

AUSTRALIAN MARKETS WEEKLY

Persistently low inflation and structural unemployment



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- The week ahead in Australia:** The RBA board meets on Tuesday and the Statement of Monetary Policy is published on Friday. We expect the RBA will cut rates by July, but narrowly favour the RBA remaining on hold this month given the relative stability of unemployment, with the RBA adopting an explicit easing bias instead. The decision will be a very close call given weak inflation, where we expect the Bank will downgrade its outlook for growth and inflation (and to a lesser extent unemployment). Retail sales on Tuesday are important for Q1 consumer spending; NAB forecasts weak gains for March sales (NAB: 0.1%; mkt: 0.2%) and Q1 retail volumes (NAB: 0.2%; mkt: 0.3%). Trade data are also on Tuesday.
- The week ahead internationally:** Wednesday's RBNZ policy announcement is a line-ball call. On balance, we favour no cut, with the RBNZ maintaining a clear easing bias. This would probably need to be accompanied by a half-chance of a 25 point rate cut in the Bank's near-term OCR forecasts. In the US, President Trump has brought the trade talks with China into sharp relief, announcing he will increase tariffs on \$US200b of Chinese imports on Friday and warning of additional steps. The US CPI on Friday is set to come under more scrutiny than usual after Fed Chair Powell downplayed the slowdown in core inflation and pushed back on expectations of a near-term rate cut. The consensus forecast is for annual core inflation to tick up to 2.1%. There are also service PMIs due in China and Europe.

Analysis – Persistently low inflation and structural unemployment

- At 1.6%, underlying inflation was weak in Q1, almost returning to the multi-decade low of 1.5% reached in 2016. At that time, newly-appointed Governor Lowe said low inflation reflected: (1) excess capacity; (2) lower headline inflation feeding into lower underlying inflation via inflation expectations; and (3) reduced pricing power of many workers and firms.
- Three years on and with inflation still low, we have examined excess capacity in the labour market. On the Reserve Bank's estimates, there has been little change in spare capacity over recent years given that the NAIRU has fallen from 5% to 4.5%.
- As a cross-check on this we calculated estimates of structural unemployment based on splitting unemployment by duration, job search experience and reason for unemployment.
- This approach showed structural unemployment had fallen in recent years, but that cyclical unemployment had also declined, pointing to some reduction in spare capacity. This suggests to us that other factors - such as lower inflation expectations, a flatter Phillips Curve, and a greater role for underemployment - are playing a role in holding down inflation.

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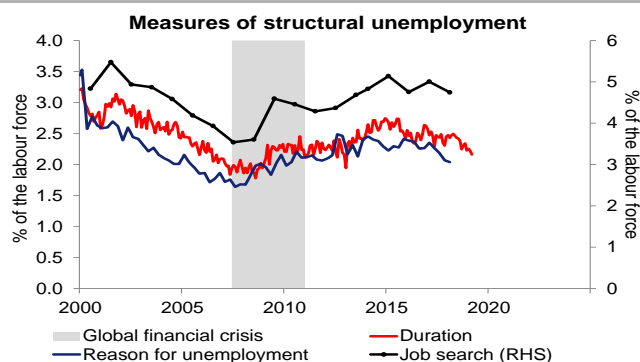
[Ask the Interest Rate Strategists](#)

Key markets over the past week

	Last	% chg week		Last	bp/% chg week
AUD	0.6978	-1.1	RBA cash	1.50	0
AUD/CNY	4.73	-0.4	3y swap	1.34	-7
AUD/JPY	77.2	-2.0	ASX 200	6,276	-1.3
AUD/EUR	0.623	-1.2	Iron ore	93	2.4
AUD/NZD	1.055	-0.4	WTI oil	60.4	-4.8

Source: Bloomberg

Chart of the week: Structural unemployment has fallen



Persistently low inflation and structural unemployment

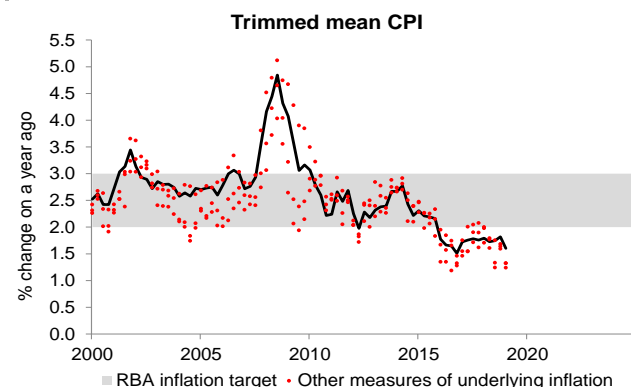
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Headline and underlying inflation were weak in Q1

Headline inflation was weak at the start of this year, with the CPI increasing by only 0.1% in Q1 in seasonally adjusted terms to be 1.3% higher than a year ago. Aside from a slight fall in early 2016, this was the smallest increase in the CPI since 2012.

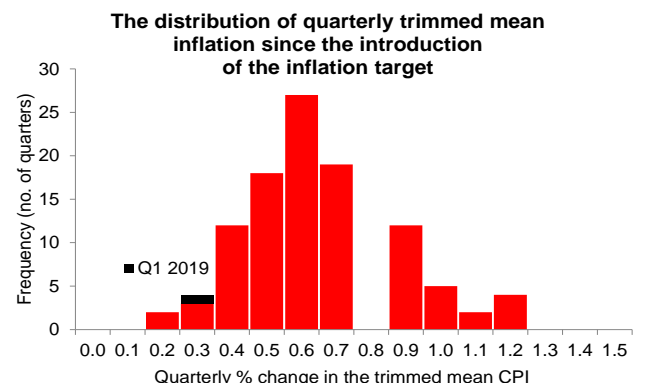
More importantly, underlying inflation was also weak in the quarter. The trimmed mean CPI, which is favoured by the Reserve Bank, rose by 0.3% in the quarter to be 1.6% higher than a year earlier. This was the smallest quarterly increase since inflation reached a low-point in 2015-16 and was one of the smallest increases in the inflation-targeting era.

Chart 1: The RBA’s preferred measure of underlying inflation was weak in Q1



Note: The other measures of underlying inflation are the: (1) weighted median CPI; (2) CPI excluding food and energy; and (3) CPI excluding volatile items.
Source: Australian Bureau of Statistics, Reserve Bank of Australia, National Australia Bank

Chart 2: The quarterly increase in the trimmed mean CPI was one of the smallest in the inflation-targeting era



Note: The distribution was calculated using quarterly inflation from Q1 1993 to 2019.
Source: Australian Bureau of Statistics, Reserve Bank of Australia, National Australia Bank

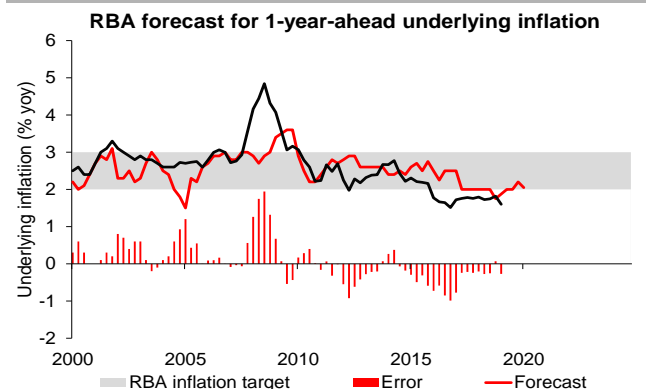
Underlying inflation has continued to undershoot Reserve Bank expectations

The weak result for underlying inflation undershot Reserve Bank expectations, where the February Statement on Monetary Policy forecast that annual inflation would gradually pick up from 1.8% at the end of 2018 to 2.0% by the end of 2019.

Given this undershoot, we expect that the Reserve Bank will revise its forecast outlook in the 10 May Statement on Monetary Policy, where the long-awaited return to the 2-3% inflation target will likely be delayed until the first half of 2020.

Such a revision continues the pattern of recent years, with inflation below the 2-3% target band for more than three years now and where the Bank has overestimated inflation for almost all the 2010s to date.

Chart 3: The Reserve Bank has overestimated underlying inflation for most of this decade



Source: Australian Bureau of Statistics, Reserve Bank of Australia, Tulip and Wallace, National Australia Bank

With inflation almost back at its 2016 trough, we have revisited the RBA Governor’s earlier explanation for low inflation

With annual underlying inflation almost back at the multi-decade low of 1.5% reached in 2016, we revisited comments made at the time by then newly-appointed Governor Lowe on the reasons for low inflation.¹

¹ See Reserve Bank Governor Lowe, *Inflation and monetary policy*, 18 October 2016.

Governor Lowe attributed low inflation – both globally and locally – to three factors, namely:

- **Excess capacity.** Unemployment at that stage was above the staff's 5% estimate of the NAIRU. The Governor thought that this gap was reinforced by higher underemployment.
- **Lower headline inflation feeding into lower underlying inflation.** Lowe pointed to a self-reinforcing dynamic where lower headline inflation – stemming from lower commodity prices, including petrol prices – fed into smaller wage claims, which reinforced low underlying inflation.
- **Reduced pricing power of many workers and firms.** Competition has increased because of globalisation and technology, with, for example, the entry of foreign retailers affecting clothing and grocery prices. There is also increased uncertainty and job insecurity since the global financial crisis.

A fourth, more confronting option for central bank that was not canvassed by Governor Lowe, is that inflation has become less responsive to spare capacity over time. More formally, the Phillips curve may have become flatter, which means that monetary policy now has less influence on inflation.

RBA estimates point to only a small reduction in spare capacity over the past two years

Three years on from Governor Lowe's speech, we have assessed current low inflation by focusing on his first factor, namely the role of excess capacity.

Excess capacity is an integral part of Phillips Curve models of inflation, where it is typically measured as the gap between the unemployment rate and the non-accelerating inflation rate of unemployment or NAIRU. That is:

$$\text{Inflation} = \alpha * \text{expected inflation} + (1-\alpha) * \text{lagged inflation} + \beta * (\text{unemployment} - \text{NAIRU}) + \gamma * \text{lagged import price inflation}$$

In this framework, we think that persistently low underlying inflation is most likely explained by:

- Lower expected inflation;
- Excess capacity; and/or.
- Inflation becoming less responsive to excess capacity.

The NAIRU is inherently unobservable, with central banks, including the Reserve Bank, usually deriving it using a Kalman filter that allows the estimated NAIRU to vary over time. In this type of model, an undershoot (overshoot) of inflation is treated as a signal that the NAIRU has fallen (risen).

Using a Kalman filter, the Reserve Bank estimated that the NAIRU had fallen from a peak of about 7% in the mid 1990s to 5% by 2017, albeit where there is a very large degree of uncertainty around this estimate (for example, the Reserve Bank calculated that the 70% confidence interval around the 5% estimate of the NAIRU ranged from 4% to 6%).²

² See Tom Cusbert, *Estimating the NAIRU and the unemployment gap*, Reserve Bank of Australia Bulletin, June quarter 2017.

By late 2018, Deputy Governor Debelle said that the then unemployment rate of 5.3% was still above the bank's estimate of the NAIRU.³ Debelle did not say whether the bank's estimate of the NAIRU was still 5% at that point, although it was interesting that he later emphasised that the bank had an open mind on what constituted full unemployment, noting that unemployment in other countries has fallen below past levels of what could be achieved without wage and price pressures.⁴

This suggests to us that the deputy governor had thought the NAIRU had fallen further last year, something that was confirmed in Governor Lowe in early 2019. Testifying before parliament, Governor Lowe said that the NAIRU had fallen to around 4.5%, which is still below the current unemployment rate of 5.0%.⁵

These figures suggest that there has been only a slight reduction in spare capacity since 2017, although we are mindful that the Reserve Bank's estimates of the NAIRU can be revised as more data become available. That is, the gap between the actual unemployment rate and the NAIRU has narrowed from about 0.7pp in the first half of 2017 to 0.5pp in early 2019 (the actual unemployment rate averaged about 5.7% in the H1 2017 compared with a NAIRU of 5%, while the current unemployment rate is 5% versus a NAIRU of 4.5%).

Measures based on different splits of unemployment all point to a decline in structural unemployment

While we plan to estimate the NAIRU by applying a Kalman filter to the latest data, as a first step we constructed rough estimates of structural unemployment to see what light they shed on spare capacity in the labour market.

We did this by updating earlier work by the Reserve Bank that estimated the impact of different categories of unemployment on inflation, where unemployment was split by duration, job search experience and the reason for unemployment.⁶

Adding together the categories of unemployment with little apparent impact on wages, we constructed three measures of structural unemployment according to the:

- **Duration of unemployment** – proxied by frictional (ie, people who are unemployed for either less than four weeks) plus long-term unemployment (ie, people unemployed for a year or more);
- **Job search experience of unemployed persons** – proxied by frictional unemployment (those reporting no difficulty in finding work) and unemployed persons reporting job-specific (eg, lack of skills and unsuitable hours) and employee mismatches (eg, age, ill health, and family responsibilities); and

³ See Reserve Bank Deputy Governor Debelle, *The state of the labour market*, 17 October 2018.

⁴ See Reserve Bank Deputy Governor Debelle, *Question & answer session at the Walkley Business Journalism Award*, 22 October 2018.

⁵ See page 15 of Commonwealth of Australia, *Reserve Bank of Australia annual report 2018*, Official Committee Hansard of the House of Representatives Standing Committee on Economics, 22 February 2019.

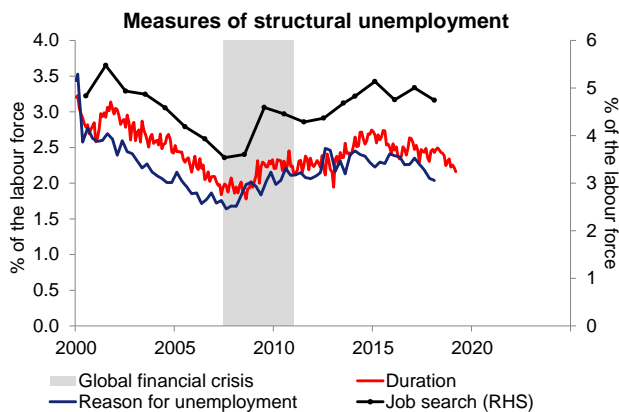
⁶ See Alexander Ballantyne, Daniel De Voss and David Jacobs, *Unemployment and spare capacity in the labour market*, Reserve Bank of Australia Bulletin, September quarter 2014.

- **Reason for unemployment** – proxied by unemployed persons who had either last worked two years or had never worked.

The estimates of structural unemployment calculated using this approach differ in terms of level, but have all declined over recent years.⁷

- The duration measure has fallen by 0.5pp from a peak of 2.7% of the labour force in 2015 to 2.2% in 2019.
- The job search experience series, which is only available annually, has declined by 0.4pp from a peak of 5.1% in early 2015 to 4.7% in early 2018.
- The reason for unemployment measure, which is available quarterly, has declined by 0.5pp from a peak of 2.5% in 2014 to 2.0% in 2019.

Chart 4: Different measures all point to a decline in structural unemployment



Note: Seasonally adjusted by National Australia Bank. The job search series is annual, while the reason for unemployment is quarterly.
Source: Australian Bureau of Statistics, National Australia Bank

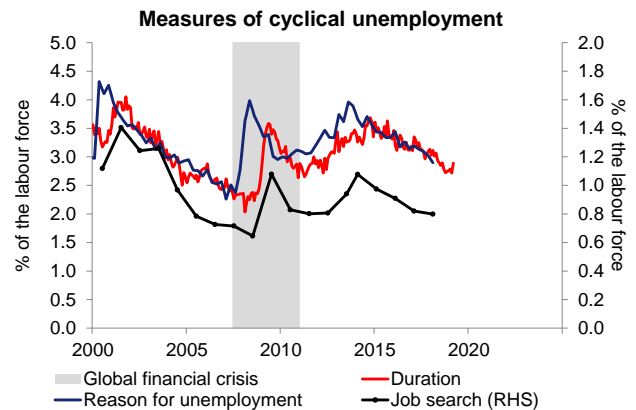
Measures of cyclical unemployment have fallen at a faster rate

While the measures of structural unemployment reinforce the view that the NAIU has declined over recent years, cyclical unemployment – which is calculated as the actual less structural unemployment – has also fallen.

- The duration measure fell by 1.0pp from a peak of 3.7% of the labour force in 2014 to 2.7% in late 2018/early 2019 before ticking up to 2.9% in March (the pre-global financial crisis low was 2.0%).
- The job search experience series has fallen by 0.3pp from a peak of 1.1% in early 2014 to 0.8% in early 2018 (the most recent low was 0.6% during the global financial crisis).
- The reason for unemployment measure has declined by 0.5pp from a peak of 3.9% in 2014 to 2.9% in 2019 (this compares with a pre-crisis low of 2.3%).

⁷ The job search measure is much higher than the other series, which could reflect the fact that unemployed persons are reporting the *main difficulty* in finding work rather than all difficulties.

Chart 5: There has also been a decline in cyclical unemployment



Note: Seasonally adjusted by National Australia Bank. The job search series is annual, while the reason for unemployment is quarterly.
Source: Australian Bureau of Statistics, National Australia Bank

The decline in cyclical unemployment suggests that other factors have also held down inflation

The decline in these cyclical unemployment measures suggests that it is likely that the gap between the unemployment rate and the NAIU has narrowed over recent years. This would typically have lifted inflation.

While we plan to see if this is the case after using a Kalman filter to calculate updated estimates of the NAIU and the unemployment gap, this suggests to us that other factors are likely playing a role in holding down inflation.

One factor is lower inflation expectations, which was canvassed by Governor Lowe in 2016. Market-based measures of expected inflation have fallen sharply over the past year and are well below the Reserve Bank’s 2-3% target band. However, the Reserve Bank now estimates expected inflation by extracting the common signal from a range of measures of inflation expectations, which is not likely to have fallen as much as breakeven inflation.⁸

Another factor is that inflation may have become less sensitive to the unemployment gap over time. This is something we plan to test for in further work.

Finally, the unemployment-based measure of excess capacity may not be telling the full story on capacity in the labour market. The Reserve Bank has often considered broader measures of labour market underutilisation that incorporate underemployment, where DeBelle concluded that the unemployment rate was still the most useful summary indicator of the state of the labour market. Nonetheless, this is also something we intend to revisit in the next stage of our analysis.

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⁸ See the discussion in Tom Cusbert, *Estimating the NAIU and the unemployment gap*, Reserve Bank of Australia Bulletin, June quarter 2017.

CALENDAR OF ECONOMIC RELEASES

Country	Economic Indicator	Period	Forecast	Consensus	Actual	Previous	GMT	AEST
Monday, 6 May 2019								
GE	Markit Germany Services PMI	Apr F		55.6		55.6	7.55	17.55
EC	Retail Sales MoM / YoY	Mar		-0.1/1.8		0.4/2.8	9.00	19.00
US	Fed's Harker Speaks on the Economic Outlook						13.30	23.30
CA	Speech – Stephen S. Poloz, Governor						17.45	3.45
Tuesday, 7 May 2019								
AU	AiG Perf of Construction Index	Apr				45.6	22.30	8.30
JN	Nikkei Japan PMI Mfg	Apr F				49.5	0.30	10.30
AU	Trade Balance	Mar	4600	4480		4801	1.30	11.30
AU	Retail Sales MoM	Mar	0.1	0.2		0.8	1.30	11.30
AU	Retail Sales Ex Inflation QoQ	1Q	0.2	0.3		0.1	1.30	11.30
NZ	2Yr Inflation Expectation	2Q				2.02	3.00	13.00
AU	RBA Cash Rate Target	7 May	1.5	1.25		1.5	4.30	14.30
JN	Vehicle Sales YoY	Apr				-4.7	5.00	15.00
GE	Factory Orders MoM / YoY	Mar		1.4/-5.4		-4.2/-8.4	6.00	16.00
UK	BOE's Cunliffe speaks in London.						8.00	18.00
US	Fed's Kaplan Speaks in Beijing on Moderated Panel						11.00	21.00
US	Fed's Quarles Discusses Financial Regulation						15.35	1.35
UK	BOE's Haldane speaks in Sheffield.						16.30	2.30
Wednesday, 8 May 2019								
NZ	Dairy Auction Avg. Winning Price MT	7 May				3447		early am
CH	Trade Balance	Apr		34.56		32.64	8 May	
CH	Exports YoY / Imports YoY	Apr		2.5/-2.5		14.2/-7.6	8 May	
JN	BOJ Minutes of March Policy Meeting						23.50	9.50
JN	Monetary Base YoY	Apr				3.8	23.50	9.50
NZ	RBNZ Official Cash Rate	8 May	1.75	1.5		1.75	2.00	12.00
GE	Industrial Production SA MoM / YoY	Mar		-0.5/-2.6		0.7/-0.4	6.00	16.00
UK	BOE's Ramsden speaks in London.						8.15	18.15
CA	Housing Starts	Apr		194.5		192.527	12.15	22.15
US	Fed's Brainard Makes Opening Remarks at 'Fed Listens' Event						12.30	22.30
Thursday, 9 May 2019								
NZ	ANZ Truckometer Heavy MoM	Apr				-2	22.00	8.00
CH	CPI YoY	Apr		2.5		2.3	1.30	11.30
CH	PPI YoY	Apr		0.6		0.4	1.30	11.30
CA	New Housing Price Index MoM	Mar		0		0	12.30	22.30
US	Powell Opening Remarks at a Fed Community Development Conferen						12.30	22.30
US	PPI Final Demand MoM	Apr		0.2		0.6	12.30	22.30
US	Initial Jobless Claims	4 Apr		220		230	12.30	22.30
US	Trade Balance	Mar		-50.3		-49.4	12.30	22.30
US	Fed's Bostic Discusses Economic Outlook						13.45	23.45
US	Wholesale Inventories MoM	Mar F				0	14.00	0.00
US	Fed's Evans Speaks at Community Development Conference						17.15	3.15
Friday, 10 May 2019								
CH	Money Supply M2 YoY	Apr		8.5		8.6	10 to 15 May	
CH	New Yuan Loans CNY	Apr		1200		1690	10 to 15 May	
NZ	REINZ House Sales YoY	Apr				-12.9	10 to 15 May	
NZ	Food Prices MoM	Apr				0.5	10 to 17 May	
JN	BOJ Summary of Opinions						23.50	9.50
AU	RBA Statement on Monetary Policy						1.30	11.30
EC	ECB's Villeroy Speaks in Paris						7.00	17.00
EC	ECB's Lautenschlaeger Speaks in Paris						7.30	17.30
UK	GDP (MoM)	Mar		0		0.2	8.30	18.30
UK	GDP QoQ / YoY	1Q P		0.5/1.8		0.2/1.4	8.30	18.30
UK	Industrial Production MoM / YoY	Mar		0.1/0.5		0.6/0.1	8.30	18.30
UK	Trade Balance	Mar		-4600		-4860	8.30	18.30
EC	ECB's Visco Speaks in Paris						9.30	19.30
CA	Building Permits MoM	Mar		2.3		-5.7	12.30	22.30
US	Brainard Speaks at Fed Community Development Conference						12.30	22.30
US	CPI MoM / YoY	Apr		0.4/2.1		0.4/1.9	12.30	22.30
US	CPI Ex Food and Energy MoM / YoY	Apr		0.2/2.1		0.1/2	12.30	22.30
CA	Net Change in Employment / Unemployment Rate	Apr		15/5.8		-7.2/5.8	12.30	22.30
CA	Hourly Wage Rate Permanent Employees YoY	Apr		2.3		2.3	12.30	22.30
US	Fed's Bostic Discusses Economic Outlook						13.45	23.45
US	Fed's Williams Speaks to Bronx Bankers Breakfast						14.00	0.00
EC	ECB's Coeure Speaks in Paris						14.30	0.30
Upcoming Central Bank Interest Rate Announcements								
Australia, RBA		7-May	1.5%	1.5%		1.5%		
New Zealand, RBNZ		8-May	1.75%	1.75%		1.75%		
Canada, BoC		29-May	1.75%	1.75%		1.75%		
Europe, ECB		6-Jun	-0.4%	-0.4%		-0.4%		
US, Federal Reserve		19-Jun	2.25-2.5%	2.25-2.5%		2.25-2.5%		
UK, BOE		20-Jun	0.75%	0.75%		0.75%		
Japan, BoJ		20-Jun	-0.1%	-0.1%		-0.1%		

GMT: Greenwich Mean Time; AEST: Australian Eastern Standard Time

FORECASTS

Economic Forecasts				Annual % change																		
				2017				2018				2019				2020						
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Australia Forecasts				2018	2019	2020																
Household Consumption	2.6	2.2	2.2	0.4	0.7	0.7	1.0	0.4	0.9	0.3	0.4	0.6	0.7	0.5	0.5	0.5	0.6	0.6	0.6	0.6		
Underlying Business Investment	1.4	1.7	5.2	3.4	0.2	3.9	0.2	0.9	-1.1	-1.8	0.4	0.2	1.6	1.4	1.7	0.9	1.6	0.6	1.3			
Residential Construction	4.4	-7.8	-8.1	-4.1	-0.1	-1.4	0.9	3.4	2.2	0.5	-3.4	-2.1	-3.0	-2.9	-2.1	-2.1	-1.8	-1.9	-0.9			
Underlying Public Spending	5.1	5.6	4.5	1.3	1.3	1.1	0.7	1.6	0.6	2.5	1.4	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1			
Exports	5.0	2.5	2.3	-2.2	2.9	0.8	-1.4	4.1	1.3	-0.1	-0.7	1.1	1.3	1.0	0.5	0.4	0.5	0.3	0.6			
Imports	4.2	1.7	3.5	2.8	0.1	3.2	1.0	1.8	0.6	-1.0	0.1	0.6	1.0	0.8	0.9	0.8	1.0	0.8	1.0			
Net Exports (a)	0.2	0.2	-0.2	-1.0	0.6	-0.5	-0.5	0.5	0.1	0.2	-0.2	0.1	0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.1			
Inventories (a)	0.0	-0.1	0.0	0.4	-0.7	0.3	0.1	0.1	0.1	-0.3	0.2	0.0	0.1	-0.1	0.0	0.0	0.0	0.0	0.0			
Domestic Demand - qtr%				0.7	0.8	0.9	0.8	0.9	0.7	0.5	0.3	0.5	0.6	0.5	0.6	0.6	0.6	0.6	0.7			
Dom Demand - ann %	3.0	1.9	2.4	2.2	2.5	3.5	3.3	3.4	3.3	2.9	2.5	1.7	1.6	2.0	2.3	2.3	2.3	2.4	2.5			
Real GDP - % q/q				0.4	0.8	0.6	0.6	1.1	0.8	0.3	0.2	0.6	0.8	0.6	0.5	0.5	0.6	0.5	0.6			
Real GDP - % y/y	2.8	2.1	2.2	2.2	2.1	2.8	2.4	3.1	3.1	2.7	2.3	1.9	1.8	2.2	2.5	2.4	2.1	2.1	2.1			
CPI headline - qtr %				0.5	0.2	0.6	0.6	0.4	0.4	0.4	0.5	0.1	0.5	0.7	0.8	0.5	0.6	0.6	0.7			
CPI headline - ann %	1.9	1.7	2.6	2.1	1.9	1.8	1.9	1.9	2.1	1.9	1.8	1.4	1.6	1.8	2.1	2.6	2.6	2.6	2.5			
CPI underlying - qtr %				0.5	0.6	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.5			
CPI underlying - ann %	1.8	1.8	2.3	1.8	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.6	1.6	1.8	2.0	2.2	2.3	2.4	2.2			
Wages (Pvte WPI - qtr %)				0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7			
Wages (Pvte WPI - ann %)	2.1	2.5	2.7	1.8	1.8	1.9	1.9	1.9	2.1	2.1	2.3	2.4	2.4	2.5	2.6	2.6	2.7	2.7	2.8			
Unemployment Rate (%)	5.3	5.0	5.2	5.9	5.6	5.5	5.4	5.5	5.6	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.2	5.2			
Terms of trade	1.5	-1.1	-0.3	5.4	-5.9	-0.1	-0.1	3.1	-1.1	0.9	3.1	0.3	-1.2	-2.2	-1.3	-0.4	-0.9	0.4	-0.2			
G&S trade balance, \$Abn	22.1	29.0	8.9	6.6	3.3	1.0	-1.3	4.1	3.8	5.8	8.4	9.5	8.6	6.4	4.4	3.6	2.0	2.0	1.3			
% of GDP	1.2	1.5	0.4	1.5	0.7	0.2	-0.3	0.9	0.8	1.2	1.7	1.9	1.8	1.3	0.9	0.7	0.4	0.4	0.2			
Current Account (% GDP)	-2.1	-1.7	-2.7	-1.6	-2.4	-2.8	-3.4	-2.3	-2.5	-2.3	-1.5	-1.3	-1.4	-1.9	-2.3	-2.4	-2.7	-2.7	-2.9			

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

Exchange Rate Forecasts					
	6-May	Jun-19	Sep-19	Dec-19	Mar-20
Majors					
AUD/USD	0.6978	0.70	0.73	0.75	0.76
NZD/USD	0.6617	0.67	0.69	0.70	0.70
USD/JPY	110.63	113	110	108	107
EUR/USD	1.1193	1.13	1.14	1.16	1.18
GBP/USD	1.3120	1.33	1.35	1.38	1.40
USD/CHF	1.0153	0.98	0.99	0.97	0.98
USD/CAD	1.3477	1.31	1.27	1.27	1.25
USD/CNY	6.7828	6.70	6.68	6.60	6.50

Australian Cross Rates					
	6-May	Jun-19	Sep-19	Dec-19	Mar-20
AUD/NZD	1.0546	1.04	1.06	1.07	1.09
AUD/JPY	77.2	79	80	81	81
AUD/EUR	0.6234	0.62	0.64	0.65	0.64
AUD/GBP	0.5319	0.53	0.54	0.54	0.54
AUD/CNY	4.7330	4.69	4.88	4.95	4.94
AUD/CAD	0.9404	0.92	0.93	0.95	0.95
AUD/CHF	0.7085	0.69	0.72	0.73	0.74

Interest Rate Forecasts					
	6-May	Jun-19	Sep-19	Dec-19	Mar-20
Australia Rates					
RBA Cash rate	1.50	1.50	1.25	1.00	1.00
3 month bill rate	1.55	1.80	1.60	1.35	na
3 Year Swap Rate	1.34	1.45	1.35	1.35	1.40
10 Year Swap Rate	1.99	2.08	2.08	2.08	2.20
Offshore Policy Rates					
US Fed funds	2.50	2.50	2.50	2.50	2.50
ECB deposit rate	-0.40	-0.40	-0.40	-0.40	-0.20
BoE repo rate	0.75	0.75	0.75	1.00	1.00
BoJ excess reserves rate	-0.10	-0.10	-0.10	-0.10	-0.10
RBNZ OCR	1.75	1.75	1.75	2.00	2.25
China 1yr lending rate	4.35	4.35	4.35	4.35	4.35
China Reserve Ratio	13.5	12.5	12.0	12.0	12.0
10-year Benchmark Bond Yields					
Australia	1.73	2.40	2.50	2.60	2.60
United States	2.53	2.80	3.00	3.00	3.00
New Zealand	1.86	3.10	3.20	3.30	3.40

Sources: NAB Global Markets Research; Bloomberg; ABS

Global GDP							
Dec year	2015	2016	2017	2018	2019	2020	20 Yr Avg
Australia	2.5	2.8	2.4	2.8	2.1	2.2	3.4
US	2.9	1.6	2.2	2.9	2.1	1.8	2.6
Eurozone	2.0	1.9	2.5	1.8	1.2	1.6	1.5
UK	2.3	1.8	1.8	1.4	1.3	1.6	2.4
Japan	1.3	0.6	1.9	0.8	0.5	0.7	0.8
China	6.9	6.7	6.9	6.6	6.3	6.0	9.2
India	8.2	7.1	6.7	7.3	7.1	7.2	6.6
New Zealand	3.5	3.9	3.1	2.8	2.4	2.6	3.0
World	3.5	3.3	3.8	3.7	3.5	3.5	3.5
MTP Top 5	4.1	3.7	4.3	4.0	3.5	3.4	5.0

Commodity prices (\$US)					
	6-May	Jun-19	Sep-19	Dec-19	Dec-20
Brent oil	69.3	68	68	70	75
Gold	1285	1300	1300	1310	1380
Iron ore	93.0	88	79	76	69
Met coal	205	193	178	170	152
Thermal coal	88	1850	1875	1900	1950
Copper	6227	1950	1900	1850	1725
Aust LNG (*)	11.9	11.9	11.9	12.1	

(*) Implied Australian LNG export prices.

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