9 December 2019

AUSTRALIAN MARKETS WEEKLY

Australia's poor productivity performance

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Analysis – Australia's poor productivity performance

- The Reserve Bank's persistent overestimation of growth likely reflects not allowing for the decline in potential growth, which the bank estimates has slowed from 3.1% in 2000 to 2.7% in 2010 to 2.4% in 2019.
- Slower potential growth reflects the weakest growth in labour productivity in decades. Growth in labour productivity has slowed mainly because of weak multifactor productivity – which captures technological progress and structural reforms that can make a worker more efficient – and less "capital deepening" – where increased investment can make a worker more productive. Multifactor productivity mainly reflects less technological progress worldwide, although a lack of structural reform has also played a role.
- Barring a further surge in the size of the workforce, a recovery in potential growth hinges on a sustained recovery in labour productivity. That seems unlikely any time soon given it would require a large and sustained increase investment to make workers more productive and/or a burst of technological progress that can be adapted by Australian business.

The week ahead – NAB business survey & RBA speech; NZ budget update; US FOMC; UK election; ECB meeting

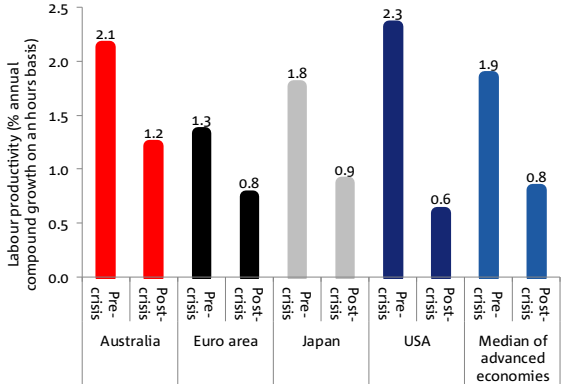
- In Australia, the NAB business survey is due Tuesday, along with a speech on the payments system by Governor Lowe. The Reserve Bank Bulletin on Thursday could provide background to Lowe's recent speech on QE. In NZ, Wednesday's Half-year Economic and Fiscal Update will show what the government means by a "significant" fiscal stimulus.
- In the US, Wednesday's FOMC is expected to see the Fed remain on hold, pending more news on the trade wars and with the domestic economy still making progress. The Fed will publish updated forecasts, including the dot plot for the Fed Funds rate. Friday's US retail sales should show solid growth. In the UK, Thursday's election is the focus, with increased market odds of an outright Tory win. This week's ECB meeting outcome is unlikely to surprise, with markets expecting the central bank to keep policy unchanged. More focus is on new ECB President Lagarde's policy views at her first post-ECB meeting press conference. In China, aggregate financing figures should show if recent stimulus measures are gaining traction. The CPI & PPI should show continued pork-driven inflation; outside of this inflation remains subdued.

Key markets over the past week

	Last	% chg week		Last	bp/% chg week
AUD	0.6831	0.2	RBA cash	0.75	0
AUD/CNY	4.81	0.2	3y swap	0.75	0
AUD/JPY	74.2	-0.2	ASX 200	6,737	-1.8
AUD/EUR	0.618	0.4	Iron ore	91	5.8
AUD/NZD	1.043	-0.6	Brent oil	64.2	5.4

Source: Bloomberg

Chart of the week: Weak productivity across the world



Kieran Davies

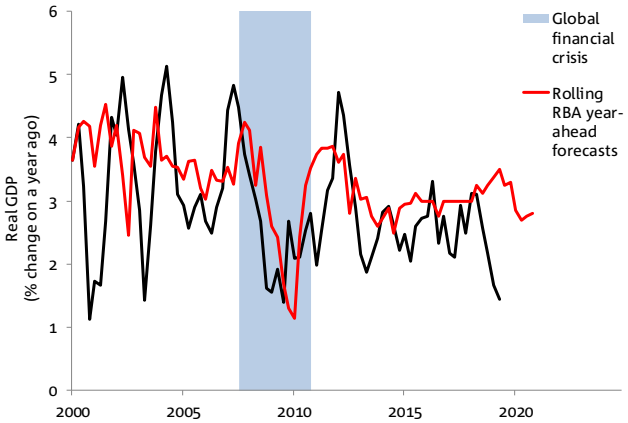
Australia's poor productivity performance

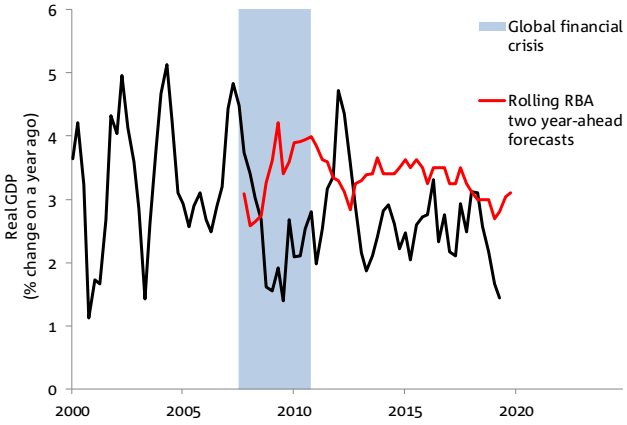
- **The Reserve Bank's persistent overestimation of growth likely reflects not allowing for the decline in potential growth, which the bank estimates has slowed from 3.1% in 2000 to 2.7% in 2010 to 2.4% in 2019.**
- **Slower potential growth reflects the weakest growth in labour productivity in decades. Growth in labour productivity has slowed mainly because of weak multifactor productivity - which captures technological progress and structural reforms that can make a worker more efficient - and less "capital deepening" - where increased investment can make a worker more productive. Multifactor productivity mainly reflects less technological progress worldwide, although a lack of structural reform has also played a role.**
- **Barring a further surge in the size of the workforce, a recovery in potential growth hinges on a sustained recovery in labour productivity. That seems unlikely any time soon given it would require a large and sustained increase investment to make workers more productive and/or a burst of technological progress that can be adapted by Australian business.**

The Reserve Bank has overestimated GDP growth as it hasn't factored in lower potential growth

In a recent weekly, we examined the track record of the Reserve Bank's growth forecasts.[1] That work found that the bank has persistently overestimated year-ahead growth in real GDP since the lobal financial crisis and nearly always overestimated growth over a two-year horizon.

Chart 1: The Reserve Bank has persistently overestimated economic growth

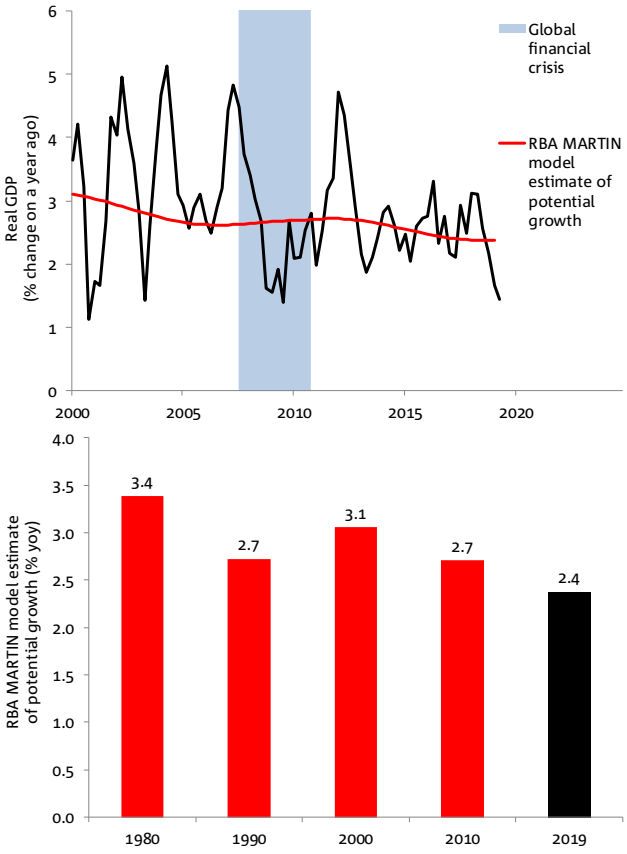




Source: Australian Bureau of Statistics, Reserve Bank of Australia, Tulip (2012), National Australia Bank

In that analysis, we suggested that this overestimation reflected the decline in potential growth not being adequately incorporated into the Reserve Bank's forecasts. For example, the bank's MARTIN macroeconomic model estimates that that potential growth has declined from 3.1% in 2000 to 2.7% in 2010 to 2.4% in 2019.

Chart 2: The Reserve Bank's modelled estimate of potential growth has fallen to about 2.5%



Note: The Reserve Bank estimate of potential growth was sourced from the bank's MARTIN model.
Source: Australian Bureau of Statistics, Reserve Bank of Australia, National Australia Bank

[1] See Kieran Davies, *Large and persistent RBA forecast misses on growth*, National Australia Bank Australian Markets Weekly, 2 December 2019.

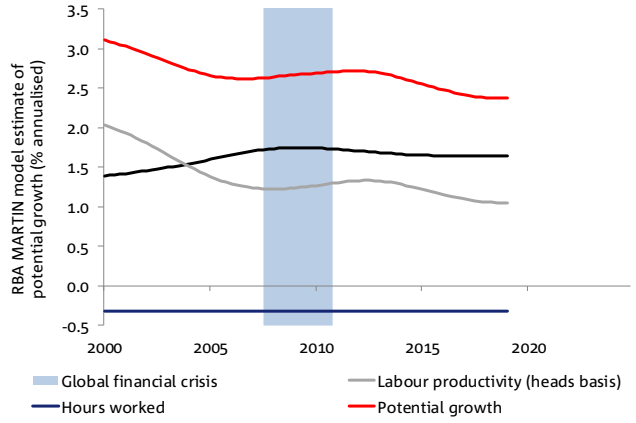
The decline in potential growth reflects weaker growth in labour productivity

The Reserve Bank's MARTIN model estimates potential growth as a function of:

- Working-age population;
- Labour productivity on a heads basis; and
- Average hours worked.

On this basis, the decline in potential growth reflects weaker growth in labour productivity. On this measure, trend growth in productivity has slowed from 2.0% in 2000 to 1.3% in 2010 to 1.1% in 2019.

Chart 3: The decline in potential growth reflects weaker growth in labour productivity



Source: Reserve Bank of Australia, National Australia Bank

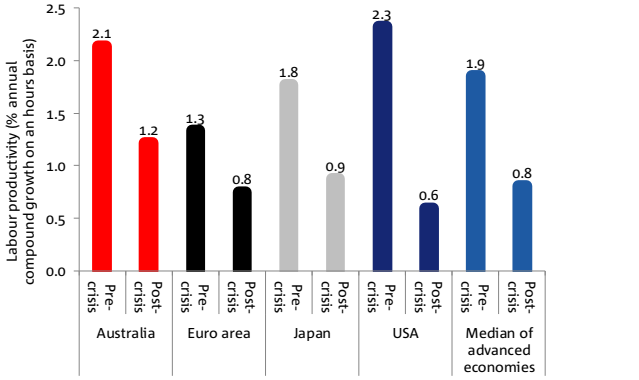
Weaker growth in labour productivity has been a global phenomenon

The slowdown in labour productivity is not unique to Australia as there has been a slowdown in productivity growth across the advanced economies since the global financial crisis.

Taking the median rate for other advanced economies, we estimate that labour productivity growth on an hours basis has slowed from 1.9% per annum in the ten years prior to the global financial crisis to 0.8% in the years since the crisis.

Australia has experienced an almost-identical slowdown, with growth in productivity on the same basis declining from 2.1% per annum in the pre-crisis period to 1.2% in the post-crisis period.

Chart 4: Labour productivity has been weak across the world

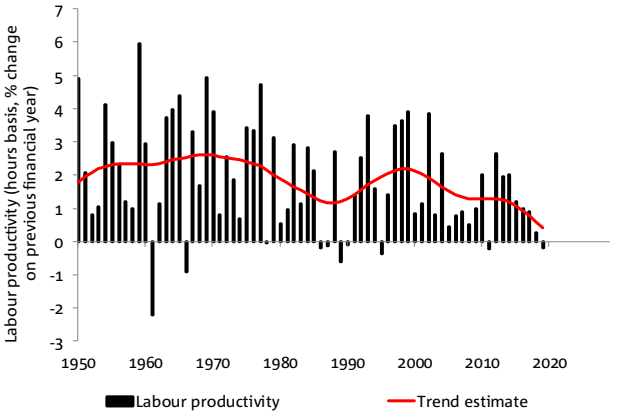


Note: Labour productivity is measured on an hours worked basis. The pre-crisis period is the ten years prior to the global financial crisis. The post-crisis period extends to 2018 for other advanced economies. The Australian estimates were calculated using financial-year data.
Source: Australian Bureau of Statistics, Organisation for Economic Co-operation and Development, National Australia Bank

Weak labour productivity mainly reflects weak multifactor productivity growth

Measuring labour productivity on an hours worked basis, we estimate that trend productivity growth has slowed to about 0.5%, which is the slowest growth in the post-WW2 period. We caution against placing too much weight on this point estimate, though, because we are mindful that the method we used to calculate trend productivity suffers from an endpoint problem, where recent estimates can be revised as more data become available. That said, even calculating backward-looking measures of trend productivity point to a sharp slowdown over recent years.

Chart 5: Trend growth in labour productivity is weak



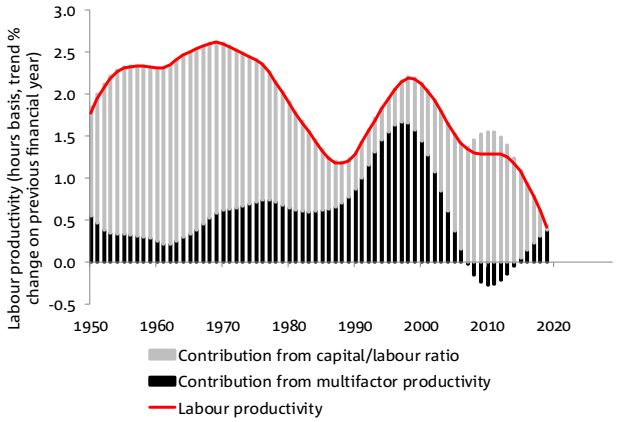
Note: The trend is estimated using a HP filter.
Source: Australian Bureau of Statistics, Reserve Bank of Australia, National Australia Bank

With this qualification in mind, labour productivity can be split into two drivers, namely:

- Capital/labour ratio – where increased capital per worker, or "capital deepening", can make a worker more productive; and
- Multifactor productivity – where technological progress and structural reform can both make a worker more efficient at their job.

On this split, the decline in trend labour productivity growth mainly reflects weak multifactor productivity growth, which was slightly negative during and for some years after the global financial crisis. More recently, weak growth in the capital/labour ratio has also contributed to the slowdown in productivity.

Chart 6: Weak labour productviity mainly reflects weak multifactor productivity growth



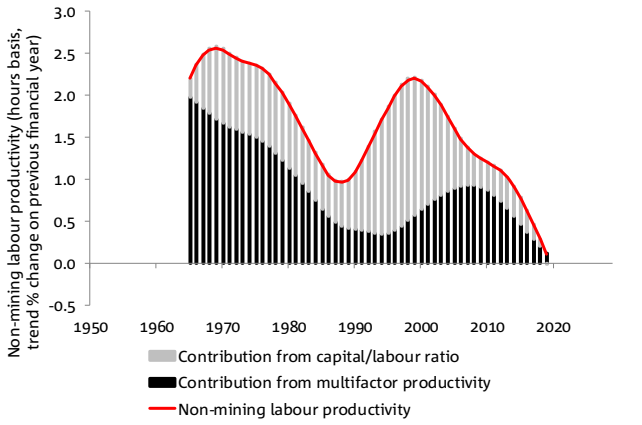
Note: The trends are estimated using a HP filter.
Source: Australian Bureau of Statistics, Reserve Bank of Australia, National Australia Bank

These trends are somewhat clouded by the record construction boom in the mining sector over the past two decades, which saw a lagged increase in mining production once the mega resources projects cane on stream.

Excluding the mining sector, trend labour productivity has slowed sharply and is barely growing, up only 0.1% over the past year. This estimate could be revised as more data comes to hand, but at this point growth is the weakest since at least the 1960s.

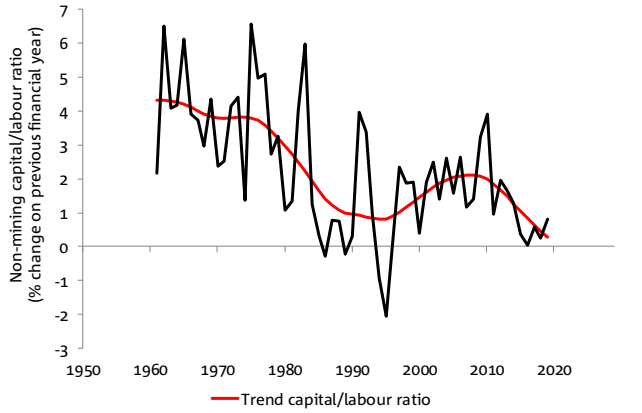
Decomposing this slowdown, it more clearly reflects weakness in both multifactor productivity and the capital to labour ratio. Multifactor productivity growth is the weakest in decades and while the non-mining capital stock has picked up recently it is only broadly keeping pace with growth in the labour supply.

Chart 7: Non-mining labour productivity has slowed to a crawl



Note: The trends are estimated using a HP filter.
Source: Australian Bureau of Statistics, Reserve Bank of Australia, National Australia Bank

Chart 8: The non-mining capital stock is only broadly keeping pace with the labour supply



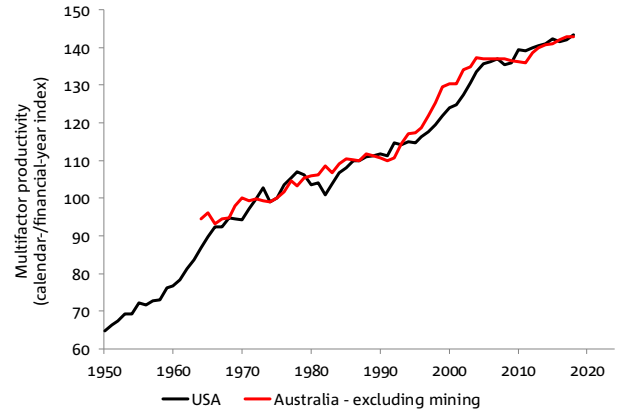
Note: The trends are estimated using a HP filter.
Source: Australian Bureau of Statistics, Reserve Bank of Australia, National Australia Bank

Weak multifactor productivity reflects less technological progress and an absence of reform

The most important reason for the weakness in multifactor productivity is less technological progress globally. That is, using US multifactor productivity as a proxy for the world technological frontier, weak multifactor productivity in Australia has closely tracked weak productivity in the US over recent years.

The weakness in multifactor productivity also partly reflects the lack of structural reform in Australia. The last major reform was in 2000, when the goods and services tax replaced a raft of inefficient sales taxes. More recent reforms earlier this decade – carbon pricing and the resources super profits tax – proved short-lived.

Chart 9: Weak multifactor productivity tracks weak growth in US productivity



Note: The US series is on a calendar-year basis, while the Australian series is on a financial-year basis.
Source: Australian Bureau of Statistics, Bureau of Economic Analysis, National Australia Bank

Potential growth is likely to remain weak for some time

Barring an acceleration in growth in the workforce via more people looking for work and/or faster growth in the population, this analysis suggests that a recovery in potential growth hinges on a recovery in labour productivity.

Such a recovery seems unlikely unless there is either a strong and sustained investment boom to better equip existing workers and/or a recovery in technological progress that can be quickly adapted by Australian business. Neither of these options seems likely over the next two to three years, which strongly suggests to us that potential growth should remain low.

Kieran Davies

CALENDAR OF ECONOMIC RELEASES

Country	Economic Indicator	Period	Forecast	Consensus	Actual	Previous	GMT	AEDT
Monday 09 December 2019								
CH	New Yuan Loans CNY	Nov		1200		661.3	9 to 15 December	
Tuesday 10 December 2019								
NZ	ANZ Truckometer Heavy MoM	Dec		--		2.5	21.00	8.00
AU	RBA's Lowe speaks at Payments conference			--		--	22.05	9.05
AU	NAB Business Conditions	Nov		--		3	0.30	11.30
AU	NAB Business Confidence	Nov		--		2	0.30	11.30
CH	CPI YoY	Nov		4.2		3.8	1.30	12.30
CH	PPI YoY	Nov		-1.5		-1.6	1.30	12.30
UK	Industrial Production YoY	Oct		-1.2		-1.4	9.30	20.30
UK	Monthly GDP (MoM)	Oct		0.1		-0.1	9.30	20.30
UK	Industrial Production MoM	Oct		0.3		-0.3	9.30	20.30
GE	ZEW Survey Current Situation	Dec		-22		-24.7	10.00	21.00
US	NFIB Small Business Optimism	Nov		103.1		102.4	11.00	22.00
Wednesday 11 December 2019								
NZ	Electronic Card Transactions	Nov	0.5	--		-0.2	21.45	8.45
AU	Westpac Consumer Conf Index	Dec		--		97	23.30	10.30
JN	PPI YoY	Nov		0		-0.4	23.50	10.50
NZ	Half-year economic and fiscal update						0.00	11.00
US	CPI MoM / YoY	Nov		0.2 / 2		0.4 / 1.8	13.30	0.30
US	FOMC Rate Decision	Dec 11	1.5/1.75	1.5/1.75		1.5/1.75	19.00	6.00
US	Fed's Powell speaks post-meeting	Dec 11					19.30	6.30
Thursday 12 December 2019								
NZ	Net Migration SA	Oct		--		3440	21.45	8.45
NZ	Food Prices MoM	Nov	-0.5	--		-0.3	21.45	8.45
JN	Core Machine Orders YoY	Oct		-3.2		5.1	23.50	10.50
AU	Consumer Inflation Expectation	Dec		--		4	0.00	11.00
GE	CPI YoY	Nov F		1.1		1.1	7.00	18.00
EC	Industrial Production WDA YoY	Oct		-2.3		-1.7	10.00	21.00
EC	ECB Main Refinancing Rate	Dec 12	0	0		0	12.45	23.45
EC	ECB Marginal Lending Facility	Dec 12	0.25	0.25		0.25	12.45	23.45
EC	ECB Deposit Facility Rate	Dec 12	-0.5	-0.5		-0.5	12.45	23.45
EC	ECB's Lagarde speaks after policy decision	Dec 12					13.30	0.30
US	PPI Final Demand YoY	Nov		1.2		1.1	13.30	0.30
Friday 13 December 2019								
NZ	BusinessNZ Manufacturing PMI	Nov		--		52.6	21.30	8.30
JN	Tankan Large Mfg Index	4Q		2		5	23.50	10.50
JN	Industrial Production YoY	Oct F		--		-7.4	4.30	15.30
US	Retail Sales Advance MoM	Nov		0.4		0.3	13.30	0.30
Upcoming Central Bank Interest Rate Announcements								
US, Federal Reserve		Dec 11	1.5/1.75	1.5/1.75		1.5/1.75		
Europe, ECB		Dec 12	-0.50	-0.50		-0.50		
Japan, BoJ		Dec 19	-0.10	-0.10		-0.10		
UK, BOE		Dec 19	0.75	0.75		0.75		
Australia, RBA		Feb 4	0.75	0.75		0.75		
New Zealand, RBNZ		Feb 12	1.00	1.00		1.00		

GMT: Greenwich Mean Time; AEDT: Australian Eastern Daylight Time

FORECASTS

Economic Forecasts

	Annual % change				Quarterly % change															
					2018				2019				2020				2021			
Australia Forecasts	**2018**	**2019**	**2020**	**2021**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Household Consumption	2.6	1.5	1.9	2.1	0.5	0.8	0.3	0.4	0.3	0.4	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6
Underlying Business Investment	1.2	-2.4	0.0	3.4	0.7	-0.8	-2.1	0.1	-0.2	-0.6	-0.7	-0.9	0.1	0.7	0.9	0.2	1.0	1.0	1.0	1.1
Residential Construction	4.8	-8.9	-9.6	0.6	3.3	2.8	0.1	-2.8	-2.2	-4.4	-3.1	-3.1	-2.9	-1.7	-1.5	-0.2	0.6	0.8	1.0	0.8
Underlying Public Spending	4.3	4.2	3.8	3.5	1.4	-0.1	2.1	0.8	1.1	1.4	0.4	0.8	1.1	1.1	0.9	0.9	0.8	0.8	0.8	0.8
Net Exports (a)	0.8	1.4	-0.1	-0.2	0.6	0.0	0.4	-0.2	0.4	0.6	0.2	0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.1	0.0
Inventories (a)	0.1	-0.4	0.1	0.1	0.0	0.2	-0.3	0.2	-0.1	-0.5	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Domestic Demand (q/q %)	--	--	--	--	0.9	0.5	0.4	0.2	0.1	0.3	0.1	0.3	0.4	0.6	0.6	0.6	0.7	0.7	0.7	0.7
Dom Demand (y/y %)	2.8	0.9	1.7	2.7	3.5	3.3	2.5	2.0	1.2	1.0	0.7	0.8	1.1	1.4	1.9	2.2	2.5	2.6	2.8	2.9
Real GDP (q/q %)	--	--	--	--	1.0	0.7	0.3	0.1	0.5	0.5	0.3	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.6	0.7
Real GDP (y/y %)	2.7	1.6	2.1	2.5	3.1	3.1	2.6	2.2	1.7	1.4	1.5	1.9	1.9	2.0	2.3	2.4	2.5	2.5	2.6	2.6
CPI headline (q/q %)	--	--	--	--	0.4	0.4	0.4	0.5	0.0	0.6	0.5	0.6	0.4	0.4	0.5	0.6	0.5	0.5	0.6	0.7
CPI headline (y/y %)	1.9	1.6	2.0	2.2	1.9	2.1	1.9	1.8	1.3	1.6	1.7	1.7	2.1	1.9	1.9	1.9	2.0	2.2	2.3	2.4
CPI underlying (q/q %)	--	--	--	--	0.5	0.5	0.4	0.4	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
CPI underlying (y/y %)	1.8	1.4	1.6	1.9	1.9	1.8	1.8	1.8	1.5	1.4	1.4	1.4	1.6	1.6	1.6	1.6	1.8	1.9	2.0	2.1
Private wages (q/q %)	--	--	--	--	0.5	0.6	0.5	0.6	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Private wages (y/y %)	2.1	2.3	2.5	2.8	1.9	2.1	2.1	2.3	2.4	2.3	2.3	2.3	2.4	2.5	2.6	2.6	2.7	2.7	2.8	2.8
Unemployment Rate (%)	5.3	5.2	5.3	5.4	5.5	5.6	5.1	5.0	5.1	5.2	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.5	5.5
Terms of trade	2.0	6.1	-6.3	-1.8	3.3	-1.3	1.1	3.0	3.1	1.5	0.9	-4.6	-1.9	-1.9	0.0	-1.9	-0.3	0.2	0.2	0.6
Current Account (% GDP)	-2.1	0.8	-0.2	-0.8	-2.2	-2.7	-2.2	-1.4	-0.2	1.2	1.7	0.7	0.3	-0.1	-0.3	-0.7	-0.8	-0.8	-0.9	-0.8

Source: NAB Group Economics; (a) Contributions to GDP growth

Exchange Rate Forecasts

	9-Dec	Mar-20	Jun-20	Sep-20	Dec-20	Mar-21
Majors						
AUD/USD	0.683	0.68	0.69	0.70	0.71	0.71
NZD/USD	0.66	0.65	0.65	0.66	0.67	0.67
USD/JPY	108.6	109	109	108	110	108
EUR/USD	1.11	1.14	1.16	1.16	1.17	1.17
GBP/USD	1.31	1.35	1.35	1.35	1.33	1.36
USD/CNY	7.04	7.05	7.00	6.90	6.85	6.85
USD/CAD	1.33	1.31	1.30	1.30	1.31	1.32
USD/CHF	0.99	0.98	0.96	0.96	0.96	0.96
Australian Cross Rates						
AUD/NZD	1.04	1.05	1.06	1.06	1.06	1.06
AUD/JPY	74.2	74	75	76	78	77
AUD/EUR	0.62	0.60	0.59	0.60	0.61	0.61
AUD/GBP	0.52	0.50	0.51	0.52	0.53	0.52
AUD/CNY	4.81	4.79	4.83	4.83	4.86	4.86
AUD/CAD	0.91	0.89	0.90	0.91	0.93	0.94
AUD/CHF	0.68	0.67	0.66	0.67	0.68	0.68

Interest Rate Forecasts

	9-Dec	Mar-20	Jun-20	Sep-20	Dec-20	Mar-21
Australian Rates						
RBA cash rate	0.75	0.50	0.50	0.50	0.50	0.50
3 month bill rate	0.89	0.60	0.60	0.60	0.60	0.60
3 Year Swap Rate	0.75	0.90	0.95	0.95	1.00	1.00
10 Year Swap Rate	1.31	1.25	1.30	1.35	1.45	1.50
Offshore Policy Rates						
US Fed funds	1.75	1.75	1.75	1.75	1.75	na
ECB deposit rate	-0.50	-0.50	-0.50	-0.50	-0.50	na
BoE repo rate	0.75	0.75	0.75	0.75	1.00	na
BoJ excess reserves rate	-0.10	-0.20	-0.30	-0.30	-0.30	na
RBNZ OCR	1.00	0.50	0.50	0.50	0.50	na
China 1yr lending rate	4.35	4.10	4.10	4.10	4.10	na
China Reserve Ratio	13.0	12.00	12.00	12.00	12.00	na
10-year Bond Yields						
Australia	1.16	1.10	1.10	1.10	1.20	1.25
United States	1.83	1.70	1.70	1.70	1.80	1.90
New Zealand	1.55	0.95	1.05	1.10	1.30	1.45

Sources: NAB Global Markets Research; Bloomberg; ABS

Global GDP

	2018	2019	2020	2021
Australia	2.7	1.6	2.1	2.5
United States	2.9	2.3	1.7	1.8
Eurozone	1.9	1.2	1.0	1.4
United Kingdom	1.4	1.3	1.0	1.5
Japan	0.8	1.0	0.2	0.9
China	6.6	6.1	5.9	5.8
India	6.8	5.7	6.8	7.1
New Zealand	2.8	2.2	2.2	2.0
World	3.6	3.1	3.2	3.5

Commodity prices ($US)

	9-Dec	Mar-20	Jun-20	Sep-20	Dec-20	Mar-21
Brent oil	64.2	70	75	75	75	na
Gold	1460	1483	1518	1547	1572	na
Iron ore	na	72	68	71	69	na
Hard coking coal*	140	165	160	155	152	na
Thermal coal	67	93	90	88	90	na
Copper	5962	6225	6150	6125	6100	na
Aus LNG**	10	12	12	12	12	na

** FOB quarterly contract prices (thermal coal is JFY contract)*

*** Implied Australian LNG export prices*

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