

Valuation Methodology: Our $12.00 target is based on 1.0x P/NAV and 7x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: higher copper and gold prices; improvement of political climate and resolution of ongoing challenges in Indonesia; successful underground development and ramp up at Grasberg using block caving (bulk tonnage underground mining method)

Goldcorp Inc. (GG)

Valuation Methodology: Our $14.00 target is based on 1.2x P/NAV and 7x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold, silver and zinc prices; failure to ramp up mines to targeted operating rates (including Penasquito, Eleonore, and Cerro Negro).

Hudbay Minerals Inc. (HBM)

Valuation Methodology and Risks

Valuation Methodology: Our C$8.00 target is based on 0.9x P/NAV and 5x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower copper and zinc prices; failure to deliver Pampacancha satellite project (at Constancia) on time and budget, and to ramp up the projects to targeted operating rates; failure to receive Rosemont permit.

Kinross Gold Corp. (KGC)

Valuation Methodology: Our $4.00 target is based on 1.1x P/NAV and 5x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold prices; failure to ramp up brownfield expansion projects to targeted operating rates (including recently completed Tasiast Phase 1 expansion, and new heap leach projects at mines in the US); unfavorable resolution of the ongoing negotiations with the government of Mauritania.

Lundin Mining Corp. (LUN)

Valuation Methodology: Our C$8.00 target is based on 1.0x P/NAV and 5.5x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower copper and zinc prices; failure to deliver projects (including Neves-Corvo zinc expansion, Candelaria underground expansion, and Eagle East deposit) on time and budget, and to ramp up the projects to targeted operating rates.

Newmont Mining Corp. (NEM)

Valuation Methodology: Our $34.00 target is based on 1.4x P/NAV and 8x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold prices; failure to ramp up Ghana projects (including Ahafo mill expansion and Subika underground) to targeted operating rates.

OceanaGold Corp. (OGC)

Valuation Methodology: Our C$4.00 target is based on 1.1x P/NAV and 5x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold and copper prices; failure to deliver and ramp up the ongoing Haile mine expansion project; unsuccessful exploration efforts/ failure to extend mine lives at New Zealand assets (Waihi and Macraes).

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Royal Gold Inc. (RGLD)

Valuation Methodology and Risks

Valuation Methodology: Our $78.00 target is based on 1.4x P/NAV and 15x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold prices; failure to secure long-term water supply at the key Mt. Milligan asset.

Teck Resources Ltd. (TECK/B)

Valuation Methodology: Our C$38.00 target is based on 1.0x P/NAV and 5.5x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower met coal, copper, zinc and oil prices; unsuccessful ramp up of Fort Hills oil sands project.

Wheaton Precious Metals Corp. (WPM)

Valuation Methodology: Our $21.00 target is based on 1.4x P/NAV and 16x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: lower gold and silver prices; unfavorable resolution of tax disputes in Canada; failure to ramp up production to targeted rates at new assets and expansions (including Stillwater, Voisey's Bay and Salobo III).

Yamana Gold Inc. (AUY)

Valuation Methodology: Our $2.50 target is based on 1.1x P/NAV and 5x EV/EBITDA (NTM+1) target multiples, weighted 70/30%.

Risks which May Impede the Achievement of the Barclays Research Valuation and Price Target: Mining companies are generally exposed to several risks including: commodity price risks as price movements are beyond the control of any company; geopolitical risks as mining assets are located in countries with different mining policies and government structures; permitting and financing risks as projects may not be developed without the requisite construction approvals and funding; development and execution risks as projects can experience unforeseen delays, increasing industry cost pressures, and may fail to ramp up and operate at design parameters; technical risks as operating forecasts are dependent on reserve/resource estimates and mining studies which determine economic viability.

Risks to our rating and price target include: Higher gold and copper prices; successful monetization of non-core assets; exploration success at key properties including Cerro Moro and El Penon.

Source: Barclays Research.

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Primary Stocks (Ticker, Date, Price)

Agnico Eagle Mines Ltd. (AEM, 05-Oct-2018, USD 35.09), Overweight/Positive, A/CE/D/J/K/L/M

First Quantum (FM.TO, 05-Oct-2018, CAD 14.60), Overweight/Positive, CD/J/K/N

Franco-Nevada Corp. (FNV, 05-Oct-2018, USD 63.16), Overweight/Positive, CE/J

Freeport-McMoRan Inc. (FCX, 05-Oct-2018, USD 13.27), Underweight/Positive, CD/CE/J

Goldcorp Inc. (GG, 05-Oct-2018, USD 9.99), Overweight/Positive, CD/CE/J

Hudbay Minerals Inc. (HBM, 05-Oct-2018, CAD 5.96), Overweight/Positive, CD/J

Kinross Gold Corp. (KGC, 05-Oct-2018, USD 2.76), Overweight/Positive, CD/CE/J

Lundin Mining Corp. (LUN, 05-Oct-2018, CAD 6.34), Overweight/Positive, CD/J/K/N

Newmont Mining Corp. (NEM, 05-Oct-2018, USD 30.58), Overweight/Positive, CD/CE/J

OceanaGold Corp. (OGC, 05-Oct-2018, CAD 3.83), Equal Weight/Positive, J

Royal Gold Inc. (RGLD, 05-Oct-2018, USD 76.37), Equal Weight/Positive, CD/CE/J

Teck Resources Ltd. (TECK/B, 05-Oct-2018, CAD 31.10), Overweight/Positive, CD/CE/D/J/K/L/M/U

Wheaton Precious Metals Corp. (WPM, 05-Oct-2018, USD 17.05), Overweight/Positive, CE/J

Yamana Gold Inc. (AUY, 05-Oct-2018, USD 2.50), Underweight/Positive, A/CD/CE/D/J/K/L/M

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Kinross Gold Corp. (KGC)	Lundin Mining Corp. (LUN)	Newmont Mining Corp. (NEM)
OceanaGold Corp. (OGC)	Royal Gold Inc. (RGLD)	Teck Resources Ltd. (TECK/B)
Wheaton Precious Metals Corp. (WPM)	Yamana Gold Inc. (AUY)	

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