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TANZANIA
MINING REPORT

INCLUDES 5-YEAR FORECASTS TO 2020

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Tanzania Mining Report Q4 2016

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BMI Industry View

***BMI View:** Tanzania's gold sector will remain pressured by low gold prices, which will discourage production growth over coming years. Beyond our forecast period to 2020, the country's mining sector could diversify as various miners are looking to invest in the country's nickel, coal and uranium resources.*

Table: Tanzania - Mining Industry Value

	2014e	2015e	2016f	2017f	2018f	2019f	2020f
Mining Industry Value, USDbn	0.86	0.80	0.81	0.81	0.81	0.82	0.83
Mining Industry Value, USDbn, % y-o-y	-7.40	-3.50	-2.00	-0.40	0.10	0.60	2.20

e/f = BMI estimate/forecast. Source: UN Data, BMI

Table: Tanzania - Key Mining Projects

Commodities	Mine	Mine Type	Primary Company	Secondary Company	Notes
Coal - Thermal	Shikula	Open Pit	Syrah Resources Ltd (100%)	na	The project is under exploration stage.
Copper	Ibaga	Open Pit	Liontown Resources (100%)	na	Project is currently in exploration stage which shows high grades of copper and zinc products, drilling to start in 2014.
Coal - Thermal	Rukwa	na	Kibo Mining	na	Resources: 109 Mt (71.33 Mt Indicated/38.05 Mt Inferred).
Iron Ore	Liganga	na	NDC	Sichuan Hongda	July 2013 - The exploration findings have discovered over 364mnt of coal at the project. The project is expected to be completed by 2018.
Coal - Thermal	Mchuchuma	na	NDC	Sichuan Hongda	2013 - The project involves 3mnt per annum coal mine and is expected to be completed by 2017; July 2013 - The exploration findings have discovered over 219mnt of iron ore deposits.
Gold	Chunya	na	Shanta	na	Gold: 1.3moz resources. Production start date remains uncertain.

na = not available. Source: Company announcements, BMI

Latest Developments & Structural Trends

- Tanzania, currently Africa's fourth-largest gold producer, will see modest growth in output due to mine closures and a limited number of projects in the pipeline. Ongoing labour unrest, illegal mining, power shortages and gold price weakness will also temper the sector's production outlook. **Acacia Mining** (formerly **African Barrick Gold**) **and Resolute Mining** have ceased production at two mines due to depleted reserves. Acacia Mining and **AngloGold Ashanti** have warned about impending job cuts in the north of the country. Given that Tanzania relies upon gold for over 40.0% of its exports, the downturn in the sector is likely to have serious repercussions for the economy as a whole.

- Despite this, a number of new projects will ensure the country's production growth remains positive over the coming quarters. For instance, CATA Mining's Mara gold mine, the second largest project in the region, following Acacia Mining's North Mara gold mine, is expected to begin production in Q316. The miner has invested over USD54mn to develop the project. Further, **Shanta Gold** recorded gold production of 24,522 ounces (koz) at its New Luika gold mine in Tanzania in Q315. The record production was benefited from a 33% q-o-q improvement in gold ore grade efficiencies and a 25% increase in tons milled during the quarter.

- Shanta Gold has laid out a five-year mine plan for its New Luika mine in Tanzania. The new mine plan, which will include underground mining and an ongoing surface mining and tailings recovery project, estimates an average production of 84koz annually over the next five years. An underground extension to the mine will produce 310koz and add USD72mn to the project value. The underground development is estimated to have an up-front cost of USD38mn. Under the plan, the open pit will run until 2018. New Luika is expected to produce a total of 443koz of gold during the 2016-2022 period, of which 310,000oz will be from underground, 133koz from open pit and 19koz from the tailings project.

SWOT

SWOT Analysis

Strengths	▪ Low level of risk with regards to trade and investment, crime and security, and labour and logistics capabilities. ▪ The majority of mineral deposits are high-grade when compared globally, which provides companies with greater margins. Vast swathes of untapped coal reserves have only just started attracting interest.
Weaknesses	▪ Widespread corruption, an inefficient and unreliable legal system, and a varying level of government accountability and transparency pose operating difficulties for firms. • Prohibitive mining code, with high taxes and high levels of government involvement. This makes Tanzania one of the most taxed countries when compared to east and southern Africa. • Inadequate infrastructure, which is unable to meet the demands of the mining sector. This will likely deteriorate as the mining sector grows, unless there is substantial investment in electricity supplies and transport routes.
Opportunities	▪ The country's mining sector will remain attractive to foreign investment from China, as China seeks to gain control of gold and nickel assets in Africa to fill its structural deficit. ▪ Uranium mining could be developed over the long term, as China and India seek to develop their nuclear power capacity.
Threats	▪ Continued gold price declines could hurt miner's profit margins and halt current operations or stop new projects from coming online altogether. ▪ A collapse in gold prices could place financial strains on mining operations. ▪ A surge in illegal mining and trespassing by local citizens on mining operations could lead to elevated operational and security risks at certain mines.

Industry Forecast

Gold: Growth To Remain Slow

BMI View: *Tanzania's gold production growth will slow as subdued gold prices will slow new projects coming online. In addition, ongoing power shortages will continue to pose significant risk to miners operating in the sector. Despite this, production will be supported by a number of ongoing projects.*

Latest Developments

- Tanzania, currently Africa's fourth-largest gold producer, will see modest growth in output due to mine closures and a limited number of projects in the pipeline. Ongoing labour unrest, illegal mining, power shortages and gold price weakness will also temper the sector's production outlook. **Acacia Mining** (formerly **African Barrick Gold**) and **Resolute Mining** have ceased production at two mines due to depleted reserves. Acacia Mining and **AngloGold Ashanti** have warned about impending job cuts in the north of the country. Given that Tanzania relies upon gold for over 40.0% of its exports, the downturn in the sector is likely to have serious repercussions for the economy as a whole.

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Table: Gold Production Forecast (Tanzania 2014-2020)

	2014e	2015e	2016f	2017f	2018f	2019f	2020f
Gold Mine Production, moz	1.48	1.49	1.52	1.53	1.55	1.58	1.62
Gold Mine Production Volumes, % y-o-y	7.50	1.30	1.50	0.90	1.40	1.90	2.40

e/f = BMI estimate/forecast. Source: USGS, BMI

Structural Trends

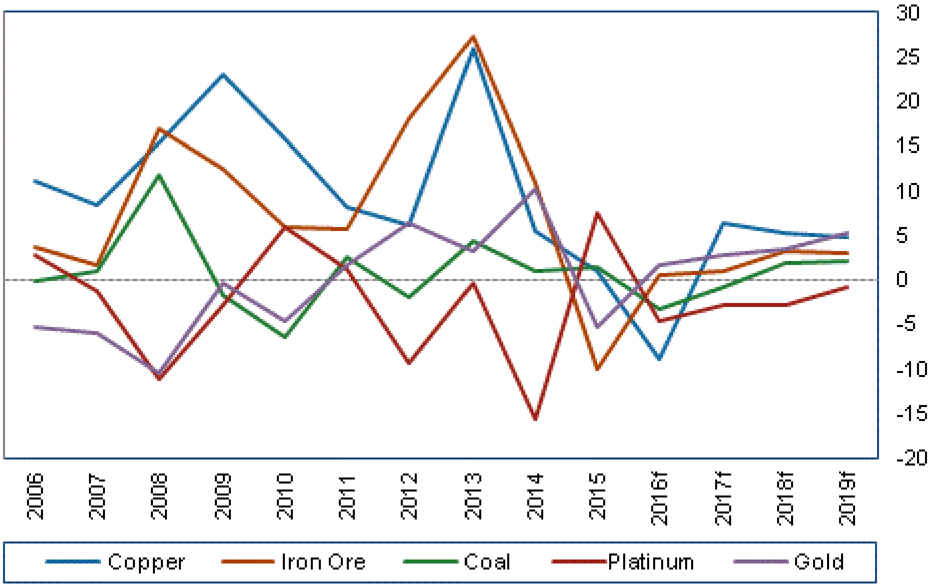
SSA's Growth To Find Floor In 2016

Regionally, Tanzania will follow a similar muted growth trajectory in comparison to the country's regional peers. Although Sub-Saharan Africa (SSA) holds significant growth potential due to the region's vast reserves of high-grade minerals, mine output growth will continue to face headwinds from a combination of low mineral prices, elevated production costs and a slowdown in capital expenditure (capex) over our forecast period to 2020. We forecast SSA's mineral production growth (coal, copper, platinum, gold, iron ore) to average just 0.9% annual growth during 2016-2020, significantly lower than the average annual figure of 4.2% during 2011-2015 (*see: 'Africa Mining: The Four Key Themes', April 4*).

Within SSA, gold production will be a relative growth bright spot, averaging annual growth of 3.3% during 2016-2020. The key driver behind the sector's strong growth is expanding output from a number of major projects, most notably, the Kibali mine, a joint venture of **Randgold Resources** and **AngloGold Ashanti** in the Democratic Republic of Congo (DRC) (*see: 'Gold: Growth To Remain Strong', March 1*). The DRC and to a lesser extent Zambia and Mozambique will be the key mining bright spots, with mining industry value growing in those countries by USD2.0bn, USD0.3bn, USD0.2bn during 2016-2020, respectively.

Growth To Hit Bottom In 2016

Sub-Saharan Africa - Average Annual Regional Mine Production Growth (%)



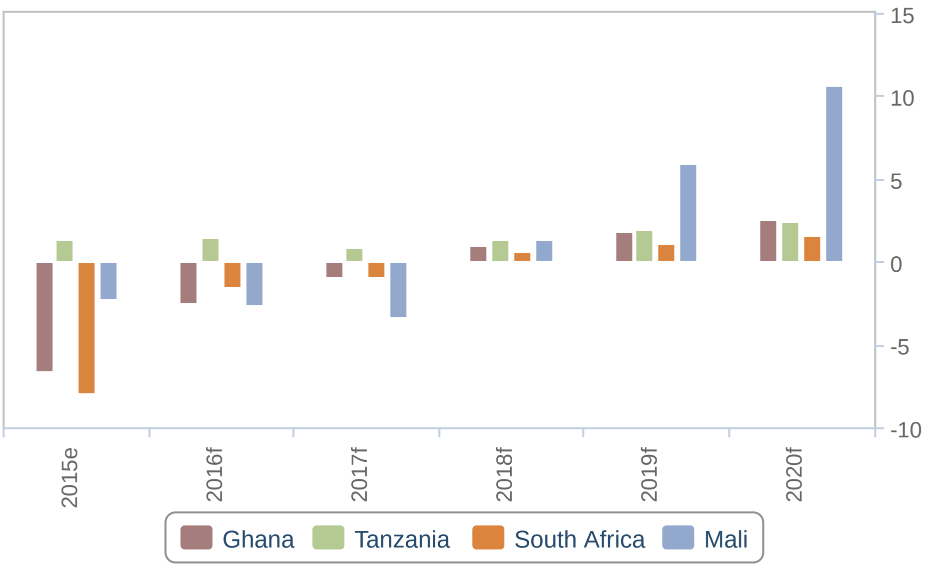
Source: USGS, BMI

Modest Growth Due To New Projects

Despite the ongoing difficulties for the country's gold sector, other projects will ensure a modest production growth outlook over our forecast period to 2019. For instance, Acacia's North Mara mine is expected to see ore grades decline marginally as the Gokona pit transitions from an open pit to underground operation. Yet once the underground portion starts commercial production, higher ore grades are expected. Thus, output declines in the shorter term are expected to abate in the years ahead. **Lake Victoria Mining Company**, a US-based exploration and development firm, has seven gold projects in development in Tanzania, though production dates have yet to be announced. Additionally, Tanzania's state-owned Stamigold Biharamulo mine is expected to increase output to 40,000 ounces (koz), up from 10.6koz in 2014. We forecast annual gold production to grow from an estimated 1.52 million ounces (moz) in 2016 to 1.62moz in 2020.

Subdued Growth Ahead

Select African Countries - Gold Production Growth y-o-y (%)



e/f = BMI estimate/forecast. Source: USGS, BMI

Challenges To Curb Growth

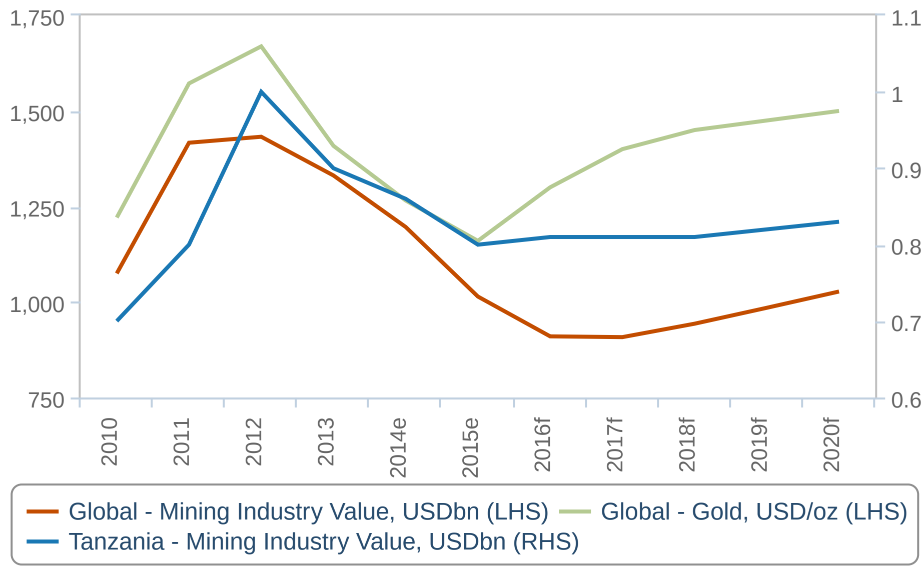
Tanzania's gold output growth will continue to be hindered by the country's inadequate infrastructure Tanzania's power infrastructure continues to be underdeveloped and plagued by inefficiencies due to under-investment over the past decade. As a result, World Economic Forum scored Tanzania 132 out of 144 countries for quality of electricity supply in 2014. In addition, the country's power generation relies heavily on costly natural gas imports and unreliable hydropower.

Besides power shortages, the threat of strikes remains a significant downside risk given the fraught relations between workers and employees. Weakness in gold prices and elevated cash costs will mean miners find themselves increasingly unable to meet demands for wage increases. We forecast gold prices to average USD1,350/oz during 2016-2017, significantly lower than the USD1,418/oz average over 2011-2015.

However, the gold sector's modest growth outlook is supported by Chinese investment entering the country's transport sector. The Chinese government will provide investment to construct a new port in the town of Bagamoyo. The development, worth an estimated USD10bn will see a new port, export processing zone and interlinking rail and road infrastructure built, in an attempt to relieve some of the pressure on the congested port of Dar es Salaam.

Prices To Head Gradually Higher

Global - Gold Price, Mining Industry Value & Tanzania Mining Industry Value



f = BMI forecast. Source: National sources, BMI

Industry Risk Reward Ratings

Tanzania Risk Reward Index

Tanzania sits close to the bottom in our Q416 Africa Mining Risk/Reward Index, ranking 14th out of 16 countries, with an overall score of just 33.4 out of 100.

Rewards

Industry Rewards

In Q416, Tanzania scores a poor 22.5 out of 100 for Industry Rewards. This is due to the small contribution of the mining sector to GDP and our outlook for contraction in the country's mining industry value.

Country Rewards

Tanzania's score of 44.9 out of 100 for Country Rewards is due to the country's weak labour market and physical infrastructure. Tanzania's tax regime for miners is also relatively burdensome, lowering its score in this category.

Risks

Industry Risks

Tanzania's score remains at 47.0 out of 100 for Industry Risks in Q416. An uncompetitive regulatory framework combined with weak global gold prices weakens the country's score in this category.

Country Risks

Tanzania scores 49.6 out of 100 for Country Risks. Although the country's long-term policy continuity is stable, Tanzania's long-term economic rating is weak. In addition, corruption and the country's complex bureaucracy remain a major deterrent to investment.

Africa - Risk/Reward Index

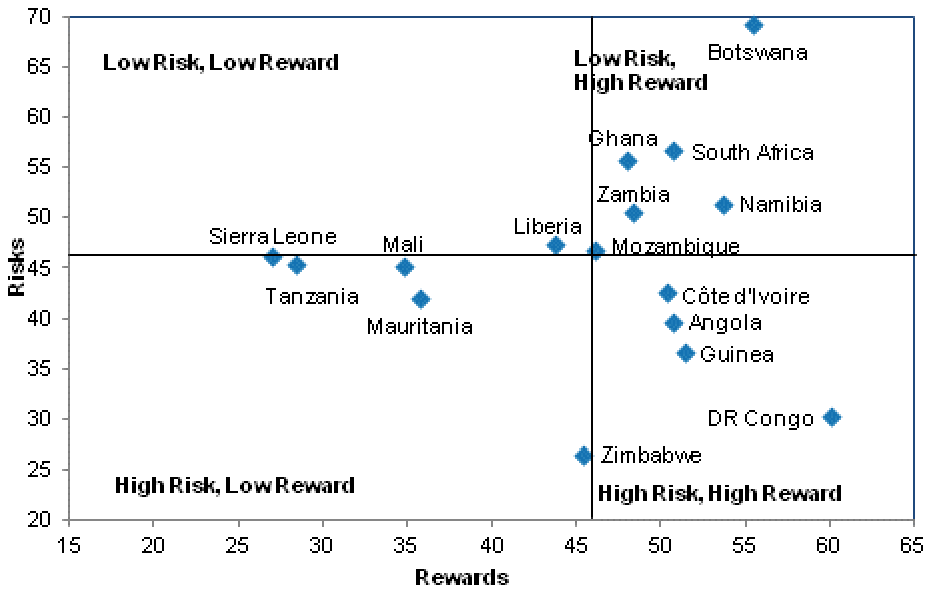
BMI View: *Africa will continue to attract investment due to the region's vast mineral reserves. However, persistently low commodity prices and deteriorating regulatory environments and will dampen the region's investment outlook.*

Key Takeaways

- Downward revisions to our global commodity price forecasts have reduced reward scores across the board.
- Africa's vast mineral reserves will continue to offer significant rewards to investors. This is illustrated by the concentration of countries in the two right-hand quadrants (high reward) of our Africa Mining Risk/Reward chart (*see below*).
- Operational risks within African mining sectors remain above the global average.
- Botswana is the region's top performer in our Africa Mining Risk/Reward Index due to the country's advantage of low corruption and an excellent political framework. Despite this, Botswana's score is undermined by a lack of diversity, given that mining activity is centred heavily around the diamond sector.
- Zambia's increasing mineral policy uncertainty is becoming the greatest risk for mining sector investment in the country.

Risks To Remain Elevated

Africa - Mining Risk (vertical) & Reward (horizontal axis)



Note: Scores are out of 100, with 100 the best. The intersection of the vertical and horizontal lines represents the global average. Source: BMI

Latest Revisions

Botswana - Botswana's industry rewards fell from 57.5 to 55.0 out of a 100 in Q316. The key reason for the downwards revision is that the expansion of Botswana's mining industry will be tempered by weakness in global diamond prices over the next few quarters, with the country's largest producer, **Debswana**, revealing plans to scale back production at two of its mines over the next three years.

Angola - Angola's country risks improved from 23.2 to 28.4 out of a 100 for Q316. The government looks to mineral extraction as a means of diversifying the economy and easing its reliance on oil and gas exports. Diamonds will remain the mainstay of the industry, with state-owned mining company currently increasing production to mitigate recent price falls. A lack of sufficient mining-related infrastructure remains an ongoing obstacle to mining activity in the country and the government is looking increasingly to source much-needed investment by exploring partnerships overseas. We expect this to be a long-running theme which should create opportunities for investors and new entrants over the next few years.

Table: Africa - Mining Risk/Reward Index

	Rewards			Risks				
	Industry	Country	**Rewards**	Industry	Country	**Risks**	**Risk/ Reward Index**	**Regional Ranking**
Botswana	55.0	57.6	**55.5**	69.2	69.4	**69.3**	**59.6**	**1**
Namibia	55.0	48.6	**53.7**	45.2	57.6	**51.4**	**53.0**	**2**
South Africa	47.5	63.5	**50.7**	50.0	63.7	**56.8**	**52.5**	**3**
DR Congo	70.0	20.2	**60.0**	41.2	19.4	**30.3**	**51.1**	**4**
Ghana	45.0	60.2	**48.0**	51.6	59.8	**55.7**	**50.3**	**5**
Zambia	45.0	61.8	**48.4**	51.8	49.2	**50.5**	**49.0**	**6**
Côte d'Ivoire	55.0	31.8	**50.4**	55.8	29.5	**42.6**	**48.0**	**7**
Angola	55.0	33.5	**50.7**	51.0	28.4	**39.7**	**47.4**	**8**
Guinea	55.0	37.3	**51.5**	47.8	25.5	**36.7**	**47.0**	**9**
Mozambique	45.0	50.4	**46.1**	50.4	43.0	**46.7**	**46.3**	**10**
Liberia	45.0	38.5	**43.7**	49.0	45.7	**47.3**	**44.8**	**11**
Zimbabwe	45.0	46.9	**45.4**	34.0	18.9	**26.4**	**39.7**	**12**
Mali	37.5	23.9	**34.8**	48.2	42.2	**45.2**	**37.9**	**13**
Mauritania	37.5	29.0	**35.8**	51.2	32.8	**42.0**	**37.7**	**14**
Sierra Leone	27.5	32.1	**28.4**	46.4	44.2	**45.3**	**33.5**	**15**
Tanzania	22.5	44.9	**27.0**	45.0	47.4	**46.2**	**32.7**	**16**

Note: Scores are out of 100, with 100 the best. Last updated: April 4, 2016. Source: BMI

Regulatory Development

BMI View: *Tanzania's mining sector will remain uncompetitive, compared to the country's regional peers, as a result of the government's decision to raise taxes on the industry. The country's mining code will become increasingly problematic as weak commodity prices will increasingly pressure miners' profit margins.*

Tanzania's mining code will limit new entrants from entering the country's mining sector. The code will be a strong push factor for existing miners to focus on their assets elsewhere. The government implemented the mining code in 2010 at the height of the commodity price boom. The code sought to increase local ownership of mines and move the sector away from foreign miner control. The code awarded the Minister of Mines the right to make regulations relating to foreign mining companies operating in Tanzania to list on the local stock exchange.

A rise in royalty rates on gold exports, implemented in July 2012, will continue to weigh on producers especially as gold prices continue to decline. The law increased royalty rates from 3% of netback value to 4% of gross value in a bid to increase government revenue from Tanzania's mineral resources. The law also stipulated companies were required to pay the government 0.3% of annual turnover, an increase from the previous requirement to pay a maximum of USD200,000 per annum.

The decision in Q413 to cancel over 100 mining licences provides further evidence of difficulties in the regulatory environment. Then-President Jakaya Kikwete stated that ownership of mineral rights without developing the associated deposits was against the law. The cancelled rights will be repossessed and re-awarded to small-scale miners.

The Mining Code

The Tanzanian mining industry is administered by the Ministry of Energy and Minerals. The 2010 Mining Act, approved by parliament in April of that year, will be the principal legislation governing the application and grant of mineral rights (mining and exploration licences) and the trading of minerals. The main points of the new law are summarised below.

- Mineral rights and licences for small-scale mining operations (involving capital expenditure of less than USD100,000) will be reserved exclusively to Tanzanian citizens and corporate bodies under the exclusive control of Tanzanian citizens.

- Licences to mine for gemstones are only to be granted to Tanzanians, except for cases where the minister of energy and mines determines that outside skills, technology or investment are required. However, the participation of a foreign investor would have to be below 50%.
- The Act gives the minister power to prescribe a standard Mining Development Agreement form for all projects exceeding USD100mn.
- The Act gives the minister power to make regulations authorising the government of Tanzania to participate in the conduct and financing of mining operations and to give the government a free carried interest in all mining projects, the level of which is not set by statute, but rather by negotiation between the government and the relevant mineral rights holder.
- Royalties will now be levied on the gross value of minerals, rather than net as before.
- The Act requires a greater degree of disclosure by the holders of mineral rights in respect of reports, records and general information.

Royalty rates have also increased: on precious and base metals from 3% to 4%; on diamonds from 5% to 6%; with a flat rate of 7% for uranium and a standard 3% for other minerals.

A reconnaissance licence is issued for one year and is renewable for a period not exceeding a year. The reconnaissance licence holder may apply for a prospecting licence covering all, or part of the area. A prospecting licence is issued for a period of up to three years and is renewable twice for a period of up to two years each time. At each renewal, at least 50% of the area is relinquished. A mining licence will only be granted to the holder of a prospecting licence over the area. The licence is granted for a period of 25 years or the life of the mine. It is renewable for a period not exceeding 15 years.

Section 15 of the Mining Act defines the terms and conditions to be included in a mineral licence. Sections 38 (5) and 64 of the Mining Act 1998 describe the framework of environmental considerations during the licensing process. The act requires commissioning of independent consultants of international standing to be shortlisted by the project proponent, and approved by the government to undertake environmental impact assessment on the proposed mining operations. Tanzania has established a National Environment Management Council, which necessitates segment-specific requirements to be addressed in mineral titles.

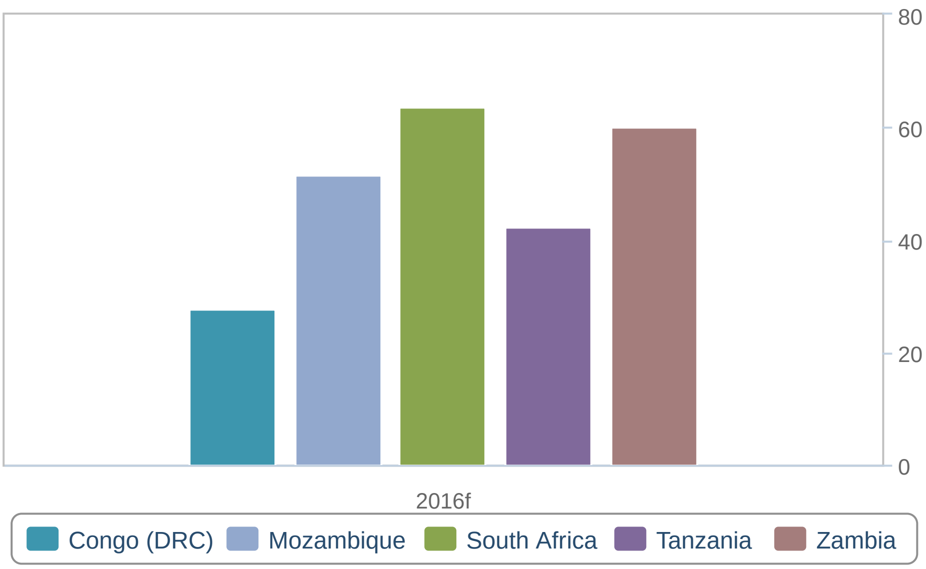
Trade & Investment Risk Analysis

Economic Openness - Tanzania benefits from vast natural resources that offer numerous investment opportunities in the extractive, agricultural and tourism sectors. We forecast robust long-term economic growth as the country looks to benefit from its nascent offshore gas sector and the investment influx aimed at developing this sector and infrastructure projects. Tanzania also benefits from its membership with the East African Community that fosters regional economic integration and trade. However, the dearth of critical infrastructure and inadequate logistics networks have resulted in low industrialisation in the country and low foreign direct investment inflows in comparison to regional peers such as Kenya.

Capital goods imports will continue to dominate trade in our medium- to long-term forecast. Overall trade volumes remain low and the trade deficit is set to widen with imports outpacing exports. As the country relies heavily on its agricultural and mining sectors, businesses face significant medium-term risks due to adverse weather conditions (namely El Niño), subdued commodity prices and weak global demand for commodities. Consequently, **BMI** awards Tanzania a score of 42.3 out of 100 for Economic Openness, placing it in 17th place out of 48 states in the Sub-Saharan Africa (SSA) region, and 128th out of 201 states worldwide.

Behind Regional Peers

Select Countries - Economic Openess Risk Index



f = BMI forecast. Source: BMI Operational Risk Index. See Operational Risk Service For More Detail

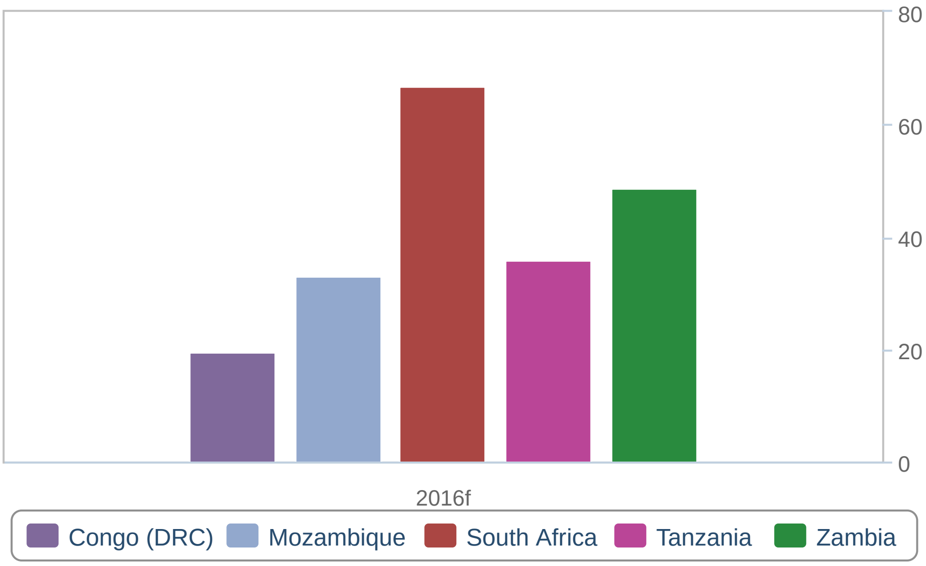
Government Intervention - Bureaucratic procedures for licenses and permits continue to be burdensome and time-consuming and this is highlighted by the protracted time it takes to open and close a business, register property and obtain construction permits. According to the World Bank's Doing Business report it takes on average three years to close a business. The recovery rate for creditors on insolvent firms is only

21.9 US cents on the dollar with judgments typically made in local currency which is subject to volatility. This significantly increases risks to investment in the country. Furthermore, business registration fees and charges for foreign companies are significantly higher than for domestic companies. Corruption is endemic, though measures to combat it have been ramped up since 2015 and are applied impartially to foreign and domestic investors; rent-seeking persists in government procurement, privatisation, taxation, and customs clearance.

Additionally, investors continue to face challenges receiving payment for services rendered for government sponsored projects. Lack of court capacity remains an issue as investment-related disputes in Tanzania can be protracted by up to four years, despite the establishment of a computerised arbitration system. Intellectual property protection is low and the legal risks are further compounded by inadequate legal penalties for counterfeiters. **BMI** therefore gives Tanzania a score of 34.2 out of 100 for Legal Risks, placing it 21st regionally out of 48 SSA states. With this score, Tanzania places behind Mozambique and Zambia, but ahead of Kenya.

Significant Regulatory Risk

Select Countries - Government Intervention Risk Index



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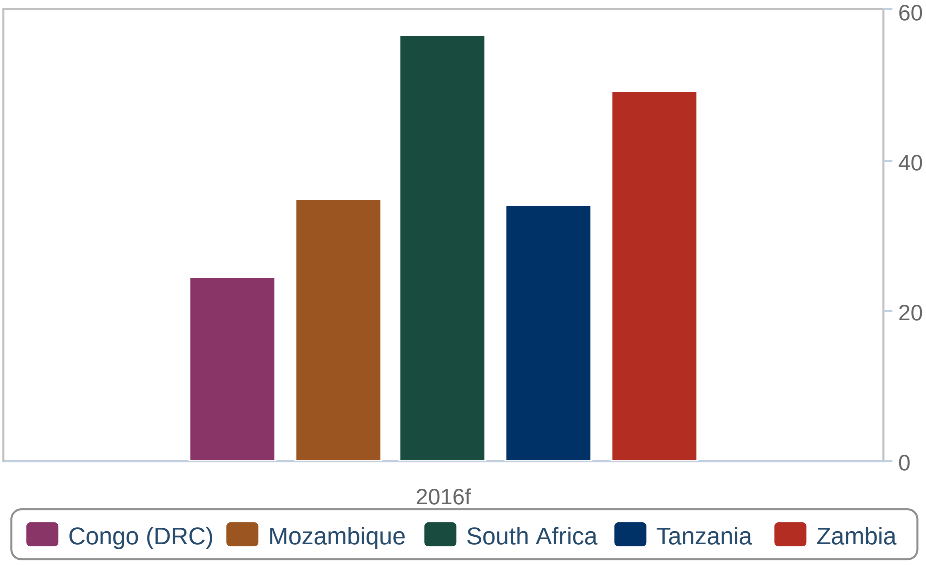
Legal - Perceptions of widespread corruption in the judiciary also extend to other key government institutions in the country. This point is exemplified by the fact that Transparency International's 2013 Global Corruption report concluded that with 56% of people surveyed having paid a bribe to at least one state and non-state official, including religious groups, the media and political parties. Accountability is also low among government officials; according to the Bertelsmann Stiftung Transformation Index 2014, it is estimated that 20% of the state's annual budget is lost to corruption.

As a result of this state of affairs, firms face numerous risks, such as unfair competition with local firms and a lack of visibility within courts, and government decisions that diminish the appeal of the Tanzanian business environment. **BMI** gives Tanzania a score of 35.2 out of 100 for Legal Risks, placing it 19th regionally among its SSA peers. With this score, Tanzania places between Mauritania and Mali with scores of 36.1 and 34.5, respectively.

Legal System To Remain Weak

Select Countries - Legal Risk Index



f = BMI forecast. Source: BMI Operational Risk Index. See Operational Risk Service For More Detail

Commodities Forecast

Commodities Outlook

Table: BMI Commodities Price Forecasts

Commodity	Unit	Current Price	YTD (% Chg)	1 Year (% Chg)	2015 (ave)	YTD (ave)	2016f (ave)	2017f (ave)
Agriculture								
Class III Milk (Third-Month)	USD/cwt	16.92	19.3	1.9	15.75	14.41	13.30	14.50
Cocoa (London)	GBP/tonne	2,403	6.2	16.5	2,098	2,228	2,130	2,150
Coffee	USc/lb	139	9.6	4.0	132	127	130	135
Corn	USc/bushel	324	-9.8	-17.0	377	370	380	410
Cotton	USc/lb	72	13.2	13.5	63.3	63.1	63.0	66.0
Feeder Cattle	USc/lb	150	-10.0	-29.9	202.3	150.8	na	na
Lean Hogs	USc/lb	67	12.2	-12.5	69	73.1	na	na
Live Cattle	USc/lb	117	-13.9	-22.2	146	125.9	na	na
Palm Oil (Third-Month)	MYR/tonne	2,500	0.6	23.2	2,235	2,526	2,500	2,350
Rough Rice	USD/cwt	10	-16.7	-18.8	11.1	10.7	10.7	11.0
Soybean	USc/bushel	1,016	16.6	-2.8	945	985	975	1,000
Sugar #11	USc/lb	20	31.9	90.2	13.1	16.47	16.00	16.40
Wheat	USc/bushel	425	-9.7	-19.2	507	459	500	495
Energy								
Coal, Thermal (Newcastle)	USD/tonne	67.0	32.4	11.6	62.1	53.1	53.0	57.0
Brent Crude	USD/bbl	44.5	19.2	-11.8	53.6	42.1	46.5	57.0
OPEC Basket, Oil	USD/bbl	41.1	31.4	-12.5	49.5	37.3	43.5	54.0
WTI Crude	USD/bbl	42.2	13.9	-6.2	48.8	40.5	46.0	57.0
Natural Gas (HH)	USD/mnBtu	2.6	10.7	-9.0	2.63	2.23	2.43	2.85
Natural Gas (NBP)	USD/mnBtu	4.3	-11.8	-31.8	6.49	4.38	4.00	4.35
JKM LNG	USD/mnBtu	5.8	-15.2	-27.5	7.47	4.98	4.50	3.90
Metals								
Aluminium	USD/tonne	1,648	9.3	1.8	1,681	1,567	1,600	1,625
Copper	USD/tonne	4,824	2.5	-9.1	5,493	4,731	4,900	5,000
Gold	USD/oz	1,346	26.8	21.8	1,160	1,244	1,300	1,400
Iron Ore (62% CFR, Qingdao)	USD/tonne	61	39.0	7.4	55.5	53	53	45
Lead	USD/tonne	1,832	2.2	4.2	1,794	1,751	1,750	1,800
Nickel	USD/tonne	10,825	22.7	-2.9	11,877	9,029	9,000	10,500
Palladium	USD/oz	731	30.1	20.6	690	570	na	na

BMI Commodities Price Forecasts - Continued

Commodity	Unit	Current Price	YTD (% Chg)	1 Year (% Chg)	2015 (ave)	YTD (ave)	2016f (ave)	2017f (ave)
Platinum	USD/oz	1,184	32.8	19.6	1,054	992	na	na
Silver	USD/oz	20	46.5	32.2	15.7	17	na	na
China Domestic Hot Rolled Steel Average	CNY/tonne	2,749	37.9	29.3	2,244	2,496	na	na
Tin	USD/tonne	18,525	27.3	17.4	16,029	16,481	16,500	17,500
Zinc	USD/tonne	2,286	42.1	21.5	1,938	1,883	1,900	2,050

na = not available. Note: Correct as of August 10 2016. Source: BMI

Competitive Landscape

BMI View: *Major gold miners will continue to dominate Tanzania's mining sector over the coming years. The country's high regulatory risk will limit new entrants from entering the sector.*

Key Players

Gold Sector:

Acacia Mining - Formerly known as **African Barrick Gold** (ABG), Acacia Mining is a separate, subsidiary company of global gold miner **Barrick Gold**. ABG was spun off from Barrick in February 2010. Its mining portfolio covers three mines in north-west Tanzania: North Mara, Bulyanhulu and Buzwagi. In Q414, the company announced it would begin underground mining at North Mara, which was previously opencast.

AngloGold Ashanti - Operates in the north of the country, producing gold from its mine at Geita. Geita is the largest contributor to AngloGold Ashanti's gold production outside the company's native South African mines. According to the Tanzania Minerals Audit Agency, the Geita mine produced 447 thousand ounces (koz) in 2014, accounting for 32.2% of the country's total gold output.

Helio Resources - Engaged in exploration and drilling for its proposed SMP gold project in western Tanzania.

IMX Resources - Australian company engaged in exploration and mining in Tanzania. It has interests in platinum, nickel, copper and gold. Its projects in Tanzania include the Mibango and the Luwumbu projects.

Lake Victoria Mining Company - Focused on developing gold mines in Tanzania's Lake Victoria Greenstone Belt. The company current has seven projects under development.

Diamond Sector:

Midlands Minerals Tanzania - Subsidiary of Canada-based **Midlands Minerals**, a gold- and diamond-mining company. The parent company has gold properties in Ghana, as well as gold and diamond properties in Tanzania. Its properties in Tanzania include the Itilima gold and diamond property and the New Kilindi gold property. The Itilima gold property is 75%-owned by Midlands and 25% by a local Tanzanian partner. At present, the company is prioritising its operations in Ghana over those in Tanzania.

Petra Diamonds - The firm owns the Williamson mine, known for its world-famous bubblegum pink diamonds. Petra is Tanzania's only major diamond producer.

Table: Tanzania - Main Mining Companies

Company	Sub-Sector	Fiscal End Year	Market Cap (USDmn)	Employees	Revenue (USDmn)	Net Income (USDmn)	Capex (USDmn)	Profit Margin (%)
Anglo American PLC	Diversified Metals & Mining	12/2015	14,568	91,000	20,455	-5,624	4,053	-27.5
Barrick Gold Corp	Gold	12/2015	21,761	17,260	9,029	-2,838	1,713	-31.4
Petra Diamonds Ltd	Precious Metals & Minerals	06/2015	826	4,428	425	49	267	11.4

na = not available/applicable. Source: Bloomberg

Company Profile

Barrick Gold - Q4 2016

BMI View: *Barrick Gold will remain the leading global gold miner, supported by high-grade reserves and competitively low operating costs. Improving gold prices will support the firm's efforts to rein in debt and increase profit margins.*

SWOT Analysis

Strengths	▪ World's largest gold mining company gives it significant economies of scale, able to maintain output levels and reduce costs despite weak prices. ▪ Retains largest proven and probable gold reserves of 92.0moz, with average reserve grade of 1.32 grams per tonne. The average reserve grade at core mines is even higher, at 1.88 grams per tonne. ▪ Strong production exposure to stable developed markets in US and Canada, and diversified production across emerging markets in Africa and Latin America.
Weaknesses	▪ Full-year capital expenditure (capex) fell by 30.0% y-o-y in 2015, hindering ability to grow reserves and develop assets, and 2016 guidance remains slightly lower still, between USD1.4-1.6bn. ▪ Although total debt declined in 2015, it remains elevated, around USD6.8bn. The total debt/equity ratio reached 105x in 2015, its highest level on record. Elevated debt and high interest expenses limits cash flow and may weight on future investments. ▪ In March, the firm was fined USD9.8mn and nine current and former employees face criminal charges over the cyanide spill at the Veladero mine in Argentina in September 2015.
Opportunities	▪ Improving gold prices will increase profit margins and support growth. We forecast gold to average USD1,275/oz in 2016 and USD1,350/oz in 2017. ▪ Company's size lends it financial flexibility to acquire small gold mining firms at a time when valuations remain subdued.

SWOT Analysis - Continued	
Threats	▪ Pascua-Lama project on the Chilean/Argentine border remains suspended and the Cerro Casale project in Chile remains delayed, limiting two potential new sources to expand the company's reserves. ▪ Firm is vulnerable to potential implementation of stricter mining regulations, for example in Argentina, following the September 2015 cyanide spill at the Veladero mine.

Table: Select Commodities - Price Forecasts

	2014	2015	2016f	2017f	2018f	2019f	2020f
Gold, USD/oz	1,266	1,160	1,275	1,350	1,400	1,450	1,500
Gold price, ave, % y-o-y	-10.2	-8.3	9.9	5.9	3.7	3.6	3.5
Copper price, three-month, USD/tonne, ave	6,830	5,493	4,900	5,000	5,200	5,300	5,500
Copper price, three-month, ave, % y-o-y	-7.1	-19.6	-10.8	2.0	4.0	1.9	3.8

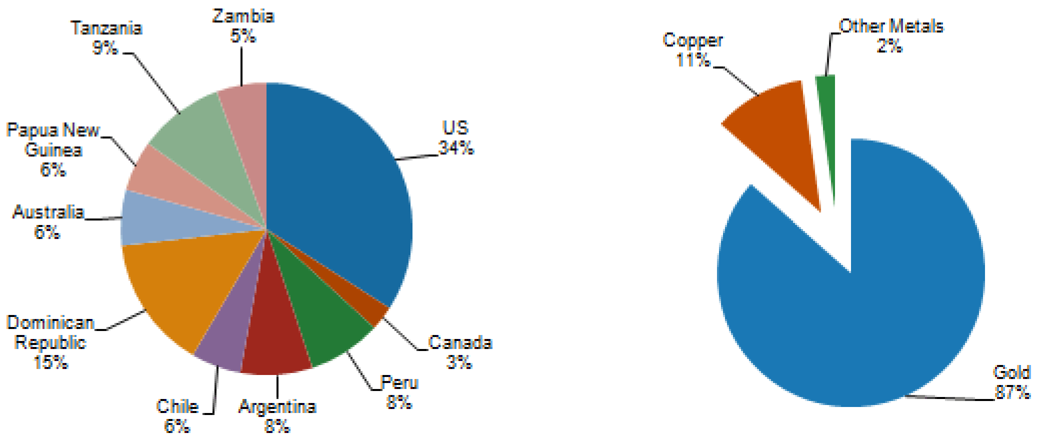
f = BMI forecast. Source: Bloomberg, BMI

Company Overview

Toronto-based Barrick Gold remains the world's largest gold mining company by mined output, with 6.1moz reported production in 2015. The firm operates 14 mines in 10 countries, along with several projects in development. The Americas is Barrick's largest revenue base, generating approximately 62.0% of total production in 2015. The firm remains particularly focused on developing its Goldrush project in the US state of Nevada.

US, Gold To Dominate Revenue Stream

Barrick Gold - Revenue By Geography (LHC) & Segment (RHC), 2015



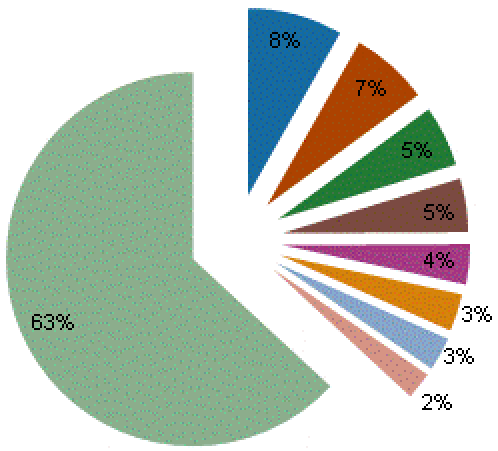
Source: Bloomberg

Competitive Landscape

Globally, gold miners will continue to prioritise cutting costs and shedding non-core assets, as the rebound in gold prices over the coming quarters will be modest. Chinese firms in particular will look to purchase foreign, high-quality assets offloaded by overleveraged majors. Barrick Gold, Newmont Mining, AngloGold Ashanti and Goldcorp will remain the largest producers, with the top 10 miners accounting for approximately one-quarter of global output.

Further Consolidation Ahead

Global Gold Market Share By Production Volume (%), 2015



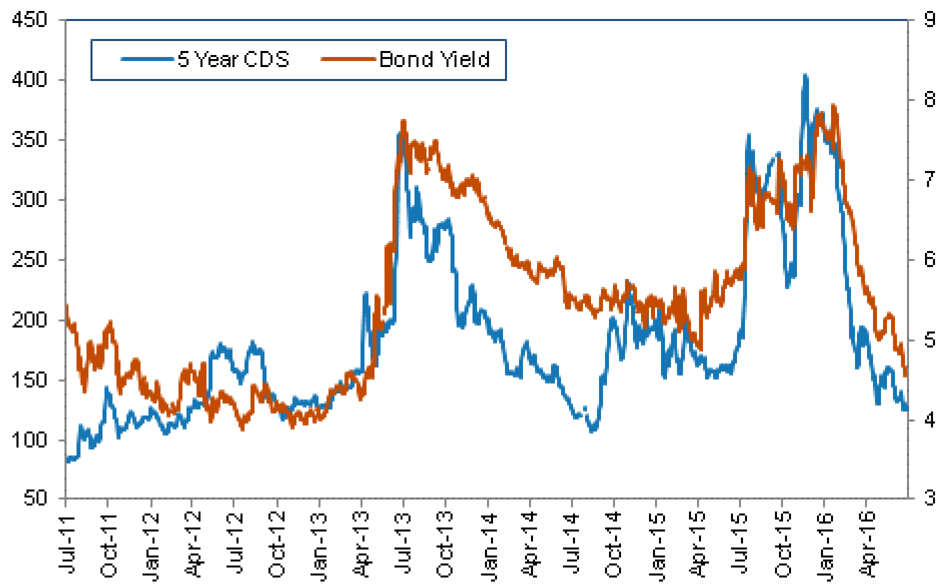
Source: Bloomberg, BMI

Latest Financial Results

In Q116, Barrick reported EBITDA of USD696mn and a net loss of USD83mn. The firm achieved a fourth consecutive quarter of positive free cash flow, with USD181mn. Barrick reported year-to-date debt reduction of USD842mn and remains on track to reduce debt by USD2.0bn over the 2016 fiscal year. The firm produced 1.3moz of gold, a slight decline from 1.4moz in Q115 due to divested mines. Barrick's costs remain globally competitive and in line with annual targets, with all-in sustaining costs of USD706/oz and cash costs of USD553/oz for the quarter.

Debt Outlook To Improve

Barrick Gold - 2025 USD Bond Yield (%, LHS) & 5 Year CDS (RHS)



Source: Bloomberg, BMI

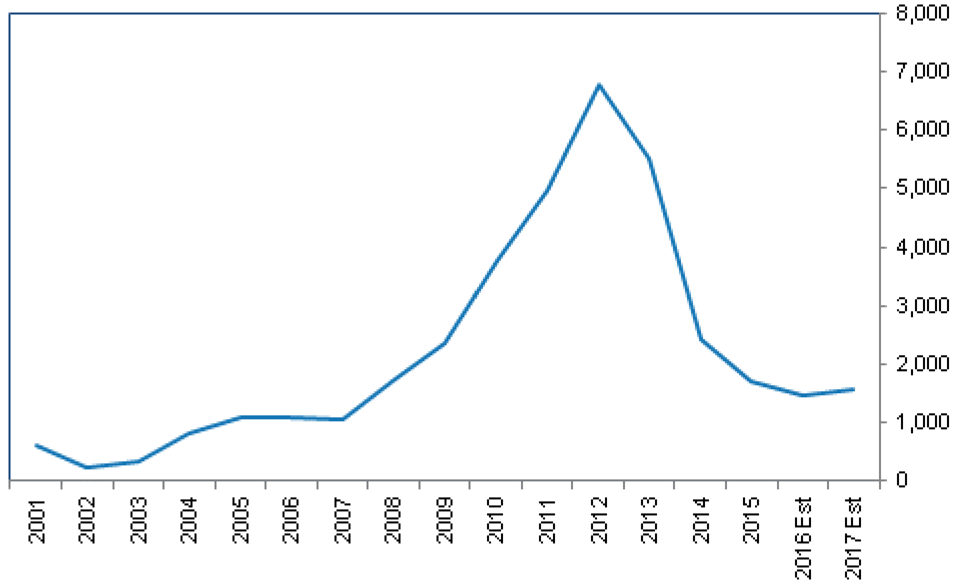
Company Strategy

Barrick will continue to prioritise free cash flow growth and improving its asset portfolio to better withstand volatile gold prices over the coming years. The company projects lower annual copper and gold production in 2016 on the back of decreasing capital expenditure (capex) and mine divestitures. 2016 capex is expected to be between USD1.4-1.6bn, down from USD1.7bn in 2015 and significantly lower than 2.4bn in 2014. Barrick Gold will continue to lower debt levels, reporting a USD3.1bn reduction in 2015 and estimating at least a USD2.0bn decline in 2016, through selling non-core assets and creating new joint ventures and partnerships. The firm will also remain cost competitive, targeting 2016 average gold cash costs between USD540-580/oz, down from USD596/oz in 2015.

Optimising the asset portfolio will continue to be a key strategy for reducing debt and operating costs for Barrick. On January 11, Barrick completed the sale of the firm's 50% stake in Round Mountain and the wholly-owned Bald Mountain mine in Nevada to Kinross Gold for USD610mn. In December 2015, Barrick sold its 70% stake in the Spring Valley project and wholly-owned Ruby Hill mine in Nevada to subsidiaries of Waterton Precious Metals Fund for USD110. Also in December 2015, the firm completed the sale of a 50% stake in the Zaldivar mine in Chile to Antofagasta.

Austerity To Remain

Barrick Gold - Capital Expenditures (USDmn)



Est = estimate. Source: Bloomberg

Table: Barrick Gold - Key Projects

Country	Mineral	Mine	Phase	Capex (USDmn)	Notes
United States	Gold	Turquiose Ridge	Expansion	300-325	Increase production from 280kozpa to 500kozpa
Chile/Argentina	Gold	Pascua-Lama	New project	8,500	Stalled, estimated production 800-805kozpa
Chile	Gold	Cerro Casale	New project	6,000	Reserves of 17.4moz
United States	Gold	Goldrush	New project	1,000	Estimated 440kozpa, expected 2021
Peru	Gold	Lagunas Norte	Expansion	640	Estimated 240kozpa, expected late 2021

Barrick Gold - Key Projects - Continued

Country	Mineral	Mine	Phase	Capex (USDmn)	Notes
United States	Gold	Cortez	Expansion	153	Estimated 300kozpa, expected 2022-2023
Saudi Arabia	Copper	Jabal Sayid (50%)	New project	-	Estimated 45.4ktpa by 2017
United States	Gold	South Arturo (60%)	Expansion	-	Measured & indicated resources 1.1moz
Canada	Gold	Hemlo	Expansion	-	Proven & probable reserves 917koz
Papua New Guinea	Gold	Porgera (50%)	Expansion	-	Share of proven & probable reserves 3.0moz
Canada	Gold	Donlin Gold (50%)	New project	-	Estimated 33.6moz deposit, 1.5mozpa
Chile	Gold	Alturas	New project	-	Inferred resource of 5.5moz

Source: Company announcements

Table: Barrick Gold - Key Financial Data

	2009	2010	2011	2012	2013	2014	2015
Revenue (USDmn)	8,136	11,001	14,236	14,394	12,527	10,239	9,029
% chg y-o-y	6.9	35.2	29.4	1.1	-13.0	-18.3	-11.8
Net Income (USDmn)	-4,274	3,582	4,484	-538	-10,366	-2,907	-2,838
% chg y-o-y	-644	-184	25.2	-112	1,827	-72.0	-2.4
Capital Expenditure (USDmn)	2,351	3,778	4,973	6,773	5,501	2,432	1,713
% chg y-o-y	34.4	60.7	31.6	36.2	-18.8	-55.8	-29.6
Profit Margin (%)	-52.5	32.6	31.5	-3.7	-82.7	-28.4	-31.4
Total Debt/Equity	40.7	31.3	52.3	56.6	81.7	102	105
P/E Ratio	na	15.9	10.2	8.2	11.3	20.1	253

na = not available. Source: Bloomberg

Table: Gold - Operational Highlights, 2015

Company	Production (koz)	Production (% global total)	Cash Costs (USD/oz)	All-In Sustaining Costs (USD/oz)	Reserves ('000 tonnes)	Reserves Contained Gold (moz)	Ore Grade (oz/tonne)
Barrick	6,117	12.0	596	831	2,160	91.9	0.042
Newmont	5,035	9.9	633	898	2,158	73.7	0.034
AngloGold Ashanti	3,947	7.7	712	910	1,154	51.7	0.045
Goldcorp	3,464	6.8	605	893	1,195	40.7	0.034
Kinross	2,595	5.1	684	971	1,478	34.0	0.023
Newcrest	2,420	4.7	863	na	3,912	75.0	0.02
Gold Fields	2,099	4.1	1,026	1,007	491	46.2	0.948
Polyus	1,763	3.5	424	610	986	2.1	0.07
Sibanye	1,536	3.0	852	1,036	967	31.0	0.03
Yamana	1,275	2.5	596	868	781	15.9	0.02
Randgold	1,211	2.4	679	na	137	15.0	3.67

na = not available. Source: Bloomberg, Company announcements

Regional Overview

Sub-Saharan Africa Overview

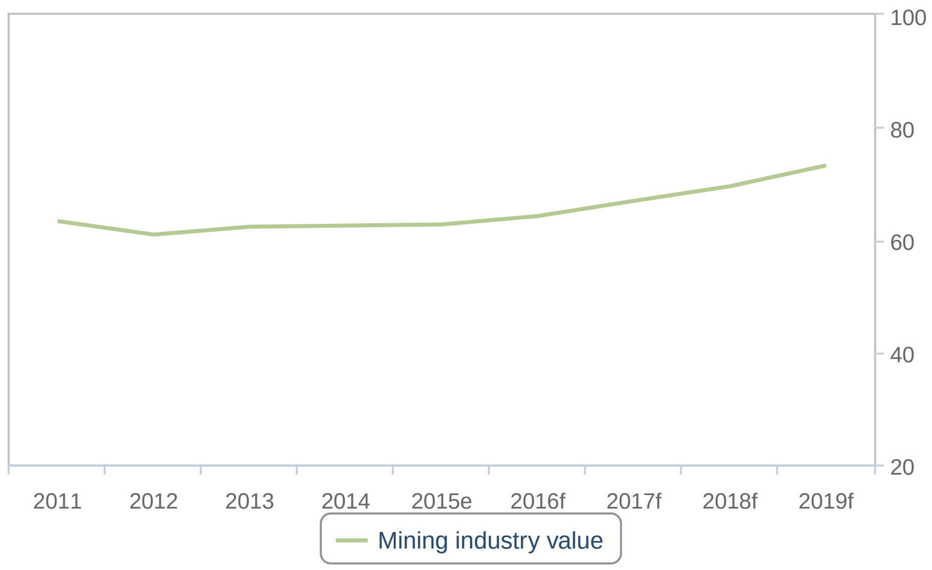
BMI View: *Sub-Saharan Africa's mining sector growth will slow as low mineral prices will drive further consolidation, production cuts and divestments among metal producers. While our outlook remains bleak, some bright spots remain, as both Mozambique and the DRC will continue to see solid industry growth over the coming quarters.*

Key Themes:

- Low metal prices will result in further significant divestment of assets, output cuts and bankruptcies as both mining and metal companies remain under significant stress.
- Chinese and Indian outbound mining investment will remain resilient due to Sub-Saharan Africa (SSA)'s vast mineral reserves and low production costs.
- The implications of low mineral prices, mining royalty hikes, and labour unrest, will be high on the political agenda in SSA countries with a large mining sector
- SSA's natural resources sector will remain a crucial contributor to GDP over the next five years in spite of lower commodity prices causing mining companies to delay projects and slash capex.

Value To Base

North Africa & SSA - Mining Industry Value (USDbn)



e/f = BMI estimate/forecast. Source: BMI

1. Next Phase Of Divestments, Production Cuts And Bankruptcies

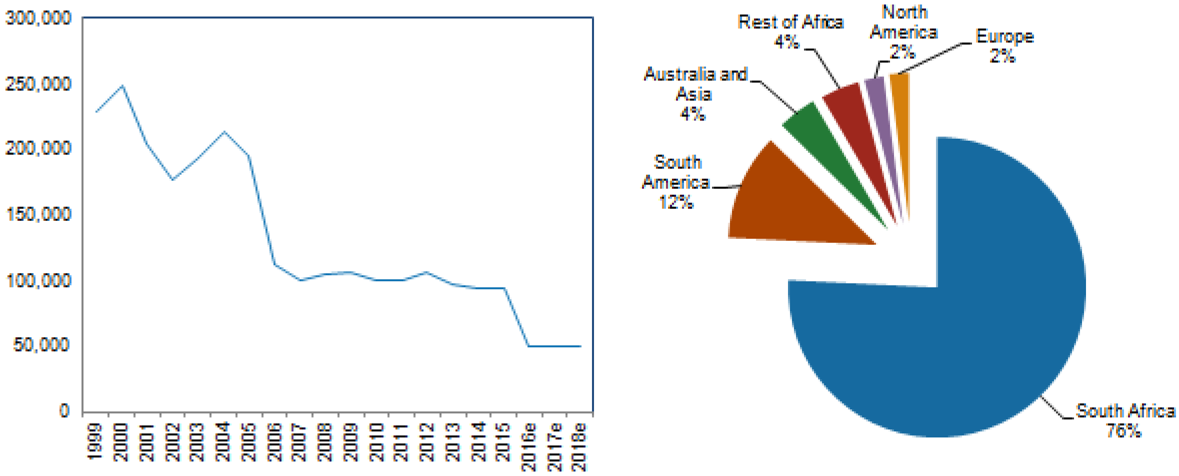
Although we forecast that metal prices will stabilise in 2016, mining sector companies will remain under significant pressure due to declining profit margins. We expect to see miners increasingly surrender to a 'lower for longer' price outlook, which will result in further significant divestment of assets, output cuts and bankruptcies. Further cuts are only the next stage, rather than the end of a dramatic restructuring of the mining and commodities trading industry that will continue in 2016 (*see: 'Global Mining: The Five Key Themes', December 17, 2015*).

Within SSA, South Africa will be hit hardest by further divestments within the sector. For instance, on December 8, 2015, **Anglo American** announced plans to divest, halt or close a majority of the firm's assets. Pursuant to the firm's strategy, South Africa will be hit hardest - most notably, the country's coal industry, as Anglo accounts for nearly 21.5% of the country's total thermal coal production. Furthermore, Anglo's plans to cut employment will hit the sector as well, as Anglo employs over 24,500 people in its thermal coal operations, while the firm's total employment within South Africa totals 72,000 (*see: 'Anglo American's Plan: South Africa To Be Hit Hardest', December 15, 2015*).

Anglo's strategy follows on previous cuts and divestment made in 2015. For instance, in December the firm's **De Beers** unit sold the Kimberley diamond mines, the firm's oldest diamond operation in South Africa, to a consortium led by **Petra Diamonds** and South African firm **Ekapa Mining** for USD7.2mn. Prior to that, in September 2015, the firm's South African subsidiary **Anglo American Platinum** sold the Rustenburg platinum mines to **Sibanye Gold** for USD308mn (*see: 'The End Of The Diversification Strategy', March 18*).

South Africa To Take The Brunt

Anglo American - No. Of Employees (LHC) & Share Per Country (%, RHC), 2014



Source: Bloomberg, Company Report, BMI

2. Africa To Remain Key Destination For Chinese & Indian Outbound Investment

Chinese and Indian outbound mining investment will remain resilient due to the region's vast mineral reserves and low production costs. Although Chinese overseas investment experienced a lull during 2015, the region will remain a major player in mining investment over the coming years. Over 2015, China accounted for almost 12.0% of global merger and acquisition investment, totalling 28 deals, worth an estimated USD2.7bn. Although China's total overseas mining investment fell by 50.1% y-o-y in 2015, China's mining investment in the Middle East & Africa dropped only slightly, by 9.8%, maintaining a significant value of USD588mn. Meanwhile, Indian firms will continue to ramp up investment in overseas coal projects (*see: 'Africa To Remain Key Mining Investment Destination', 21 December, 2015*).

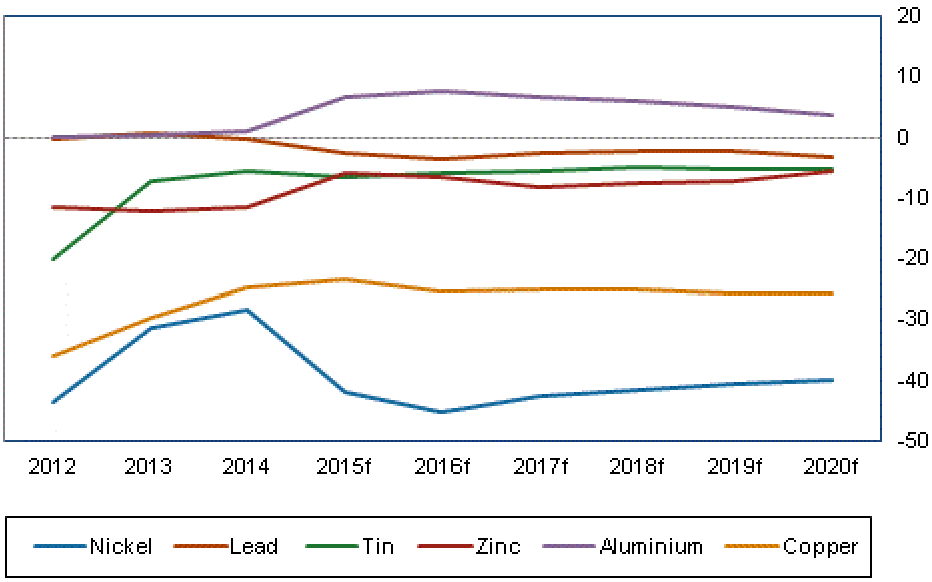
- **Investment To Focus On Africa**- Chinese and Indian firms will increasingly invest in African countries, such as Mozambique and the DRC, rather than South Africa. South Africa's investment attractiveness will decrease due to both ongoing power shortage and labour unrest, which will increase operational challenges within the country. For instance, global mining investment in Mozambique grew by an enormous 710% y-o-y during 2015, compared to only a 22.8% y-o-y increase in investment in South Africa.

- **China To Favour Copper Investment** - Chinese overseas investment will increasingly focus on copper projects in Africa, in particular the DRC. The key factor behind the shift towards ramping up overseas copper investment is the result of China's copper consumption continuing to outstrip domestic production. Chinese firms will increasingly invest in the DRC, supported by the country's low production costs and the biggest undeveloped high-grade copper deposits in the world. For instance, in December 2015, China-based **Zijin Mining Group** invested USD412mn in Canadian firm **Ivanhoe Mines'** Kamoa copper project. Ivanhoe also agreed to divest 1.0% of Kamoa for USD8.3mn to Hong Kong-based **Crystal River Global**.

- **India To Favour Coal Investment** - India will increasingly focus on developing coal projects overseas in order to meet domestic coal demand. As such, Mozambique, which holds vast coal reserves and was the second highest African recipient of Indian foreign direct investment in 2015, will continue to be a key target of investment. Notable developments in Mozambique include India-based **International Coal Ventures Private Limited**'s Zambeze and Tete East thermal coal projects in the resource-abundant Moatize coal basin, and Chinese firms **Triton Minerals**' Ancuabe and **Syrah Resources**' Balama graphite projects.

Persistent Deficit Despite Weak Consumption Growth

China - Production Balance As % Of Total Consumption



Note: Negative share shows that the country's production balance is in deficit. Source: National sources, BMI

3. Government Involvement To Curb Investment Attractiveness

The implications of low mineral prices, mining royalty hikes, and labour unrest, will be high on the political agenda in SSA countries with a large mining sector (*see: 'Mining: The Political Flashpoints In 2016', March 30*). Government intervention will play out through economic or regulatory measures in response to a variety of political, economic and populist concerns.

Mineral Policy Uncertainty To Increase

Select Countries - Government Involvement

Source: BMI

The table below illustrates the key countries where we expect government intervention will continue to increase in 2016.

Table: SSA - Government Involvement In Mining Sector

Country	Key Issues	Outlook
Zambia	Resource nationalism and increasing demands for raising mineral royalties will remain a political hot topic over the coming quarters.	Although the government's mining royalty reversal will support the sector's investment outlook, low mineral prices and the country's high degree of mineral policy uncertainty will continue to curb investment until the country's presidential elections in August 2016.
South Africa	Labour unrest regarding wage demands will be high on the government's political agenda	We expect the government's vocal support for labour unions, surrounding wage negotiations, will increase due to a rising challenge from the political left. With Zuma's support within the ANC weakening, a bad result for the ANC in the municipal elections could act as a watershed moment
Congo (DRC)	Both the government's attempts to raise mining royalties and low mineral prices will increase pressure on miners within the country. For instance, Glencore's September 7, 2015, decision to suspend operations at the firms Katanga mine will significantly impact DRC's copper production growth.	The DRC government is attempting to raise mining royalties due to its desire to boost mining revenue and capitalize on the sector's growth. The government's push towards raising royalties ties in with the government's strategy to increase state control on the country's mining sector. On April 22, 2015, the DRC's government announced its intention to reopen negotiations with mining firms regarding revisions of the country's 2002 mining code, as the previous draft legislation was recalled after significant opposition. Previously, in March 2015, the government submitted a draft proposal to Parliament that would hike copper and gold royalties from 2.0% to 3.5%, respectively. Furthermore, the draft legislation would raise royalty taxes from 30.0% to 35.0% and increase the government's free share of new mining projects from 5.0% to 10.0%. If passed, the new code will result in major miners halting or scrapping new projects altogether.

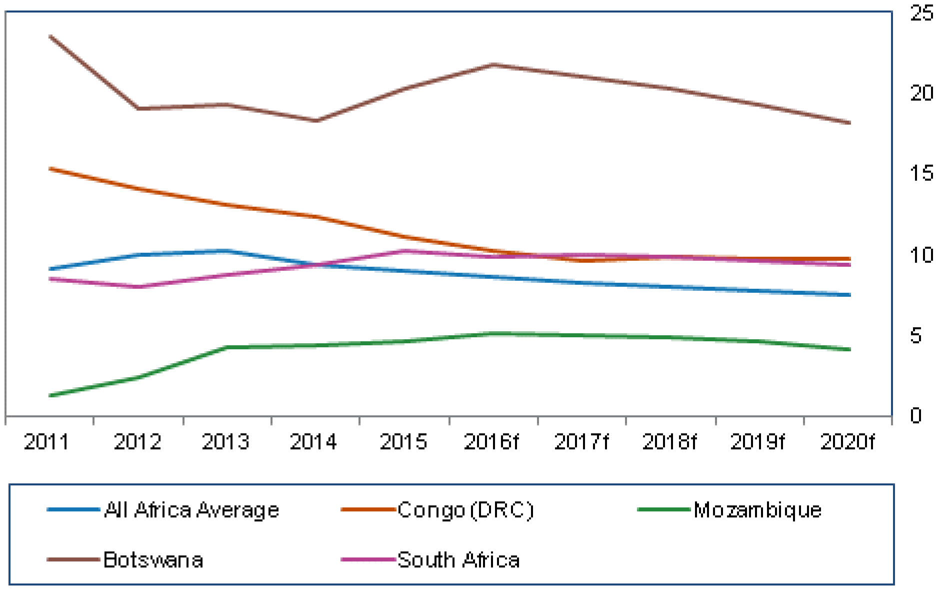
Source: BMI

4. **Mining To Remain Key Contributor To GDP**

SSA's natural resources sector will remain a crucial contributor to GDP in spite of lower commodity prices causing mining companies to delay projects and slash capital expenditure. For instance, Botswana's coal, gold and diamond sector will average 18.3% of Botswana's GDP over our forecast period to 2020, down from the 20.0% average during 2011-2015. In addition, South Africa's mining sector will account for 9.9% of GDP in 2016, ensuring that the country's mining sector remains an important pillar of economic output. Meanwhile, the DRC's mining share of GDP will average 9.4% during 2016-2020, lower than the average 13.2% during 2011-2015. Despite this, the sector will remain a key contributor both in terms of employment and government revenue.

Share Of GDP To Fall

Select Countries - Mining Industry Value, % Of GDP



Note: The 'All Africa Average' line represents the average contribution of each mining sector to total country GDP for all the sub-Saharan African countries we cover: Angola, Botswana, Congo (DRC), Côte d'Ivoire, Ghana, Guinea, Liberia, Mali, Mauritania, Mozambique, Namibia, Sierra Leone, South Africa, Tanzania, Zambia, and Zimbabwe. f = BMI forecast. Source: UN Data, World Bank, BMI

Methodology

Industry Forecast Methodology

BMI's industry forecasts are generated using the best-practice techniques of time-series modelling and causal/econometric modelling. The precise form of model we use varies from industry to industry, in each case being determined, as per standard practice, by the prevailing features of the industry data being examined.

Common to our analysis of every industry is the use of vector autoregressions. Vector autoregressions allow us to forecast a variable using more than the variable's own history as explanatory information. For example, when forecasting oil prices, we can include information about oil consumption, supply and capacity.

When forecasting for some of our industry sub-component variables, however, using a variable's own history is often the most desirable method of analysis. Such single-variable analysis is called univariate modelling. We use the most common and versatile form of univariate models: the autoregressive moving average model (ARMA).

In some cases, ARMA techniques are inappropriate because there is insufficient historic data or data quality is poor. In such cases, we use either traditional decomposition methods or smoothing methods as a basis for analysis and forecasting.

BMI mainly uses OLS estimators and in order to avoid relying on subjective views and encourage the use of objective views, **BMI** uses a 'general-to-specific' method. **BMI** mainly mainly uses a linear model, but simple non-linear models, such as the log-linear model, are used when necessary. During periods of 'industry shock', for example poor weather conditions impeding agricultural output, dummy variables are used to determine the level of impact.

Effective forecasting depends on appropriately selected regression models. **BMI** selects the best model according to various different criteria and tests, including but not exclusive to:

- R^2 tests explanatory power; adjusted R^2 takes degree of freedom into account;
- Testing the directional movement and magnitude of coefficients;
- Hypothesis testing to ensure coefficients are significant (normally t-test and/or P-value);
- All results are assessed to alleviate issues related to auto-correlation and multi-collinearity.

BMI uses the selected best model to perform forecasting.

Human intervention plays a necessary and desirable role in all of **BMI**'s industry forecasting. Experience, expertise and knowledge of industry data and trends ensure that analysts spot structural breaks, anomalous data, turning points and seasonal features where a purely mechanical forecasting process would not.

Sector-Specific Methodology

- Industry value

The mining industry value is the amount that the mining sector (mining activity and downstream services) contributes to the country's GDP. Our historic figures are taken from the national statistics agency from the respective countries, and so the exact definition might vary slightly between countries. Forecast growth rates take into account our in-house assumptions for investment and production growth in key mining segments of the country, as well as commodity prices for key minerals over the five-year forecast period.

- Production volumes

Production forecasts are for mined production (ore and concentrates) rather than refined production, and refer to contained metal. Coal production forecasts are simply for tonnage of coal. Our forecasting methodology is based on investment plans by major players and an assessment of how these plans will be affected by our expectations for several factors including:

- Commodity prices

We have our own in-house commodity price forecasts, which are part of the commodities strategy service we provide to clients. Commodity price forecasts are created by combining our analysis of macroeconomic factors, country-by-country supply and demand, financial market flows and technical chart patterns.

- Regulatory developments

In combination with our country risk analysts we are able to formulate regulatory trajectories per country, highlighting potential for regulatory change, both positive and negative.

Sources

We use a combination of national statistics, multilateral sources (US Geological Survey, UN, Energy Information Administration, etc) and company information to populate our historical data series. Our forecasts are formulated using the proprietary techniques detailed above.

Risk/Reward Index Methodology

BMI's Risk/Reward Index provide a comparative regional ranking system evaluating the ease of doing business and the industry-specific opportunities and limitations for potential investors in a given market. The index divides into two distinct areas:

Rewards

Evaluation of the sector's size and growth potential in each state, and also broader industry/state characteristics that may inhibit its development. This is further broken down into two sub categories:

- Market Rewards: this is an industry-specific category that takes into account current industry size and growth forecasts, the openness of market to new entrants and foreign investors, to provide an overall score for potential returns for investors.
- Country Rewards: this is a country-specific category, and the score factors in favourable political and economic conditions for the industry.

Risks

Evaluation of industry-specific dangers and those emanating from the state's political/economic profile that call into question the likelihood of anticipated returns being realised over the assessed time period. This is broken down into two sub categories:

- Market Risks: this is an industry-specific category. The score covers potential operational risks to investors, regulatory issues inhibiting the industry and the relative maturity of a market.
- Country Risks: this is a country-specific category in which political and economic instability, unfavourable legislation and a poor overall business environment are evaluated.

We take a weighted average, combining market and country risks, or market and country rewards. These two results provide an overall Risk/Reward Index, used to create our regional ranking system for the risks and rewards of involvement in a specific industry in a particular country.

For each category and sub-category, each state is scored out of 100 (with 100 the best), with the overall Risk/Reward Index a weighted average of the total score. As most of the countries and territories evaluated are considered by **BMI** to be 'emerging markets', our index is revised on a quarterly basis. This ensures that the score draws on the latest information and data across our broad range of sources, and the expertise of our analysts.

BMI's approach in assessing the risk/reward balance for mining industry investors globally is fourfold:

First, we identify factors (in terms of current industry/country trends and forecast industry/country growth) that represent opportunities to would-be investors. Second, we identify country and industry-specific traits that pose or could pose operational risks to would-be investors. Third, we attempt to identify objective indicators that may serve as proxies for issues/trends to avoid subjectivity.

Finally, we use our proprietary Country Risk Index (CRI) in a nuanced manner to ensure that only the aspects most relevant to the mining industry are incorporated. Overall, the system offers an industry-leading, comparative insight into the opportunities/risks for companies worldwide.

Sector-Specific Methodology

In constructing this index, the following indicators have been used. Almost all indicators are objectively based. Given the number of indicators/datasets used, it would be inappropriate to give all sub-components equal weight. Consequently, the following weighting has been adopted:

Table: Weighting Of Indicators

	Weighting, %
Rewards	70, of which
Industry Rewards	80, of which
Mining output, USDbn	33
Sector growth, % y-o-y	33
Mining sector, % of GDP	33
Country Rewards	20, of which
Labour market infrastructure	25
Physical infrastructure	25
Tax	25
Scope of State	25
Risks	30, of which
Industry Risks	50, of which
Metals prices	25
Average change in metal prices 10 year	25
Mining regulatory framework	25
Mining legal framework	25

Weighting Of Indicators - Continued	
	Weighting, %
Country Risks	50, of which
Long-term economic rating	25
Corruption	25
Bureaucracy	25
Long-term policy continuity	25

Source: BMI