Mine 2019

Resourcing the future

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Shifting expectations

Welcome to our annual review of global trends in the mining industry, as represented by the Top 40 mining companies by market capitalisation.

Judged by traditional metrics, things are looking good for the world's top miners. In 2018, the world's 40 largest miners consolidated the stellar performance of 2017. As a group, they increased production, boosted cash flow, paid down debt, and provided returns to shareholders at near record highs. And there was still cash left to increase capital expenditure for the first time in five years. All while delivering significant value to stakeholders like employees, governments and communities, as well as supplying the raw materials underpinning global economic growth. The benefits of mining have flowed far and wide.

Yet investors seemed unimpressed, at least judging by market returns and valuations. What accounts for this discrepancy? Stock markets are famously futures markets, not present markets. And when investors and other stakeholders look at the future of the mining industry, it is clear they have concerns about the industry's perception on vital issues such as safety, the environment, technology and consumer engagement.

In spite of the strong operating performance, both investors and consumers seem to be down on the brand of mining. They question whether the industry can responsibly create sustainable value for all stakeholders. Discrete events, such as safety or environmental incidents, have contributed to these challenges.

'Big questions' to address

But far-reaching structural changes in the environment – and in the operating environment – are also raising questions about the industry's future. Foremost among them is the impact of climate change, highlighted by the rising frequency of extreme weather events. As the finder and provider of carbon-based raw materials in the form of coal and a substantial creator of CO^2 emissions via mining and metals processing, the mining industry is firmly involved in the climate change debate. The Top 40 response is varied: some have adopted a climate change strategy and others are seemingly indifferent.

Copper and battery metals, which stand to gain as the energy mix moves away from combustion engines to electricity including renewable energy, are receiving the bulk of capital investment. (However, as coal contributes 38% to global electricity generation, it remains an important part of the basket and continues to receive substantial capital investment and transaction focus.)

Mining companies are also streamlining their operating portfolio by disposing of non-core assets and optimising project portfolios in line with long-term strategies. In 2018 and early 2019, a key focus of merger activity among the Top 40 was consolidation in the gold sector. It remains critical that potential acquirers evaluate their strategic options before taking action, but we may see further transactions to drive efficiencies and improve productivity.

Can mining change fast enough?

While they appreciate the efforts to improve operations and engineer superior results, it is clear that investors and other stakeholders are concerned that the industry is lagging when it comes to several factors that have not been a traditional focus of the mining industry. These include dealing with emissions, investing in differentiating technology and digitisation, engaging more proactively with consumers and building brand.

Looking ahead to the rest of 2019 and beyond, we see a continuation of the strong operating performances, and pockets of progress in these contemporary factors. But we don't see any signs of a quantum shift in priorities that will allow the industry as a collective to keep pace with changes delivered in other sectors. Without such a shift, we expect the growing awareness gap between the brand of mining and the benefits of mining to continue to widen.

The mining industry will have a window of opportunity over the next few years, created by strong operating fundamentals, to adapt to the growing and changing expectations of stakeholders. By utilising technology to operate safely and more efficiently, addressing global concerns, and maintaining a disciplined strategy to create ongoing value for its stakeholders, the industry can forge a better future for all beneficiaries of mining – industry, consumers, communities and other stakeholders.

Responsibly creating value for all stakeholders on a sustainable basis

Top 40 mining companies performance snapshot

Financial capital

Revenue
$683bn up $51bn (8%)

Record dividends paid to shareholders $43bn

EBITDA
of $165bn up $7bn (4%)

Market cap
as at 31 December 2018 $757bn (down by 18%), as at 30 April 2019 $849bn

M&A activity up to $30bn

Manufactured capital

Costs up by 8.6% driven largely by commodity-based input costs

Capex up for first time in five years by 12% to $57bn

Modest growth in production

Human capital

Safety focused, but fatalities remain an issue

21% of new Board member appointments were female

Social and environment capital

Reported Scope 1 and Scope 2 emissions show a CAGR reduction of 5.2% from 2016 to 2018

Value distributed to government and employees - 43%

**All figures are US dollars*

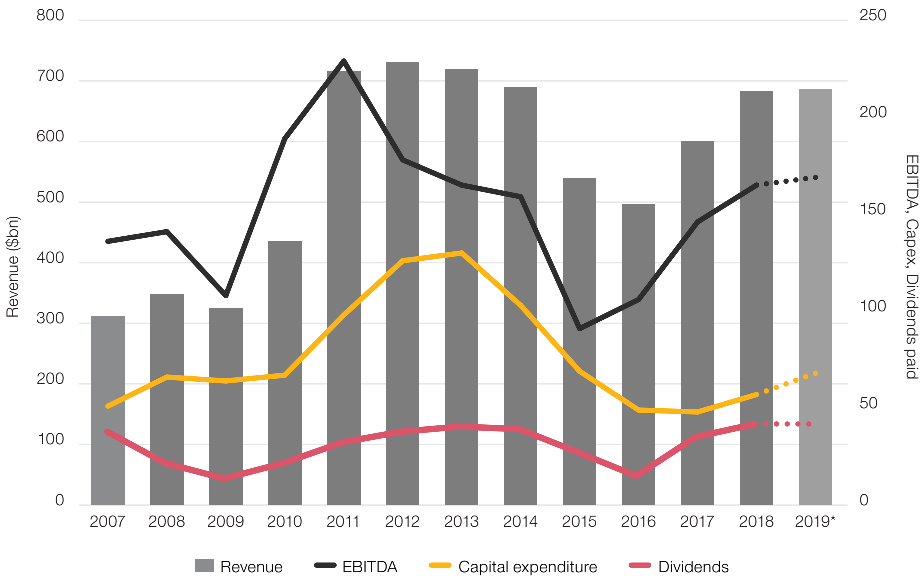
Source: Annual reports, PwC analysis

Steady but the heat is on

The Top 40 continued to see steady growth in revenue and profitability, as predicted in our forecast last year. Dividends to shareholders are at an all-time high and balance sheets are strong. Capital expenditure showed an increase for the first time in five years, albeit still below 2008 pre-boom levels.

Trade wars, geopolitical crises and climate change continue to create industry volatility. This uncertainty was particularly evident at the end of December 2018, when commodity prices and emerging economy exchange rates decreased substantially.

Figure 1: Top 40 mining companies performance trends ($bn)



*2019 outlook

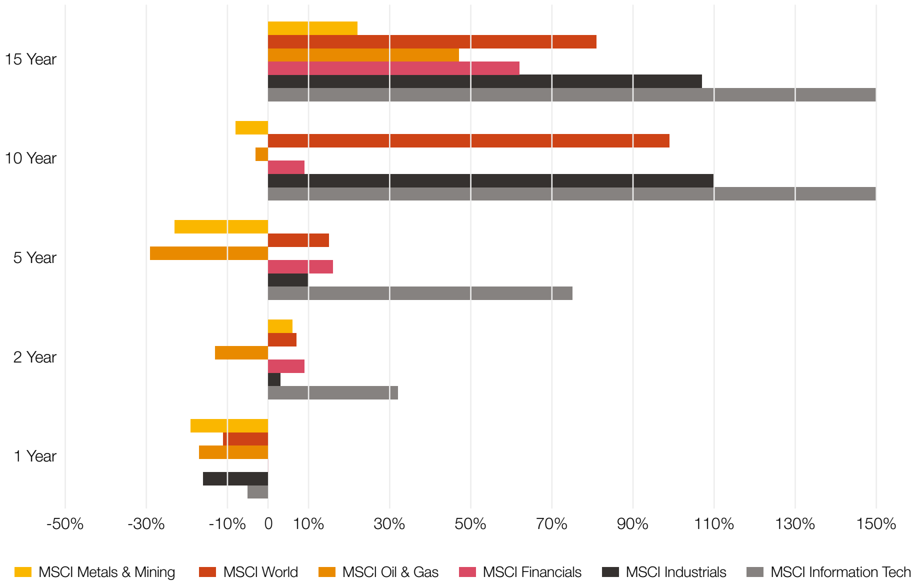
Source: Annual reports, PwC analysis

In the broader market context, mining continues to struggle for favour

Despite the industry's impressive financial performance over the last two years, the mining index has barely held its own against global market indices. Notwithstanding multi-year high profitability levels supported by strong financial positions, investors are seemingly not willing to invest at historic price and dividend yield levels, hence existing investors have not been rewarded with an equivalent market price performance.

Moreover, our long term analysis points to only marginal market capitalisation growth by the mining industry over a 15 year period. In this period, its performance has lagged that of the market as a whole, new technologies and comparable industries, such as oil and gas.

Figure 2: Relative sector total shareholders return* performance



Annual capital growth (31-Dec over 1-Jan) plus dividend yield

Source: S&P Capital IQ

Mining companies do not measure their success based solely on their share price performance. Nevertheless, the share price movement relative to the rest of the market is an indication of the market's view of the industry's attractiveness. Mining dividend yields have increased to above 3% since 2011 and are well in line with those of other sectors (e.g. oil and gas between 3–5%, technology between 1–2%). There has been a significant increase in dividends paid in the last two years. Despite the strong financial position and recent track record, investors seem concerned about mining's negative publicity, the future of certain commodities and the industry's ability to manage stakeholder expectations. Additionally, the fact that only three mining companies are in the 2018 Global 500 brand index (none in the top 100), compared with 22 oil and gas companies, indicates an unfavourable or indifferent perception of 'brand mining'.

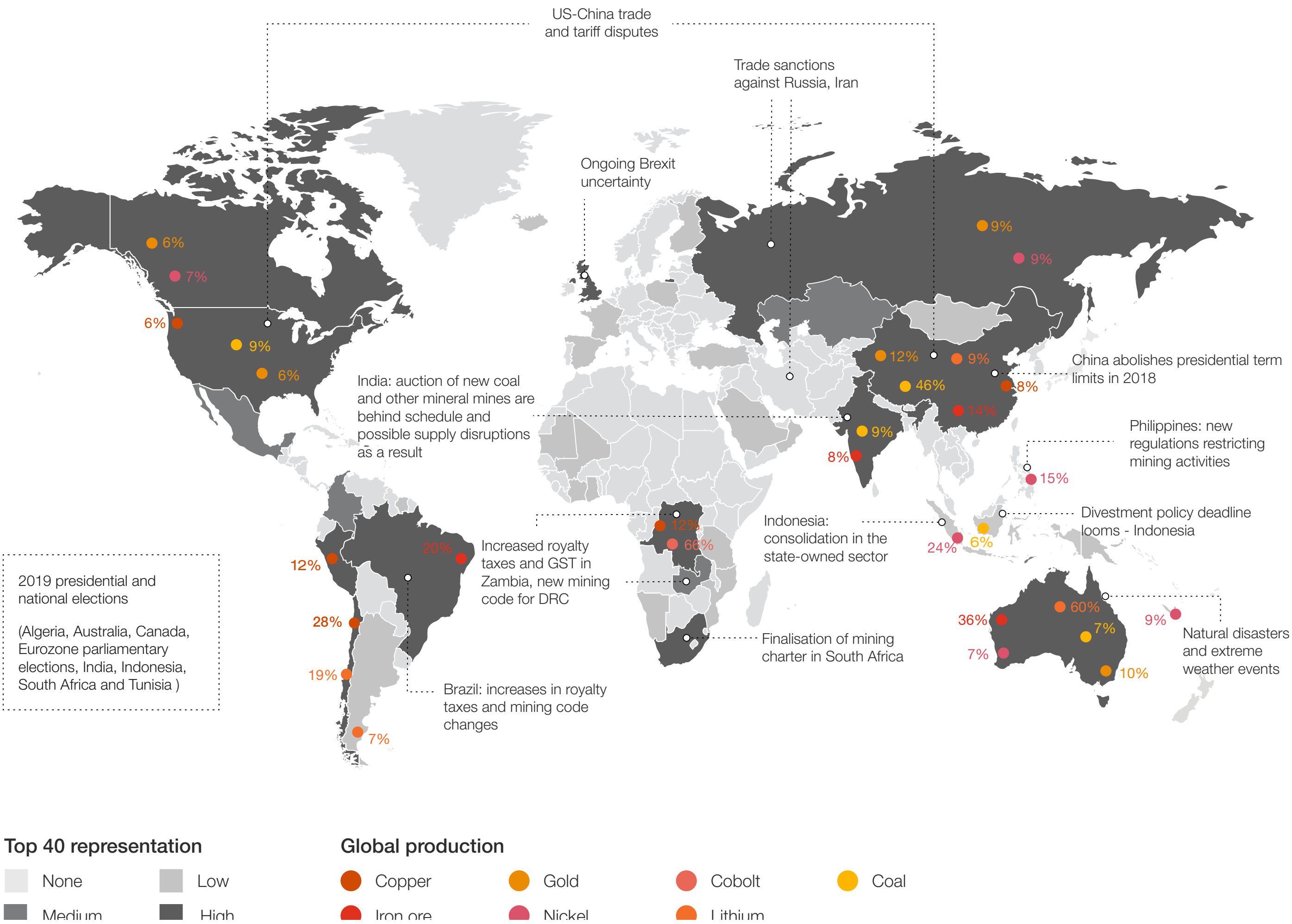
One thing is clear – mining requires far more than good financial performance to continue to create and realise value in a sustainable manner.

We believe the under-performance is connected with the risk and uncertainties of a changing world and the market perception about the mining industry's ability to respond. The future success of the mining industry will not only depend on its ability to adapt but also its ability and willingness to sell its brand as the primary provider of raw materials to many essential industries and products that humans rely on everyday, whether it be the ten metals and minerals - including gold, silver, aluminium and nickel - that can be found in their cell phone, the lithium in the battery of their electric vehicle, the steel from iron ore in their cooking pot or the coal fuelling their electric lights.

A changing world with risks and uncertainties

Mine 2018:Tempting times, highlighted a number of regulatory and political challenges. This year is proving no different. Against the backdrop of US–China trade disputes and upheaval in the Eurozone, all spheres of business including taxation, environment, politics, investment and labour are marked by volatility and uncertainty. This places further pressure on the mining industry to create sustainable value into the future.

Figure 3: Top 40 reach and external market drivers



Source: USGS, PwC analysis

A chance to fix 'brand mining'

With strong balance sheets and cash flows, now is the time for the Top 40 to address the issues weighing down market valuations. Climate change, technology and changing consumer sentiment are among the defining business challenges of our age. To restore faith in 'brand mining', leading miners need to prove they are keeping up with the pace of change. As an industry, this means transforming their reputation as efficient 'converters of dirt' to prominent builders of both economic and societal capital. Prioritising green and customer-centric strategies, enabled by technology, will help earn the trust of stakeholders and enable miners to create sustainable value into the future.

Action and words needed on carbon

As producers of fossil fuels and high users of energy, miners are squarely in the public eye on the issue of carbon emissions. Any misstep results in significant reputation risk and impacts the entire industry's social licence to operate. Mining must, therefore, be among the quickest to respond to the changing landscape. While Top 40 miners are performing strongly in terms of sustainability reporting, stakeholders have made it clear that disclosure is not enough. Direct, measurable and visible progress is required for trust to be regained and maintained.

Miners have already done a lot to improve internal efficiencies for the reduction in groundwater consumption and other environmental impacts. Most of the Top 40 have also targeted a further reduction in greenhouse gas emissions between 3% and 5% by 2020. While this is a positive step, miners do not appear to have gone as far as their peers in adjacent sectors. For example, oil and gas companies such as Shell and BP have set clear reduction targets, linked their carbon footprint with executive pay and invested up to 8% of total capex in green technology in FY18. In formulating their actions on carbon reduction, miners need to consider the impact of their activities as well as the downstream uses of their commodities. By investing in more environmentally friendly solutions for their respective commodity end uses, they can make a real difference in creating demand for their products with a tangible environmental benefit.

Accelerate and widen technology adoption

Technology is becoming a critical differentiator for the world's leading miners. Automation and digitisation continue to gain momentum, as companies are focused on harnessing technology to reduce the cost of maintenance and extraction. But compared with many other industries, mining's level of technological maturity is still relatively low. Only seven of the Top 40 have a Chief Technology Officer, Chief Information Officer or Chief Digital Officer in their senior management team.

Miners need to look beyond their backyard to learn from the best of digital and Industry 4.0 and apply that thinking to mining. They also need to take a broader view of technology adoption to encompass sustainability, safety and changing consumer sentiment. The benefits of becoming a 'digital champion' are significant. A 2018 study by PwC's Global Digital Impact Centre found that companies who achieve digital technology mastery earn higher revenues and lower their costs consistently over time.

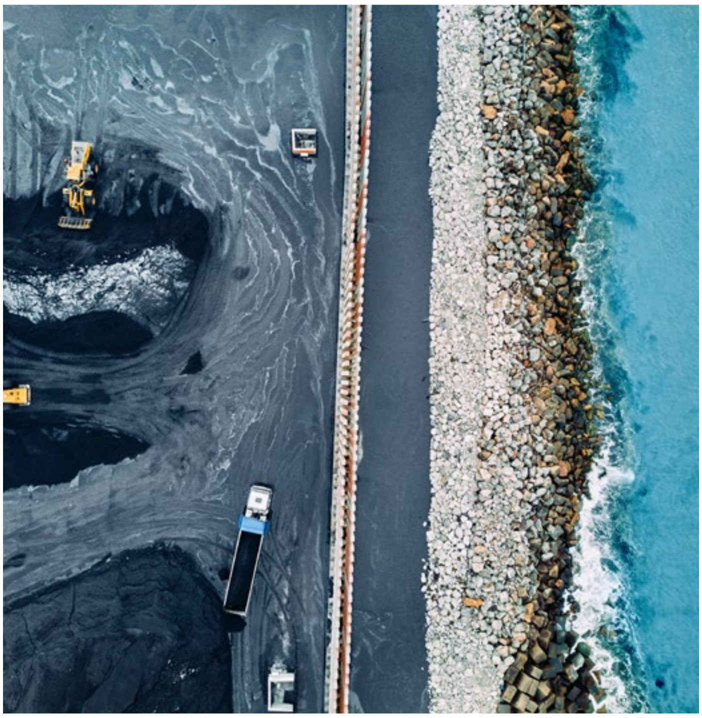
Investment in technology should not, however, stop at the mine gate. Miners have a significant opportunity to push research and innovation into the downstream application of their products. Such efforts could include coal companies investing in technologies for carbon capture and storage, or platinum group metal (PGM) miners working on the commercialisation of hydrogen fuel cells. Thinking about technology in the context of the whole supply chain not only demonstrates responsibility but begins to build a culture of innovation.

Miners have a critical role to play in addressing the awareness gap between the brand of mining and the benefits of mining.

Consumers need mining: engage with them

Mining supplies many of the raw materials behind the technology and products that consumers love. And, like other sectors, mining is responding to consumer concerns around the sustainability of these goods. For example, Rio Tinto and Alcoa formed a new venture with Apple to create the world's first carbon-free aluminium smelting process. RCS Global has partnered with a number of organisations to use blockchain technology to trace and validate ethically sourced cobalt, which is in high demand for use in lithium-ion batteries for electric motor vehicles.

But the growing demand for the end products of mining also puts the industry – and consumers – in a double bind. Miners must ramp up production to maintain an economical supply of commodities. Yet it is not clear that consumers are fully aware that mining supports and underpins their choices. Miners have a critical role to play in addressing the awareness gap between the brand of mining and the benefits of mining, in particular for the younger generation who represent the future investors and workforce. To do this, they need to become more consumer-centric and more brand-savvy. As there is no real alternative to the primary supply of these essential commodities, miners need to clearly articulate the essential role that they play – and will play – in meeting existing and emerging consumer needs.




Top 40 financial performance and metrics

Income statement

$bn	2019 Outlook	2018	2017	Change (%)
Revenue	686	683	632	8%
Operating expenses	(511)	(505)	(465)	9%
Other operating expenses	(6)	(13)	(9)	44%
EBITDA	169	165	158	4%
Impairment charges	(4)	(12)	(3)	300%
Depreciation and amortisation	(46)	(47)	(47)	0%
Net finance cost	(10)	(13)	(13)	0%
PBT	109	93	95	(2%)
Income tax expense	(33)	(27)	(30)	(10%)
Net profit	**76**	**66**	**65**	**2%**

**2019 is our outlook*
Source: Annual reports, PwC analysis

2019 outlook starts showing pressure on margins

Our 2019 outlook assumes flat revenue as marginally increased production and higher average iron ore prices are offset by weaker coal and copper prices. We expect operating costs to rise because of inflationary pressures on input costs. The expected outcome for margins will be largely in line with the current year.

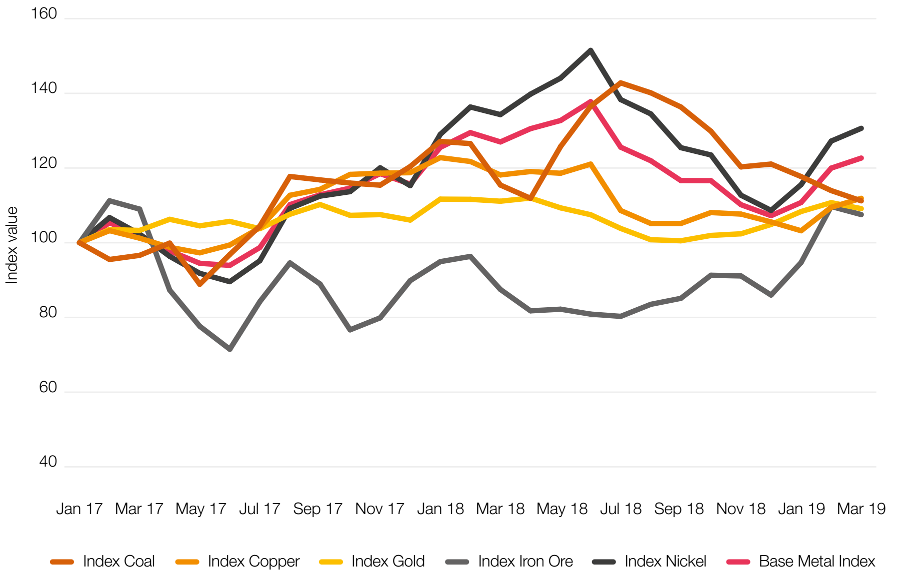
Our projections are based on historic performance, in conjunction with estimates of future key variables such as price, production and input costs. (Please refer to page 26 for additional information on methodology and data limitations.)

2018 revenue up, buoyed by commodity price increases

In 2018, revenue increased 8% with most commodities experiencing increased average prices for the year. The decreases in prices towards the end of 2018 reflected the economic uncertainty at the time and the evident pressure on economic growth.

Production increased on average by 2% for most commodities.

Figure 4: Price index for key commodities

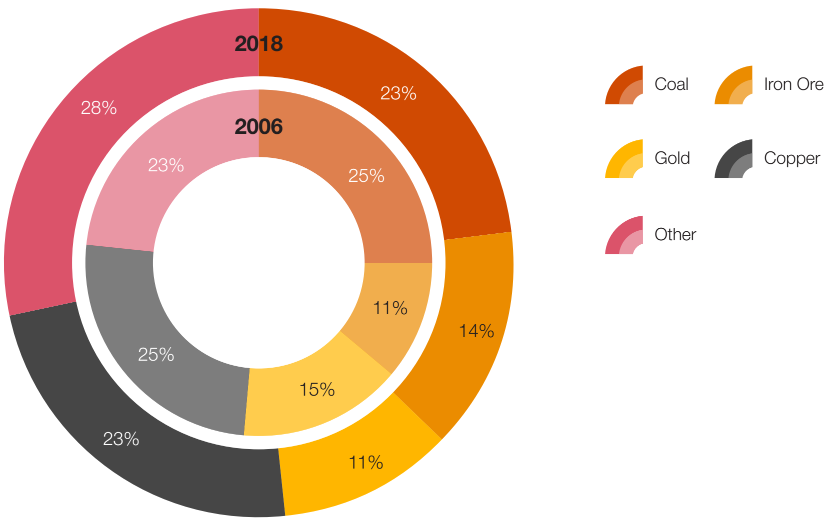


Source: World Bank

Changing consumer sentiment and the commodity mix of the future

In response to demands for a sustainable future, many companies are embracing the need to lower their carbon footprints. The challenge to provide environmentally-friendly products extends across all sectors and industries from technology companies and automotive manufacturers, right through to energy, utilities and mining. How has this trend shaped the commodity mix over the past decade? The answer - very little! We compared the 2018 revenue mix to 2006 (a typical pre-boom year, with 2006 revenue adjusted for price movements to make it comparable). The similarities in revenue mix are striking. Coal retains an equivalent weighting, although the top-line results mask the underlying sector realignment within the Top 40, as the US coal producers were replaced by Indian and Asian coal miners. Copper also remained steady and iron ore grew its share on the back of infrastructure-driven growth.

Figure 5: Top 40 revenue-based commodity mix



2006 calculated on revenue reported in PwC's *Mine 2007: Riding the wave*
Source: Annual reports, PwC analysis

Commodity performance highlights

Copper

Price up 6%, Revenue up 12%

Over half of the Top 40 produce copper, either as a primary metal or as a by- or co-product. These producers are responsible for ~55% of global copper production. Year on year copper production grew almost 7% for the Top 40, as companies responded to higher copper demand. In general, copper producers forecast a decline in 2019 production, as declining grades and higher costs make it difficult to meet demand and new projects are not able to come online fast enough to avoid a supply deficit. Inventory levels are at ten-year lows, but this is not yet reflected in the copper price.

Coal

Price up 21%, Revenue up 12%

Coal remains the largest revenue-generating commodity, supporting 38% of global electricity generation. Top 40 coal production has increased despite the sell-off of coal assets by some. Glencore and Yangzhou acquired Rio Tinto's remaining coal assets in Australia.

Coal offtake agreements are often not at spot, explaining the difference between revenue and price growth. Many parts of the world — e.g. China, India and South East Asia — are expected to continue to use coal to meet primary energy needs. The above average economic growth in these countries suggests that the coal demand will continue in the near to medium term.

In the long term, renewable energy will reshape the energy mix and coal consumption is expected to plateau from 2023*.

Iron Ore

Price down 3%, Revenue up 2%

Mine and plant closures in China, driven by environmental concerns, supported demand for seaborne coal and iron ore and therefore increased the price in 2017. In 2018, the increase in iron ore production caught up with demand and prices are expected to flatten over time. Top 40 production of iron ore increased as Australian and Brazilian producers expanded mines. However, the tragic tailings dam collapse at Brumadinho has cut back supply in the first half of 2019.

**IEA, Coal 2018*

And for the future?

The future commodity mix will be driven in part by changing consumer consumption patterns, new energy sources in the energy transition, and the increased use of technological devices.

The mining sector continues to deliver the raw materials to support the Fourth Industrial Revolution. From lithium to copper, tantalite to rare earths and PGMs to cobalt, these metals support the delivery of new energy sources, energy storage solutions, electricity transmission and various end-user consumer products. But their impact on the aggregated Top 40 financial performance will be incremental rather than transformational, as production volumes will continue to be dwarfed by the dominant commodities for many years to come.

Continued focus on productivity and cost reduction, however headwinds prevail

In *Mine 2018: Tempting times,* we highlighted that production and cost efficiencies would dominate the Top 40's strategies to drive sustainable growth in the future. We continue to see concerted efforts and increased investments in technology to create a 'mine of the future', where technology will enable companies to unlock resources, improve costs and ensure employee safety.

We have seen the likes of BHP unlock cumulative productivity gains of more than $12bn in recent years, Rio Tinto form three centres of excellence to deliver an annual $1.5bn in additional cash flows from productivity improvements and Anglo American commit to delivering an additional $3–4bn EBITDA improvement by 2022. AngloGold Ashanti has rebased current spend baseline cost in the South Africa region through a strategic procurement transformation project.

The productivity and efficiency gains by the Top 40 were more elusive this year due to higher than expected inflation, unexpected closures and accidents. Operating costs rose 8.6%, significantly higher than general inflation with only a moderate production increase.

The increase in operating costs has largely been driven by commodity-driven consumables up 12%, freight and transport up 11% and employee remuneration up 6%.

The mining industry is facing a skills shortage, as noted in some of the Top 40 company risk profiles. More investment is needed to ensure the right mix of skills are available for a sustainable future. Ongoing investment in tertiary education by the Top 40 is essential. Mining also needs to form deep alliances with complementary industries such as technology and logistics to supply the necessary skills.

For other operating expenses in 2018, there was a significant increase in foreign exchange losses attributable to US dollar denominated borrowings for companies with emerging market functional currencies. Notably, Vale recognised a foreign exchange loss of $2.7bn and Norilsk Nickel $1bn.

Impairments

Impairment provisions were unexpected and substantial at $12bn. Impairments were mostly transaction related and regulatory induced. The impairments of Goldcorp ($4.7bn) and BHP Billiton ($3.1bn) became evident through transactions, with sale prices being less than carrying amounts. Glencore's impairment ($1.6bn) related to copper assets in the Democratic Republic of Congo and Zambia and changes to regulatory and tax requirements. Approximately half of Barrick's impairment ($0.9bn) related to increased government imposts and higher energy costs in Argentina.

Market capitalisation covered net asset value by 1.4 times, well below the 1.7 ratio from 2017. Although the overall position doesn't indicate further impairments, 12 of the Top 40 companies had net asset values exceeding their market capitalisation at 31 December 2018. At 30 April 2019, this position improved to 10.

Profitability measures	2019 Outlook	2018	2017
EBITDA margin	25%	24%	25%
Net profit margin	11%	10%	10%
Return on capital employed	11%	10%	9%
Return on equity	13%	12%	12%

Source: Annual reports, PwC analysis

$bn	2019 Outlook	2018	2017	Change (%)
Cash flow relating to operating activities				
Cash generated from operations	168	168	152	11%
Income taxes paid	(32)	(32)	(26)	23%
Other	(1)	(2)	(6)	(67%)
Net operating cash flows	**135**	**134**	**120**	**12%**

Source: Annual reports, PwC analysis

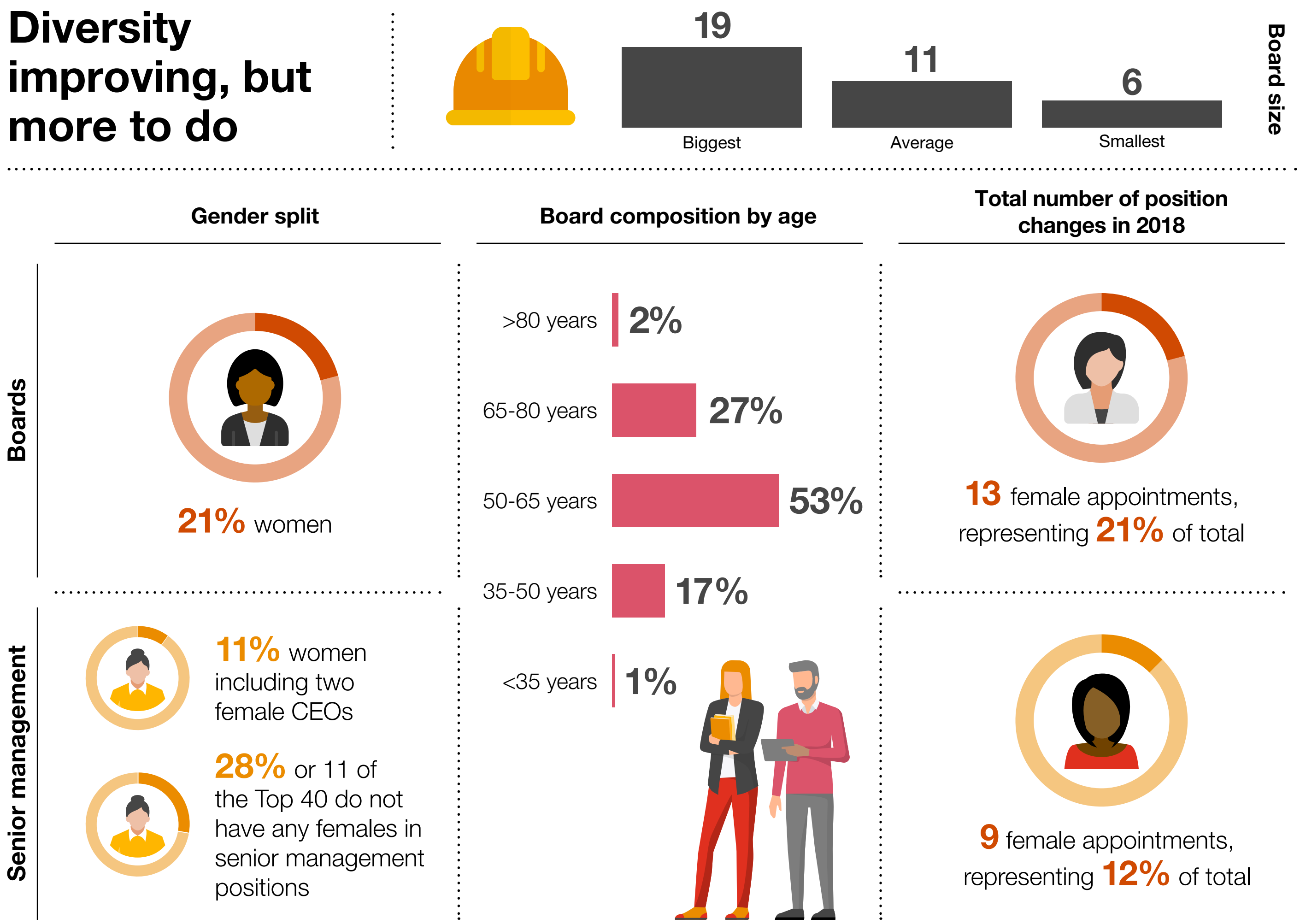
Return on capital employed and Return on equity remained relatively stable on the back of lower denominators because of the significant distributions to shareholders and the weakening of emerging market exchange rates at year end.

Cash generated from operations was $16bn, or 11%, stronger in 2018 and $3bn better than EBITDA primarily because of a $5bn reduction in debtors across the group.

Taxes paid were also $5bn higher than the income statement tax expense. The Top 40 income tax expense reduced by 10%, with cash taxes paid to government authorities increasing by 23%. The difference relates to the recognition of previously unrecognised deferred tax assets, the prior year impact of US tax reform measures on deferred taxes and the deferred tax impact of the large impairments.

The Top 40 currently have a significant balance of unrecognised tax losses, which may confer a future tax benefit of approximately $12.7bn. Interestingly, of the Top 40, Vale recognised a deferred tax asset of $1.5bn on its carry-forward tax balance. This move perhaps suggests the start of a shift in the tax landscape, and we could see other miners follow suit where forecasts support the recoverability of any previously unrecognised deferred tax balances.

Figure 6: Board and senior management profile – Top 40 miners



Source: Annual reports, PwC analysis

In 2018, the proportion of women on Top 40 boards was up marginally to 21%, putting miners on par with the average for Fortune1000 companies (21.3%). Disappointingly, there was no improvement in the number of women in senior management, which hovered at a lacklustre 11%. Miners still have serious work to do to attract, retain and promote women into leadership roles.

It's less clear how miners are doing on other critical aspects of diversity, such as skills and generational composition. More than ever, shareholders and investors are expecting companies to disclose progress against a wide range of diversity metrics that are known to be linked to improved performance. They want to know whether miners have the right mix of skills, ethnicity, gender and generations to deal with the rapidly evolving challenges facing the industry. We encourage the Top 40 to improve their diversity reporting, particularly at the board and senior management levels.

Developing a diverse, talented and future-fit workforce requires a robust workforce strategy. But miners should not assume their current approach will deliver the workforce they will need down the track. As we explored in our recent report *Preparing for tomorrow's workforce, today*, traditional talent practices can inadvertently filter out diversity and sideline older workers. PwC has developed a diagnostic tool https://www.pwc.com/gx/en/services/people-organisation/workforce-strategy-diagnostic.html that can help miners assess the longer-term effectiveness of their current workforce strategies.

Safety remains a challenge

It is impossible to reflect on safety in the mining industry without acknowledging the tragic impact of the Brumadinho tailings dam failure in Brazil.

This disaster, which is not reflected in 2018 safety numbers, led to a significant loss of life and reminds the industry of the risk associated with mining activities, not just for employees but for surrounding communities.

The second major tailings disaster in three years, it has already triggered significant legislative changes in Brazil, while a number of the Top 40 are revisiting the governance and risk management of their tailings facilities.

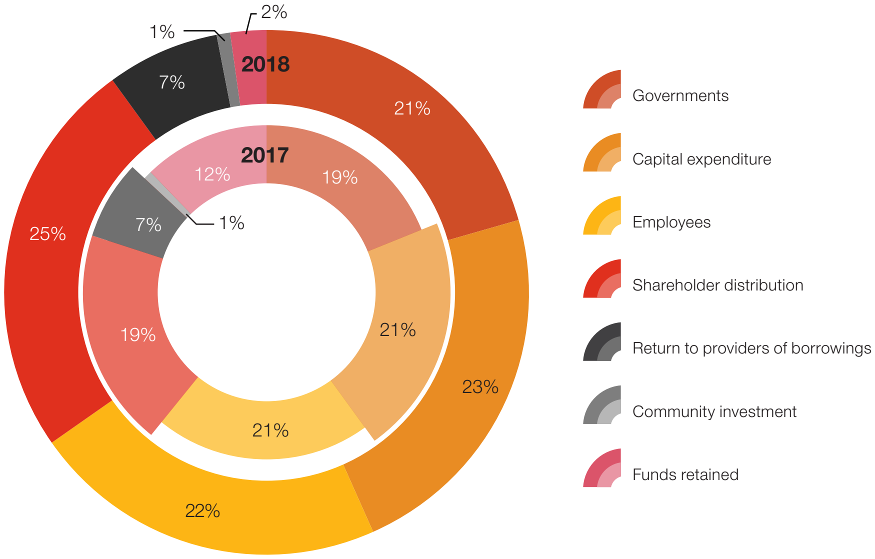
Despite a concerted effort to improve safety, there was an increase in fatalities from 96 to 102 for the 20 companies in the Top 40 that disclose safety statistics. While these tragedies continue, safety does show an overall improvement with fewer accidents reported. There were also significantly fewer lost time injuries recorded by those who report additional injury metrics. As PwC has mentioned in previous editions of *Mine*, using technology and automation in particularly risky activities may go some way to reducing the risk in the future.

Sharing value - what's mined is yours

Miners make significant contributions to those with a stake in the industry

This year, we analysed how the value that mining generates is shared. We found that governments, employees, shareholders and the mining business itself – in the form of capital expenditure – all benefited from mining and in relatively equal measure.

Figure 7: Top 40 value distribution - 2017 and 2018



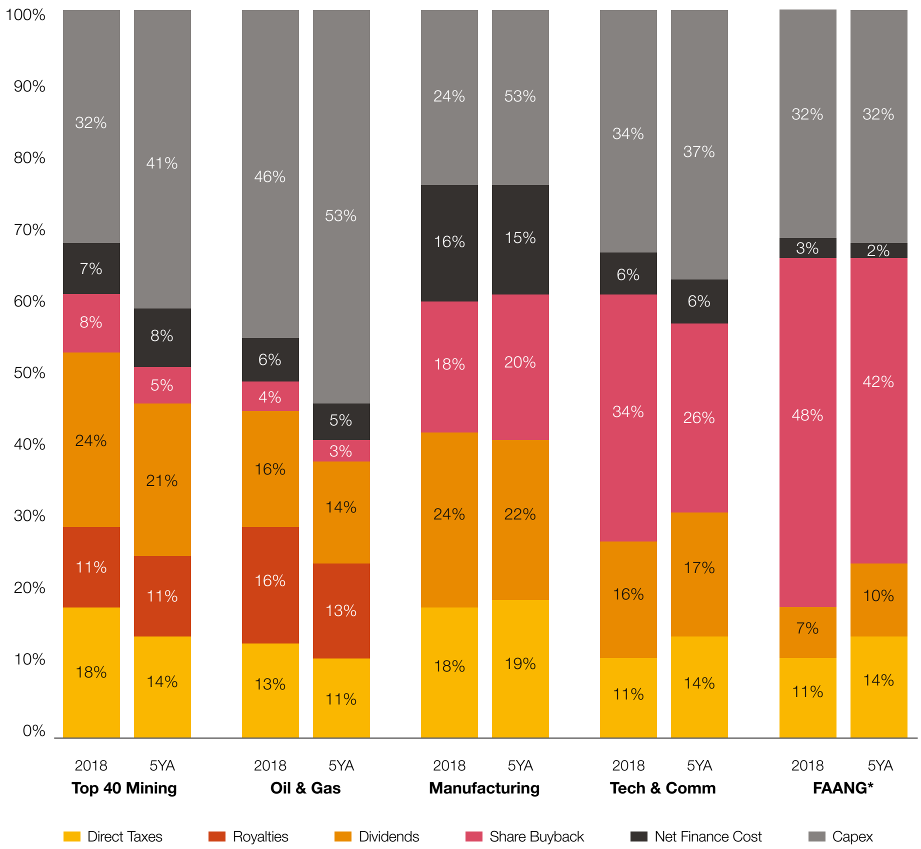
Source: Annual reports, PwC analysis

Government share

Mining, along with oil and gas, distributes a greater share of its value to governments than almost any other sector. That's because, on top of direct and indirect taxes, miners also pay substantial royalties in the form of resources rent for the finite resources extracted from the countries in which the Top 40 operate. Last year, the share of value distributed to governments in the form of direct taxes and royalties increased from 19% to 21%. In addition, a number of countries have implemented carbon taxes and/or emissions trading schemes. Of the 25 countries in which the Top 40 operate, 13 countries have already implemented these taxes / schemes and nine countries are actively considering implementation.

The following graph compares the mining industry to other industries in terms of value provided to governments, providers of capital and capital expenditure.

Figure 8: Value distribution: 2018 vs five-year average industry comparison



** FAANG - Facebook, Apple, Amazon, Netflix and Google*

Source: Annual reports and S&P Capital IQ

Despite high levels of dividends, total shareholder returns in the form of dividends, share buybacks and market capitalisation growth are lower than most of the comparable industries as a result of the need for long-term and ongoing capital expenditure. In a world where corporations are under increasing scrutiny over the tax they pay, the Top 40 miners need to make an extra effort to ensure stakeholders understand their true tax contribution. Simple disclosure is not enough: miners need to explain that income tax is only part of their total contribution. For example, over the last five years, royalties paid by the Top 40 was almost equal to the amount of direct taxes paid to governments, excluding employee taxes and other indirect taxes also paid. And, in many jurisdictions, miners are also facing substantial carbon taxes or emissions trading scheme levies.

Shareholders rewarded

A lift in operating cash flow has allowed the Top 40 to increase both capital expenditure and shareholders distribution in 2018. Dividend yield for the year was 5.5%. Those miners with formalised divided policies – 23 out of the Top 40 – paid out 67% of net earnings as dividends and 30% of net earnings as share buybacks, on average.

Shareholder return analysis

US$ bn	2019 Outlook	2018	2017	Var (%)
Operating cash flows	135	134	120	12%
Purchase of PP&E	(68)	(57)	(51)	12%
Free cash flow	**67**	**77**	**69**	**12%**
Dividends	(43)	(43)	(38)	13%
Share buybacks	(6)	(15)	(4)	275%
Total shareholder returns	**(49)**	**(58)**	**(42)**	**38%**
Dividends as a % of operating cash flows	32%	32%	32%	0%
Share buybacks as a % of operating cash flows	4%	11%	3%	8%
Total shareholder distribution as a % of operating cash flows	36%	43%	35%	9%
Dividends as a % of free cash flows	65%	56%	55%	1%
Share buybacks as a % of free cash flows	9%	20%	6%	14%
Total shareholder distribution as a % of free cash flows	74%	76%	61%	15%
Dividend yield	5.5%	5.5%	4.7%	17%

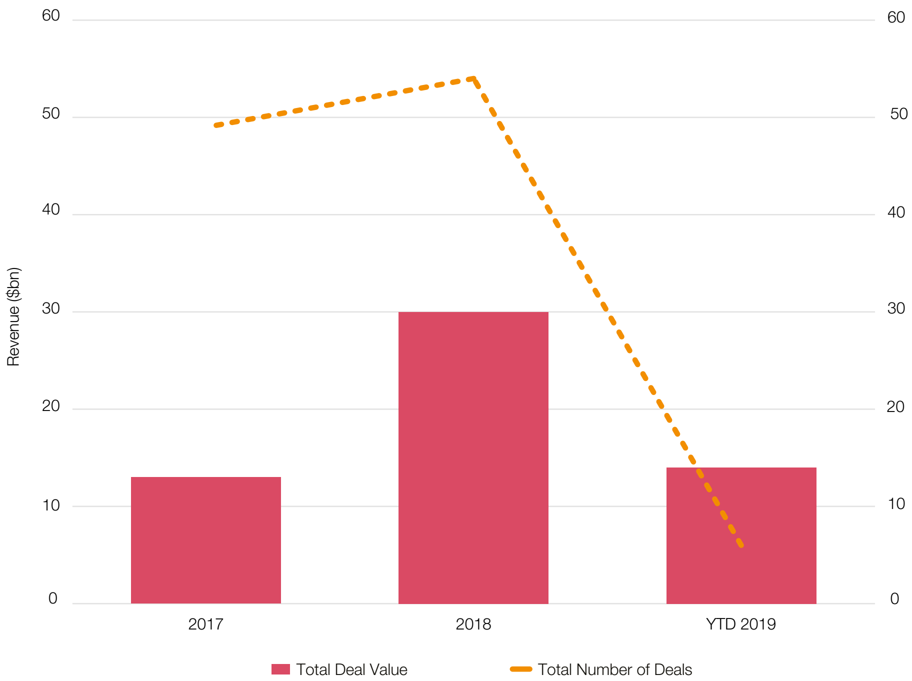
Source: Annual reports, PwC analysis

The jump in share buybacks in 2018 was notable. Rio Tinto and BHP Billiton accounted for 70% of the activity, mainly as a result of their large-scale disposal process during the year. While their shareholders may see buybacks as welcome news in the short-term, miners need to ask whether this has come at a cost given the challenges of attracting long-term capital. As we stressed in *Mine 2018: Tempting times*, miners need to distribute value in a way that will ensure a sustainable future for all stakeholders.

M&A activity picks up

After a period of sluggish activity, M&A is back on the agenda for the Top 40. In 2018, the value of announced transactions jumped 137% to $30bn, driven by a flurry of activity in the gold sector, the ongoing push by miners to optimise their portfolios, and momentum in acquiring energy metal projects to meet future demand. This renewed appetite for large transactions appears set to continue throughout 2019, with the deal value announced to 30 April 2019 already surpassing the value of all the announced deals in 2017.

Figure 9: Top 40 M&A snapshot: deal value and number*



**Calculated on deal announcement date i.e. deal value and number*

Source: S&P Capital IQ

Optimisation continues

Miners are making the most of opportunities to optimise their portfolios and collaborate with other majors or mid-tiers to find synergies. For example, Rio Tinto's decision to exit coal resulted in $4bn in coal asset sales in 2018, up from $3bn in 2017. BHP, Vale and Alrosa all sold off non-core assets. According to company presentations, Barrick and Newmont's joint venture over their Nevada assets will generate $5bn of operational synergies over 20 years.

Securing supply of battery metals

There is an ongoing push by the Top 40 and others to secure battery metals amid a growing uptake of electric vehicles and other mobile electrical devices. For example, China's Tianqi Lithium acquired Sociedad Química y Minera de Chile S.A. ("SQM") to secure sufficient raw materials for China's push for lithium. SQM allows Tianqi to obtain the raw materials required for the production of lithium, a metal essential for electric vehicle batteries, at a lower cost owing to vertical integration.

Notable transactions among Top 40 miners

$6.5bn

Barrick Gold Corp merged with Randgold Resources to create "industry-leading gold company with the greatest concentration of Tier One Gold Assets in the industry".[1]

$4.1bn

Tianqui's acquisition of 24% in SQM from Nutrien Ltd, as previously mentioned, to secure enough raw materials for China's push for lithium.

$4.1bn
($2.2bn+$1.7bn+ $0.2bn)

Rio Tinto's sale of coal assets to PT Adaro Energy Tbk (Kestral mine - $2.2bn), Glencore Plc (82% stake in Hail Creek Joint Venture and 71.2% stake in Valeria Coal Development Project - $1.7bn) and Whitehaven Coal Limited (Winchester South coaking coal project - $0.2bn).

$3.9bn

Freeport and Rio Tinto sold a portion of a portion of the Grasberg Mine to PT Indonesia Asahan Aluminium (Persero) because of Indonesia's divestment regulations.

[1] *https://www.barrick.com/news/news-details/2018/Barrick-and-Randgold-Combine-to-Create-Industry-Leading-Gold-Investment-Vehicle/default.aspx*

Golden years

A shrinking pipeline of projects, fewer gold discoveries and high-grade deposits, combined with a lack of funding for junior developers is changing the gold sector. Fragmentation in the industry led to an inefficient allocation of capital and excessive competition for a shrinking list of quality development-stage assets.

These factors are driving a renewed round of consolidation with $7bn of gold transactions in 2018 and $14bn so far in 2019[1]. Gold transactions increased from 8% of the total Top 40 deal value in 2017 to 25% in 2018 and are tracking at close to 95% in 2019 (as at end April 2019).

These numbers are even higher when the significant transactions involving copper-gold assets are considered. As newly merged entities move to sell off non-core assets, mid-sized miners will be looking to purchase some of these assets and may merge or form joint ventures to become more competitive and attractive to larger investors.

Gold mining companies need to be rigorous and disciplined with prospective deals. With all the value generated by mergers and acquisitions between 2005 and 2012 now lost, investors are still reeling from past transactions where purchasers overpaid for assets.

[1] *Does not include deal value associated with the Barrick/Newmont JV*

Top 40 financial position

Positioned for growth

Despite the real liquidity concerns during 2014 and 2015, the Top 40 mining companies have shored up their positions. A further net borrowings repayment of $11.5bn resulted in the gearing position dropping below the ten-year average. All liquidity and solvency ratios improved during the year.

$bn	2018	2017	Change (%)
Current assets			
Cash	101	99	2%
Inventories	77	79	(3%)
Accounts receivable	55	60	(8%)
Other	52	38	37%
Total current assets	**285**	**276**	**3%**
Non-current assets			
Property, plant and equipment	610	644	(5%)
Goodwill and other intangibles	52	56	(7%)
Investment in associates and joint ventures	43	44	22%
Other investments and loans granted	30	24	(25%)
Other	60	66	(9%)
Total non-current assets	**795**	**834**	**(5%)**
Total assets	**1,080**	**1,110**	**(3%)**
Current liabilities			
Accounts payable	87	89	2%
Borrowings	34	44	(23%)
Other	55	54	2%
Total current liabilities	**176**	**187**	**(6%)**
Non-current liabilities			
Borrowings	217	229	(5%)
Other	147	150	(2%)
Total non-current liabilities	**364**	**379**	**(4%)**
Total equity	**540**	**544**	**(1%)**
Total equity & liabilities	**1,080**	**1,110**	**(3%)**
Key ratios			
Gearing ratio	28%	32%	
Current ratio	1.62	1.48	
Quick ratio (times)	1.18	1.05	

Source: Annual reports, PwC analysis

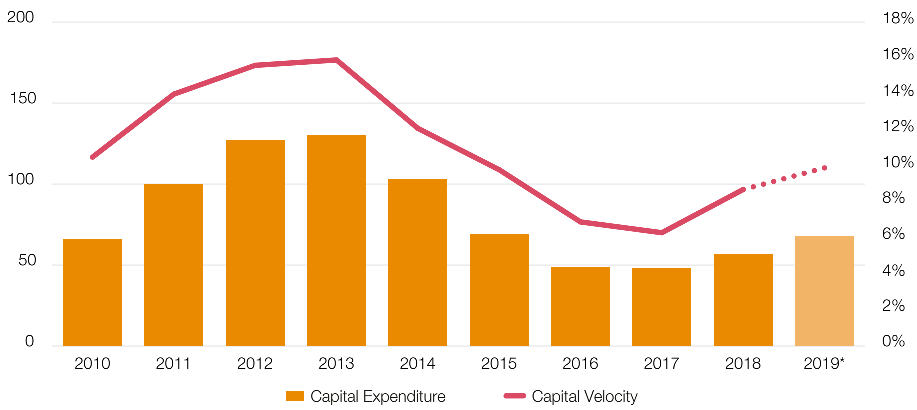
$bn	2019 Outlook	2018	2017	Change (%)
Cash flow related to financing activities				
Dividends paid	(43)	(43)	(38)	13%
Share buybacks	(6)	(15)	(4)	275%
Proceeds from borrowings	69	67	61	10%
Repayment of borrowings	(69)	(78)	(88)	(11%)
Share issuances/ capital raisings	2	3	8	(63%)
Other	-	(4)	0	-
Net financing cash flows	**(47)**	**(70)**	**(61)**	**14%**

Source: Annual reports, PwC analysis

Capital investment to create sustainable value

In line with expectations, capital expenditures started to rise again, albeit from historically low levels. Nevertheless, the modest increase – 12% over the previous year to $57bn – suggests that miners are continuing to proceed cautiously. 48% of spending was for ongoing projects, with relatively few new ones approved and initiated in 2018.

Figure 10: Top 40 capital velocity (%) compared with capital expenditure ($bn)



*2019 Outlook

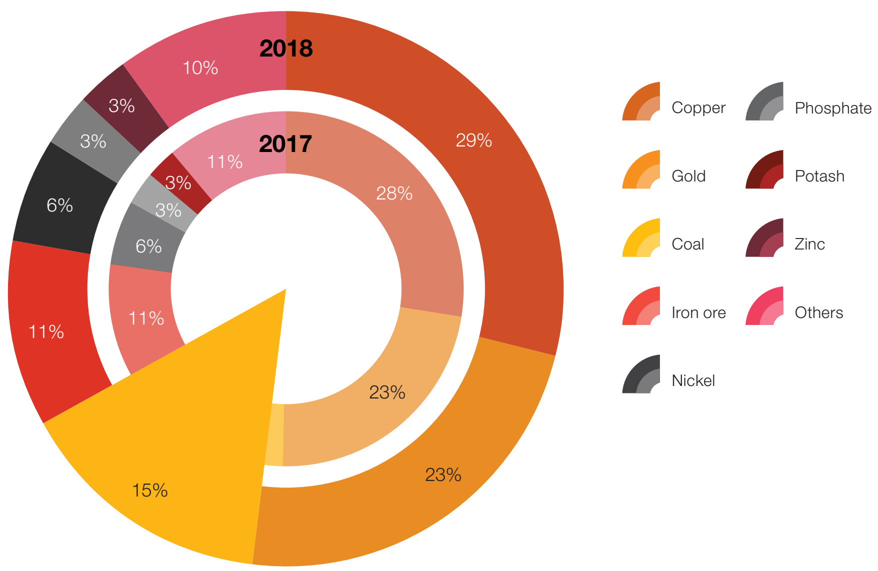
Source: PwC analysis

$bn	2019 Outlook	2018	2017	Change
Cash flow related to investing activities				
Purchases of property, plant and equipment	(68)	(57)	(51)	12%
Purchase of investments	(7)	(19)	(7)	171%
Proceeds from sale of property, plant and equipment	4	4	3	33%
Proceeds from sale of investments	6	18	6	200%
Other	(5)	(9)	(1)	1349%
Net investing cash flows	**(70)**	**(63)**	**(50)**	**26%**

Source: Annual reports PwC analysis

Copper and gold dominated the Top 40 capital expenditure during 2018, attracting $30bn of investment. Coal capital expenditure was consistent year on year and we expect miners will maintain current production levels while the coal price is high to maximise their profit. With the long-term coal price forecast to soften, it is likely that capital expenditure for new development will be delayed. Iron and nickel also show consistent capital expenditure spending over the last two years.

Figure 11: Capital expenditure by commodity: 2017 and 2018 ($bn)



Source: PwC analysis

The time is now

Mining companies have a window of opportunity to demonstrate that they are essential to resourcing the future and that they have what it takes to respond to the rapidly changing world around them. They should use their strong balance sheets and cash generating ability to make the difficult yet essential transformations for a low carbon, high tech and consumer-centric future. With investors' sentiment starting to turn, the time for miners to act is now.

Here are five tactical and strategic areas to consider:

Push technology and innovation downstream

- Identify downstream opportunities for innovation, particularly in reducing carbon emissions
- Build collaborations across the broader technology and industry ecosystem

Respond proactively to consumer preferences

- Test the market with a differentiated green product with premium pricing
- Partner with product developers for sustainable, ethical and traceable inputs across the supply chain

Build a culture of diversity for a new world

- Assess diversity across a range of metrics including skills, thinking styles and ways of working
- Implement strategies that foster diversity simultaneously at all levels of the organisation

Speak up about sharing value

- Communicate openly and regularly with all stakeholders about how value is shared
- Build trust through independent verification

Bring consumers on the journey

- Build awareness and engagement about the connections between mining and consumer products
- Demonstrate a willingness to listen and respond to consumer feedback

Top 40 global mining companies

We have analysed 40 of the largest listed mining companies by market capitalisation as at 31 December 2018

Name	Country	Commodity focus	Year end	2019 Ranking	*2018 Ranking
BHP Group Limited	Australia/UK	Diversified	30-Jun	1	1
Rio Tinto Limited	Australia/UK	Diversified	31-Dec	2	2
Vale S.A.	Brazil	Diversified	31-Dec	3	5
Glencore Plc	Switzerland	Diversified	31-Dec	4	3
China Shenhua Energy Company Limited	China/Hong Kong	Coal	31-Dec	5	4
MMC Norilsk Nickel	Russia	Nickel	31-Dec	6	6
Anglo American plc	UK/South Africa	Diversified	31-Dec	7	7
Coal India Limited	India	Coal	31-Mar	8	10
Newmont Mining Corporation	United States	Gold	31-Dec	9	12
Grupo México S.A.B. de C.V.	Mexico	Diversified	31-Dec	10	9
Barrick Gold Corporation	Canada	Gold	31-Dec	11	14
Saudi Arabian Mining Company (Ma'aden)	Saudi Arabia	Diversified	31-Dec	12	15
Freeport-McMoRan Copper & Gold Inc.	United States	Copper	31-Dec	13	8
Teck Resources Limited	Canada	Diversified	31-Dec	14	16
South32 Limited	Australia	Diversified	30-Jun	15	19
Newcrest Mining Limited	Australia	Gold	30-Jun	16	20
The Mosaic Company	United States	Potash	31-Dec	17	28
China Molybdenum Co. Limited	China/Hong Kong	Diversified	31-Dec	18	11
Shaanxi Coal Industry	China/Hong Kong	Coal	31-Dec	19	23
Zijin Mining Group Co. Limited	China/Hong Kong	Diversified	31-Dec	20	17
Polyus Gold International Limited	UK	Gold	31-Dec	21	27
ALROSA	Russia	Diamond	31-Dec	22	31
Antofagasta plc	UK	Copper	31-Dec	23	21
Agnico-Eagle Mines Group Limited	Canada	Gold	31-Dec	24	26
Fortescue Metals Group Limited	Australia	Iron Ore	30-Jun	25	24
Shandong Gold Mining Company Limited	China/Hong Kong	Gold	31-Dec	26	34
Goldcorp Inc.	Canada	Gold	31-Dec	27	25
Fresnillo plc	Mexico	Diversified	31-Dec	28	18
China Coal Energy Company Limited	China/Hong Kong	Coal	31-Dec	29	29
Sumitomo Metal Mining Company	Japan	Diversified	31-Mar	30	22
Jiangxi Copper Company Limited	China/Hong Kong	Copper	31-Dec	31	36
First Quantum Minerals Limited	Canada	Copper	31-Dec	32	30
Kirkland Lake Gold Ltd	Canada	Gold	31-Dec	33	New
Yanzhou Coal mining Company Limited	China/Hong Kong	Coal	31-Dec	34	35
AngloGold Ashanti Limited	South Africa	Gold	31-Dec	35	New
Polymetal International plc	Russia/UK	Gold	31-Dec	36	New
Tianqi Lithium Industries, Inc.	China	Lithium	31-Dec	37	33
KGHM Polska Miedz Spólka Akcyjna	Poland	Copper	31-Dec	38	39
China Northern Rate Earth (Group) High-Tech Co. Limited	China	Rare Earth	31-Dec	39	37
PT Bayan Resources Tbk	Indonesia	Coal	31-Dec	40	New

* https://www.pwc.com/Mine-2018

Our analysis includes major companies from all parts of the world whose primary business is assessed to be mining. The results aggregated in this report have been sourced from the latest publicly available information, primarily annual reports and financial reports available to shareholders. Our report also expresses PwC's point of view on topics affecting the industry, developed through interactions with our clients and other industry leaders and analysts.

Companies have different year ends and report under different accounting regimes, including International Financial Reporting Standards (IFRS), United States Generally Accepted Accounting Principles (US GAAP) and others. Information has been aggregated for the individual companies and no adjustments have been made to take into account different reporting requirements. As far as possible, we aligned the financial results of reporters to be as at, and for, the year ended 31 December 2018. For companies that do not have December year ends, we added and deducted reviewed results to reflect the comparable 12-month period.

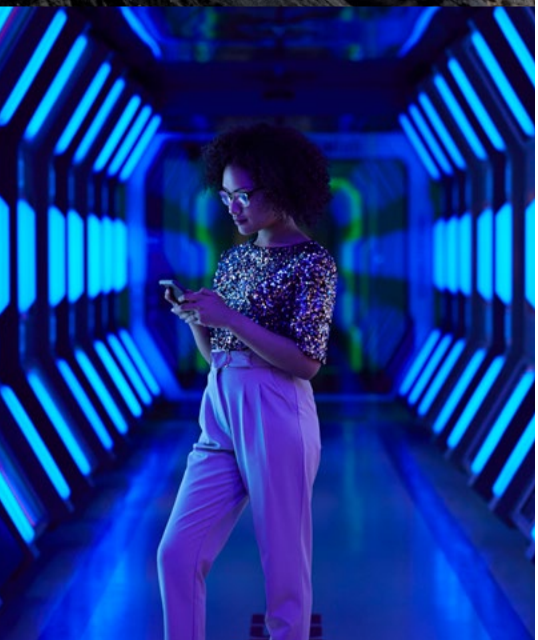
All figures in this publication are reported in US dollars ($), except when specifically stated. The balance sheets of companies that report in currencies other than the US dollar have been translated at the closing US dollar exchange rate and the cash flow and financial performance was translated using average exchange rates for the respective years.

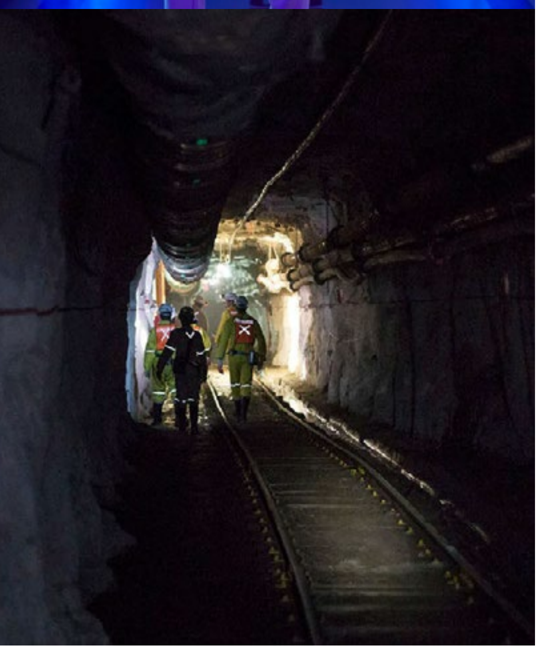
Some diversified miners undertake part of their activities outside the mining industry, such as the oil and gas businesses of BHP and Freeport, parts of the Rio Tinto aluminium business and Glencore's marketing and trading revenues and costs. No attempt has been made to exclude such non-mining activities from the aggregated financial information, except where noted. Where the primary business is outside the mining industry, they have been excluded from the Top 40 listing.

All streamers such as Franco Nevada and Silver Wheaton have been excluded from the Top 40 list. Entities that are controlled by others in the Top 40 and consolidated into their results have been excluded, even when minority stakes are listed.

Notable takeaways from this year's Top 40:

- Four new entrants: in gold, Kirkland Lake Gold Ltd, AngloGold Ashanti Limited and Polymetal International plc and coal company PT Bayan Resources Tbk. They replaced PotashCorp (now part of Nutrien where mining is a small part of their business), Randgold Resources (now merged with Barrick Gold Corporation), National Mineral Development Corporation and KAZ Minerals.
- The dominance of Top 40 gold companies increased to ten companies this year, coal companies increased to six and diversified companies still accounted for 13.
- Two key movers in 2018 were The Mosaic Company, which moved up 11 spots to 17 and Fresnillo which moved down ten places to 28.
- The top five companies make up 50% of total Top 40 market capitalisation.





2019 outlook methodology

The 2019 outlook information is based on historic performance with adjustment for a range of factors including those described in the summary below.

Income statement

- Revenue splits by product are broadly consistent with those for 2018. Consideration was given to price forecasts from a range of sources, including the World Bank (April 2019), IMF and consensus views from a wide range of market analysts. The prices applied in each instance sit within the ranges provided by these sources.
- Production increases are based on guidance provided by Top 40 mining companies (where available) and general industry forecast production levels. This resulted in an overall expected increase of approximately 2%.
- The outlook remains extremely sensitive to commodity prices. As a guide, if resultant prices are at the more conservative end of the expected range, then revenues would drop to 3% below 2018 year levels and EBITDA drops even further to 2017 levels. Conversely, if the top end of the range was achieved, then revenue increases by more than 3% and EBITDA by 10% (compared with 2018).
- Operating costs took into account the estimated breakdown of operating costs as disclosed by the Top 40 and then applied expected increases provided from sources such as World Bank, ILO and Baltic shipping index forward rates.
- Depreciation decrease reflects the decrease in the PPE balance partially off-set by the slight increase in expected production volumes.
- Net finance cost was reduced in line with the net debt position.
- The tax expense was increased using a normalised effective tax rate for 2018 and applying that to the calculated profit before tax.

Cash flow statement

- Cash flow from operations was left in line with 2018 as the marginal expected increase in EBITDA was offset by an expected increase in working capital.
- Investing cash flows assume that property plant and equipment additions will increase taking into account the EBITDA growth of two years ago and an increase in capital velocity from the current low levels. Cash outflow from other investing transactions is expected to decrease given the high levels of investments made in 2018.
- Dividends paid is expected to remain stable as pressures on free cash flows will prohibit an increase and shareholder expectations will require no decrease. A number of Top 40 companies have set fixed dividend policies that will result in similar levels of dividends given the relative flat earnings expectation for 2019.
- The net outflow from borrowings repaid is expected to slow down as many Top 40 companies have already resolved excessive gearing positions and gearing has dropped below the 10 year average. Share issues are estimated to decrease, reflecting statements by many Top 40 companies that they have sufficient capital in the short term (and in the absence of limited new large project announcements).

Lease accounting impact (IFRS 16 and ASC 842)

The new lease standards become effective for 2019. These standards will impact the majority of our Top 40. For consistency, we have not considered this impact in our outlook. However, there will be an impact across the financial statements of our Top 40. Our expectations include the following:

- 1%–2% increase to 2018 PP&E balances through the recognition of right-of-use assets;
- 4%–6% increase to 2018 interest bearing liabilities through the recognition of lease liabilities, with a corresponding increase to interest expense;
- 1%–2% increase to 2018 EBITDA due to removal of leases expenses from operating expenses; and
- 4%–6% increase to 2018 depreciation due to the depreciation of right-of-use assets.

S&P Capital IQ waiver

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Glossary

Terms	Definition
Capital employed	Property plant and equipment plus current assets less current liabilities
Capital expenditure	Purchases of property, plant and equipment plus exploration expenditure
Capital velocity	Ratio of capital expenditure to capital employed
CEO	Chief Executive Officer
EBITDA	Earnings before interest, tax, depreciation, amortisation and impairments
EBITDA margin	EBITDA/revenue
Free cash flow	Operating cash flows less purchases of property, plant and equipment
Gearing ratio	Net borrowings/equity
IMF	International Monetary Fund
M&A	Mergers and acquisitions
Market capitalisation	The market value of the equity of a company, calculated as the share price multiplied by the number of shares outstanding
Net assets	Total assets less total liabilities
Net Asset Value (NAV)	Net asset value based on analyst consensus estimates (not the net assets derived from the financial statements)
Net borrowings	Borrowings less cash
Net profit margin	Net profit/revenue
PBT	Profit before tax
Quick ratio	(Current assets less inventory)/current liabilities
Return on capital employed (ROCE)	Net profit excluding impairment/capital employed
Return on equity (ROE)	Net profit/equity
Top 40	40 of the world's largest mining companies by market capitalisation as of 31 December 2018
Working capital	Inventory and trade receivables less trade payables

10 year trend

$ billion	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Aggregate market capitalisation	757	926	714	494	791	958	1234	1202	1605	1259
Aggregated income statement										
Revenue	683	600	496	539	690	719	731	716	435	325
Operating expenses	(518)	(454)	(390)	(448)	(531)	(554)	(553)	(487)	(246)	(217)
EBITDA	165	146	106	91	159	165	178	229	189	108
Impairment charges	(12)	(4)	(19)	(53)	(27)	(57)	(45)	(16)	(1)	(11)
Amortisation, depreciation and impairment	(47)	(41)	(44)	(42)	(48)	(42)	(34)	(26)	(33)	(20)
Net finance cost	(13)	(11)	(9)	(19)	(15)	(16)	(6)	(6)	(7)	(6)
PBT	93	90	34	(23)	69	50	93	181	148	71
Income tax expense	(27)	(29)	(15)	(4)	(24)	(30)	(25)	(48)	(38)	(22)
Net profit/(loss)	66	61	19	(27	45	20	68	133	110	49
EBITDA margin	24%	24%	21%	17%	23%	23%	24%	32%	43%	33%
Aggregated cash flow statement										
Operating activities	134	119	89	92	127	124	137	174	137	83
Investing activities	(63)	(46)	(40)	(69)	(93)	(125)	(169)	(142)	(79)	(74)
Financing activities	(70)	(63)	(44)	(31)	(31)	(3)	21	(28)	(35)	10
Dividends paid	(43)	(36)	(16)	(28)	(40)	(41)	(38)	(33)	(22)	(15)
Share buy backs	(15)	(7)	(4)	(7)	(6)	(4)	(5)	(26)	(5)	0
Free cash flow	77	71	40	23	24	(6	11	76	70	19
Aggregated balance sheet										
Cash	101	102	86	82	83	168	104	113	105	74
Property, plant and equipment	610	663	616	579	745	712	701	601	511	467
Total assets	**1080**	**1129**	**1063**	**1047**	**1231**	**1256**	**1245**	**1139**	**943**	**801**
Total liabilities	**540**	**573**	**563**	**569**	**630**	**624**	**563**	**482**	**387**	**354**
Total equity	**540**	**556**	**500**	**478**	**601**	**632**	**682**	**657**	**556**	**447**

Note: The information included above includes the aggregated results of the Top 40 mining companies as reported in each respective edition of Mine

Mine 2019 writing team

For a deeper discussion, please contact one of our regional leaders in the PwC network or your local PwC partner:

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We're also pleased to recognise contributions from Andries Rossouw, Mine 2019 lead partner (PwC South Africa), Xin Liang (PwC China) and Pablo Arancibia (PwC Chile).

Written on location in Melbourne, Australia.

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