

Q2 2017 / ISSUE 6



Highlights this quarter:

- ▶ **This quarter's topic:** We take a look at the supply and demand dynamics of the world's largest diamonds. Less than 200 very large (>200 carat) gem quality diamonds have ever been found, yet 23 of these have been found in the past three years. This dramatic increase is being driven by a combination of the rapid increase in the number of billionaires and hence price and demand, combined with technological developments that have improved large diamond recovery and a certain amount of geological good luck.
- ▶ **Sector newsflow:** The portfolio restructuring being undertaken by the larger diversified miners is now drawing to a close with most companies reporting sharply improved balance sheets following the influx of cash driven largely by the recovery in most mineral prices since the start of 2016. The scale of these asset sales turned out to be considerably smaller than initially expected, with no need for the expected fire sales. As a result, the vulture funds set up to benefit from this bounty have effectively failed and are in the process of being wound up. For the smaller companies, there is now considerable investor interest, but it is still very much focused on genuine value. Having said that, there does appear to be a lot of speculative interest in the commodities required to manufacture the vast quantities of batteries that will be needed in several mass-market technologies that are becoming commercialised, not least being lithium. We have already pointed out that this commodity exists in abundance and that current speculative interest resembles a bubble.
- ▶ **Stocks to watch:** Gem Diamonds is our preferred mining stock pick for 2017. The stock massively underperformed in 2016 and has so far had a weak 2017 following the closure of Ghaghoo mine and the suspension of the dividend. However, a new chairman has been appointed and large diamonds are again being recovered at the Letšeng mine. There is much more to come. Our preferred gold miner at this time is Shanta Gold. Shanta is currently starting up its underground mining operations at New Luika in Tanzania following depletion of the main open pits last year. It continues to add ounces to reserves by means of near-site exploration.

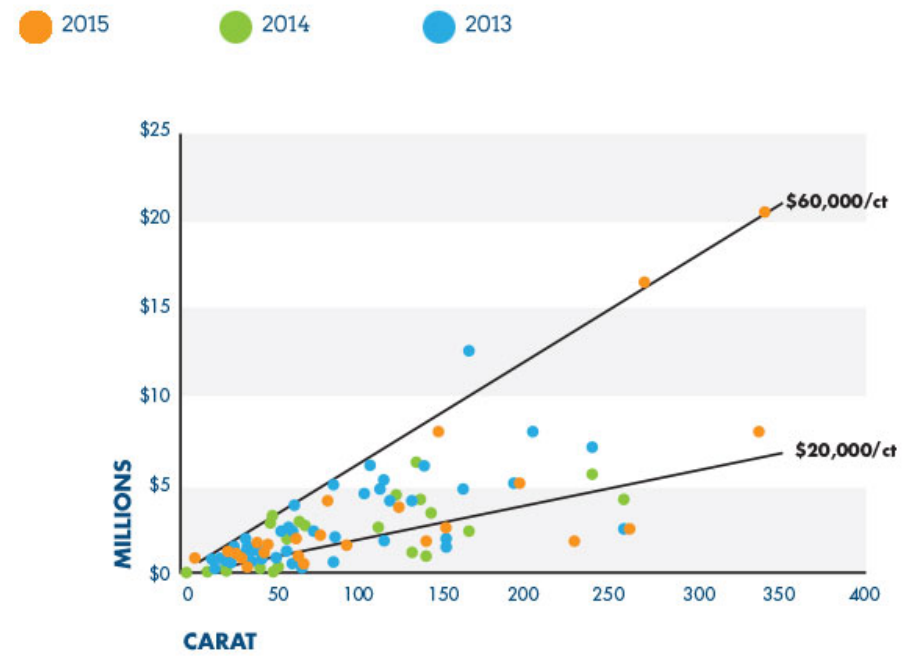
Large diamonds – supply and demand

The market for very large diamonds (>200 carats uncut) is effectively limited to the ultra-rich. This class of investor was a very small group indeed on a global basis but has grown rapidly in recent years. According to the most recent Wealth Report, produced by Knight Frank, ten years ago there were 16,766 people in the world with a net worth of more than US\$100m, last year there were 23,893 and by 2026 this number is expected to increase to more than 34,000. Converted into growth, the number of people with a net worth of more than US\$100m is expected to increase by 44% over the next ten years.

A subset of this group is the billionaires. In 2006, there were 1,393 billionaires globally, last year there were 2,024 and by 2026 there are expected to be around 3,000. This translates to growth over the next decade of 48%.

We estimate that the >US\$100m group could reasonably buy diamonds up to an uncut value of between US\$5m and US\$10m without unduly distorting their portfolios. This translates into diamonds of up to around 200 carats uncut weight. The natural market for the >200 carat diamonds is the billionaires.

Karowe mine large diamond prices achieved



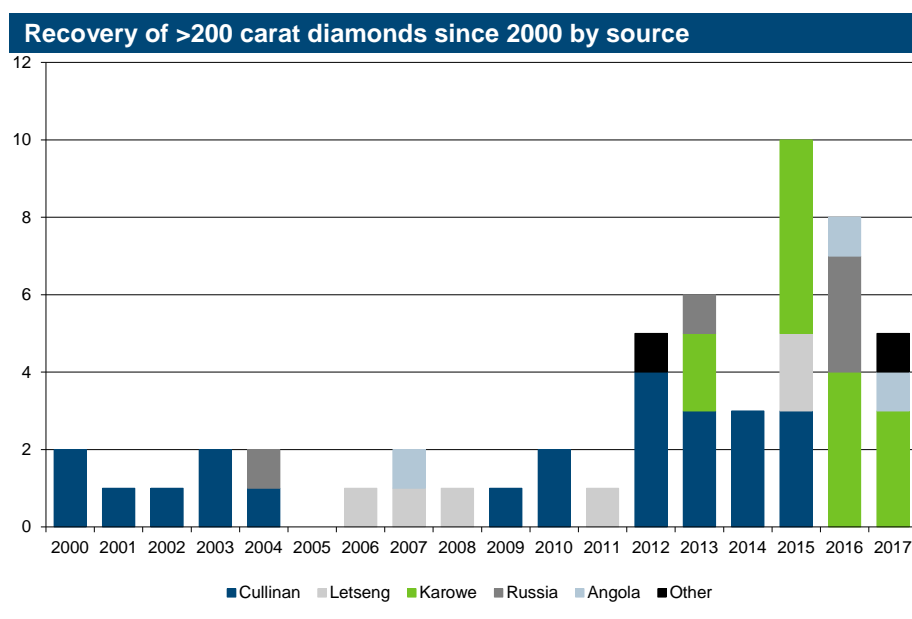
Source: Lucara Diamond

Sales results for large diamonds from the Karowe mine illustrate the range of prices that have recently been obtained. Interestingly, there is no sign of the price weakness that was experienced by mass market diamonds in 2015 and 2016.

For most of the 20th century, one mine was responsible for producing the great majority of the world's largest diamonds. At the time, the mine was known as the Premier, but a few years ago it was renamed the Cullinan after its original discoverer, Sir Thomas Cullinan. Virtually all of the other very large diamonds were recovered from alluvial operations or from prospecting.

At least 189 diamonds of a size larger than 200 carats are known to have been recovered, though this includes a significant quantity of low quality diamonds, mostly from Cullinan. However, this is likely to be a slight underestimate as some earlier production will have been lost to history and some more recent finds may not have been declared.

However, it is safe to assume that total global production of >200 carat gem quality diamonds is unlikely to be much more than 200. Significantly, 53 of these have been recovered in the past 16 years, of which 23 came in the past two years. 2016 saw four recovered at Karowe in Botswana, three from Russian mines and one from Lulo in Angola. None have been reported from either Cullinan or Letšeng in 2016 or so far in 2017.



Source: Petra Diamonds, Lucara Diamond, Alrosa, Wikipedia

The obvious question is: why has the supply of very large diamonds increased so dramatically in the past few years? This is in essence a combination of increased demand driven by the rapid growth in the number of billionaires and near-billionaires, balanced by a substantial increase in supply.

The recent and rapid increase in supply is what interests us now. We see two underlying reasons for this:

- ▶ Firstly, large diamonds are now being regularly recovered from three mines – Cullinan, Letšeng and Karowe. The latter two are relatively new operations whereas Cullinan has been in production for more than 100 years. These have recently been joined by Liqhobong mine in Lesotho, where a 110 carat stone has been recovered. We also expect Lulo in Angola to join the group as very large diamonds from alluvial sources have already been discovered.
- ▶ Secondly, over the past two decades the price per carat for large diamonds appears to have improved substantially, in line with the increase in the number of billionaires. This, in turn, means that it has been worth developing and installing specialised equipment that is capable of recovering large stones without impeding production of smaller mass-market product. Put simply, until

recently large stones at most mines simply got crushed as the price differential in terms of dollars per carat meant that it was not worth reducing the efficiency of the diamond recovery plants in order to recover them.

Optimising diamond recovery plants to maximise the recovery of large diamonds

The design of diamond recovery plants is essentially a compromise between maximising quantity recovered whilst minimising damage. Diamonds are the hardest naturally occurring substance, but they are also brittle and are easily crushed. This fact has a substantial impact on diamond recovery plant design.

Primary crushers

The process plant at most of the larger diamond mines tends to be quite similar. The mined kimberlite ore is fed to a primary crusher – usually a jaw crusher, which is intended to liberate the diamonds from the host kimberlite rock. This crushed rock is then fed into scrubbers and secondary crushers that are intended to further liberate the diamonds.

The most severe disadvantage of the standard plant configuration is that the crushing process tends to be quite aggressive, bearing in mind the brittle nature of diamonds. Jaw crushers come with an inherent compromise in that the jaw spacing that would maximise the liberation of smaller mass-market diamonds will inevitably crush most really large stones as the maximum size of rock that could pass the main crusher was typically less than 25mm in diameter. The plant at Cullinan was the exception as the large diamonds found there generated a significant proportion of the mine's total revenue and hence were worth recovering. However, the rise in demand and hence price per carat for very large diamonds has led to the introduction of several new technologies.

Karowe and Cullinan mines have both installed large autogenous mills to replace the primary jaw crushers. These machines work by using attrition to enable the self-grinding of ore: a rotating drum throws larger rocks of ore in a cascading motion, which causes impact breakage of larger rocks and compressive grinding of finer particles. This is a much less aggressive process than jaw crushing but has been found to be highly effective at liberating diamonds.

The autogenous mill feeds onto a screen – this is the plant item that defines the maximum size of diamond that may be recovered. This screen can be set with a range of sizes, depending on the largest diamonds that are to be recovered. Cullinan's new plant has a screen with apertures set at 75mm – this should enable stones of up to around 3,000 carats to be recovered. Larger rocks that do not pass the 75mm screen are assumed to be resistant to the mill process and so are crushed.

Karowe originally had a 30mm primary screen size, though this was increased to 60mm shortly after it was realised that the kimberlite contained large diamonds. Following the recovery of the 1,111 carat stone in November 2015, the plant was redesigned again with a screen size of 90mm; this would have allowed the recovery of stones of around 3,000 carats. A fourth upgrade is under construction, the "Mega Diamond Recovery" plant will have a primary screen size of 120mm. This is intended to recover diamonds up to around 5,000 carats.

The Liqhobong mine has a conventional plant design, with primary crushing by means of jaw crushers. The primary screen after the scrubber has a screen aperture of 40mm. This is expected to allow the recovery of stones of up to a maximum of between 400 carats and 600 carats depending on geometry.

The Letšeng mine also uses a more traditional mix of equipment. Primary crushing is by means of jaw crushers, following which a screen set at 55mm separates a <55mm feed that goes directly for diamond separation with >55mm, which goes for secondary crushing. Therefore, the maximum diamond size that can be recovered is 55mm or around 1,000 carats.

Sorting machines

Following liberation of the diamonds, the ore is fed into systems that are intended to separate the diamonds from the great majority of the waste rock. The standard technology until very recently was to use Dense Media Separation (DMS) for the separation process – taking advantage of the fact that diamonds have a specific density of 3.52 whereas kimberlite has a specific density of around 2.8. The heavy concentrate is then subjected to further sorting using various methods before final sorting by hand. Both Letšeng and Liqhobong use DMS, whereas Karowe and the new Cullinan plant now rely on X-Ray technology.

Some of the most recent diamond plants are basing primary separation on either X-Ray Luminescence (XRL) or X-Ray Transmission (XRT) sorters. Cullinan's new plant has installed Bourestnik X-Ray Luminescence (XRL) machines. These machines were developed in Russia in the 1960s and take advantage of the fact that Cullinan's diamonds luminesce under X-ray irradiation, whereas the waste minerals present do not. However, one disadvantage of XRL is that the diamonds need to be relatively clean as if the surface is masked the luminescence may not be apparent. Nevertheless, this technology is considered to be the most appropriate for the very large stones at Cullinan. XRL machines are also to be used as primary sorters for the smaller size fractions at Cullinan as they are at most other diamond mines.

The newest technology has overcome the limitations of XRL by using X-rays in a different way. X-ray transmission (XRT) sorters work using the property of the materials to absorb X-ray radiation. Diamonds are essentially elemental carbon, which is a light element having an atomic number of 6. As such, it absorbs less X-ray radiation compared to the waste minerals, which contain heavier elements such as silicon, calcium, magnesium, oxygen. Unlike XRL, XRT is not dependent on a visible colour difference or clean particle surfaces. XRT technology has a significantly higher detection rate for Type II diamonds compared to traditional XRL sorters. The key to XRT is the speed with which the vast amounts of data can be analysed. A decade ago such machines could process maybe 10 to 15 tonnes of ore per hour; modern XRT machines can process 400 tonnes per hour.

Karowe mine was the first to install XRT machines, though they have also been recently adopted by Letšeng for final recovery of >12mm diamonds. There will undoubtedly be more installations, and more large diamonds will be recovered.

Other technologies are in development – Gem Diamonds is working on a system that it hopes will almost eliminate breakage in diamond recovery.

Recent significant research, audio and video				
Date	Company	Research Type	Title	Author
28/10/16		Quarterly	Tailings 4	Martin Potts
06/10/16	Gemfields	Company Note	Update following annual results	Martin Potts
03/10/16	Horizonte	Company Note	PFS completed and valuation update	Martin Potts
20/09/16	Atalaya Mining	Company Note	Earnings, valuation and target price update	Martin Potts
09/09/16	Firestone Diamonds	Company Note	Liqhobong Mine site visit and update	Martin Potts
31/08/16	Gem Diamonds	Company Note	Earnings, valuation and target price update	Martin Potts
05/08/16	Wolf Minerals	Company Note	Valuation update	Martin Potts
26/07/16	Petra Diamonds	Company Note	Valuation and earnings update	Martin Potts
21/07/16	Berkeley Energia	Initiation	Clean fuel for Europe and beyond	Martin Potts
15/06/16		Quarterly	Tailings 3	Martin Potts
19/05/16	Shanta Gold	Company Note	Update following annual results	Martin Potts
21/03/16		Quarterly	Tailings 2	Martin Potts
03/03/16	Weatherly International	Company Note	Valuation update following interims	Martin Potts
25/02/16	Gemfields	Company Note	Update following interim results	Martin Potts
19/02/16	Atalaya Mining	Video Interview	Reopening Rio Tinto	Martin Potts
18/02/16	Atalaya Mining	Initiation	Reopening Rio Tinto	Martin Potts
16/02/16	Firestone Diamonds	Company Note	Liqhobong construction update	Martin Potts
01/12/15		Quarterly	Tailings 1	Martin Potts
20/11/15	Shanta Gold	Video interview	Turnaround at New Luika	Martin Potts
19/11/15	Shanta Gold	Initiation	Turnaround at New Luika	Martin Potts
14/10/15	Gemfields	Company Note	Update following annual results	Martin Potts
07/10/15	Firestone Diamonds	Company Note	Liqhobong mine update	Martin Potts
28/09/15	Horizonte	Company Note	Significant project acquisition	Martin Potts
22/09/15	Petra Diamonds	Company Note	Update following annual results	Martin Potts
16/09/15	Anglo Pacific	Company Note	Valuation and earnings update	Martin Potts
02/09/15	GEMD, CAML, AUE, FDI	Sector Note	Best ideas in advance of a cyclical recovery	Martin Potts
05/08/15	Central Asia Metals	Company Note	Valuation and earnings update	Martin Potts
04/08/15	Gem Diamonds	Company Note	Valuation and earnings update	Martin Potts
29/07/15	Petra Diamonds	Audio interview	Valuation and earnings update	Martin Potts
29/07/15	Petra Diamonds	Company Note	Valuation and earnings update	Martin Potts

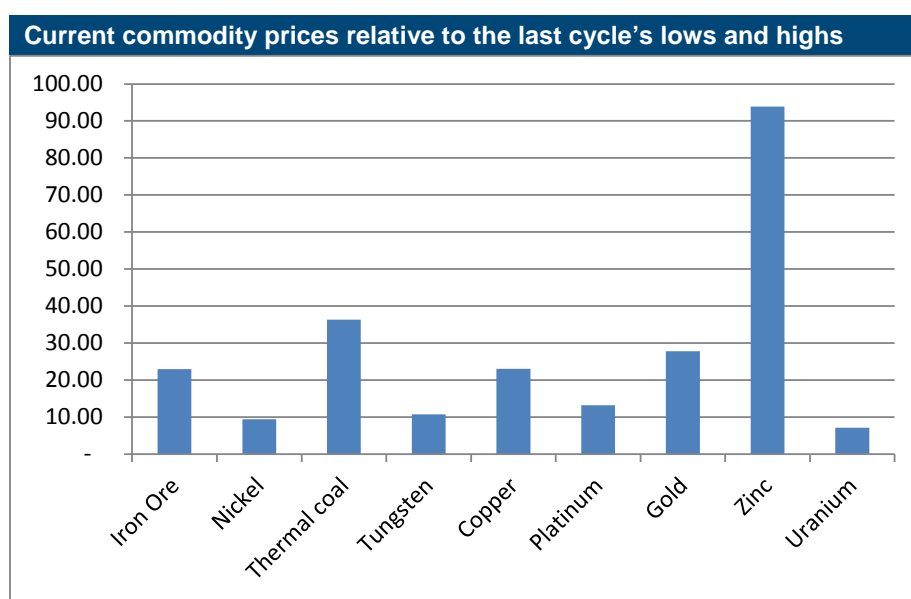
Source: finnCap

Commodity prices and outlook

The last commodity cycle topped out between late 2010 and mid-2011, depending on the commodity (with the exception of gemstones, which held out until 2015). The price falls over the following five years were impressive.

Since the start of 2016, most commodities have shown some significant price appreciation. Indeed, zinc has already passed through the previous cycle high, though has subsequently fallen back. Thermal coal and iron ore have been the other outperformers, an outcome that caught most of the market by surprise.

The chart below shows that, with the exception of zinc, there is still substantial price upside to come in the current cycle.



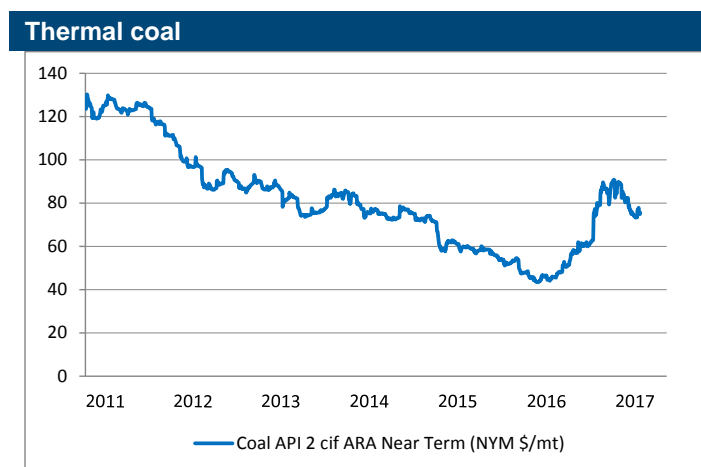
Source: finnCap

Our forecasts for selected commodities (effectively those commodities produced by companies that we have under coverage) are summarised in the following table. In essence, we expect average prices in 2017 to be higher than those for 2016 as the sector continues to move into the positive side of the cycle.

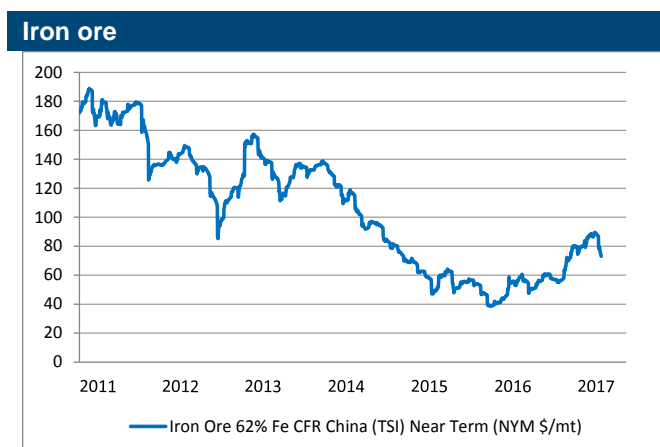
Selected commodity price forecasts

	2016A	2017YTD	2017E	2018E	Longer-term	% of last peak
Gold	1,250	1,224	1,300	1,300	1,300	63.5%
Copper	4,862	5,819	5,952	6,173	6,173	60.8%
Nickel	9,595	10,224	12,000	12,000	12,000	65.6%
Tungsten (APT)	188	203	220	300	350	80.0%

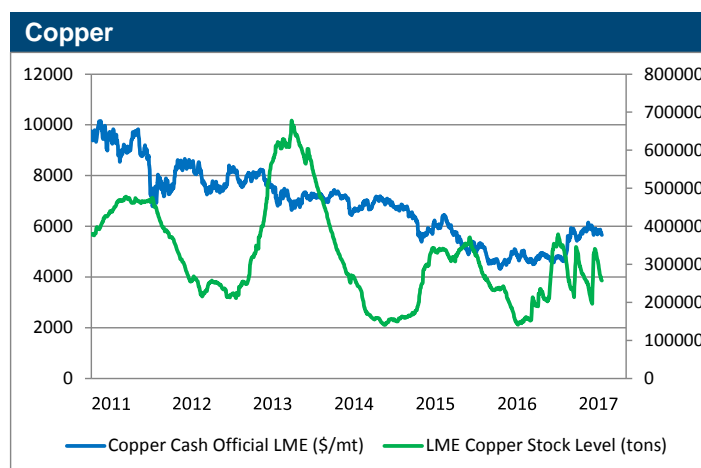
Source: finnCap



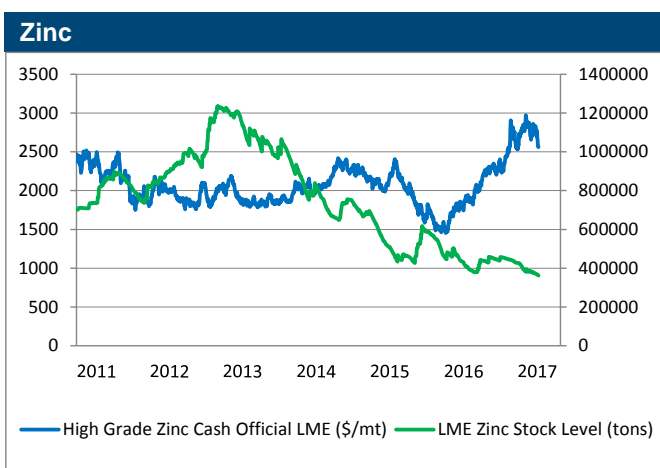
Source: FactSet



Source: FactSet

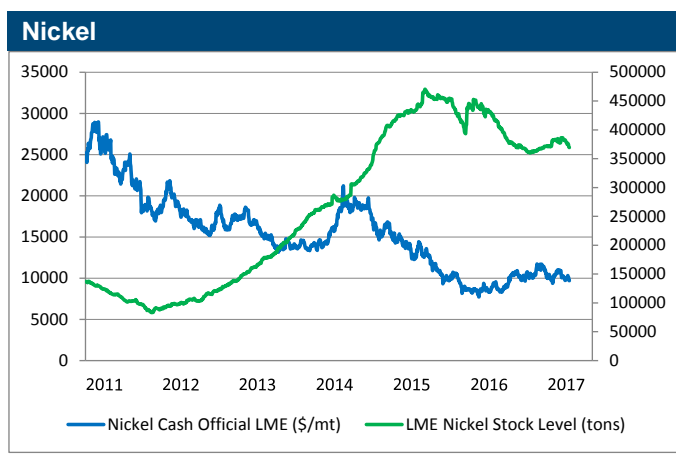


Source: FactSet

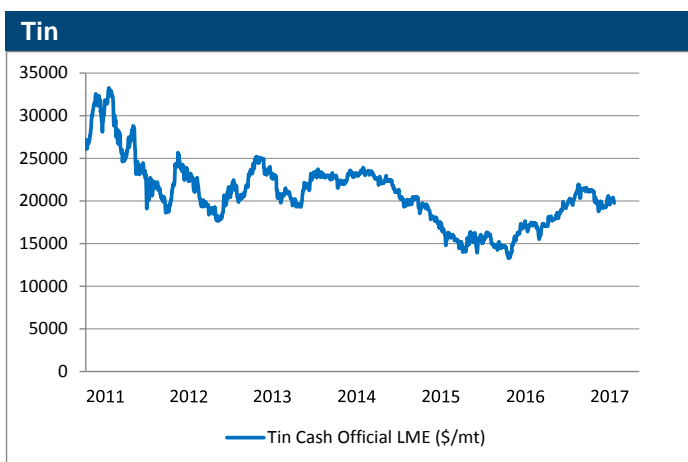


Source: FactSet

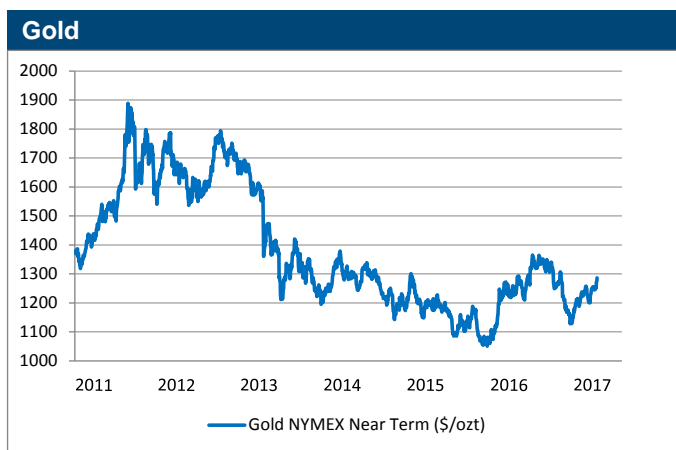
- ▶ **Thermal coal** is being progressively displaced by other sources of energy such as shale gas and renewables. However, the price has recovered strongly from the recent cycle low point. This appears to be primarily because China has been importing coal and closing down a lot of its least efficient and most polluting local mines.
- ▶ **Iron ore** demand translates into demand for steel – growth in demand for steel appears to have already passed through the high point and is expected to fall to approximately the level of global GDP per capita growth. There is massive oversupply following the construction of major new mines, principally in Australia and Brazil.
- ▶ **Copper** has started to recover but has been trading sideways recently following short-term supply uncertainties. Some loss-making capacity has been closed, but in the near term this will be offset by new projects being commissioned.
- ▶ **Zinc** is in a relatively strong position, with prices rising following some large mine closures due to resource exhaustion. Looking further out, the necessary replacement mines have not been built, so this metal is set to perform strongly over the next few years. However, most of this is already in the price.



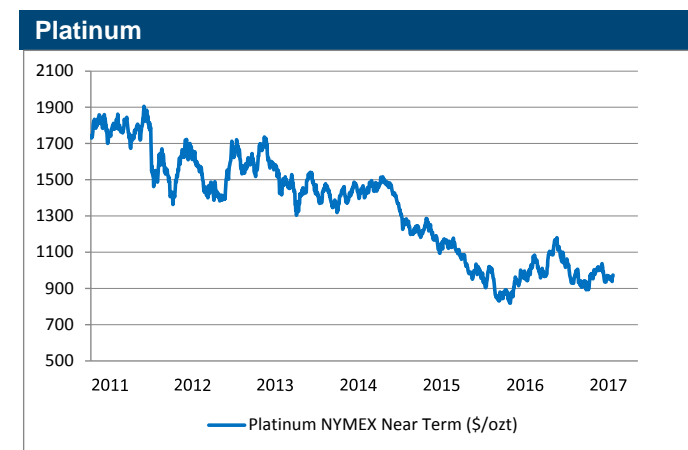
Source: FactSet



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- ▶ **Nickel** had been going through a period of considerable oversupply, though this is now correcting following a series of mine closures. LME stocks have been falling and the price has recently started to rise. Recent mine closures in the Philippines have been helpful for price support.
- ▶ **Tin** had been showing signs of recovery with increasing demand meeting a lack of near-term new supply.
- ▶ **Gold** is not driven by supply and demand issues – it is allegedly driven by “fear and greed”, but in reality it appears to just track the broad mining sector cycle. Current geo-political uncertainty is supporting the price.
- ▶ **Platinum** is essentially an industrial commodity – its primary use is in vehicle exhaust catalysts. It also suffers from chronic oversupply, as demand is driven only by net new vehicle growth rather than actual new vehicle numbers; most of the world’s vehicle inventory is now fitted with catalysts, and they are easily recycled.

Key sector news and upcoming events

- ▶ The large-cap miners have now essentially completed the restructuring of their portfolios and the emphasis is now on rebuilding. The improved commodity markets have resulted in much stronger cashflow, and those with stronger balance sheets are now looking to make acquisitions.
- ▶ Some smaller companies continue to look for acquisitions, but these are mostly bolt-on exploration portfolios that have fallen out of cash-strapped explorers or projects that no longer fit into large diversified company portfolios.
- ▶ Exploration-driven news continues to be conspicuous by its absence. However, there are signs that the market is getting ready to fund new programmes.

Recent interesting sector newsflow

Date	Company	Event	Comment
10/04/17	Anglo American	Asset sale	Eskom contracted thermal coal mines in South Africa sold
02/03/17	Anglo American	Mine startup	Gahcho Kue diamond mine starts commercial production
15/02/17	Anglo American	Asset sale	Union platinum mine sold
13/02/17	Glencore	Acquisition	Pays US\$534m to increase holdings in DRC Copper mines
24/01/17	Rio Tinto	Asset sale	Australian coal business Coal and Allied sold for US\$2.45 billion to Yancoal Australia
30/11/16	Anglo American	Asset sale	9.7% interest in Exxaro sold
28/11/16	Antofagasta	Asset sale	Michilla mine sold
23/11/16	Rio Tinto	Asset sale	Lochaber aluminium smelter sold for US\$410m
28/10/16	Rio Tinto	Asset sale	Simandou iron project in Guinea sold to Chinalco for between US\$1.1 bn and US\$1.3 bn
22/08/16	Rio Tinto	Project stopped	Bunder diamond project in India stopped after environmental permitting problems
03/08/16	Anglo American	Mine commissioning	Gahcho Kué diamond mine in Canada commissioned.
02/08/16	Rio Tinto	Mine development	Silvergrass iron mine development approved - capex US\$338m.
29/07/16	Sierra Rutile	M&A	Agreed £215m cash bid by Iluka Resources
12/05/16	Anglo American	Commercial production	First production from Grosvenor metallurgical coal mine in Australia
09/05/16	Lucara Diamond	Record sale	813 carat diamond sold for US\$63m
06/05/16	Rio Tinto	Mine development	Oyu Tolgoi underground copper mine approved with a cost of US\$5.3 billion
28/04/16	Anglo American	Asset sale	Sale of Niobium and Phosphate businesses to China Molybdenum for US\$1.5 billion
25/04/16	Metals Exploration	Mine commissioning	Approval received to start up Runruno gold mine in the Philippines
06/04/16	Glencore	Asset sale	Sale of 40% interest in Glencore Agricultural Products for US\$2.5 billion
04/04/16	Anglo American	Asset sale	Foxleigh thermal coal mine in Australia sold

Source: finnCap

Upcoming events

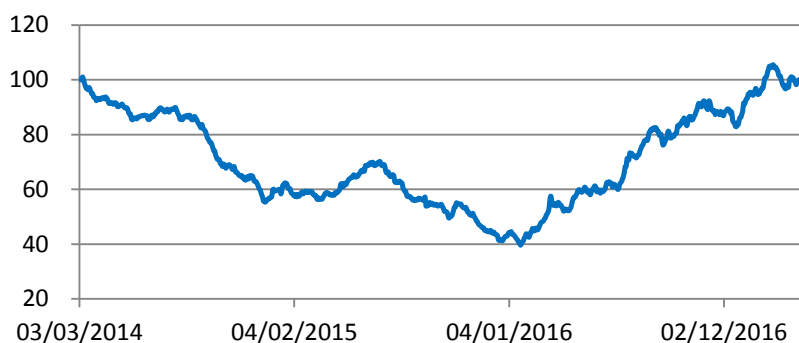
Date	Company	Event	Comment
05/02/18	Mining 121	Conference	Cape Town

Source: finnCap

Sector performance and comparables

The index comprises 40 of the larger UK-quoted mining companies, with some important exclusions. We have excluded the large diversified companies as these are already effectively proxies for the industry. We have also excluded a few others on the basis of severe illiquidity. Each stock carries an equal weighting in the index, as we are primarily interested in the performance of the mid- to small-cap single commodity producers and advanced developers.

finnCap 40 Mining Index



Source: finnCap

The index currently includes the following stocks: ACA, ANTO, ASO, ATYM, BCN, BKY, BSE, CAML, CEY, CGH, CMCL, CZA, DALR, EMH, FDI, FRES, FXPO, GEMD, GEM, GFM, HGM, HOC, HUM, IRR, JLP, KAZ, KMR, LMI, MARL, MTL, PAF, PDL, POG, POLY, RMM, RRS, SHG, SOLG, SXX, THS.

Mining sector valuation comparables

Company	Enterprise	Market	EV/Sales (x)		EV/EBITDA (x)		P/E (x)		Dividend Yield (%)		Gearing	Share
	Value (£m)	Cap (£m)	FY1	FY2	FY1	FY2	FY1	FY2	FY1	FY2	%	Price Move
	spot	spot										YTD %
Large Diversified and Base Metals												
Anglo American plc	24,717	15,935	1.00	0.99	3.1	3.6	6.3	8.6	4.3	5.1	69	0.9
Antofagasta plc	10,267	8,030	2.73	2.57	5.9	5.5	21.2	18.7	1.7	3.9	46	23.7
BHP Billiton Plc	86,483	65,502	3.05	2.59	6.4	4.9	18.8	11.6	3.9	5.3	67	-2.9
Glencore plc	65,835	43,263	0.46	0.38	5.7	5.3	11.5	12.2	3.2	4.4	75	11.4
KAZ Minerals PLC	4,098	1,937	3.26	2.55	7.0	5.2	7.9	5.5	0.1	0.3	709	27.5
Rio Tinto plc	67,696	55,100	1.87	2.06	4.1	5.0	7.9	11.0	7.3	5.5	45	-1.2
South32 Ltd.	8,301	8,940	1.62	1.30	5.7	3.8	16.5	9.9	2.5	4.3	10	6.2
Vedanta Resources plc	14,312	1,956	0.93	0.74	3.4	2.4	21.8	7.9	4.4	5.2		-13.5
average			1.87	1.65	5.15	4.47	13.99	10.68	3.42	4.26	145.77	6.5
median			1.75	1.68	5.69	4.93	14.01	10.43	3.51	4.76	67.09	3.5
Large Precious Metals												
Acacia Mining plc	1,789	1,966	2.00	1.87	5.0	4.4	13.6	13.4	1.6	2.1	5	32.0
Centamin plc	1,868	2,177	3.47	3.22	6.9	6.3	18.6	18.3	2.8	2.6	0	37.5
Fresnillo PLC	11,964	12,056	7.05	5.92	13.6	10.6	37.5	27.8	1.2	1.7	30	34.4
Polymetal International Plc	5,737	4,701	3.84	3.37	8.2	7.0	12.5	11.0	3.7	4.6	140	28.1
Randgold Resources Limited	6,946	7,100	6.59	6.04	13.6	11.6	31.3	24.8	1.6	2.2	0	17.5
average			4.59	4.09	9.47	7.97	22.72	19.06	2.21	2.62	35.13	29.9
median			3.84	3.37	8.24	7.02	18.59	18.29	1.63	2.17	5.34	32.0
Gemstones												
Firestone Diamonds plc	212	160	18.92	4.04		11.2		27.3	0.0	0.0	36	-2.9
Gem Diamonds Limited	185	129	0.67	0.58	2.7	1.7	14.7	7.4	0.8	1.0	21	-12.7
Gemfields PLC	316	236	1.88	1.86	6.5	5.9	226.6	49.9	0.0	0.0	20	-16.5
Petra Diamonds Limited	1,190	694	2.52	2.04	6.4	4.6	14.6	9.3	0.5	1.6	101	-13.6
average			6.00	2.13	5.21	5.84	85.30	23.49	0.31	0.64	44.42	-11.4
median			2.20	1.95	6.37	5.26	14.67	18.32	0.24	0.50	28.31	-13.2
Precious Metals												
Avesoro Resources Inc.	102	132							0.0	0.0	101	65.0
Allyn Plc	47	37						0.5			17	-2.7
Highland Gold Mining Limited	734	566	2.83	2.59	5.6	5.1	11.3	9.9	5.3	4.9	28	25.9
Hochschild Mining plc	1,661	1,414	2.51	1.97	5.5	4.1	32.7	17.9	1.2	1.7	47	35.2
Lonmin Plc	15	314	0.21	0.31	2.4	7.1			0.0	0.0	9	-18.6
Pan African Resources PLC	230	301	1.74	1.54	6.4	5.2	10.0	7.8	5.3	5.6	13	-3.2
Petropavlovsk PLC	722	261					18.7		0.0		130	11.5
Serabi Gold PLC	42	42					5.8	8.3	0.0	0.0	5	29.4
Shanta Gold Limited	67	51	0.94	0.85	2.0	2.0	8.1	5.1	0.0	0.0	89	-8.0
average			1.65	1.45	4.37	4.67	14.44	8.28	1.47	1.74	48.73	15.0
median			1.74	1.54	5.51	5.05	10.69	8.08	0.00	0.03	28.42	11.5
Other												
Anglo Pacific Group PLC	211	226	5.09	5.80	5.4	6.5	8.0	8.7	5.6	6.2	3	-2.9
Base Resources Limited	261	150	2.14	1.41	4.6	2.6	71.0	4.7	0.0	0.0	119	68.8
Berkeley Energia Limited	79	127	654.25	26.72					0.0	0.0	0	-8.3
Central Asia Metals Plc	242	269	3.56	3.19	5.8	5.1	10.6	10.1	6.3	6.5		5.0
Ferrexpo plc	1,328	863	1.14	1.22	2.7	3.8	3.4	5.9	3.8	5.0	223	15.2
Griffin Mining Limited	132	100	1.43	1.29	3.9	3.6	7.8	8.1	0.0	0.0	36	3.0
Kenmare Resources Plc	208	340	1.99	1.52	6.1	3.7	17.4	7.7	0.0	0.0	13	23.3
Weatherly International Plc	87	4	1.52	1.20	9.8	6.6		1.9	0.0	0.0	345	-50.0
Wolf Minerals Limited	116	46						1.3	0.0	0.0	58	-17.1
average			83.89	5.29	5.46	4.57	19.72	6.04	1.75	1.96	99.64	4.1
median			2.07	1.46	5.36	3.82	9.33	6.78	0.00	0.00	46.91	3.0

Source: finnCap, FactSet, based on consensus estimates

finnCap Mining coverage summary

Upside			
	Current price	Target price	% upside
Horizonte Minerals	2.7p	8.0p	202.0%
Weatherly International	0.4p	1.1p	175.0%
Gemfields	43.0p	95.0p	121.0%
Gem Diamonds	91.5p	150.0p	64.0%
Petra Diamonds	131.8p	203.0p	54.0%
Pan African Resources	15.8p	24.0p	52.0%
Atalaya Mining	142.0p	195.0p	37.0%
Central Asia Metals	239.0p	290.0p	21.0%
Firestone Diamonds	50.5p	61.0p	21.0%
Wolf Minerals	4.3p	5.0p	18.0%

Source: finnCap

Summary of lowest PEs		P/E (x)
Atalaya Mining		5.8
Pan African Resources		5.9
Shanta Gold		7.8
Central Asia Metals		9.7
Petra Diamonds		13.7
Gem Diamonds		15.8

Source: finnCap

Summary of yields		Yield %
Central Asia Metals		6.8
Pan African Resources		5.7
Gem Diamonds		3.0
Petra Diamonds		1.8

Source: finnCap

Anglo Pacific (APF)				U/R						
Price	123.5p			Description: Global natural resources royalties company Comment Anglo Pacific has been repositioned to focus on base metals and bulk commodities.						
Target Price	U/R									
Downside	n/a									
Market Cap	£223.4m									
EV	£232.0m									
Shares in Issue	180.9m			Analyst: Martin Potts (020 7220 0544)						
Market Sector	Main Mining									
Next Results	Interims September 2017									
%	1M	3M	12M							
Actual	+0.4	-5.2	+69.8							
Relative	+2.5	-4.6	+44.9							
Y/e	Sales	Adj EBITDA	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/ EBITDA	Yield
Dec					(FD)					
	(£m)	(£m)	(£m)	(%)	(p)	(p)	(£m)	(x)	(x)	(%)
2016A	19.7	16.5	16.1	12	9.1	6.0	-0.8	13.6	14.0	4.9
2017E	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R
2018E	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R
2019E	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R

Armada Capital* (ACP)				CORP						
Price	1.6p			Description: Investment in and development of projects and companies in the African natural resource and infrastructure sectors Comment Armadale is an investment company focused on natural resource projects in Africa.						
Target Price	n/a									
Downside	n/a									
Market Cap	£3.8m									
EV	£3.1m									
Shares in Issue	238.3m			Analyst: Martin Potts (020 7220 0544)						
Market Sector	AIM Mining									
Next Results	Finals April 2017									
%	1M	3M	12M							
Actual	-3.0	-46.7	-39.2							
Relative	-1.0	-46.3	-48.1							
Y/e	Sales	Adj EBITDA	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/ EBITDA	Yield
Dec					(FD)					
	(£m)	(£m)	(£m)	(%)	(p)	(p)	(£m)	(x)	(x)	(%)
2015A	0.0	-0.6	-0.7	0	-1.9	0.0	0.4	n/a	n/a	0.0
2016E	0.0	-0.8	-0.8	0	-0.4	0.0	0.9	n/a	n/a	0.0
2017E	0.0	-0.8	-0.8	0	-0.4	0.0	1.1	n/a	n/a	0.0
2018E	0.0	-0.8	-0.8	0	-0.4	0.0	1.3	n/a	n/a	0.0

Atalaya Mining (ATYM)				BUY						
Price	142.0p			Description: Reopening the original Rio Tinto copper mine in southern Spain Comment The company is in the process of recommissioning the original Rio Tinto copper mine in southern Spain.						
Target Price	195.0p									
Upside	37.0%									
Market Cap	£165.7m									
EV	£187.0m									
Shares in Issue	116.7m			Analyst: Martin Potts (020 7220 0544)						
Market Sector	AIM Mining									
Next Results	Interims September 2017									
%	1M	3M	12M							
Actual	-0.4	-8.4	+45.6							
Relative	+1.8	-7.8	+24.3							
Y/e	Sales	Adj EBITDA	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/ EBITDA	Yield
Dec					(FD)					
	(€m)	(€m)	(€m)	(%)	(c)	(c)	(€m)	(x)	(x)	(%)
2016A	98.8	13.8	-0.2	8,125	11.1	0.0	1.1	15.3	16.1	0.0
2017E	208.2	48.0	34.2	nm	29.3	0.0	10.9	5.8	4.7	0.0
2018E	264.2	88.2	74.2	10	57.2	0.0	70.3	3.0	2.5	0.0
2019E	232.9	76.7	62.6	25	40.2	0.0	144.0	4.2	2.9	0.0

Berkeley Energia (BKY)				U/R						
Price	48.5p			Description: Developing a uranium mine in Spain Comment Construction of the Salamanca uranium mine in Spain has started.						
Target Price	U/R									
Downside	n/a									
Market Cap	£123.4m									
EV	£97.5m									
Shares in Issue	254.5m			Analyst: Martin Potts (020 7220 0544)						
Market Sector	AIM Mining									
Next Results	Finals September 2017									
%	1M	3M	12M							
Actual	-10.2	-27.1	+85.6							
Relative	-8.3	-26.6	+58.5							
Y/e	Sales	Adj EBITDA	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/ EBITDA	Yield
Jun					(FD)					
	(A\$m)	(A\$m)	(A\$m)	(%)	(c)	(c)	(A\$m)	(x)	(x)	(%)
2016A	0.2	-13.6	-13.8	0	-7.5	0.0	11.3	n/a	n/a	0.0
2017E	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R
2018E	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R
2019E	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R

Central Asia Metals (CAML)

BUY

Price	239.0p
Target Price	290.0p
Upside	21.0%
Market Cap	£266.6m
EV	£235.3m

Description: Producing copper in Kazakhstan

Comment

The company is constructing a new plant in order to start leaching the Western Dumps at its Kounrad dump retreatment operation in Kazakhstan.

Shares in Issue	111.6m
Market	AIM
Sector	Mining
Next Results	Interims September 2017

Analyst: Martin Potts (020 7220 0544)

%	1M	3M	12M
Actual	+8.6	+1.8	+40.2
Relative	+10.9	+2.4	+19.7

Y/e	Sales	Adj	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Dec	EBITDA				(FD)				EBITDA	
	(\$m)	(\$m)	(\$m)	(%)	(c)	(c)	(\$m)	(x)	(x)	(%)
2016A	66.7	38.1	32.9	20	23.7	20.2	40.2	13.0	7.9	6.6
2017E	80.4	50.4	44.0	20	31.6	20.8	61.8	9.7	6.0	6.8
2018E	83.3	52.3	44.9	20	32.2	22.1	83.1	9.5	5.8	7.2
2019E	83.3	52.3	44.9	20	32.2	22.1	102.4	9.5	5.8	7.2

Firestone Diamonds (FDI)

BUY

Price	50.5p
Target Price	61.0p
Upside	21.0%
Market Cap	£160.0m
EV	£219.8m

Description: Developing a diamond mine in Lesotho

Comment

The Lihobong mine in Lesotho is in the process of commissioning.

Shares in Issue	316.9m
Market	Main
Sector	Mining
Next Results	Finals September 2017

Analyst: Martin Potts (020 7220 0544)

%	1M	3M	12M
Actual	+3.1	+0.0	+78.8
Relative	+5.3	+0.6	+52.6

Y/e	Sales	Adj	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Jun	EBITDA				(FD)				EBITDA	
	(\$m)	(\$m)	(\$m)	(%)	(c)	(c)	(\$m)	(x)	(x)	(%)
2016A	0.5	-4.5	-9.0	251	2.5	0.0	-44.5	25.8	n/a	0.0
2017E	0.5	-5.3	-7.7	0	-1.8	0.0	-44.2	n/a	n/a	0.0
2018E	105.1	63.5	45.2	25	8.1	0.0	6.4	8.0	4.4	0.0
2019E	121.4	76.9	59.4	25	10.6	0.0	73.5	6.1	3.7	0.0

Gem Diamonds (GEMD)

BUY

Price	91.5p
Target Price	150.0p
Upside	64.0%
Market Cap	£126.6m
EV	£126.3m

Description: Mining and exploring for diamonds in Lesotho and Botswana

Comment

The Letseng mine in Lesotho is in full production. The Ghaghoo mine in Botswana has been stopped.

Shares in Issue	138.4m
Market	Main
Sector	Mining
Next Results	Interims September 2017

Analyst: Martin Potts (020 7220 0544)

%	1M	3M	12M
Actual	-17.4	-20.6	-21.6
Relative	-15.6	-20.1	-33.1

Y/e	Sales	Adj	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Dec	EBITDA				(FD)				EBITDA	
	(\$m)	(\$m)	(\$m)	(%)	(c)	(c)	(\$m)	(x)	(x)	(%)
2016A	189.8	62.8	52.4	38	12.8	0.0	0.4	9.2	2.6	0.0
2017E	185.7	36.7	24.3	35	7.4	3.5	-16.1	15.8	4.4	3.0
2018E	206.0	55.6	43.6	35	12.6	4.0	-34.5	9.3	2.9	3.4
2019E	216.0	65.1	53.4	35	15.2	4.0	-40.5	7.7	2.5	3.4

Gemfields* (GEM)

CORP

Price	43.0p
Target Price	95.0p
Upside	121.0%
Market Cap	£234.0m
EV	£187.7m

Description: Mining and marketing coloured gemstones from Zambia and Mozambique

Comment

The Kagem emerald mine in Zambia is in full production and the Montepuez ruby mine in Mozambique is under development.

Shares in Issue	544.2m
Market	Main
Sector	Mining
Next Results	Finals September 2017

Analyst: Martin Potts (020 7220 0544)

%	1M	3M	12M
Actual	+2.4	-13.6	-5.0
Relative	+4.6	-13.0	-18.9

Y/e	Sales	Adj	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Jun	EBITDA				(FD)				EBITDA	
	(\$m)	(\$m)	(\$m)	(%)	(c)	(c)	(\$m)	(x)	(x)	(%)
2016A	193.1	69.4	41.8	44	2.2	0.0	-10.0	25.2	3.5	0.0
2017E	135.0	24.0	-1.0	0	-0.7	0.0	-5.3	n/a	10.0	0.0
2018E	195.0	78.0	51.0	39	3.5	0.0	11.7	15.9	3.1	0.0
2019E	220.0	97.0	68.0	40	5.1	0.0	51.0	10.8	2.5	0.0

Horizonte Minerals* (HZM)				CORP							
Price	2.7p			Description: An exploration company with a focus on nickel in Brazil							
Target Price	8.0p										
Upside	202.0%										
Market Cap	£31.1m										
EV	£22.1m										
Shares in Issue	1,171.9m			Comment Horizonte continues to make progress with the evaluation of its Araguaia nickel laterite project in Brazil.							
Market	AIM										
Sector	Mining										
Next Results	Interims September 2017										
%	1M	3M	12M								
Actual	-13.1	+3.9	+44.8	Analyst: Martin Potts (020 7220 0544)							
Relative	-11.3	+4.6	+23.6								
Y/e	Sales	Adj	Adj PBT		Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Dec	EBITDA					(FD)				EBITDA	
	(£m)	(£m)	(£m)		(%)	(p)	(p)	(£m)	(x)	(x)	(%)
2016A	0.0	-1.5	-1.7	0	-0.2	0.0	9.3	n/a	n/a	0.0	
2017E	0.0	-3.4	-3.2	0	-0.3	0.0	9.2	n/a	n/a	0.0	
2018E	0.0	-2.4	-2.3	0	-0.2	0.0	9.1	n/a	n/a	0.0	
2019E	0.0	-2.4	-2.4	0	-0.2	0.0	9.0	n/a	n/a	0.0	

Ncondezi Energy* (NCCL)				U/R							
Price	3.4p			Description: An integrated coal mining & electricity generation co with assets in Mozambique.							
Target Price	U/R										
Downside	n/a										
Market Cap	£8.5m										
EV	£8.0m										
Shares in Issue	250.3m			Comment Ncondezi continues to make progress with its plan to develop an integrated coal mine and power station in Mozambique.							
Market	AIM										
Sector	Mining										
Next Results	Finals April 2017										
%	1M	3M	12M								
Actual	-59.0	-34.1	-18.2	Analyst: Martin Potts (020 7220 0544)							
Relative	-58.2	-33.7	-30.1								
Y/e	Sales	Adj	Adj PBT		Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Dec	EBITDA					(FD)				EBITDA	
	(\$m)	(\$m)	(\$m)		(%)	(c)	(c)	(\$m)	(x)	(x)	(%)
2015A	0.0	-1.9	-2.1	1	-0.8	0.0	0.4	n/a	n/a	0.0	
2016E	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	
2017E	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	
2018E	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	U/R	

Pan African Resources (PAF)				BUY							
Price	15.8p			Description: Gold mining and exploration, principally in South Africa.							
Target Price	24.0p										
Upside	52.0%										
Market Cap	£352.0m										
EV	£359.1m										
Shares in Issue	2,234.7m			Comment The company operates the Barberton and Evander gold mines and the Phoenix Platinum tailings retreatment plant, all in South Africa.							
Market	FTSE AIM All Share										
Sector	Mining										
Next Results	Finals September 2017										
%	1M	3M	12M								
Actual	+3.3	-1.6	+14.5	Analyst: Martin Potts (020 7220 0544)							
Relative	+5.5	-1.0	-2.2								
Y/e	Sales	Adj	Adj PBT		Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Jun	EBITDA					(FD)				EBITDA	
	(£m)	(£m)	(£m)		(%)	(p)	(p)	(£m)	(x)	(x)	(%)
2016A	207.2	73.6	63.6	21	2.7	0.8	7.9	5.7	4.9	5.2	
2017E	221.9	71.6	61.7	21	2.7	0.9	37.9	5.9	5.0	5.7	
2018E	218.6	66.8	57.3	21	2.5	0.9	65.8	6.4	5.4	5.7	
2019E	218.6	66.8	57.3	21	2.5	0.9	93.0	6.4	5.4	5.7	

Petra Diamonds (PDL)				BUY							
Price	131.8p			Description: Mining and exploring for diamonds in South Africa, Tanzania and Botswana.							
Target Price	203.0p										
Upside	54.0%										
Market Cap	£698.7m										
EV	£1,059.7m										
Shares in Issue	530.1m			Comment The company produced 3.7 million carats for the year to June 2016 and is on track with its major capex programmes. Diamond prices remain flat after a period of weakness.							
Market	Main										
Sector	Mining										
Next Results	Finals September 2017										
%	1M	3M	12M								
Actual	+0.6	-16.8	+26.7	Analyst: Martin Potts (020 7220 0544)							
Relative	+2.7	-16.3	+8.2								
Y/e	Sales	Adj	Adj PBT		Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Jun	EBITDA					(FD)				EBITDA	
	(\$m)	(\$m)	(\$m)		(%)	(c)	(c)	(\$m)	(x)	(x)	(%)
2016A	430.9	164.3	75.4	11	10.4	0.0	-387.8	16.3	8.3	0.0	
2017E	559.9	211.0	119.8	30	12.3	3.0	-438.7	13.7	6.4	1.8	
2018E	719.4	347.5	255.2	29	26.8	4.0	-374.1	6.3	3.9	2.4	
2019E	770.2	384.5	301.5	29	31.7	5.0	-179.4	5.3	3.5	3.0	

Shanta Gold (SHG)**BUY**

Price	9.0p
Target Price	U/R
Downside	n/a
Market Cap	£52.5m
EV	£82.4m

Description: Gold producer in Tanzania**Comment**

The Company is a gold producer and explorer operating in Tanzania

Shares in Issue	582.9m
Market	AIM
Sector	Mining
Next Results	Finals April 2017

Analyst: Martin Potts (020 7220 0544)

%	1M	3M	12M
Actual	+0.0	-19.1	+26.2
Relative	+2.1	-18.6	+7.8

Y/e	Sales	Adj	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Dec	EBITDA				(FD)				EBITDA	
	(\$m)	(\$m)	(\$m)	(%)	(c)	(c)	(\$m)	(x)	(x)	(%)
2015A	98.0	32.0	-18.1	4	-3.7	0.0	-39.0	n/a	3.3	0.0
2016E	106.4	56.9	11.4	30	1.5	0.0	-22.1	7.8	1.9	0.0
2017E	101.1	36.3	20.8	30	2.5	0.0	4.8	4.6	2.9	0.0
2018E	88.9	35.3	20.1	30	2.4	0.0	44.3	4.8	3.0	0.0

Weatherly International (WTI)**BUY**

Price	0.4p
Target Price	1.1p
Upside	175.0%
Market Cap	£4.2m
EV	£80.6m

Description: Produced and developer focusing on copper in Namibia**Comment**

The Tschudi copper mine in Namibia has now completed production ramp-up and is operating at designed capacity. The company's other mines are in care and maintenance.

Shares in Issue	1,060.8m
Market	AIM
Sector	Mining
Next Results	Finals September 2017

Analyst: Martin Potts (020 7220 0544)

%	1M	3M	12M
Actual	-38.5	-54.5	+11.1
Relative	-37.2	-54.3	-5.1

Y/e	Sales	Adj	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Jun	EBITDA				(FD)				EBITDA	
	(\$m)	(\$m)	(\$m)	(%)	(c)	(c)	(\$m)	(x)	(x)	(%)
2016A	63.7	15.6	-10.6	0	-1.0	0.0	-100.9	n/a	6.6	0.0
2017E	92.9	20.4	-0.4	0	0.0	0.0	-85.3	n/a	5.1	0.0
2018E	104.9	32.0	12.9	nm	1.2	0.0	-52.8	0.4	3.2	0.0
2019E	104.9	32.0	15.2	nm	1.4	0.0	-22.2	0.4	3.2	0.0

Wolf Minerals (WLFE)**HOLD**

Price	4.3p
Target Price	5.0p
Upside	18.0%
Market Cap	£46.1m
EV	£129.9m

Description: Developing the Drakelands tungsten and tin mine in Devon, UK**Comment**

The Hemerdon tungsten mine in Devon, UK, is now in production.

Shares in Issue	1,085.7m
Market	AIM
Sector	Mining
Next Results	Finals September 2017

Analyst: Martin Potts (020 7220 0544)

%	1M	3M	12M
Actual	-19.0	-12.9	-45.2
Relative	-17.3	-12.4	-53.2

Y/e	Sales	Adj	Adj PBT	Tax rate	Adj EPS	DPS	Cash	P/E	EV/	Yield
Jun	EBITDA				(FD)				EBITDA	
	(A\$m)	(A\$m)	(A\$m)	(%)	(c)	(c)	(A\$m)	(x)	(x)	(%)
2016A	8.6	-52.8	-63.1	0	-7.5	0.0	-87.5	n/a	n/a	0.0
2017E	22.5	-60.9	-87.9	0	-6.2	0.0	-157.6	n/a	n/a	0.0
2018E	48.3	-44.5	-73.1	0	-4.8	0.0	-201.3	n/a	n/a	0.0
2019E	96.0	-4.8	-34.1	0	-1.1	0.0	-184.6	n/a	n/a	0.0

Prices taken at close 18/04/17

*Denotes research client of finnCap. This research cannot be classified as objective under finnCap research policy.

^ This company and finnCap have agreed that finnCap will produce and disseminate research and finnCap may receive remuneration in return for this service.

EPS values are adjusted fully diluted.

NOTES

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