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AMMA RESOURCE INDUSTRY Market Outlook

Autumn 2017 edition

Contents

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Tristan Menalda is an independent consultant who specialises in resource industry policy, advocacy and economics. Tristan has more than 10 years of domestic and international experience in the resource industry. He has held a number of roles focusing on government policy, strategy, international relations, stakeholder management, investment, economics, risk, governance, audit and accountancy. Tristan has previously worked in-house for AMMA, as a senior adviser to the managing director of Rio Tinto Australia and at Ernst & Young.

Introduction

Welcome to the Autumn 2017 edition of the *AMMA Resource Industry Market Outlook*.

During the past quarter, the resource industry has been buoyed by stronger commodity prices and higher confidence levels. The value of Australian resource exports has been upwardly revalued by 30% in 2016/17 to $204bn[1]. While 2017 looks like a year of resurgence for the industry, the longer term health of the industry is being thwarted by a material deterioration in the number and value of major resource and energy projects in Australia's investment pipeline, critically low exploration spend and a number of highly contentious state and national policies. This has led to an emerging trend of companies in industry sub-sectors (such as coal, iron ore, gas) avoiding strategic investment decisions due to unacceptable levels of risk and exposure that potential state and federal polices, if legislated, could create.

This edition of AMMA's *Resource Industry Market Outlook* seeks to unpack these developments and provide analysis, insight and forecasts on prospects for the Australian resource industry. It includes:

- Commodity price forecasts for 2017.
- Actual and forecast exploration spend levels.
- Revised investor confidence levels and drivers of investor confidence including financial market volatility, ASX developments, and actual and forecast capital expenditure levels.
- A feature piece on Australia's major resource and energy investment project pipeline.
- Economic parameter analysis – GDP, unemployment, CPI, WPI, GST distribution, 20 year analysis on mining wage growth as well as analysis on mining productivity levels.
- Intelligence on how Australia, our key resource export country competitors and key trading partners are perceived and ranked from a global corruption perspective.
- Plus much more.

[1] https://www.industry.gov.au/Office-of-the-Chief-Economist/Publications/Documents/req/REQ-December-2016.pdf

Commodity price resurgence

Prognosis: In 2017, resource exports will increase, commodity prices will surge and Australia will become more reliant on the resource industry.

It was only a matter of time. According to the government's leading commodity forecaster[2], resource exports are forecast to surge 30% this year, from $157 billion to $204bn. This is a dramatic 16% increase from the previous forecast.

Underlying this positive outlook have been significant gains and strong momentum in commodity prices. Over the past year, the price of metallurgical coal is up 124%, iron ore 59%, zinc 57%, thermal coal 54%, and copper 22%.

Figure 1a: Copper

Figure 1b: Iron ore

Figure 1c: Zinc

Figure 1d: Crude oil

[2] Office of the Chief Economist – Resources and Energy Quarterly publication, Dec 16 edition

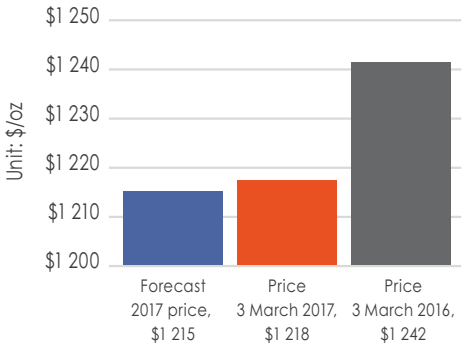
Commodity price resurgence (cont.)

While each commodity has its own idiosyncratic characteristics and growth trajectories, key reasons for the rise in the index of commodity prices and the optimistic outlook include:

- Metal prices rising due to markedly higher demand from China together with supply constraints, including closures of various tier-one mines in Australia, Canada and Ireland.
- Iron ore and copper prices rising on the back of supply constraints, falling inventory and greater demand from China.
- LNG prices rising due to increased demand and production outages.
- Coal prices rising as China enacts a policy to curb coal capacity by reducing the number of working (thus production) days from 330 to 276.
- Energy prices rising due to Organisation of the Petroleum Exporting Countries (OPEC) producers and non-OPEC producers agreeing to limit output in Q1 and Q2 of 2017.
- Energy prices rising due to higher than expected consumer demand, as Europeans chill through below average winter temperatures. Simultaneously, Europe has been impacted by various supply challenges, such as nuclear outages in France which has not only caused domestic disruptions, but also impacted the reliability of supply in importing nations such as the UK. To compensate for the shortfall, various European countries have placed greater demand on other energy commodities such as coal to address the energy shortfall.
- By way of contrast, precious metals have fallen post the BREXIT and US election results, as investors prioritise to yield-bearing assets, and look to capitalise on opportunities as a result of the strengthening US dollar and rising interest rates. Additionally, physical gold demand softened in 2016, as the Modi Indian government decided to withdraw 500 and 1,000 rupiah notes from circulation in an effort to curb illicit inventories of cash. This action will have a particular short-term implication for the demand of physical assets, notably gold and real estate, as demand will be curtailed by the reduction in 'black market' transactions.

Figure 1e: Aluminium

Figure 1f: Gold



Commodity price resurgence (cont.)

Taking all of the factors into account, as well as factoring in rising global geopolitical risks, it is forecast that daily commodity price movements will be more volatile in 2017 compared with the long-term average. Although 2017 will likely be a positive year for most of Australia's key commodities, there has never been a more important time for rational strategic decisions to prevail over what will likely be irrational and erratic market conditions.

Figure 1g: Natural gas

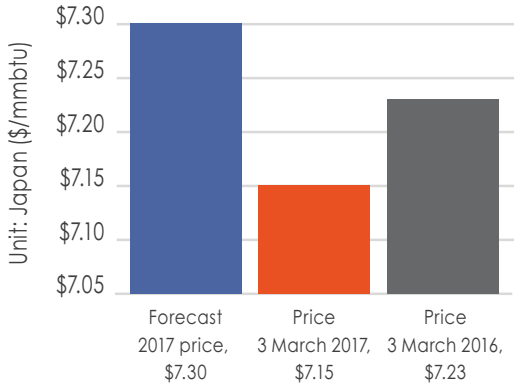


Figure 1h: Thermal coal

Figure 1i: Metallurgical coal

Source for all commodity graphs:
(forecasts): Averaged prices from the Office of the Chief Economist - Resources and Energy Quarterly (December 16' edition), World Bank Commodity markets outlook (January 17' edition).
(prices: 3 March dates): UBS and World Bank"

Exploration

Crisis looms for the resource industry as exploration falls to critical levels

Over the past year, mineral exploration has fallen by 7.1% from already suppressed lows of $1.515bn to $1.406bn. While $1.406bn may seem like a significant amount of money, four years ago annual mineral exploration spend was $3.864bn. This represents a fall of 64%.

Today, mineral exploration has become almost extinct in Victoria, South Australia and Tasmania, with combined quarterly spend valued at less than $10.5m, from previous quarterly highs of $90m.

Over the past four years, the key Australian resource states of Western Australia and Queensland have also seen a significant downturn in mineral exploration activity, with exploration spend down 58% and 78% respectively.

Since last year, the largest falls in exploration spend according to commodity have come from:

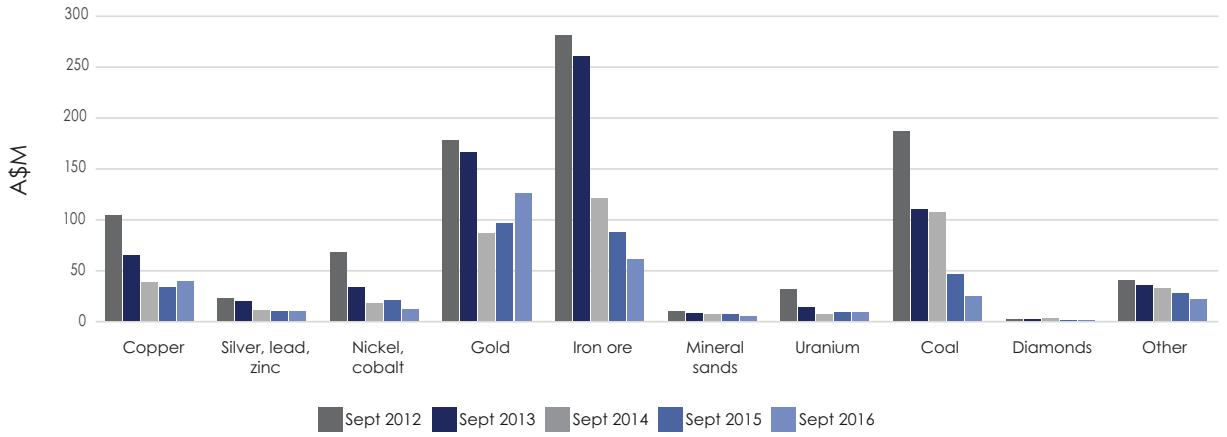
- iron ore - down by $98.2m to $288.8m;
- coal - down by $73.5m to $154.3m; and
- uranium (down by $18.3m to $27.8m).

Copper on the other hand, has reversed the trend, showing signs of buoyancy with annual exploration spend up by $4.6m to $135m.

In more positive news (see figure 2), when comparing the September '16 quarter against the September '15 quarter, mineral and selected base metal exploration spend levels have stabilised while others have seen signs of recovery. Gold exploration spend is up by $25.4m and copper is up by $4.6m.

Figure 2: Australia: Quarterly mineral and selected base metal exploration expenditure spend comparison

Source: ABS Cat. 8412. Table 5.

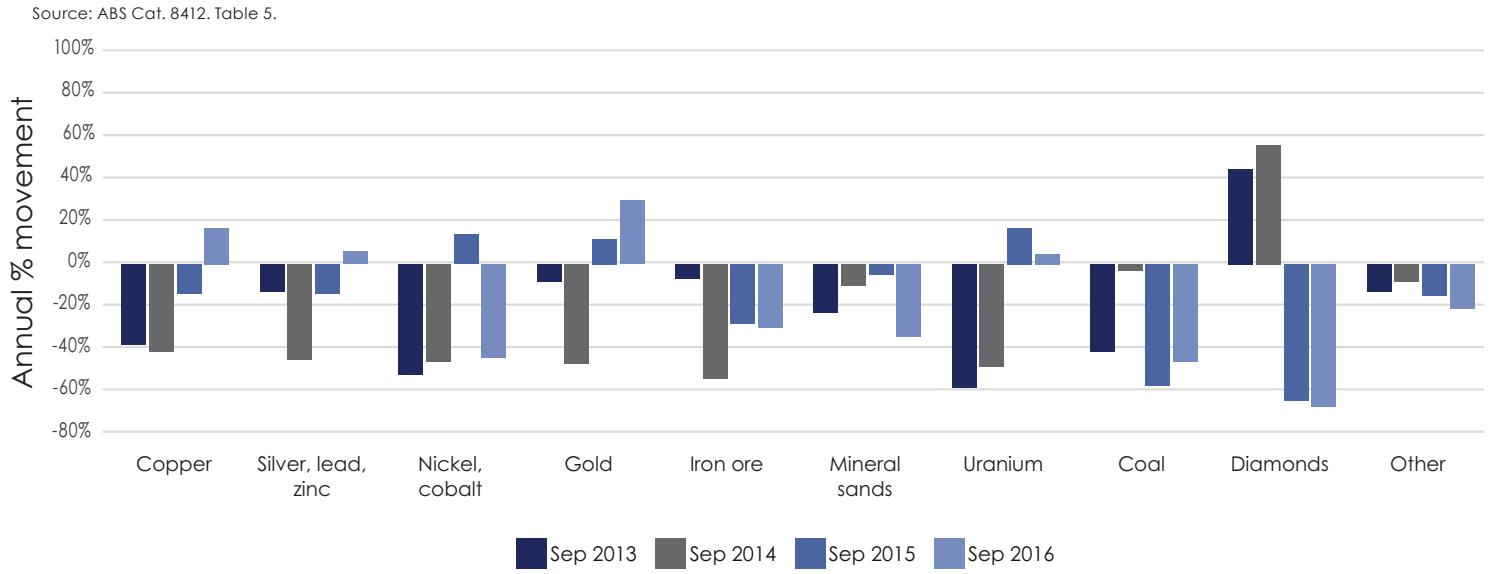


Exploration (cont.)

The statistics also reveal that the downturn of exploration spend in nickel, cobalt, iron ore and diamonds has also stopped.

From the 10 commodity groups analysed over the past quarter, comparing June '16 with September '16, only diamond exploration spend failed to sparkle, down (by $0.7m to $0.2m). Exploration spend in all other commodity groups either stabilised or increased, headlined by mineral sands which went up by 55% to $6.2m, coal which went up by 23% to $37.2m and nickel/cobalt which went up by 16% to $12.3m.

Figure 3: Australia: Quarterly percentage movement in mineral and selected base metal exploration expenditure spend



Exploration (cont.)

Petroleum exploration descends

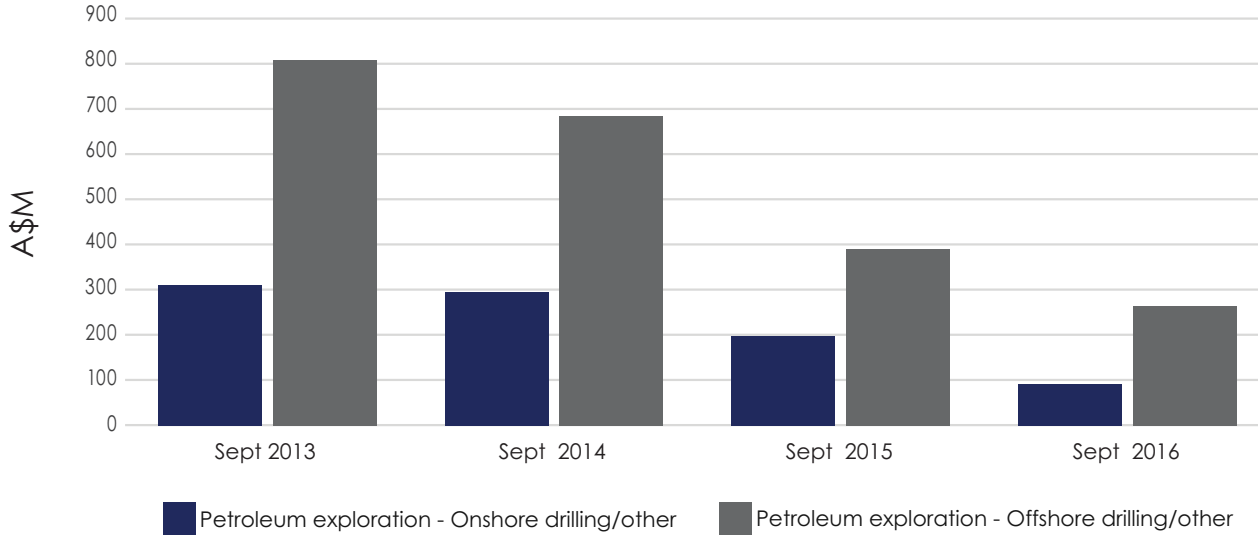
Over the past year, onshore petroleum exploration spend plummeted by 66% from $1.155bn to $395m. Offshore petroleum exploration also fell, down nearly 50% from $2.240bn to $1.085bn.

Contrary to the performance of mineral and selected base metal commodities, onshore petroleum exploration spend in the September '16 quarter continued to fall, down by 52% to $95.6m compared with the September '15 quarter, and offshore petroleum exploration also fell, down by 32% to $259.6m.

However, over the latest quarter, June to September '16, perhaps as a result of the highly publicised looming gas shortages as well as supply constraints, onshore petroleum exploration spend increased by $36.4m and offshore petroleum exploration spend followed the same path, up $35.4m.

Figure 4 Australia: Quarterly Petroleum Exploration Spend

Source: ABS Cat. 8412. Table 6a - original, AMMA analysis



Exploration (cont.)

Uncertain road ahead for petroleum exploration

There are three key policy issues for the petroleum exploration industry creating uncertainty, all of which have the potential to either see the industry flourish, or bring it to a halt. The three policy issues (and recommended policy solutions) come right to the heart of energy policy - security, reliability and affordability. Those three policy issues are:

1. **Australia needs its States and Territories to remove gas exploration moratoriums and lift bans on fracking.** The Victorian government introduced a bill in 2016 to permanently ban fracking and coal-seam gas exploration. Tasmania introduced a five-year ban in 2015. The Northern Territory instituted a moratorium on unconventional onshore gas activities in the Territory.
2. **Ability for governments to meet renewable energy targets without jeopardising energy reliability.** Renewable energy targets have been set as follows:

Federal Coalition	23% by 2020
Federal Labor	50% by 2030
Western Australia	No target set
Queensland	50% by 2030
New South Wales	20% by 2020
Victoria	40% by 2025
South Australia	50% by 2025
Tasmania	Currently bordering 90% (hydro and wind)
Northern Territory	No target set
Australian Capital Territory	100% by 2020

3. **Modifications to the Petroleum Resource Rent Tax (PRRT) framework must be avoided.** There is significant concern that proposed policy changes may create sovereign risk issues for current operators. Imposing new taxes will simply create new pressures for an industry already dealing with prolonged suppressed prices, will impair business confidence and detract from future petroleum investment activity (exploration, construction and production) within Australia.

Investor confidence

Confidence levels rise above escalating volatility risk

AMMA's volatility index is a forward-looking, short-term tracker that gauges levels of volatility and investor confidence in resource stocks. It tracks events and developments that impact on investor sentiment and market realities.

Recently, in a rather surprising sequence of events, investor confidence levels have increased to heights that surpass rising volatility risk. Typically, as volatility rises, investor confidence falls. But recently it appears that investors have shaken off, or at least adjusted, their risk appetite, and are seeking to capitalise on opportunities in an uncertain marketplace. As a result, the period since the previous AMMA Market Outlook (Spring 2016) has seen a further moderate shift towards 'confidence' using AMMA's Volatility Index.

Notably:

- There has been a significant turnover of resource-focused companies on the ASX since the last Market Outlook, with 29 delisted companies, 7 listed companies and 12 upcoming floats and listings. The delisted companies were largely exploration and coal focused companies, and the listings and floats were largely exploration companies (with tenements inside Australia and Canada) and critical metal commodities. The resurgence of mining and metal floats is a welcome sign for the resource industry, following years of relative inactivity.

Figure 5: AMMA's Volatility Index

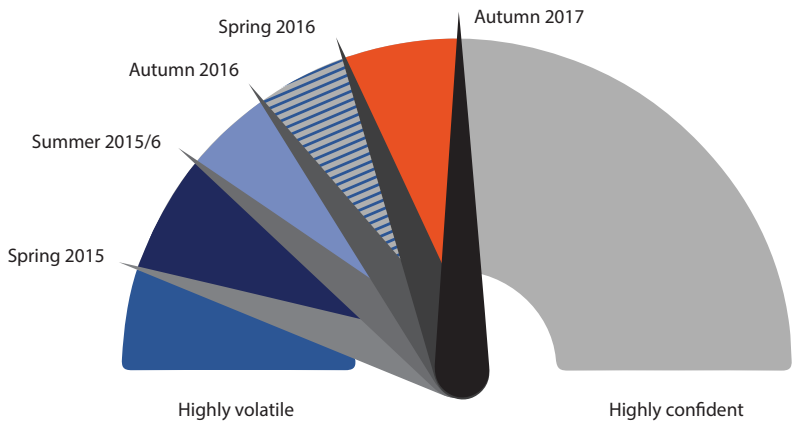


Figure 6: Upcoming floats and listings

Category	Company	ASX code	Listed/Delisted date
Upcoming	WILGENA RESOURCES LIMITED	WRX	N/A
Upcoming	TRAPROCK MINING LIMITED	TMI	N/A
Upcoming	RAPTOR RESOURCES LIMTED	RPL	N/A
Upcoming	NELSON RESOURCES LIMTED	NES	N/A
Upcoming	METALS TECH LIMITED	MTC	N/A
Upcoming	MATADOR MINING LIMTED	MZZ	N/A
Upcoming	MARQUEE RESOURCES LIMITED	MQR	N/A
Upcoming	MAJESTIC HORIZIN HOLDINGS LIMITED	MHH	N/A
Upcoming	LITHIUM CONSOLIDATED MINERAL EXPLORATION PTY LTD	LI3	N/A
Upcoming	HUNTSMAN RESOURCES LIMITED	HRE	N/A
Upcoming	E2 METALS LIMITED	E2M	N/A

Investor confidence (cont.)

Figure 7: Recently delisted ASX resource-focused companies

Category	Company	ASX code	Listed/Delisted date
Delisted	WORLD TITANIUM RESOURCES LIMITED	WTR	31/01/2017
Delisted	METALIKO RESOURCES LIMITED	MKO	27/01/2017
Delisted	MALABAR COAL LIMITED	MBC	20/01/2017
Delisted	WINDWARD RESOURCES LIMITED	WIN	07/12/2016
Delisted	PAWNEE ENERGY LIMITED	PAW	22/11/2016
Delisted	SCOTGOLD RESOURCES LIMITED	SGZ	21/10/2016
Delisted	RENAISSANCE MINERALS LIMITED	RNS	19/10/2016
Delisted	ALCOA INC.	AAI	17/10/2016
Delisted	GRYPHON MINERALS LIMTED	GRT	13/10/2016
Delisted	CUESTA COAL LIMTED	CQC	11/10/2016
Delisted	ATLANTIC LIMITED	ATI	27/09/2016
Delisted	GENERAL MINING CORPORATION LIMITED	GMM	02/09/2016
Delisted	REDBANK ENERGY LIMITED	AEJ	30/08/2016
Delisted	BLUENERGY GROUP LIMITED	BEG	30/08/2016
Delisted	BANDANNA ENERGY LIMITED	BND	30/08/2016
Delisted	BLACK OAK MINERALS LIMITED	BOK	30/08/2016
Delisted	CONTINENTAL COAL LIMITED	CCC	30/08/2016
Delisted	FIRESTONE ENERGY LIMITED	FSE	30/08/2016
Delisted	FOX RESOURCES LIMITED	FXR	30/08/2016
Delisted	HODEGES RESOURCES LIMITED	HDG	30/08/2016
Delisted	MIRABELA NICKEL LIMITED	MBN	30/08/2016
Delisted	PARAMOUNT MINING CORPORATION LIMITED	PCP	30/08/2016
Delisted	PLUTON RESOURCES LIMITED	PLV	30/08/2016
Delisted	SINO AUSTRALIA OIL & GAS LIMITED	SAO	30/08/2016
Delisted	SINO-EXCEL ENERGY LIMITED	SLE	30/08/2016
Delisted	SOLIMAR ENERGY LIMITED	SXS	30/08/2016
Delisted	THE WATERBERG COAL COMPANY LIMITED	WCC	30/08/2016
Delisted	WDS LIMITED	WDS	30/08/2016
Delisted	ELSMORE RESOURCES LIMITED	ELR	15/08/2016

Figure 8: Recently listed ASX resource-focused companies

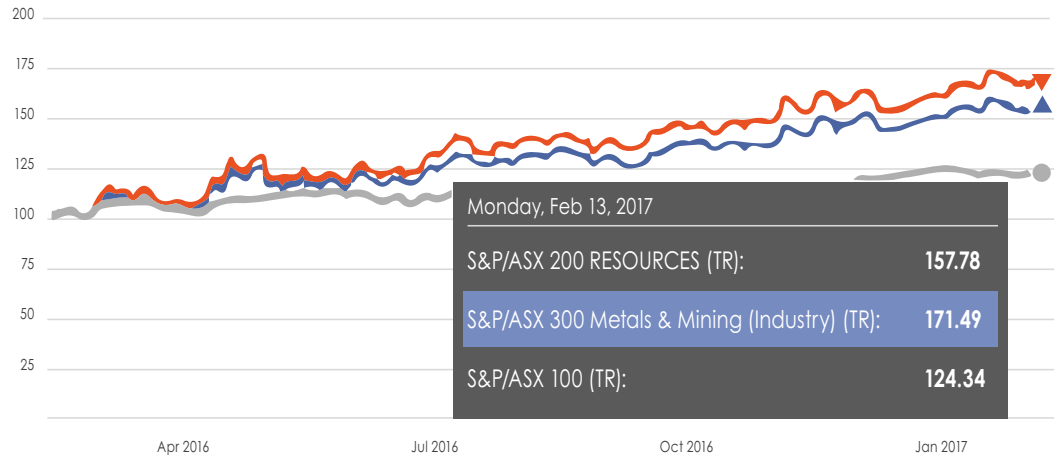
Category	Company	ASX code	Listed/Delisted date
Listed	ARDEA RESOURCES LIMITED	ARL	N/A
Listed	ARDEA RESOURCES LIMITED	ARL	09/02/2017
Listed	COBALT BLUE HOLDINGS LIMITED	COB	02/02/2017
Listed	BLACKSTONE MINERALS LIMITED	BSX	20/01/2017
Listed	DAVENPORT RESOURCES LIMITED	DAV	20/01/2017
Listed	KALAMAZOO RESOURCES LIMITED	KZR	16/01/2017
Listed	FREEHILL MINING LIMITED	FHS	16/01/2017
Listed	TECHNOLOGY METALS AUSTRALIA LIMITED	TMT	21/12/2016
Listed	HORIZON GOLD LIMITED	HRN	21/12/2016

Investor confidence (cont.)

- S&P/ASX 200 RESOURCES index as well as the S&P/ASX 300 Metals and Mining (Industry) index has strengthened, and is now outperforming the ASX top 100. Over the past year, the ASX top 100 index rose by 26.37%, not to be outdone by Metals and Mining which was up by 78.37% and Resources which was up by 63.88%. If sustained confidence and continued above average market returns continue from resource stocks, over the mid-to-longer term this is likely to result in financial institutions becoming more willing to free up capital and take on a higher exposure to resource stocks. If this ensued, it would provide new opportunity for market entrants, more straightforwardly enable project expansions, support the indirect resource industry as well as provide job opportunities and new revenue streams for government.

Figure 9:

Source: https://au.spindices.com/



Index Name	Index Level	1 Yr Ann. Returns
S&P/ASX 200 RESOURCES (TR)	**20,921.14**	**63.88%** ▲
S&P/ASX 300 Metals & Mining (Industry) (TR)	**4,949.60**	**78.37%** ▲
S&P/ASX 100 (TR)	**13,937.38**	**26.37%** ▲

Investor confidence (cont.)

Expected capital resource expenditure is stabilising and seeing signs of modest recovery. However, the levels of capital spend are still low, and the immediate practical impacts of prolonged periods of inactivity translate to:

- Falling capital productivity levels.
- Contraction of mining capital equipment suppliers.
- Less money being spent on capital equipment R&D and innovation.

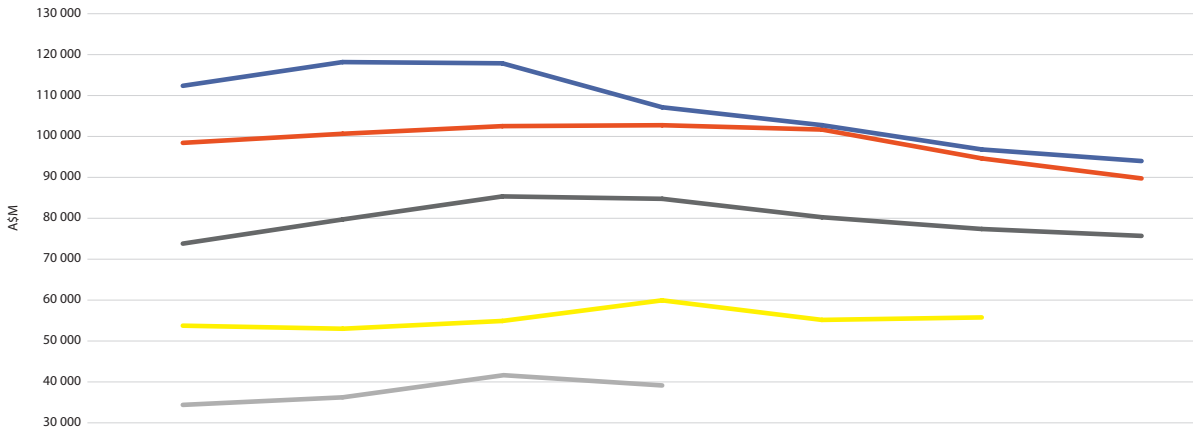
With so much uncertainty around material consequences for project proponents (owners), it is unsurprising to see resource companies hold off on capital spend until they get greater clarity and certainty on one or more of the following questions:

- Will there be modifications to the Petroleum Resource Rent Tax?
- Will resource companies have access to secure and reliable sources of energy which is required to run their operations?
- Will the Chinese economy slow beyond expectations (below the 6.5% range)?
- Will there be a contagion effect of European countries leaving the EU – BREXIT being the precedent?
- What will be the implications of a European debt crisis, and how extreme will it be?

All of the above risks place enormous strain on commercial strategic decision making, and as a result, short-term decisions are being made (for example – repair as opposed to replace capital equipment - as cash optimisation becomes king), while strategic investments are avoided due to unacceptable levels of risk. However, it is forecast that once policy predictability and political stability is achieved, resource companies will have greater confidence to make long-term, multi-billion dollar investment decisions. This may well be the catalyst for the next flurry of resource capital expenditure.

Figure 10: Expected capital resource expenditure - 2017

Source ABS. cat 5625, Table 12A



	Estimate 1: 12 months expectation as reported in Jan-Feb of previous financial year	Estimate 2: 12 months expectation as reported in Apr-May of previous financial year	Estimate 3: 12 months expectation as reported in Jul-Aug	Estimate 4: 3 months actual and 9 months expectation as reported in Oct-Nov	Estimate 5: 6 months actual and 6 months expectation as reported in Jan-Feb	Estimate 5: 9 months actual and 9 months expectation as reported in Apr-May	Estimate 7: 12 months actual; Resource; Total
Jun-2013	113 396	119 290	118 984	108 065	103 622	97 587	94 710
Jun-2014	99 224	101 482	103 379	103 608	102 528	95 365	90 393
Jun-2015	74 199	80 201	85 927	85 327	80 752	77 832	76 117
Jun-2016	53 820	53 058	54 991	60 110	55 251	55 869	53 389
Jun-2017	34 143	36 438	41 224	39 896			

Major economic parameters (incl. productivity)

Australia escapes our first recession since 1991 - GDP

Australia's run of uninterrupted economic growth continues into its 25th year, with the GDP rising 1.1% in the last quarter of 2016, finishing the year up 2.4%. This was a welcome sigh of relief, as Australia's economy contracted in the third quarter of 2016 and was at risk of recession.

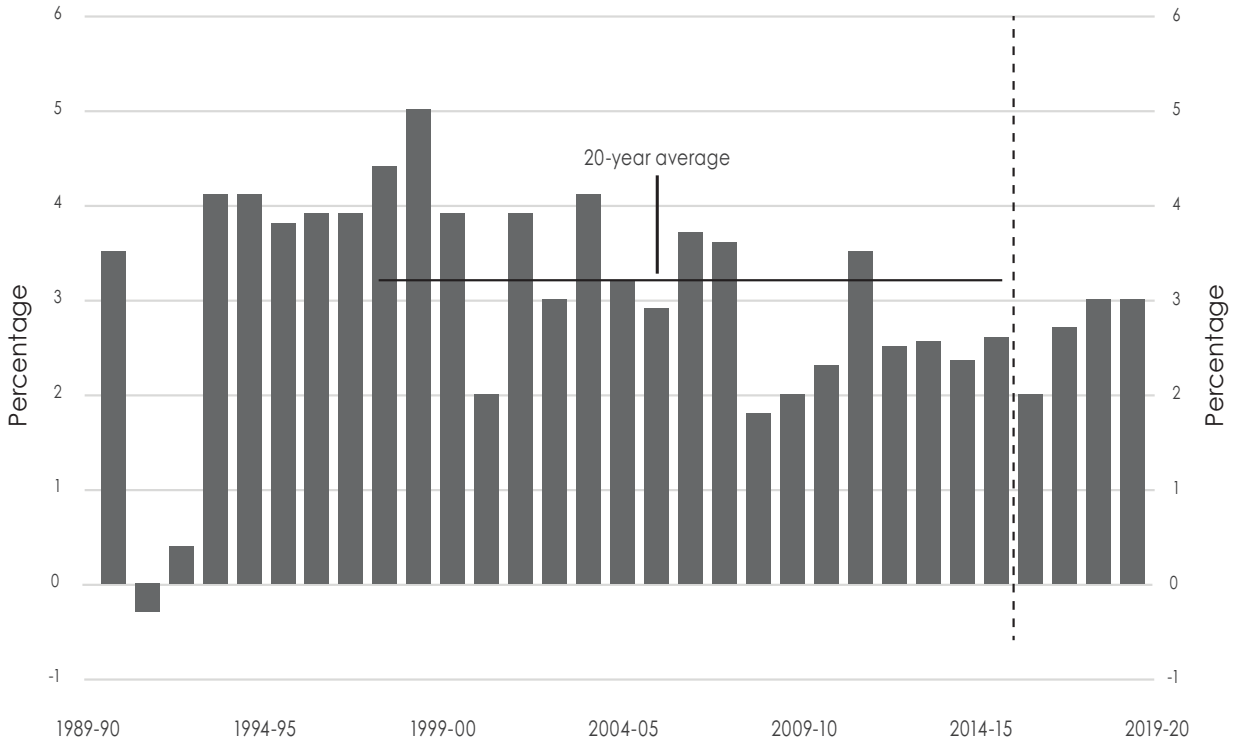
According to the Treasurer's Mid-Year Economic and Fiscal Outlook (MYEFO) released in December 2016[3], GDP for the next four years is forecast to range between 2% and 3%, making a recession unlikely.

However, economic growth is still less than the RBA's desired rate of 3% and unemployment has barely improved (not falling below 5.5% since Feb 2013). Further, over recent years we have seen a significant shift in monetary easing measures which should be stimulating economic growth and job creation above levels which we are experiencing today.

With non-resource related investment failing to materialise as soon as forecast, the economy is once again looking to the resource industry (particularly iron ore, thermal and metallurgical coal, gold and now LNG exports) to be the buttress for the national economy (chiefly supporting Australia's GDP, terms of trade and foreign exchange rate).

Figure 11:

Source: ABS Cat 5206.0 and Treasury



[3] http://www.budget.gov.au/2016-17/content/myefo/download/2016-17-MYEFO-combined.pdf

Major economic parameters (incl. productivity) (cont.)

Unemployment remains stable at 5.7%

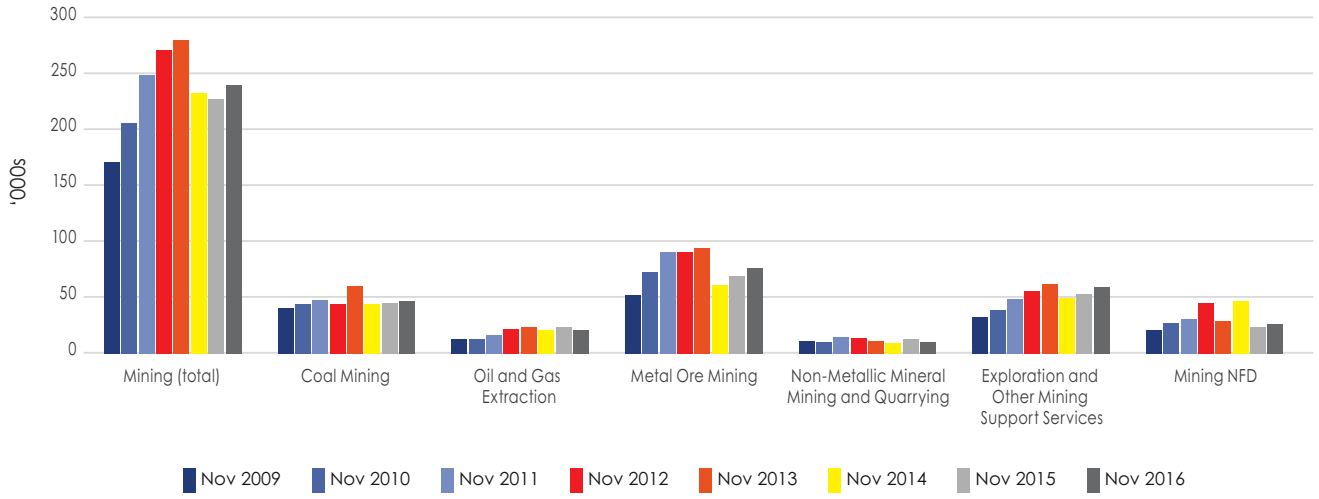
The national unemployment rate continues to remain relatively unchanged in the mid five per cent range. Employment in the resource industry has seen marginal improvement over the past year, particularly in coal and metal ore mining as well as in critical metals.

Looking forward, throughout 2017 it is forecast that employment levels in the resource industry will remain stable, even if commodity prices rise and there is a moderate increase in the volume of resource exports as forecast. The reasons for this include:

- The continued transition from construction to production of resource projects may be severe enough to offset newly created job opportunities.
- Public policy variability (for example, PRRT, federal opposition and state-based renewable energy targets, etc) have impacted business confidence levels and left many resource companies noncommittal on strategic decisions such as on acquisitions, expansions or divestments.
- Continued focus to reduce cash costs, thereby putting some resource organisations in a hiring freeze.
- Continued technological and innovative advancements will either directly replace jobs once performed by humans or change the way work was previously undertaken (thereby making roles redundant or changing the number of roles and the skill sets required of individuals to perform them).

Figure 12: Resource employment levels

Source: 6291.0.55.003, Table 06 - Labour Force, Australia, Detailed, Quarterly, Nov 2016



Major economic parameters (incl. productivity) (cont.)

Wage price index continues to trump the consumer price index

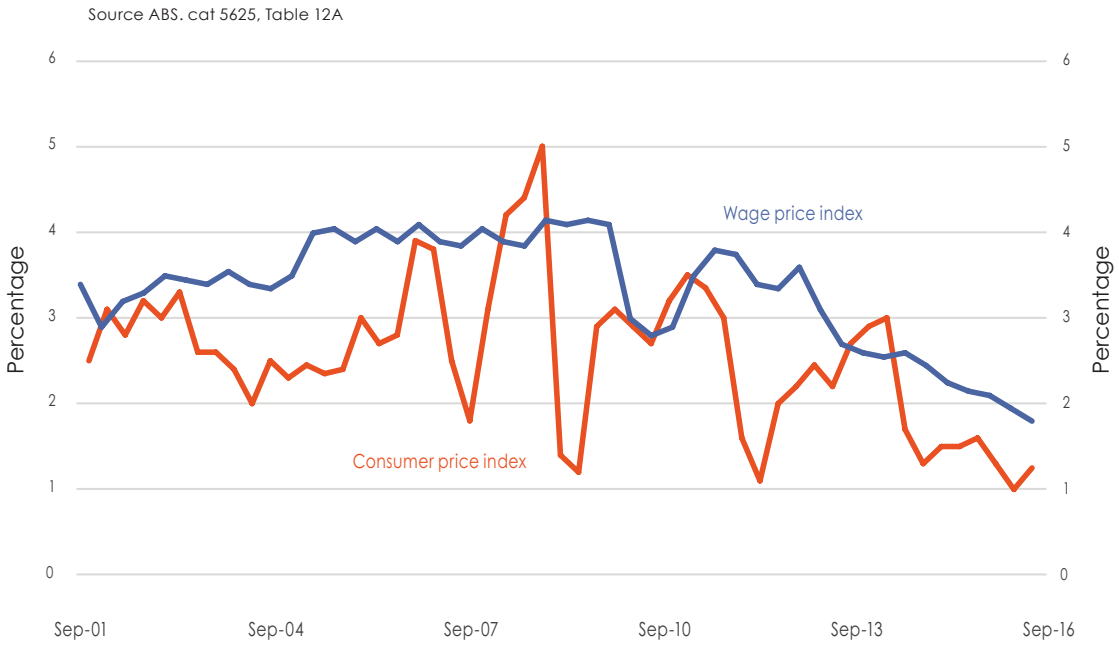
According to the ABS, the latest Consumer Price Index (CPI) for the December quarter 2016 is 1.5%. The Wage Price Index (WPI) is at 1.9%.

Looking forward, and according to Treasury (MYEFO[4]), WPI and the CPI forecasts for 2016/2017 and 2017/2018 were downgraded by a quarter of one per cent (0.25%).

This means that if the forecasts are correct, in 2016-17 and 2017-18, wages growth will exceed inflation (CPI).

However, it is important for the resource industry to recognise that these statistics and forecasts are the all-industry numbers for the entire nation.

Figure 13: Wage price index vs consumer price index



[4] http://www.budget.gov.au/2016-17/content/myefo/download/2016-17-MYEFO-combined.pdf

Major economic parameters (incl. productivity) (cont.)

Mining wages about to pop?

Mining[5] wage price inflation is growing between 0.5% and 2% below the national all-industry average. Therefore, even though mining salaries are still the highest in the country, growth in percentage terms is below the all industries average. As demonstrated by the ABS and RBA, in 2012 more than 60% of mining industry employees received wage increases greater than 4% annually. Today, less than 10% of mining employees receive that level of annual wage increase.

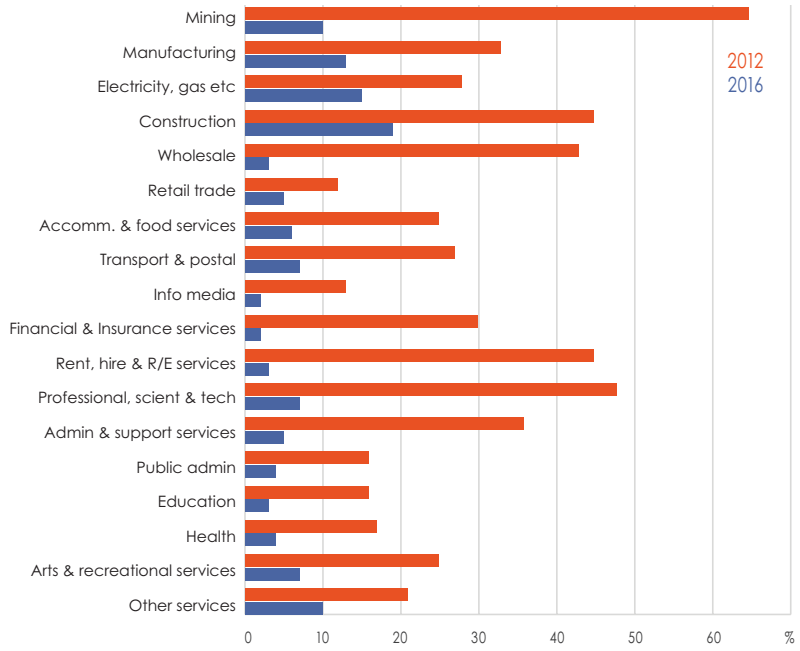
A 20-year analysis of mining wages revealed that the minimum premium wage that mining companies paid their employees was always 87% above the average Australian salary. Interestingly, history tells us that if mining wage price inflation goes above the 87% premium, there will always be a market correction (reduction) in mining salaries, or a prolonged period of no mining wage growth, until average Australian salaries catch up with mining salaries - back to the 87% premium level.

The analysis revealed that the average mining salary has now ballooned to a 127% premium above the average Australian salary (largely attributable to the once in-a-lifetime commodity price boom driven by China). So what does it mean? It means that there is now a 40% premium or a massive bubble in the average annual Australian mining wage – and history tells us that at some stage this bubble will burst. In dollar terms, the average mining salary today is $137,020[6]. The average mining salary when you remove the 40% premium is $112,886. Therefore, the average mining salary is at risk of falling by $24,134.

However, delaying such a fall has been brought about by mining companies downsizing their workforces as opposed to downsizing their workforces plus reducing individual wages. This has left a serious black swan[7] event that will impact resource industry employers and their employees.

Figure 14: Share of wage rises larger than 4%, by industry

Source ABS. RBA

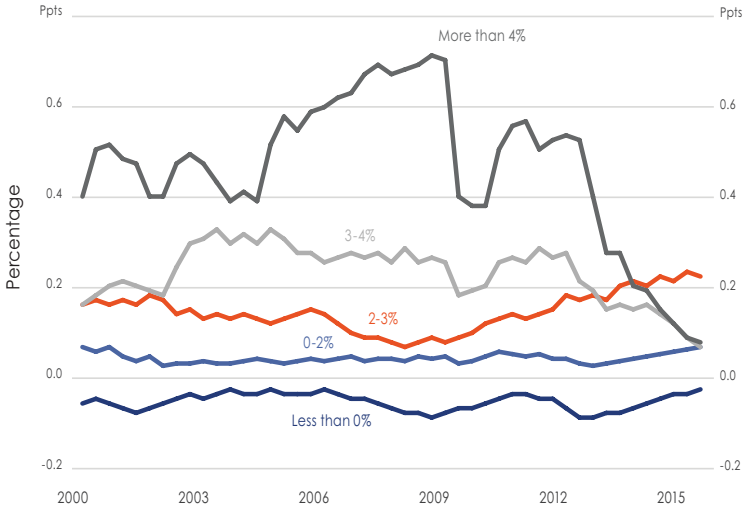


[5] Mining also includes oil, gas and petroleum
[6] Source, ABS Cat 6345.0 - Wage Price Index, Australia.
[7] A black swan event is an event that is difficult to predict yet can have catastrophic ramifications

Major economic parameters (incl. productivity) (cont.)

Figure 15: Contribution to aggregate wage growth, Wage changes of different sizes*

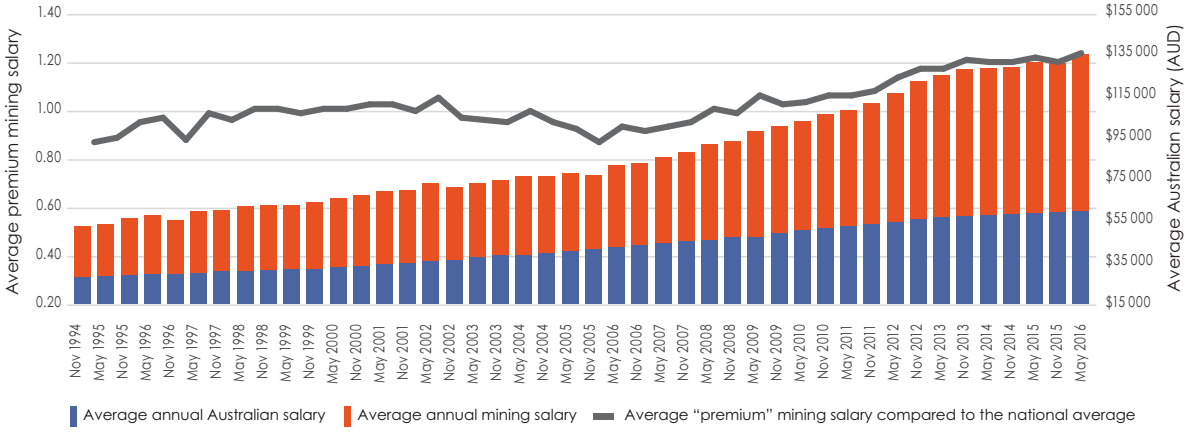
Source ABS, RBA



* Contributions smoothed using a four-quarter trailing average

Figure 16: Mining wage price bubble

Source ABS. cat 6302.0 - Table 10I, AMMA analysis



Major economic parameters (incl. productivity) (cont.)

Mining productivity outstrips the national average

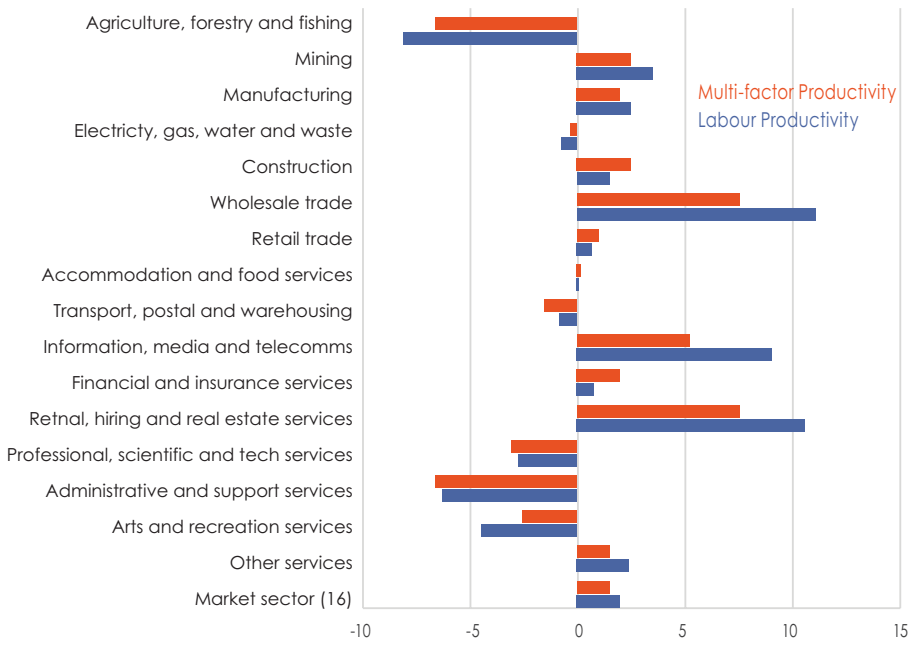
In December of 2016, the ABS released their annual industry multi-factor productivity[8] (MFP) levels. While comparatively down on last year, mining MFP grew 2.9% in 2015-16 compared to the market sector average of 0.9%.

Mining MFP growth according to the ABS is 'mainly due to strong output growth of 6.2% and weaker capital services growth (4.0%), reflecting the tapering off of capital expenditure. Significant MFP growth in mining in the last two years has signalled a transition from an investment phase into a production phase[9]'.

Even with three consecutive years of mining MFP rises, mining MFP levels are still 39% below its peak in 2000-01.

Figure 17: Productivity growth, by market sector industries, hours worked basis

Source ABS. RBA



[8] Multifactor productivity (MFP) is defined as a ratio of a measure of output to a combined input of multiple factors, for example labour and capital (ABS definition)
[9] http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/5260.0.55.002Main+Features12015-16?OpenDocument

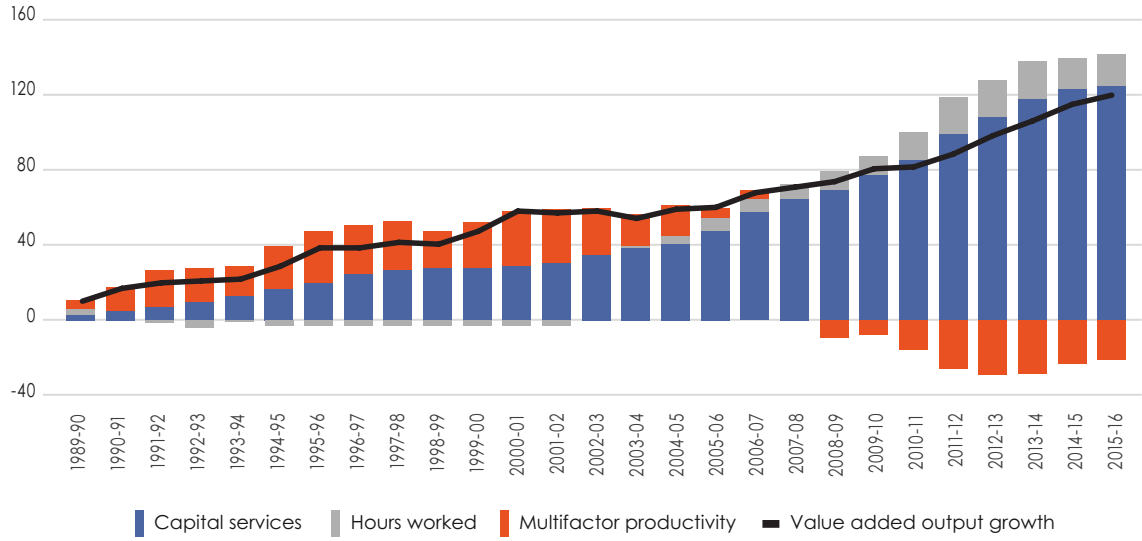
Major economic parameters (incl. productivity) (cont.)

Over the next year, it is expected that 'mining' MFP will rise and will continue to close the gap from its peak MFP levels. While a curtailing factor that may detract from optimised mining MFP levels (as mentioned in the 'Investor Confidence' section of this report), is ageing capital assets becoming less productive, mining MFP growth is forecast to continue for the following reasons:

- Accelerated tapering off of capital expenditure, particularly in the LNG sector.
- Export volume growth in the alumina, iron ore, metallurgical and thermal coal sectors.
- Mining organisations have significantly matured, advanced and streamlined operational processes since the downturn in commodity prices, and have learned how to do more with less.

Figure 18: Cumulative contributions to value added output growth - mining

Source ABS. RBA



Major economic parameters (incl. productivity) (cont.)

GST distribution

GST distribution is always controversial but received particular attention in the lead-up to March 11's Western Australian state election.

Regardless of the politics, Western Australia, the key mining state, continues to have GST distribution skewed against it. For every GST dollar in 2016/17 that Western Australia provided the Commonwealth, the state was 'entitled' to 30.3c back.

This was the primary driver of the state's National Party campaign, during the lead-up to the election, for an iron ore production tax hike against the big miners. Effectively the Nationals were threatening mining companies to either get the federal government to distribute a higher amount of GST back into Western Australia, even though this is in every way conceivably outside of their control (responsibility, accountability or obligation), or pay more tax.

Ultimately the electorate appeared to agree with the campaign by the mining companies against the tax, that such a tax would impact jobs and opportunities in the sector. The Labor Party won the election in a landslide and Leader of the Nationals, Brendan Gylls, lost his seat in the Pilbara.

For the record, the other states that are 'entitled' to and will receive less GST back from what they provide the Commonwealth in 2016/17 are New South Wales and Victoria. On the other hand, Queensland, South Australia, Tasmania, Australian Capital Territory and the Northern Territory are net beneficiaries of GST distribution 'entitlements'.

Figure 19: Distribution of the GST entitlement, 2016-17[(a)]

Source ABS. RBA

	Estimated 31 December 2016 population (1)	GST relativities (2)	Adjusted population (1) x (2) (3)	Share of adjusted population % (4)	2016-17 GST entitlement $million (5)
NSW	7,784,199	0.90464	7,041,898	29.1	17,368.9
VIC	6,113,725	0.90967	5,561,472	23.0	13,717.4
QLD	4,872,693	1.17109	5,706,362	23.6	14,074.8
WA	2,641,037	0.30330	801,027	3.3	1,975.7
SA	1,716,712	1.41695	2,432,495	10.0	5.999.8
TAS	519,683	1.77693	923,440	3.8	2.277.7
ACT	398,209	1.15648	460,521	1.9	1.135.9
NT	244,736	5.28450	1,293,307	5.3	3.189.9
Total	24,290,994	na	24,220,522	100.0	59,740.0

(a) Amounts show are estimates of wach State's GST entitlement based on the estimated total GST pool. These amounts do not take into account he 2015-16 balancing adjustment of -$98.4 million. A balancing adjustment was made to States' GST payments in the 2016-17 to account for this.

Pipeline of growth

Australia's resource and energy project investment pipeline falls by $54bn

At the end of October 2016, Australia had 215 major resources and energy projects in the 'pipeline' with a combined value of $446.8+bn. A year earlier, at the end of October 2015, there were 223 major projects in the pipeline with a combined value of $550.8bn.

This means a yearly net loss to Australia of eight projects with a combined value of $54bn, representing a fall of $148m per day in 2016. While the current situation is not ideal, it appears the rapid reduction in the investment pipeline seen in preceding periods has subsided.

Extending the comparison over four years (back to October 2012) shows 173 fewer major projects today with a declined pipeline value of $216.4bn.

Figure 20: Pipeline of growth

Source Office of the Chief Economist - Oct '16 Major Resources and Energy Project Listing

	Publicly Announced		Feasibility Stage		Committed		Completed	
	No. of Projects	Value A$m	No. of Projects	Value A$m	No. of Projects	Value A$m	No. of Projects	Value A$m
Aluminium, Bauxite, Alumina	0	0	1	63	1	1,900	0	0
Coal	7	8,500 - 11,744	37	55,172	8	7,603	2	837
Copper	1	0 - 249	7	2,641	1	316	0	0
Gold	1	0 - 250	12	2,551	5	867	3	328
Infrastructure	5	5,800 - 7,797	10	8,258	1	326	3	4,580
Iron ore	7	5,339 - 8,335	10	15,836	5	12,004	0	0
Lead, Zinc, Silver	2	0 - 498	3	560	3	1,434	0	0
LNG, Gas, Petroleum	3	15,000	9	58,238	12	169,767	3	49,141
Nickel	6	2,036 - 2,285	2	2,960	1	443	0	0
Uranium	4	500 - 1,496	4	1,915	0	0	0	0
Other Commodities	1	250 - 499	32	10,662	2	133	1	800
Total	37	37,425 - 48,153	127	158,855	39	194,793	12	55,686

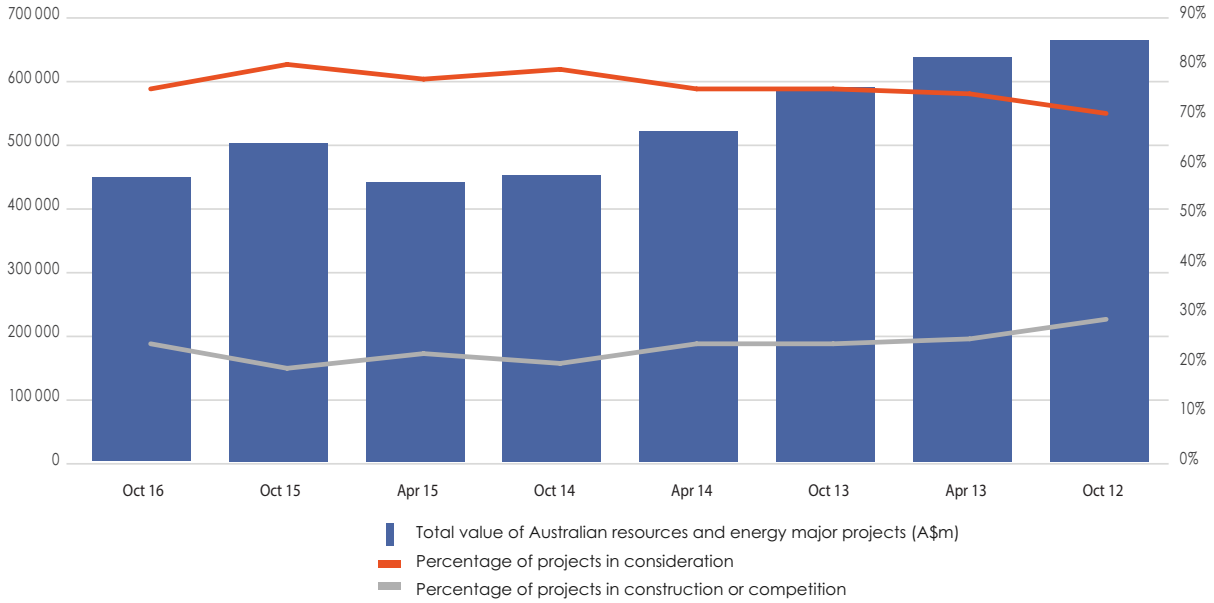
Pipeline of growth (cont.)

Of particular concern:

- Currently there are only 37 major resource and energy projects in the 'publicly announced' stage, compared with 53 in 2015 and 59 in 2014. In other words, major resource and energy projects are not being identified; and this could be largely attributable to falling exploration spend.
- Major resource and energy projects are stalling in the key 'feasibility stage' – the stage in a project lifecycle after the 'publicly announced stage' that assesses the viability of a project (and where approval is required to move a project into construction then production). The number of projects in the feasibility stage (127) remain unchanged from last year.
- Currently, 76.3% of Australia's projects in the investment pipeline are awaiting confirmation of their fate, to either be constructed then operationalised or scrapped. History tells us that the longer a project remains idle in this stage, the more likely it is to be scrapped.

Figure 21: Projects under consideration vs projects in construction

Source: Office of the Chief Economist - Major Project Listing, AMMA analysis

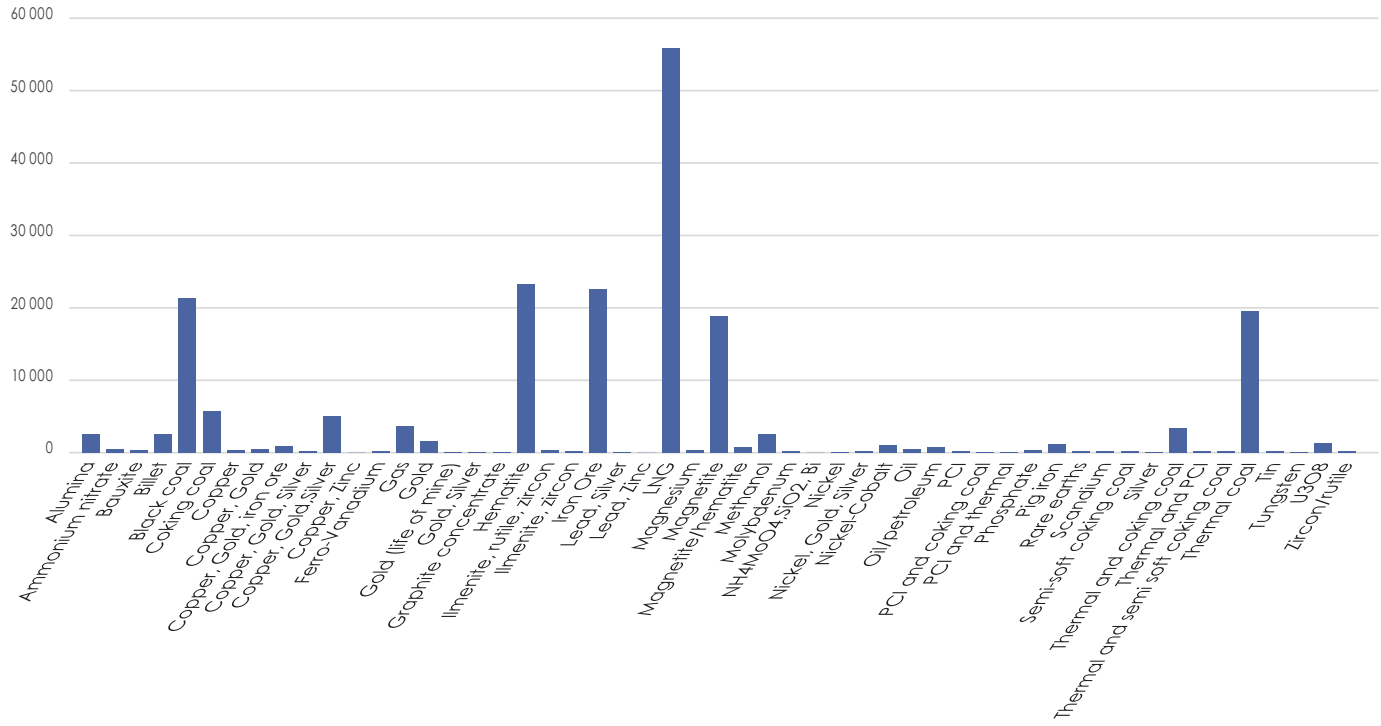


Pipeline of growth (cont.)

- The value of recently scrapped resources and energy projects in Australia's pipeline is significant. Over the past 18 months, $30bn worth of major projects were scrapped and over the past 40 months this number blows out to $201bn. Illustrating the extent of the fall, $201bn, according to the 2016/17 Federal Budget, would pay for Australia's Health, Social Services and Veteran Affairs expenses. Sub-sector specific, three to four years ago, the high-value scrapped projects were largely in hydrocarbons. Over the past three years, the large number of projects scrapped have predominantly been in mining commodities (such as iron ore and gold) as well as coal.

Figure 22: Scrapped resources and energy major projects by commodity April 2013 to October 2016

Source Office of the Chief Economist - Major project listing, AMMA analysis

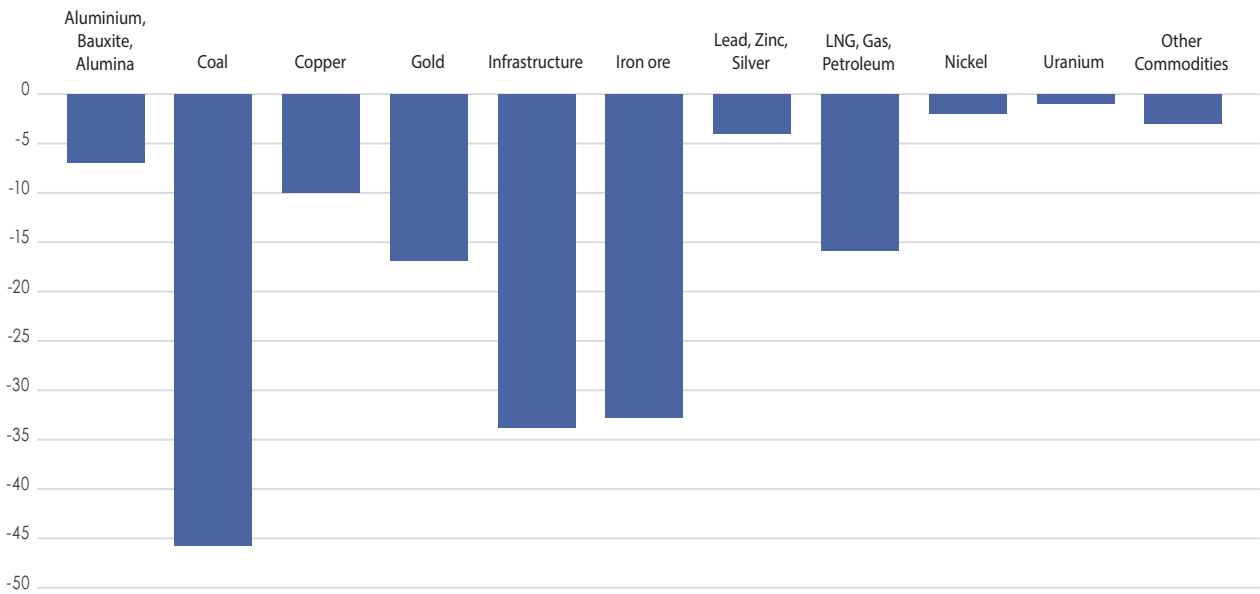


Pipeline of growth (cont.)

- All of Australia's major commodities, including iron ore, coal and LNG/gas/oil (which help contribute around 50 per cent of the value of all Australian exports) have deteriorating project pipelines. The ramifications of this should not be understated, as it will lead to subdued government revenue streams and fewer job opportunities as well as having a future devaluating effect on Australia's foreign exchange rate, which according to the International Monetary Fund (IMF) is already overvalued by up to 15%[10].
- As there are, on average, 2.4 to three construction jobs for every one operational job in the mining industry, and on average 10 construction jobs for every one operational job in the hydrocarbons industry, unemployment levels as a result of falling resource construction activity are forecast to rise, particularly in rural areas, over at least the next five years.

Figure 23: Net increase/decrease of projects by commodity from October 2012 to October 2016

Source Office of the Chief Economist - Major Project Listing, AMMA analysis



[10] http://www.imf.org/en/Publications/CR/Issues/2017/02/09/Australia-2016-Article-IV-Consultation-Press-Release-Staff-Report-Staff-Statement-and-44632

Governance and corruption

Australia ranked as 13th least corrupt place in the world

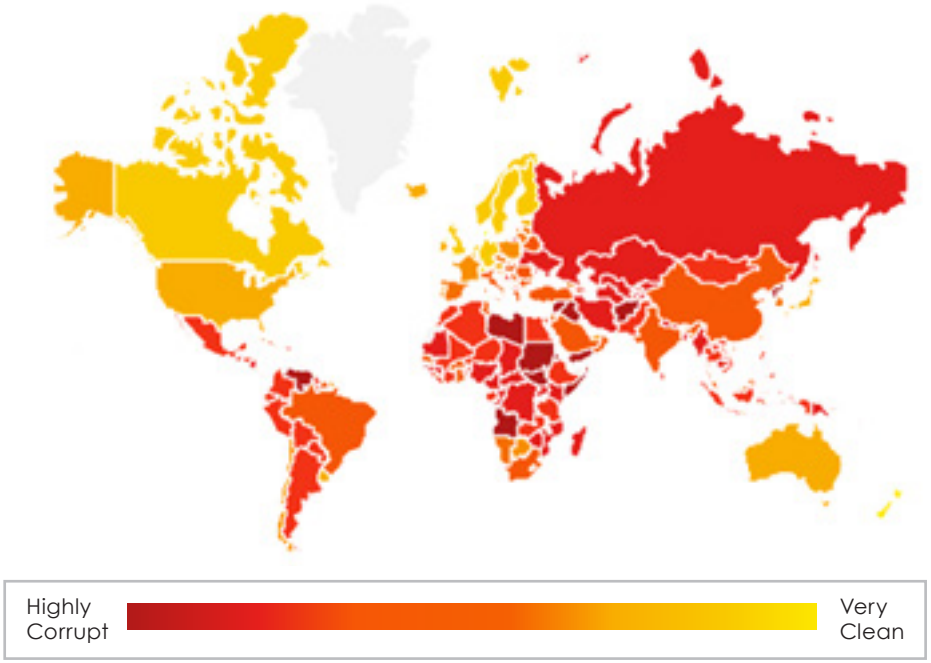
In late January 2017, Transparency International released its annual global corruption report[11]. After four consecutive years of falling down the global perception ladder, Australia maintained its position as the 13th least corrupt country analysed in the world.

Of the 176 countries analysed, New Zealand and Denmark came in equal first place and Somalia came last. When compared with Australia's key international resource export competitors, Canada came in as the 9th least corrupt country, the United States the 18th least corrupt, Chile and United Arab Emirates came equal 24th, South Africa 64th, equal Brazil 79th, Mongolia 87th and Russia 131st.

China, Australia's most important resource trading partner, finished as the 79th most perceived corrupt country in the world. While China's level of perceived corruption in terms of ranking dropped four places since 2015, their high corruption score highlights the risks for local companies doing business in emerging markets where bribery and corruption are perceived to be more widespread.

Figure 24: Corruption Perception Index

Source http://www.transparency.org./



[11] http://www.transparency.org/

Governance and corruption

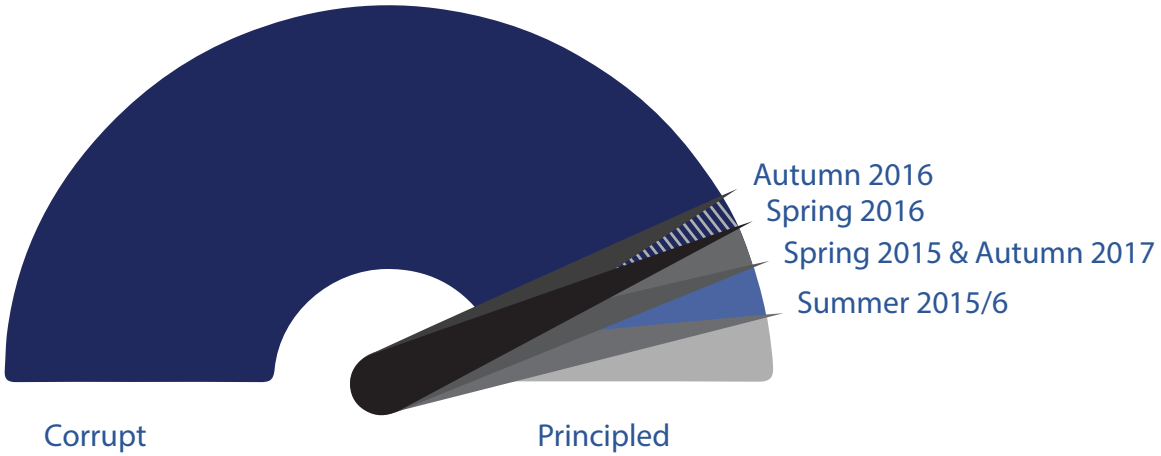
Allegations of bribery continue

Since the previous AMMA Market Outlook, there has been minimal movement in AMMA's resource industry governance and corruption index.

However, an emerging related risk for the resource industry (particularly from an international perspective) is rising 'bribery allegations'. There have recently been more proven allegations following investigations that have found wrongdoing by company officials having bribed foreign government officials or related parties, for preferential treatment, particularly in the tender processes for mining concessions.

As a result, resource companies are strengthening their internal controls, policies, processes and procedures, in order to prevent bribery from happening, but also to detect wrongdoing, which works as a preventative control.

Figure 25: Governance and corruption index



Dodd-Frank Act

As reported in the previous AMMA Market Outlook:

> *On 27 June 2016, the SEC listed landmark new transparent rules that require oil, gas and mining companies listed on the US stock exchange to disclose all payments they make to the US and foreign governments.*
>
> *Under the new rules, companies and their subsidiaries are required to file annual reports from 2018 onwards disclosing how much they pay governments in the acquisition of a license, as well as taxes, royalties, fees, processing, production entitlements, export, bonuses and dividends for exploration, extraction and other activities. This imposes a further regulatory reporting burden for the resources companies (on the US stock exchange).*

However, on 14 February 2017, US President Donald Trump signed his first legislation, scrapping the anti-corruption measure that required oil and mining companies to disclose their payments to foreign governments.

It was alleged, according to usatoday.com, that 'the ongoing compliance costs of the resource extraction rule would be between $173 m and $385 m annually'. The U-turn on this Obama policy forms part of a wider Presidential Trump goal to reduce red tape and compliance costs for business, something that the incumbent US President campaigned on in the recent presidential election.

Summary - Key messages / takeaways

Commodity prices

- Strong commodity prices are forecast for copper, metallurgical and thermal coal, gas and zinc prices in 2017.
- Over the past year, the price of metallurgical coal is up 124%, iron ore 59%, zinc 57%, thermal coal 54%, and copper 22%.
- Australian resource exports are forecast to increase by 30% from $157bn in 2015/16 to $204bn in 2016/17 – chiefly due to sustained or rising commodity prices.

Exploration

- Crunch time is ahead for the resource industry as exploration falls to critical levels. Over the past year, mineral exploration has fallen by 7.1% to $1.406bn, onshore petroleum exploration spend plummeted by 66% to $395m and offshore petroleum exploration fell nearly 50% to $1.085bn.

Investor confidence

- Investors' risk appetite is changing: Investor confidence levels rise above volatility risk.
- Encouraging and long-awaited recovery of activity for resource-focused companies on the ASX (flurry of listings, de-listings and upcoming floats).
- S&P/ASX 200 RESOURCES index as well as the S&P/ASX 300 Metals and Mining (Industry) index has strengthened and is now outperforming the ASX top 100.

Economics

- Economy contracting but the resource industry strengthens and remains a key pillar to future national growth and prosperity.
- 20 year analysis of mining wages reveal a significant wage price bubble, and a looming re-correction of high mining wages.
- Mining productivity rises for the third consecutive year, but is still 39% below its peak.

Future updates

The next (Winter 2017) AMMA Market Outlook will provide an update on developments in commodity prices, exploration, confidence, volatility, as well as other notable developments impacting the resource industry and wider Australian economy.

Feedback

If there are any questions arising from this analysis or other resource economic or resource related public affairs issues that you would like AMMA to address, we would be pleased to hear from you. Or if you would like to be added to our mailing list to receive this publication, please contact: membership@amma.org.au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