MOODY'S ANALYTICS

ANALYSIS

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CoreLogic-Moody's Analytics Australia Home Value Index Forecast

Second-Quarter 2019 Housing Forecast Report

The May CoreLogic Hedonic Home Value Index results show the national housing market continuing its correction, led by Sydney and Melbourne. The national index for home values has fallen for almost two years. The decline has been sharper in house values compared with apartment values; house values have fallen almost 11% from their peak in mid-2017, while apartment values are down almost 7% from their peak.

House values across Sydney declined 5.5% in 2018 and are forecast to fall a further 9.6% in 2019 before a slow recovery in 2020. Apartment values are set to decline by 7.3% in 2019, followed by a forecast 4% expansion in 2020. House values in Melbourne are forecast to decline a sharp 10.8% in 2019, building on the modest 0.3% decline in 2018. The decline in 2019 in Greater Melbourne's housing market is broad-based, with particular falls in the Inner regions. Melbourne's apartment market is also expected to endure a modest correction in 2019 and 2020.

House values in Brisbane are forecast to see a correction in 2019, with particular weakness in South Brisbane house values. A relatively mild correction is forecast for apartment values in 2019, with a 0.7% forecast decline in 2019, following a 1% fall in 2018. This year is predicted to be the worst for Brisbane's apartment market before it transitions to a projected 5.6% rise in 2020.

House values in Perth will likely decline 6.9% in 2019, followed by a small recovery in 2020. A slow housing recovery in 2020 is likely as the local economy improves thanks to its population growth. Meanwhile, Adelaide's housing market will continue its stable run, with house values forecast to rise 0.4% in 2019 after a 1.9% gain in 2018. As for Hobart, the housing market is likely at the end of its bull run, with house values forecast to rise 2.8% in 2019, followed by modest corrections in 2020 and 2021. Similarly, the Hobart apartment market will likely decelerate from 12.2% in 2018 to 4.9% in 2019.

CoreLogic-Moody's Analytics Australia Home Value Index Forecasts, 2019Q2

BY KATRINA ELL, VEASNA KONG, XIAO CHUN XU, AND FARAZ SYED

Moody's Analytics has developed an econometric model to forecast the direction of Australia's residential property market down to the Statistical Area 4 level, using historical data from the CoreLogic Hedonic Home Value Index.[1] SA4s are defined by the Australian Bureau of Statistics as geographic areas with a high percentage of people who both live and work there. CoreLogic has created hedonic home value indexes for 85 of the 106 SA4s covering Australia.[2]

The May CoreLogic Hedonic Home Value Index results show the national housing market continuing its correction, led by Sydney and Melbourne. The national index for home values has fallen for almost two years. The decline has been sharper in house values compared with apartment values; house values have fallen almost 11% from their peak in mid-2017, while apartment values are down almost 7% from their peak (see Charts 1 and 2).[1,2]

The Australian economy is travelling in the slow lane. GDP growth is forecast at 2% in 2019, potentially its weakest annual expansion since 2009, following 2.8% in 2018. Consumption is an important weak spot and makes up around 60% of GDP. The housing market correction, weak wage growth, and stubborn spare capacity in the labour market are contributors.

Monetary stimulus will play an increased role over the next year, lifting domestic demand. The Reserve Bank of Australia reduced the cash rate by 25 basis points to 1.25% in June, marking the first movement since August 2016. The Moody's Analytics baseline is for a cumulative 50 basis points' worth of cuts by the end of 2019, but odds for a cumulative 75 basis points stand at 40%. The combination of increased monetary policy stimulus, expectations of the housing market reaching a trough in the third quarter of 2019, and fiscal policy playing a relatively supportive role, including income tax cuts, should boost GDP growth to 2.8% in 2020 (see Chart 3).

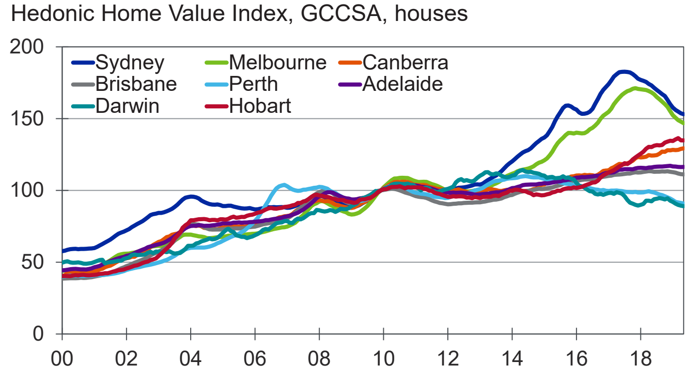
Downside risks plague the forecast through 2020, especially from the geopolitical ructions offshore, including the U.S.-China trade war, which remains unresolved. Further escalation would hurt global growth, and Australia would not be immune.

1 For more detail on the CoreLogic-Moody's Analytics Australia Home Value Index Forecast, see Appendix 1.

2 See Appendix 2 for more information on the SA4s that are forecast.

Chart 1: Capital City House Values

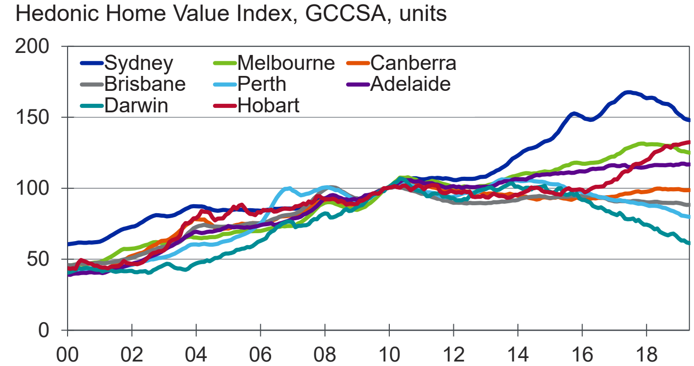
Hedonic Home Value Index, GCCSA, houses



Sources: CoreLogic, Moody's Analytics

Chart 2: Capital City Apartment Values

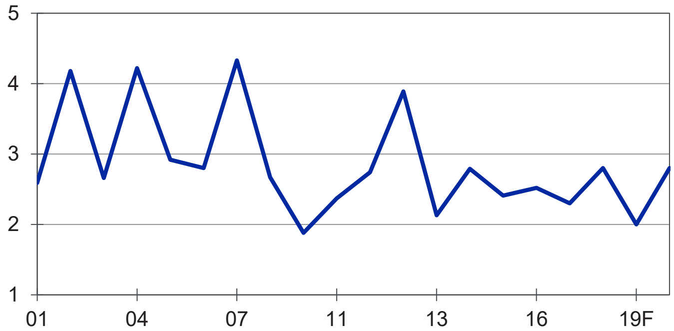
Hedonic Home Value Index, GCCSA, units



Sources: CoreLogic, Moody's Analytics

Chart 3: Welcome to Below Potential

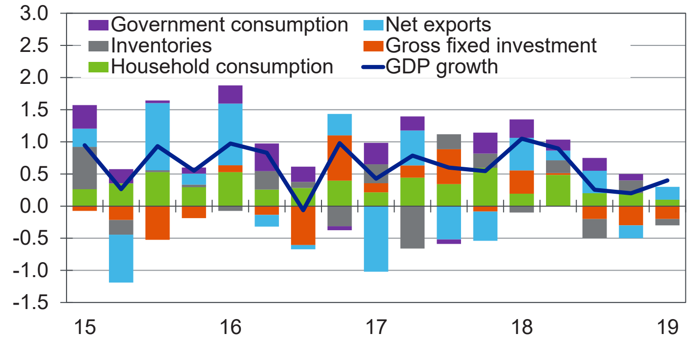
Australia real GDP, % change yr ago



Sources: Australian Bureau of Statistics, Moody's Analytics

Chart 4: Australia's Q1 Fizzled

Contributions to GDP growth, ppts



Sources: Australian Bureau of Statistics, Moody's Analytics

A disappointing start to 2019

March-quarter GDP data were symptomatic of the weakness in Australia's economy. GDP growth slowed to 1.8% year over year, well below the estimated potential at 3%. An important source of weakness was household consumption, which rose by 1.7% year over year in the March quarter, the slowest pace in six years and below the 20-year historical average of 2.6% (see Chart 4). Nominal household income was a weak 2.3% year over year, while average household earnings were an even weaker 1.4%.

Adding to the slump in consumption is that households are not dipping into savings to fund discretionary spending in an environment of weak wage growth to the same extent as they were early in 2018. The household saving ratio rose to 2.8% in the March quarter, from the December quarter's 2.6%, not materially off a 12-year low (see Chart 5).

Public demand was a bright spot in the first-quarter national accounts, rising by 5.7% year over year, with large contributions coming from public consumption and public investment. In sharp contrast was private demand, which was up just 0.4% year over year. Investment also showed divergent trends. The headline came in at a fall of 1% year over year, of which nonmining was up around 2% and mining contracted by 11%. The story here is that nonmining investment has improved but is not close to overshadowing the slump in mining investment as it continues its retreat from unprecedented highs in prior years (see Chart 6).

Indeed, mining investment represented 1.9% of nominal GDP in 2018, down from its 6% peak in 2013. Meanwhile, the Other category has oscillated around 4% of nominal GDP for the past seven years, while manufacturing has been on a steady decline. The Other investment category is diverse and covers 12 industries, including utilities, construction, wholesale, retail, transport, and various services such as accommodation and food and administrative support.

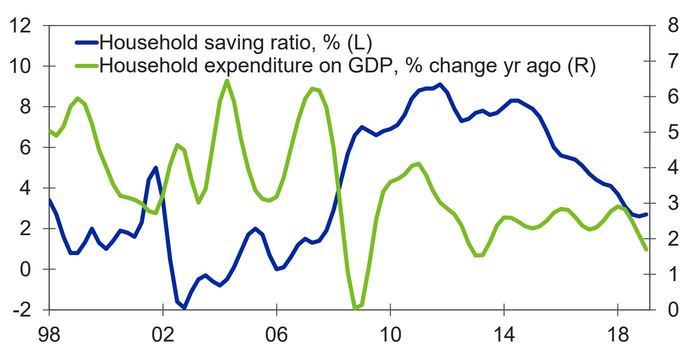
The RBA is tripping on words

The Reserve Bank of Australia cut the cash rate by 25 basis points to 1.25% in June. Financial market pricing had the odds of a June cut at 95%. The reasons given for bringing the cash rate to a record low were stock standard. These included reducing spare capacity in the economy, achieving "more assured progress" towards the 2%-to-3% inflation target, and faster progress in reducing the unemployment rate. Headline CPI limped to 1.3% year over year in the March quarter, while core CPI was 1.4% (see Chart 7).

The Moody's Analytics baseline is for cumulative easing this year at 50 basis points, but the odds of 75 basis points are high, par-

Chart 5: Households Retreat

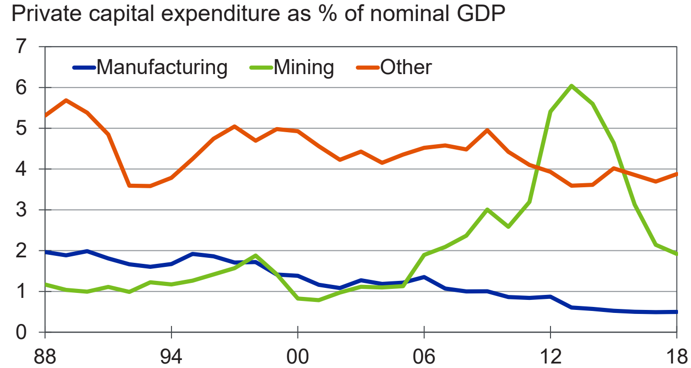
Trend



Sources: Australian Bureau of Statistics, Moody's Analytics

Chart 6: Investment Not Much Chop

Private capital expenditure as % of nominal GDP



Sources: Australian Bureau of Statistics, Moody's Analytics

ticularly with Australia's largest lenders not expected to fully pass on the reduction to lenders. The path of the unemployment rate will be key to determining the extent of monetary easing that the central bank delivers.

Labour market is key

Australia's labour market is in a good spot. The trend unemployment rate was 5.1% in May, while employment growth was up by 2.7% year over year, above the 20-year average of 2%. The decent pace of employment growth, especially from full-time positions, has pushed the underemployment rate a little lower and wage growth a little higher. But neither has shown material improvements. This is concerning given that forward indicators suggest labour market tightening has lost steam. For instance, ANZ job advertisements track employment growth closely and have been on a downtrend for the past year (see Charts 8 and 9).

Table 1: National Home Value Forecasts

% change yr ago

	Houses				Apartments			
	2018	2019	2020	2021	2018	2019	2020	2021
National (8 capital city aggregate)	-1.8	-7.8	2.2	4.7	-1	-4.7	2.4	3.6

Sources: CoreLogic, Moody's Analytics

The trend underemployment rate has decreased by 0.2 percentage point over the past year. This has led to a steady widening of the gap between the unemployment rate and the underemployment rate. The RBA is hoping that its additional monetary stimulus will make progress reducing that stubborn spare capacity (see Charts 10 and 11).

Moody's Analytics is skeptical of material improvements occurring given monetary policy cannot address the structural reasons for this widening gap. Notably, Australia's unit labour costs are high, so there is a push to contain costs including moving away from permanent positions to contractors and offshoring.

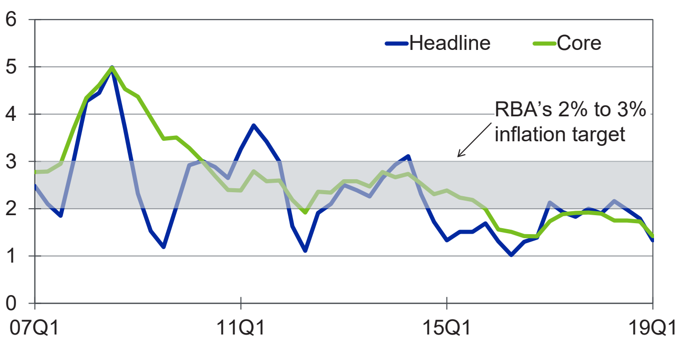
The housing market correction

National housing values fell by an average of 1.8% in 2018 and are forecast to fall a further 7.8% in 2019 (see Table 1). Sydney has been a key driver of the slowdown given the impressive runup in values over the past five years. Sydney home values fell 5.5% in 2018, and a further 9.3% decline is forecast this year.

Melbourne has become a greater drag in 2019. House values fell by 0.3% year over year in 2018 and are on track to fall by 11.3%

Chart 7: Subdued Inflation

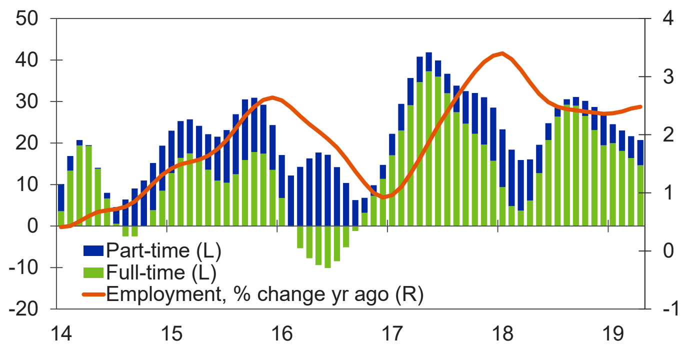
CPI, % change yr ago



Sources: Australian Bureau of Statistics, Moody's Analytics

Chart 8: Labour Market in a Good Spot…

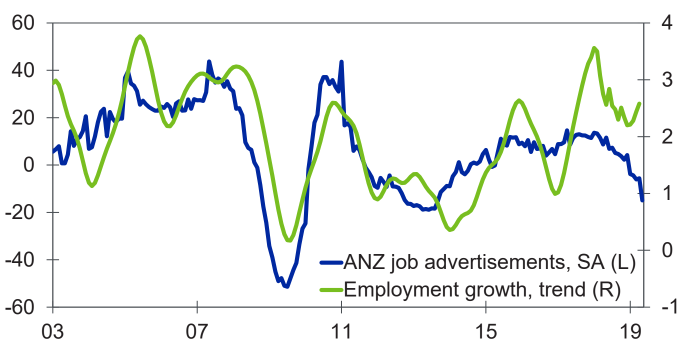
Australia employment change monthly, trend, ths



Sources: Australian Bureau of Statistics, Moody's Analytics

Chart 9: …But Conditions Have Softened

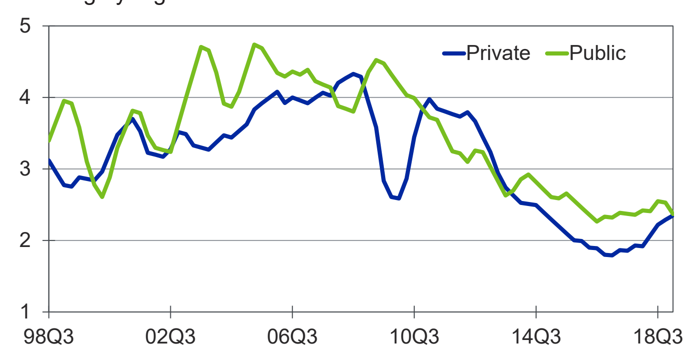
% change yr ago



Sources: Australian Bureau of Statistics, ANZ, Moody's Analytics

Chart 10: Subdued Wage Growth

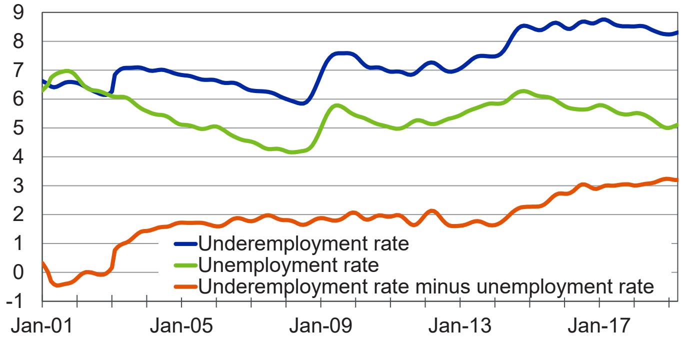
% change yr ago



Sources: Australian Bureau of Statistics, Moody's Analytics

Chart 11: Stubborn Spare Capacity

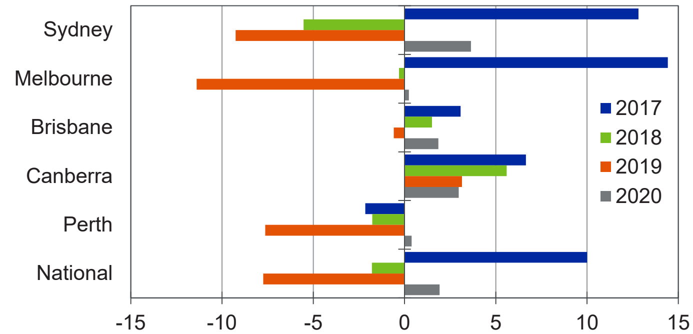
%, trend



Sources: Australian Bureau of Statistics, Moody's Analytics

Chart 12: The Housing Correction

Greater capital city house value forecasts, % change



Sources: CoreLogic, Moody's Analytics

in 2019. Brisbane has escaped the worst of the slowdown with a forecast 0.6% decline in house values in 2019. Canberra is also holding up relatively well, with no declines in 2018 and none forecast in 2019 (see Chart 12).

Questions of sustainability

Australia's households are amongst the highest leveraged in the developed world, with the lion's share tied to the local property market (see Chart 13). The housing correction that took hold in 2018 was a long time coming after a strong runup in values in the more densely populated markets, including Sydney and Melbourne. The correction has delivered important improvements in affordability, but not materially. While national home values have come down from their peak in 2017, they are still upward of 20% higher compared with the start of 2013.

An important driver of the slowdown in Australia's housing market has been tighter credit availability, partly as a consequence of the regulator—the Australian Prudential Regulation Authority—tightening lending conditions, which has made it relatively more difficult to purchase a property, particularly for investors. These serviceability requirements were eased in May.

Expectations of further lending reductions flowing on from RBA cash rate reductions will also breathe life into the property market and add weight to our view that the national housing market will reach a trough in the third quarter of 2019 and gradually improve thereafter. This could see the household leverage-to-GDP ratio climb, making Australia stand out further amongst its peers. This is an undesirable position to be in, particularly given the questions around sustainability of the potentially rising debt load.

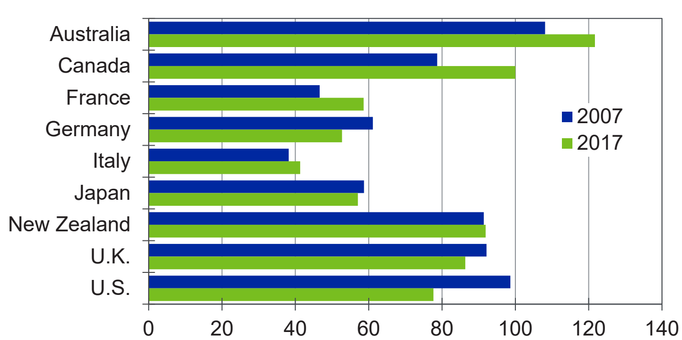
Exports are the quiet achiever

Australia's export sector has been a quiet achiever in the past year, as focus on the subdued household sector has increased. Australia's current account deficit narrowed to A$2.9 billion in the March quarter, equal to its lowest in 44 years at 0.6% of nominal GDP. Higher commodity prices, especially for hard commodities, have lifted the terms of trade by 6% year over year. In the March quarter, the trade surplus reached a record high A$13.6 billion, representing 2.8% of nominal GDP (see Chart 14).

Non-rural goods exports are the star performer and were up by 24% year over year in April, while rural goods rose by 2.3%. Supplies of rural goods exports such as fresh produce have been hindered by the lasting drought. Iron ore prices have increased almost 40% in the year to 7 June and 50% in the past year. An additional lift to the non-rural export sector has been increased capacity for liquefied natural gas coming on line in the past year.

Chart 13: Relatively Leveraged Households

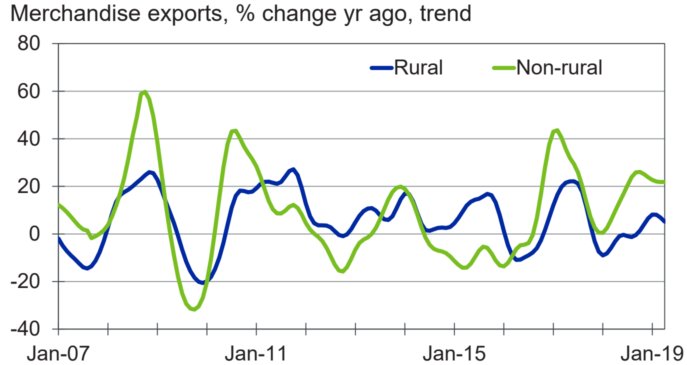
Household debt, loans and debt securities as % of GDP



Sources: World Bank, Moody's Analytics

Chart 14: Commodity Exports Flourish

Merchandise exports, % change yr ago, trend



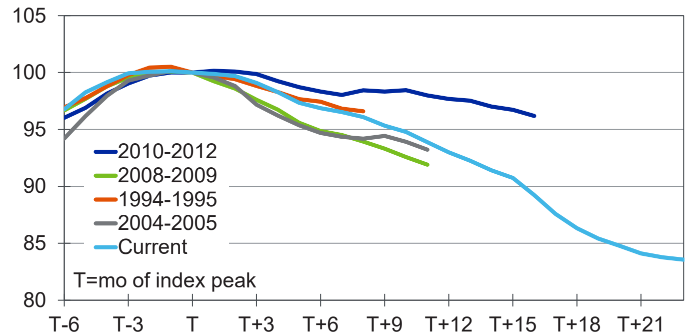
Sources: Australian Bureau of Statistics, Moody's Analytics

New South Wales

Sydney's housing market remains in correction territory (see Table 2). Moody's Analytics forecasts that Sydney house and apartment values will continue to fall until the September quarter of 2019, before a modest improvement sets in. House values will fall an average of 9.6% in 2019 after a 5.5% decline in 2018. Moody's Analytics identified previous episodes of corrections over the last three decades (see Chart 15). This shows that the current correction is on track to be the longest and steepest on record. The most recent peak in house and unit values was around mid-2017. Although unit values have corrected, it has not been to the same extent as houses. Unit values are forecast to fall by an average of 7.3% in 2019 after a 3.1% drop in 2018. An improvement of 4% is expected in 2020, followed by an improvement of 6% by 2021.

Chart 15: Deepest Correction Yet

Normalised to 100 at T, Greater Sydney, hedonic house values



Sources: CoreLogic, Moody's Analytics

Table 2: New South Wales Home Value Forecasts

% change yr ago

	Houses				Apartments			
	2018	2019	2020	2021	2018	2019	2020	2021
Greater Sydney	**-5.5**	**-9.6**	**3.1**	4.8	**-3.1**	**-7.3**	**4**	6
Central Coast	1.1	-7.6	4.1	5.5	0.8	-3.4	13.1	13.8
Sydney-Baulkham Hills and Hawkesbury	-7.7	-8.4	6.6	8.7	-5.9	-2.9	3.5	6
Sydney-Blacktown	-6.2	-7	6.2	7.3	-2.3	-6.6	3.6	5.8
Sydney-City and Inner South	-9.6	-10.5	7.8	2.2	-1	-7	3.5	3
Sydney-Eastern Suburbs	-2.5	-11.8	-2.1	0.5	-2.8	-7	-2.7	-3.5
Sydney-Inner South West	-5.3	-14.6	0.9	5.7	-4.2	-8.7	2.4	5.6
Sydney-Inner West	-8.1	-8.6	3.8	-0.2	-3.1	-6.8	5.9	7.7
Sydney-North Sydney and Hornsby	-7	-9	-0.4	1.6	-3.7	-8.1	-1.1	0.9
Sydney-Northern Beaches	-3.2	-6.6	2.6	8.2	-6.2	-4.7	6.6	4.2
Sydney-Outer South West	-1	-9.2	2.3	5.8	-1.8	-11.8	5	9
Sydney-Outer West and Blue Mountains	-2.1	-6.4	1.7	3.7	-2.8	-11.3	1.9	7.1
Sydney-Parramatta	-6.6	-8.7	3.2	5	-4.3	-6.6	6.6	7.9
Sydney-Ryde	-11.3	-15.9	1.1	7	-4.1	-7	2.2	5.1
Sydney-South West	-2.4	-9	3.7	4.7	-3	-6.1	5.5	7.7
Sydney-Sutherland	-7.3	-9	6.5	9.4	-3.9	-10.2	2.1	4
Rest of New South Wales	**3.3**	**-3.3**	**3.4**	**5.2**				
Capital Region	5.9	-1.7	3.6	4.7				
Central West	4.3	1.7	0.8	2				
Coffs Harbour-Grafton	3	1.5	0	1.1				
Far West and Orana	4.3	2.7	7.4	5				
Hunter Valley ex Newcastle	6.6	-0.4	6.1	7.6				
Illawarra	-1	-10	2.6	6.9				
Mid North Coast	3.3	-0.6	7.4	7.3				
Murray	-1	0.7	8	7.1				
New England and North West	2.9	-0.2	3	3.9				
Newcastle and Lake Macquarie	4	-6.7	3	4.3				
Richmond-Tweed	6.7	-3.3	1.7	6.7				
Riverina	-0.4	4.8	2.2	2.3				
Southern Highlands and Shoalhaven	2.1	-6.1	-0.5	1.2				

Sources: CoreLogic, Moody's Analytics

It is important to keep the correction in context. House values in Sydney remain around 60% higher than they were in 2012. The strong gains in values of prior years were driven by the upbeat state economy, which encouraged relatively higher population growth and employment opportunities compared with other cities, subsequently lifting demand for housing. This caused incomes to increase faster than the national average, which underpinned some of the past gains in home values. However, housing values have risen at a faster rate than what fundamentals—income, population and interest rates—suggest, and thus they are overvalued relative to the equilibrium value. This is partly driving the sharp corrections across Greater Sydney throughout the forecast period.

The correction in the housing market will remain two-paced across house and apartment values. House values have been more volatile than apartment values in previous cycles across Sydney. Peaks and troughs in previous cycles have been steeper for houses, which in part reflects the difficulty in unlocking new supply; conversely, apartment supply tends to outstrip house supply in Sydney. A high level of supply has come on line for apartments in the inner city and surrounding areas as well as for dwellings in suburban areas via land releases and removal of some development restrictions.

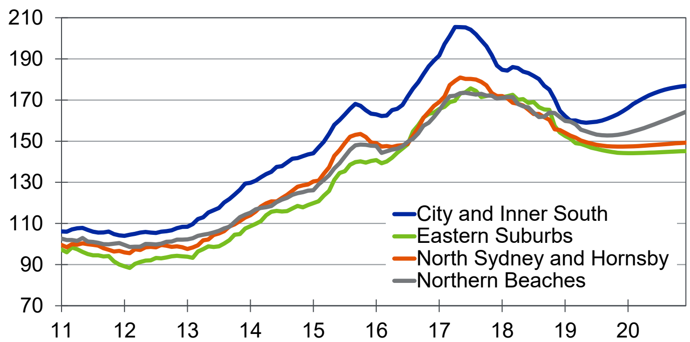
House values in the City and Inner South area are forecast to fall further in 2019 following a sharp decline in 2018 (see Chart 16). The Inner South West, which is expected to see a 14.6% fall in 2019 after a 5.3% decline in 2018, leads the way (see Chart 17). Eastern Suburbs and North Sydney are set for an entrenched slump; values are unlikely to meaningfully recover until 2021. The main catalyst for the correction is a steep runup in values above what fundamentals suggest. For example, in the Eastern Suburbs, values have risen faster than incomes consistently since 2013. As income growth and home values converge at a similar pace, a slowdown in house and apartment values is expected.

The correction in Sydney is forecast to have largely passed by 2020, but home value growth will be far from the lofty gains of recent years. Housing values are forecast to rise modestly in 2020, with an average increase of 3.1% forecast for houses and 4% for apartments.

Areas outside metropolitan Sydney are mostly on track to escape the bulk of the correction. As potential homebuyers' incomes have not kept pace with the Sydney housing market, demand for areas outside Sydney has increased, as affordability is better. Areas including the Hunter Valley, excluding Newcastle, have become attractive destinations for those still tied to Sydney for employment but for whom purchasing property would stretch the household budget too far. These areas have adequate transport links back to Sydney for frequent commuting. House values in the Hunter Valley are forecast to fall by just 0.4% in 2019 and rise by 6.1% in 2020, after rising 6.6% in 2018.

Chart 16: Declines in High-Income Areas

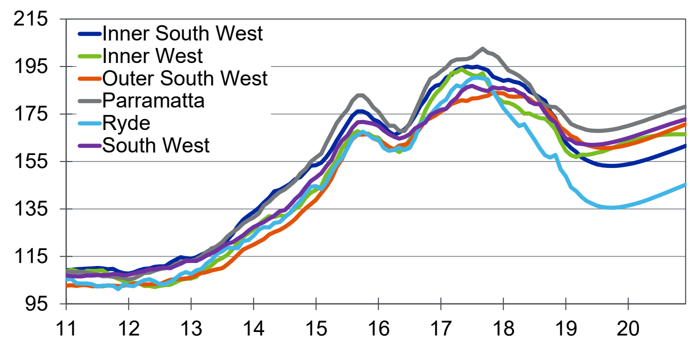
Hedonic Home Value Index, houses



Sources: CoreLogic, Moody's Analytics

Chart 17: Drops Across the West

Hedonic Home Value Index, houses



Sources: CoreLogic, Moody's Analytics

Victoria

Greater Melbourne house values have continued to decline in the second quarter and are 14% below their peak, having declined for the last 18 months. The fall in values has been most pronounced in Melbourne's inner suburbs, where house values have fallen as much as 21% from their peak (see Chart 18). However, the pace of the month-on-month declines has slowed recently, suggesting the worst of the downturn could be over. For instance, house values in Melbourne-Inner East have edged up since April, while the pace of declines has slowed noticeably in Melbourne-Inner South and Melbourne-South East. Meanwhile, house values across parts of regional Victoria have experienced more persistent weakness in recent months, particularly in Ballarat, Latrobe-Gippsland and Geelong. Elsewhere in regional Victoria, house values have continued to hold up relatively well (see Table 3).

The decline of unit values across Greater Melbourne has been less pronounced than for detached houses. Similar to the detached house market, however, unit values have also displayed tentative signs of improvement. In May, unit values in Greater Melbourne rose by an 18-month high, with most areas experiencing some improvement. Melbourne-Inner, Melbourne-Outer East, and the Mornington Peninsula are the main outliers, with unit values continuing to slide. Unit values in regional Victoria have displayed more divergence, with those in Shepparton, Geelong and Ballarat stabilizing close to historical highs, while those in Warrnambool and South West have experienced steep declines. Meanwhile, unit values in Bendigo have risen noticeably since March.

The Victorian economy continued to lose momentum in the first three months of 2019, with growth of state final demand—the total value of goods and services sold in Victoria—slowing to a five-year low. Household consumption growth was soft, with spending on household furnishings and equipment and purchases of cars particularly weak. Private investment growth was also soft. Notably, dwelling fixed investment declined for the second straight quarter, with the fall in residential building approvals suggesting further weakness ahead. Indeed, housing finance commitments in Victoria, including those for construction of new dwellings continue to fall from year-ago levels. The labour market, however, continues to fare relatively well, with the trend unemployment rate remaining below the national average and less than 5% for the 11th consecutive month in May.

The decline in house values in Greater Melbourne is likely to ease further in coming months, with a modest recovery expected in 2020. House values in Greater Melbourne are expected to decrease 10.8% this year, following a 0.3% decline in 2018. Melbourne-Inner East, Inner South and Outer East are expected to experience the largest declines, with home values forecast to fall by 13.9%, 14.9% and 12.7%, respectively. House values in the rest of Greater Melbourne are expected to fall 7% to 10% in

Table 3: Victoria Home Value Forecasts

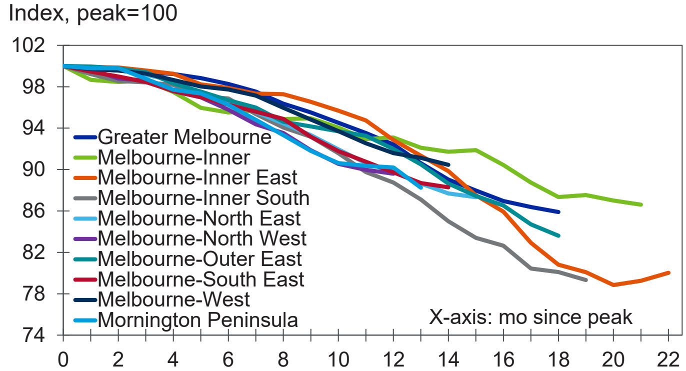
% change yr ago

	Houses				Apartments			
	2018	2019	2020	2021	2018	2019	2020	2021
Greater Melbourne	**-0.3**	**-10.8**	**1.3**	**6**	**1.8**	**-3.9**	**-0.3**	**1**
Melbourne-Inner	-3.9	-7.2	1.3	3.4	-0.5	-1.1	4.2	3.8
Melbourne-Inner East	-5	-13.9	5.5	7.7	0	-5.9	6.8	9.8
Melbourne-Inner South	-4.4	-14.9	-0.8	6.7	0.1	-4.1	-0.1	0.2
Melbourne-North East	2.7	-9.7	6.2	11.8	6.1	-4.6	1.4	3.7
Melbourne-North West	5.4	-9.4	0	4.3	7.2	0.9	5.2	4.3
Melbourne-Outer East	-0.6	-12.7	-1.9	8.1	1.8	-8.3	0.3	3.8
Melbourne-South East	2.5	-9.8	0.8	5.5	5.5	-8	-6.1	-2.5
Melbourne-West	5.9	-8	-0.6	2.8	8.1	-0.7	-6	-7.1
Mornington Peninsula	5.7	-7.9	2.5	5.2	8.1	-8.1	-0.5	3.1
Rest of Victoria	**8.4**	**1.5**	**3.3**	**3.6**				
Ballarat	8.7	2.2	4.1	5.6				
Bendigo	5.4	2.1	2.1	1.7				
Geelong	12.3	-0.9	5.6	7.1				
Hume	6.5	2.9	-0.8	-1.6				
Latrobe-Gippsland	9.2	3.8	3.1	3.7				
North West	5	2.8	2.2	-0.2				
Shepparton	4.3	1.3	6.5	6.5				
Warrnambool and South West	2	7	4.1	0.7				

Sources: CoreLogic, Moody's Analytics

Chart 18: Inner Suburbs Lead the Downturn

Index, peak=100



Sources: CoreLogic, Moody's Analytics

2019. By early 2020, house values across most of Greater Melbourne are forecast to experience a return to month-on-month growth. Overall, Greater Melbourne house values are expected to tick up 1.3% in 2020, with Melbourne-Inner East and Melbourne-North East leading the recovery. House values in regional Victoria are expected to continue holding up relatively well in coming months, even as values in most areas are forecast to rise at a slower pace than in 2018. House values in regional Victoria are forecast to rise 3.3% in 2020, following an expected 1.5% gain in 2019.

Unit values in Greater Melbourne are forecast to fall 3.9% in 2019 after a 1.8% rise in 2018. The decline is expected to be the most pronounced in Melbourne-Outer East, Melbourne-South East, and the Mornington Peninsula, where values are projected to decline around 8%. In 2020, the weakness is expected to persist in Melbourne-South East, Melbourne-West, Melbourne-Inner South, and the Mornington Peninsula, where further, albeit less pronounced, declines are forecast. Recoveries are forecast to take place elsewhere in Greater Melbourne, with Melbourne-Inner East and Melbourne-North West leading the gains.

Queensland

The Queensland housing market, though doing better compared with other states, is still forecast to fall in 2019 (see Table 4). There is diversity in performance within the group since there are three distinct housing markets in Queensland. The first region constitutes the bulk of Brisbane. The Brisbane area has, up to this year, seen strong growth since the lull in 2012—thanks mostly to improved activity in the services sector—but now is experiencing weaker-than-expected outcomes. The outlook for these housing markets is for either flat or mildly positive returns over the forecast period.

Higher supply in the Brisbane apartment market over the past few years has crimped growth (see Chart 19). From 2013 to 2016, at the peak of the apartment supply glut, apartment approvals in Brisbane outnumbered housing approvals on average by 3 to 1. Recently, approvals between the two asset classes have converged, which will likely see a broad-based recovery in apartment values from 2020 onwards.

Consequently, apartment prices are expected to perform better than house prices for Brisbane (and Greater Brisbane) in the medium term. We forecast home values to underperform throughout the forecast period, while apartment values are expected to reach a trough in 2018-2019 followed by a pronounced recovery in 2020. This is a reversal of trend between the two asset classes from the past few years (see Chart 20).

Table 4: Queensland Home Value Forecasts

% change yr ago

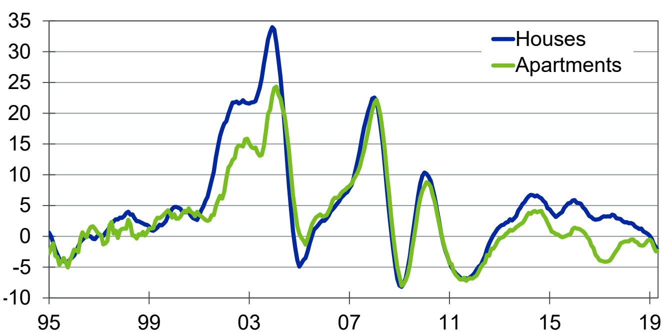
	Houses				Apartments			
	2018	2019	2020	2021	2018	2019	2020	2021
Greater Brisbane	1.5	-1.8	1.4	2.9	**-1**	**-0.7**	**5.6**	**5.8**
Brisbane-East	2.7	-0.5	1	1.2	1.2	2.6	3.3	3.7
Brisbane-North	3.1	-0.2	1.4	0.4	-2	-0.6	5.3	5
Brisbane-South	0.5	-4	-0.8	2	-1.6	-1.8	4.1	5
Brisbane-West	3.4	-1.2	1.5	4.2	-1.4	4.1	4.6	3.6
Brisbane Inner City	0.5	-1.2	2	1.9	0.2	-2.7	3.9	5.4
Ipswich	-0.3	0.3	1.9	3.4	-8.1	-8.3	8.2	7.6
Logan-Beaudesert	0.6	-2.7	2.8	4.1	-4.5	0	6.8	6.2
Moreton Bay-North	2.3	-1.4	2.5	4.8	-2.6	3.3	8.3	**6.5**
Moreton Bay-South	2.2	-0.8	2.3	4.4	-1.3	1.8	6.3	6.7
Rest of Queensland	0.8	-1.2	3.6	4.9				
Cairns	-1.4	-0.2	3.6	4.9				
Darling Downs-Maranoa	-1.6	-2.6	4.7	4.7				
Central Queensland	-3	-1.3	7.5	9.6				
Gold Coast	2	-2.4	2.8	4.5				
Mackay-Isaac-Whitsunday	-1.6	3.6	9.2	8.8				
Queensland-Outback	-4.3	-20.7	-6.6	0.3				
Sunshine Coast	4.6	-1.6	0.9	1.6				
Toowoomba	-1	-0.7	1.9	1.8				
Townsville	-5.4	-1.8	4.9	5.1				
Wide Bay	1.1	1.8	4.7	6.3				

Sources: CoreLogic, Moody's Analytics

On the bright side, the Queensland economy will continue to benefit from strong commodity exports, in particular metallurgical coal and liquid natural gas. In the 2019-2020 Queensland Budget released in June, the state government heavily pledged to invest in infrastructure—to the tune of A$49.5 billion in capital works over four years. Economic development and construction and mining job growth in the state should give a lift to housing prices, especially in the regional areas where the infrastructure projects will be targeted.

Chart 19: Apartments Underperformed

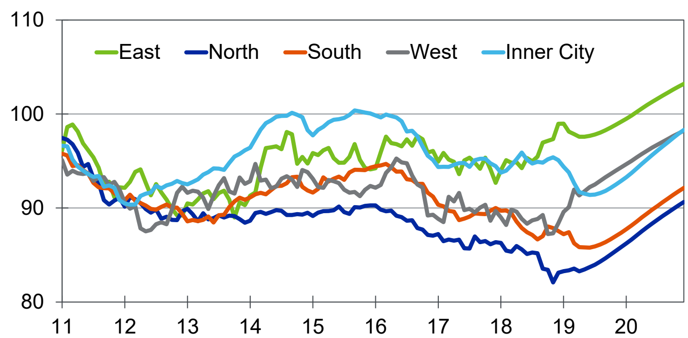
Greater Brisbane hedonic apartment value, % change yr ago



Sources: CoreLogic, Moody's Analytics

Chart 20: Brisbane Apartments to Recover

Hedonic unit value index, units



Sources: CoreLogic, Moody's Analytics

On the other hand, muted income growth is expected to keep pressure on house values. This follows a period where house values have risen but income growth has remained muted. The number of houses approved for building in Greater Brisbane peaked in 2017-2018, approximately doubling the 2011-2013 average, although approvals have since decelerated. Employment growth has also slowed down dramatically since the highs in late 2017 and early 2018. The effects of a higher supply of houses in the pipeline, muted income, and employment growth mean that home values in Brisbane-South are forecast to decline in 2019.

In the Greater Brisbane areas such as Ipswich or Logan, both apartment and house values are expected to remain under pressure. Ipswich in particular experienced heavy falls in apartment values in 2018 and probably in 2019 as well, which follows a period of oversupply; apartment supply has outstripped house supply. Moreover, income growth has remained muted, with job opportunities more prevalent in the Brisbane city as opposed to outer areas. The unemployment rate in Ipswich and Logan has averaged more than 6.5%, well above the Greater Brisbane average.

The second housing area comprises more 'lifestyle' areas, including the Sunshine Coast, Wide Bay and Cairns. Areas here are expected to perform better over the forecast period as income growth remains robust and the degree of supply increase is not as great as in areas of Brisbane. Housing markets in Queensland outside of Brisbane have also not seen the degree of value growth over the past few years.

The third housing market region in Queensland comprises commodity- or agriculture-producing areas. These include Central Queensland, Mackay-Isaac-Whitsunday, and Darling Downs-Maranoa. Housing markets here have seen significant value declines over the past few years partly as a result of the end of the mining boom. The recent uptick in commodity prices and tourism has seen recoveries in areas such as Mackay. However, areas that are more agriculturally geared are forecast to suffer continued declines on the back of drought conditions.

Western Australia

The Western Australia housing market is doing better than expected with upgrades to its outlook for 2020 and 2021, supported by lower interest rates and the continued strength of non-rural commodity prices (see Table 5). However, it remains in a slump, coinciding with disappointing economic conditions that emerged in the second half of 2018. Business investment, as well as government investment, fell last year while exports fell in the fourth quarter. Commodity prices continue to recover, helped by demand for infrastructure projects in China, but mining job growth remains stagnant.

The labour market in Western Australia has been comparatively weak for some time, with the growth in employment lower than the national average since 2015. The unemployment rate in the state is among the highest in the country (its trend unemployment rate was 6.1% in April compared with the national average of 5.1%), and wage growth remains the lowest of all the states on a year-over-year basis (see Chart 21).

Given the subdued conditions, the housing market is expected to continue declining in 2019, with a trough not likely until 2020. But relief is around the corner, with a modest recovery predicted to commence in 2020 before it ramps up in 2021.

Greater Perth's house values are expected to decrease in 2019—though not as much as previously forecast because of stronger commodity prices and lower interest rates—with falls broadly across the regions. Perth-Inner is expected to experience the steepest fall this year in house values but will recover slightly in 2020, while Perth-North West and Perth-Inner are expected to have the greatest price falls in apartments this year, with the fall flowing through to next year as well for the former region (see Chart 22). Only Mandurah's apartment values are forecast to rise this year, with a surge predicted in the next year.

Rental values fell more than 20% peak to trough from May 2013 to November 2017, a sign of continued excess supply. Since then, rental values have remained broadly stable. A slow recovery in rental value over the next two years will help the housing market recover.

Perth-North West, encompassing Joondalup, Stirling and Wanneroo, is representative of the trends across Greater Perth. Even though apartment values are slumping this year in the region, house values are expected to fall by 3.5% this year before a healthy recovery in 2020.

Although the housing slump is expected to continue, the fundamentals in Western Australia are slowly improving. The RBA non-rural commodity price index has risen by nearly 80% since reaching a trough at the start of 2016, driven by demand from China for its vast infrastructure projects. Population growth in Greater Perth and

Table 5: Western Australia Home Value Forecasts

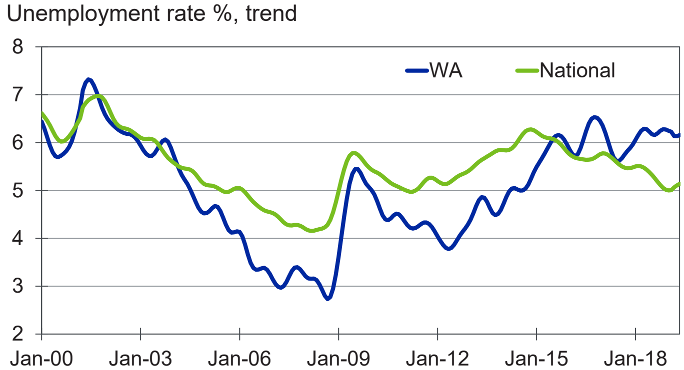
% change yr ago

	Houses				Apartments			
	2018	2019	2020	2021	2018	2019	2020	2021
Greater Perth	**-1.8**	**-6.9**	**2.1**	**4.3**	**-4.5**	**-7.3**	**1.8**	**3**
Mandurah	-3.3	-10.6	0.9	6.5	-7.8	4.3	12.9	8
Perth-Inner	1.7	-6.9	0.7	4.4	-3.8	-10.2	0.9	3.9
Perth-North East	-3.1	-6	1.9	2.6	-5.6	-7.2	1.6	1.5
Perth-North West	-2.8	-3.5	4.5	4.5	-3.5	-10.9	-2.2	2.7
Perth-South East	-2.8	-8.1	1	3.1	-4.9	-4.1	5.8	2.6
Perth-South West	-1.2	-8.3	2.3	6.2	-6.1	-2.9	2	3.5
Rest of Western Australia								
Bunbury	-5.2	-0.5	5.9	3.2				

Sources: CoreLogic, Moody's Analytics

Chart 21:Weak Labour Market

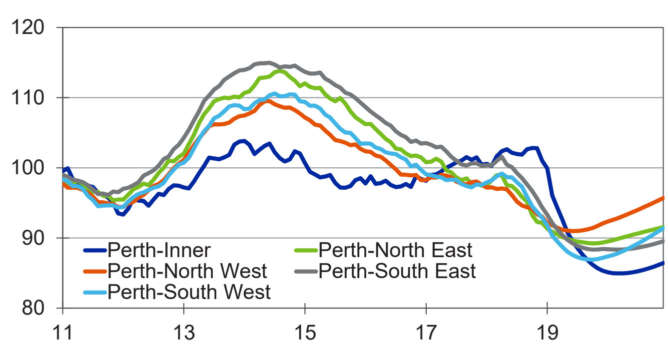
Unemployment rate %, trend



Sources: Australian Bureau of Statistics, Moody's Analytics

Chart 22: Gradual Pickup Ahead

Hedonic unit value index, houses



Sources: CoreLogic, Moody's Analytics

Western Australia has stabilised after falling sharply from 2015 to 2016, although there is still a sizable outward interstate migration. Moreover, building approvals have been falling precipitously since the peak in 2014, signalling a coming reduction in housing supply. All these factors, combined with the recent RBA interest-rate cuts, will likely enable a return to growth for both house and apartment values in 2020 and then firming the following year.

South Australia

South Australia's housing market remains stable thanks largely to its avoidance of the excess runup in values that has occurred on the eastern seaboard. Housing values in Adelaide rose 1.9% in 2018, while apartment values were more restrained, rising only 0.7%. Moody's Analytics forecasts housing values to decelerate, while apartment values will likely accelerate from 2018, but growth will remain low (see Table 6).

Last year, dwelling investment remained strong—rising 7.3% year over year in the December quarter. The domestic economy has been buoyed by public investment, notably infrastructure projects across Adelaide. Elsewhere, infrastructure projects such as the Osbourne Naval Shipyard have prevented a deteriorating labour market in light of a relatively subdued population growth compared with the national average (see Chart 23).

Low population growth has prevented values from rising above fundamentals. The labour market has remained steady, although it remains higher than the national average. Weak income growth and fading construction work mean that the housing market is unlikely to accelerate sharply. However, improvements in the labour market across some pockets of Adelaide could have some areas outperform the rest of the state (see Chart 24).

Table 6: South Australia Home Value Forecasts

% change yr ago

	Houses				Apartments			
	2018	2019	2020	2021	2018	2019	2020	2021
Greater Adelaide	**1.9**	**0.4**	**2.7**	**3.6**	**0.7**	**1.3**	**1**	**0.5**
Adelaide-Central and Hills	1.6	-0.2	0.9	2	-0.9	-0.6	0.2	0.7
Adelaide-North	2.1	1.1	3.7	4.3	-0.8	1.8	-0.2	-0.6
Adelaide-South	1.5	0.8	4.2	4.7	1.3	1.7	5.5	3
Adelaide-West	2.5	-0.8	1.2	2.2	4.9	1.8	-2.9	-1.4
Rest of South Australia	**0.3**	**1.5**	**3.3**	**3.3**				
Barossa-Yorke-Mid North	2.5	1.1	2.7	2.5				
South Australia-Outback	-1.6	-5.8	5.4	5.8				
South East	-0.5	3.4	2.8	2.9				

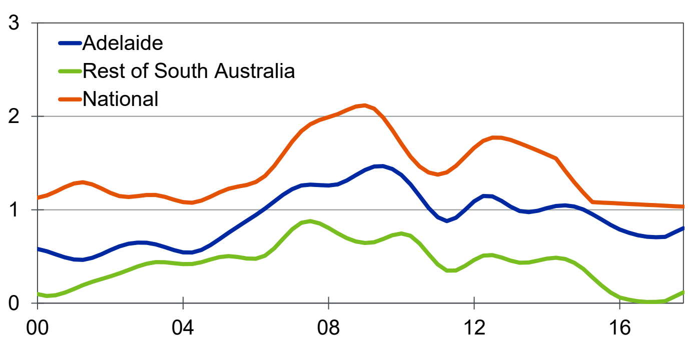
Sources: CoreLogic, Moody's Analytics

Within Adelaide, the North and South areas will remain the nascent housing markets. The housing market in Adelaide-North is expected to remain robust despite slow gains in recent years because it has the best fundamentals compared with surrounding regions. Nearly 50% of Adelaide's total population gain in 2016-2017 was in Adelaide-North. Moreover, employment gains have also centered in the North region, with the unemployment rate falling steadily over the past two years. Similarly, Adelaide-South has seen similar gains due to a strengthening labour market.

The Adelaide-Central and Hills region enjoyed a strong run in 2017, but values decelerated in 2018. House values are expected to decline in 2019 because income growth remains weak. Moreover, a strong runup in apartment supply since 2014 caused apartment values to fall in 2018. A higher supply—around 1.4 apartments approved for every home approved since 2015—will limit gains in the region. However, with oversupply easing, a slight recovery in the apartment market is likely, although it must be noted that it is coming from a low base. A recent stabilisation in rents will buttress home and apartment values through the outlook period.

Chart 23: Slower Population Growth in SA

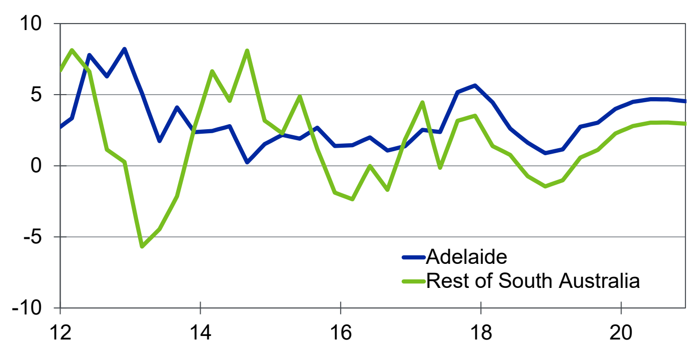
Population growth, % change yr ago



Sources: Australian Bureau of Statistics, Moody's Analytics

Chart 24: Income Growth

Compensation to employees, % change yr ago



Sources: Australian Bureau of Statistics, Moody's Analytics

Tasmania

Tasmania's housing market bucked the trend in 2018 and will likely do so again in 2019, with only a slowdown in growth as opposed to outright decline in values. However, a correction is forecast for 2020 and 2021 (see Table 7). Tasmania's housing market has been buoyed by rising population growth, which has coincided with a strong tourism sector, which has buttressed income growth. Interstate migration and oversees migration have been the primary drivers of growth, as opposed to natural birth increases. But the slowdown in the housing market over the next few years stems from values rising above what fundamentals—incomes and demographics—suggest.

Table 7: Tasmania Home Value Forecasts

% change yr ago

	Houses				Apartments			
	2018	2019	2020	2021	2018	2019	2020	2021
Greater Hobart								
Hobart	10.8	2.8	-1.6	-0.7	12.2	4.9	1.1	0.5
Rest of Tasmania	**9**	**6**	**2.1**	**0.7**				
Launceston and North East	9.3	4.3	1	0.2				
South East	9.7	8.3	0.8	-0.7				
West and North West	7.6	7.2	4.4	1.9				

Sources: CoreLogic, Moody's Analytics

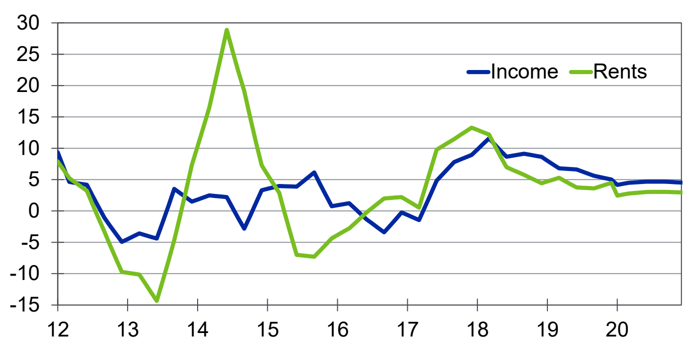
The correction has already begun in the housing market in 2019, with both apartment and house values declining. For example, house values dropped 1.2% in April, while apartment values fell 2.7% in May. Therefore, gains will likely be choppy this year, with Hobart home value growth slowing, and apartment values following a similar trend. Since land availability is of little concern in Hobart, most of the new construction has centered on houses. Thus, the apartment market in Hobart is not choked by sharp rises in approvals that have been prevalent in cities such as Melbourne. A lower runup in apartment supply compared with houses will buttress the apartment market.

Despite the increase in population, in recent times, labour supply has outstripped labour demand. Thus, the unemployment rate has risen from less than 6% to 6.3% (see Chart 25 and 26). This deteriorates the outlook for income growth. And the recent runup in housing values is above what fundamentals such as incomes would suggest. The expected deceleration in the housing market in Hobart in 2019 will stem from a lack of job growth, which will keep unemployment elevated. This is contributing to relatively low wage growth, which will strain household balance sheets as house values decelerate. Although consumption has held up, savings are expected to rise and lead to lower consumption growth over the coming quarters. House values are not expected to decline in 2019 but are set for a minor correction in 2020. Meanwhile, apartment value growth is expected to remain flat, decelerating sharply from the 12.2% in 2018.

Tasmania-South East home values remain buoyant. The region has a higher reliance on the agriculture sector, which can cause incomes to fluctuate. Moreover, home value growth is coming from a low base. An outlook of lower prices of key agriculture commodities could see consumption and income growth moderate. House values in Tasmania-South East region is expected to rise firmly this year but decelerate sharply in 2020 and will likely see a minor correction in 2021. Regional Tasmania does not benefit as firmly as Hobart from population growth, which means the fundamental driver is unlikely to support the housing market.

Chart 25: Fundamentals Remain Firm…

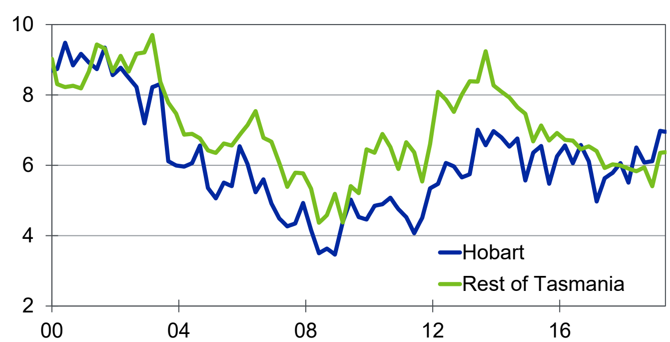
% change yr ago



Sources: Australian Bureau of Statistics, Moody's Analytics

Chart 26: …Despite Labour Market Slack

Tasmania unemployment rate, %



Sources: Australian Bureau of Statistics, Moody's Analytics

Australia Capital Territory

Growth of house and apartment values has continued to slow in the Australia Capital Territory. In May, house values expanded by the weakest pace in 28 months in year-ago terms. The ACT unit market is also cooling, with values declining in year-ago terms in the last two readings and falling at the fastest pace in 37 months in May (see Table 8). The slowdown of the unit market has been more pronounced than in the detached housing market, in part reflecting the large increase in apartment supply. Since 2011, around 23,000 units have been constructed, compared with 11,500 detached houses (see Chart 27).

The ACT economy continued to grow at a solid pace in the March quarter of 2019, with real state final demand up 4.2% from a year earlier. Dwelling construction activity remained robust, rising by a double-digit pace for the third consecutive quarter and helping to offset the fall in non-dwelling construction. However, business investment remained weak, while household consumption continued to be restrained, with spending on clothing and footwear, household furnishings and equipment, and cars especially soft.

The ACT labour market has softened recently, with employment declining in year-ago terms in eight of the last nine months. However, this has coincided with a similar decline in the labour force, which has kept the unemployment rate below 4% over the same period. Still, the ACT unemployment rate has crept up in 2019, rising to a 14-month high in May.

Moody's Analytics expects ACT home values to fare relatively well in 2019, with house values forecast to rise around 4%, following the 5.4% gain in 2018. Meanwhile, unit values in the ACT are expected to rise just 0.4% this year, down from the 2.8% gain in 2018, as the strong increase in apartment supply is expected to restrict gains. Next year is expected to be a stronger year for both the house and unit markets, with house values forecast to rise 5.6%, while a 4.2% increase is projected for unit values.

Table 8: Australia Capital Territory Home Value Forecasts

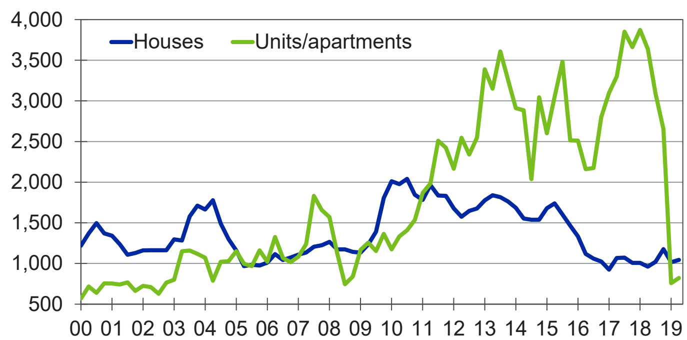
% change yr ago

	Houses				Apartments			
	2018	2019	2020	2021	2018	2019	2020	2021
Australian Capital Territory								
Australian Capital Territory	5.4	4.1	5.6	3.6	2.8	0.4	4.2	4

Sources: CoreLogic, Moody's Analytics

Chart 27: Strong Unit Construction in ACT

Number of dwellings constructed, 4-qtr rolling sum



Sources: Australian Bureau of Statistics, Moody's Analytics

Northern Territory

Table 9: Northern Territory Home Value Forecasts

% change yr ago

	Houses				Apartments			
	2018	2019	2020	2021	2018	2019	2020	2021
Greater Darwin								
Darwin	-2	-3.6	4.9	7.7	-11.4	-11.1	3.6	4.5
Rest of Northern Territory								
Northern Territory-Outback	-0.8	-0.4	0.7	3.4				

Sources: CoreLogic, Moody's Analytics

Darwin housing prices have weakened since 2014, coinciding with the contours of the liquefied natural gas boom, as the end of the mining boom has altered expectations on the local economy's income growth (see Table 9). The Darwin housing market has experienced a longer period of decline than in other states, causing dwelling values to be nearly 30% below the peak. Combined with high incomes in Darwin and the Northern Territory, this means dwelling affordability in Darwin is among the highest in the country. According to the NT government, local mortgagors required the lowest proportion of income required to meet home loan repayments among all states and territories in the December quarter of 2018—19.4% of income compared with the national average of 31%.

Employment related to the construction of the significant A$37 billion Ichthys liquefied natural gas project peaked in 2014-2015, with around 8,000 workers on site at the height of the construction phase. The winding down of this construction will have a deep impact on the NT economy; the second largest project was the A$3.1 billion Alcan refinery expansion and there are no other major projects in the pipeline. The NT government will continue to invest in infrastructure to support economic growth and jobs—to the tune of around $A1.5 billion per year from 2018 to 2020—but there are financial limits to the spending that government can provide.

Employment and income gains have been on a steady decline since the peak of the Ichthys project with the unemployment rate a tick down from the start of the year, along with total employment, the participation rate, and the employment-to-population ratio. On the other hand, incomes in Darwin are still among the highest in Australia, which contributes to housing affordability because they have not translated to higher housing prices because of the transient nature of Darwin's population.

Moody's Analytics expects Darwin's house values to decline in 2019 by 3.6%, more than the 2.7% predicted last quarter, while apartment values, which are volatile, are projected to fall more steeply at 11.1%. A solid recovery is still expected by as early as next year. Darwin did not benefit from the extraordinary value gains the other states had until around 2017, particularly in New South Wales and Victoria. So its base was relatively low and had been falling for many years already. Moody's Analytics has further upgraded the recovery for Darwin house prices in 2021 and apartment prices in both 2020 and 2021, helped by the recent RBA cash rate cut and expectations for further easing.

Pushing down house and apartment values in the near term is a high rental vacancy rate in Darwin at 7.8% in the March quarter of 2019, the highest in all capital cities, according to the Northern Territory government. Darwin's vacancy rate can be volatile because of the transient nature of the state's population. As a result, rental values tumbled along with dwelling values, down around 25% since the peak in the first quarter of 2014, which is contributing to lower purchasing demand for dwellings.

On the supply side, residential building approvals are at historically low levels, having trended down consistently since 2013. Through the year to April, building approvals in the Northern Territory are down 38% from the same period in the previous year, driven by a 51% fall in house approvals, which is surprising since building approvals started falling a lot earlier in NT than in the other states.

Appendix 1: Background on the CoreLogic-Moody's Analytics Australia Housing Model

Moody's Analytics has developed an econometric model to forecast the direction of Australia's residential property market. This model is a tool for identifying the forces driving home values and assessing to what degree values can be explained by fundamental, persistent factors, and to what degree by more cyclical factors.

For a historical benchmark of Australia's housing market, Moody's Analytics used hedonic home value indexes created by CoreLogic Australia. The CoreLogic Hedonic Home Value Index is based on a hedonic imputation method which includes the attributes of properties that are transacting as part of the analysis. This accounts for factors such as the number of bedrooms and bathrooms, the land area, and the geographic context of the property, allowing for a much more accurate analysis of true value movements across specific housing markets. The CoreLogic Hedonic Home Value Index is designed to measure pure returns and exclude value added from capital works (such as renovations and new construction).

In 2017, CoreLogic extended its Hedonic Home Value Index methodology down to the Statistical Area 4 level. SA4s are defined by the Australian Bureau of Statistics as geographic areas with a high percentage of people who both live and work there. An SA4 is the smallest area for which the ABS releases labour force data, and SA4s generally have populations of 300,000 to 500,000 in metropolitan areas and 100,000 to 300,000 in regional areas. CoreLogic has created hedonic home value indexes for 85 of the 106 SA4s covering Australia (see Appendix 2 for the list of SA4s that are forecast).

Moody's Analytics took a structural modelling approach to forecast CoreLogic's home value indexes at the SA4 level. The approach is broadly similar to that taken to forecast the CoreLogic Case-Shiller U.S. indexes.[3]

Moody's Analytics modeled the home value indexes in an error-correction framework, which is a two-stage process. In the first stage, a long-run equilibrium equation is estimated, and the difference (or 'error') between that and the historical series is input into a short-term adjustment equation. Both equations used pooled cross-sectional estimation with area-specific fixed effects.

The equilibrium equation gives an estimate of the fundamental value of housing, and deviations from this equilibrium value signal that the market is over- or undervalued. However, estimates of overvaluation do not necessarily imply expectations of home value declines, and vice versa. Although the error-correction framework assumes that home values will revert to equilibrium, the reversion path is not straightforward. Estimates of equilibrium values will change based on changes in income, population and other fundamental drivers.

3 See https://www.economy.com/csi for full detail on the Moody's Analytics and CoreLogic U.S. Case-Shiller index forecasts, including a methodology paper.

Appendix 2: Statistical Area 4 Classification*

Greater Capital City Statistical Area	Statistical Area 4	Population (ths)**	Income per capita, A$***	Major suburbs or areas within SA4
Greater Sydney				
	Central Coast	332.97	34,482	Gosford, Wyong
	Sydney - Baulkham Hills and Hawkesbury	232.52	42,228	Baulkham Hills, Dural, Hawkesbury, Rouse Hill
	Sydney - Blacktown	340.98	35,314	Blacktown, Eastern Creek, Mount Druitt
	Sydney - City and Inner South	312.02	46,734	Botany, Marrickville - Sydenham - Petersham, Sydney Inner City
	Sydney - Eastern Suburbs	282.83	49,663	Bondi, Maroubra, Point Piper, Little Bay
	Sydney - Inner South West	581.05	28,115	Bankstown, Canterbury, Hurstville, Kogarah - Rockdale
	Sydney - Inner West	297.21	48,770	Canada Bay, Leichhardt, Strathfield - Burwood - Ashfield
	Sydney - North Sydney and Hornsby	420.59	58,135	Chatswood - Lane Cove, Hornsby, Ku-Ring-Gai, North Sydney - Mosman
	Sydney - Northern Beaches	266.05	46,977	Manly, Pittwater, Warringah
	Sydney - Outer South West	262.13	32,913	Camden, Campbelltown, Wollondilly
	Sydney - Outer West and Blue Mountains	313.17	33,860	Blue Mountains, Penrith, Richmond-Windsor, St Mary's
	Sydney - Parramatta	455.25	28,904	Auburn, Carlingford, Merrylands - Guildford, Parramatta
	Sydney - Ryde	182.76	42,322	Pennant Hills - Epping, Ryde - Hunters Hill
	Sydney - South West	404.29	28,157	Bringelly - Green Valley, Fairfield, Liverpool
	Sydney - Sutherland	225.57	47,187	Cronulla - Miranda - Caringbah, Sutherland - Menai - Heathcote
Rest of New South Wales				
	Capital Region	221.79	32,116	Goulburn - Mulwaree, Queanbeyan, Snowy Mountains, South Coast, Young - Yass
	Central West	211.05	26,998	Bathurst, Lachlan Valley, Lithgow - Mudgee, Orange
	Coffs Harbour - Grafton	136.94	27,034	Clarence Valley, Coffs Harbour
	Far West and Orana	119.57	31,380	Bourke - Cobar - Coonamble, Broken Hill, Dubbo
	Hunter Valley exc Newcastle	266.91	35,849	Cessnock, Maitland, Port Stephens
	Illawarra	299.52	33,325	Dapto - Port Kembla, Kiama - Shellharbour, Wollongong
	Mid North Coast	213.86	23,298	Great Lakes, Kempsey - Nambucca, Port Macquarie, Taree - Gloucester
	Murray	117.02	26,128	Albury, Lower Murray, Upper Murray
	New England and North West	186.82	25,664	Armidale, Moree - Narrabri, Tamworth - Gunnedah
	Newcastle and Lake Macquarie	370.66	37,696	Lake Macquarie, Newcastle, Toronto
	Richmond - Tweed	244.07	26,730	Ballina, Byron Bay, Lismore
	Riverina	158.91	24,194	Griffith - Murrumbidgee, Tumut - Tumbarumba, Wagga Wagga
	Southern Highlands and Shoalhaven	147.83	23,986	Berry, Milton, Moss Vale, Nowra
Greater Darwin				
	Darwin	141.72	60,132	Darwin, Litchfield, Palmerston
Rest of Northern Territory				
	Northern Territory-Outback	102.27	26,325	Alice Springs, Barkly, Daly-Tiwi-West Arnhem, East Arnhem, Katherine
Greater Brisbane				
	Brisbane - East	229.70	34,306	Capalaba, Cleveland - Stradbroke, Wynnum - Manly
	Brisbane - North	211.16	34,745	Bald Mills - Everton Park, Chermside, Nundah, Sandgate
	Brisbane - South	348.06	34,746	Carindale, Holland Park - Yeronga, Rocklea - Acacia Ridge, Sunnybank
	Brisbane - West	186.05	40,907	Centenary, Kenmore - Brookfield - Moggill, Indooroopilly, The Gap - Enoggera

Appendix 2: Statistical Area 4 Classification* (Cont.)

Greater Capital City Statistical Area	Statistical Area 4	Population (ths)**	Income per capita, A$***	Major suburbs or areas within SA4
	Brisbane Inner City	255.08	47,558	South Brisbane, Ascot, Grange
	Ipswich	322.51	28,621	Forest Lake - Oxley, Ipswich Hinterland, Springfield - Redbank
	Logan - Beaudesert	321.89	29,035	Beenleigh, Browns Plains, Jimboomba, Loganlea - Carbrook, Springwood - Kingston
	Moreton Bay - North	236.88	29,147	Bribie - Beachmere, Caboolture, Naringbah, Redcliffe
	Moreton Bay - South	192.90	40,463	Northlakes, Strathpine, The Hills District
Rest of Queensland				
	Cairns	243.93	27,433	Cairns, Innisfail - Cassowary Coast, Port Douglas - Daintree
	Darling Downs - Maranoa	129.18	25,337	Allora, Crows Nest, Dalby, Warwick
	Central Queensland	235.75	39,722	Biloela, Central Highlands, Gladstone, Rockhampton
	Gold Coast	568.47	32,054	Broad Beach, Coolangatta, Gold Coast, Ormeau - Oxenford, Southport, Surfers Paradise
	Mackay - Isaac - Whitsunday	182.45	37,659	Bowen Basin, Mackay, Whitsunday
	Queensland - Outback	88.30	19,385	Cape York, Mount Isa
	Sunshine Coast	340.40	26,578	Caloondra, Marochydore, Noosa
	Toowoomba	152.07	25,789	Gatton, Glenvale, Toowoomba
	Townsville	238.14	29,207	Charters Towers - Ayr - Ingham, Townsville
	Wide Bay	289.25	23,397	Bundaberg, Burnett, Gympie - Cooloola, Hervey Bay, Maryborough
Greater Adelaide				
	Adelaide-Central and Hills	298.03	34,690	Adelaide City, Burnside, Campbelltown, Norwood-Payneham-St Peters
	Adelaide-North	423.11	29,560	Gawler-Two Wells, Playford, Port Adelaide-East, Salisbury, Tea Tree Gully
	Adelaide-South	361.05	34,241	Holdfast Bay, Marion, Mitcham, Onkaparinga
	Adelaide-West	233.40	29,264	Charles Sturt, Port Adelaide-West, West Torrens
Rest of South Australia				
	Barossa - Yorke - Mid North	110.06	22,415	Jamestown, Maitland, Point Pirie
	South Australia - Outback	88.13	28,830	Eyre Peninsula and South West, Outback - North and East
	South Australia - South East	183.82	21,857	Fleurieu - Kangaroo Island, Limestone Coast, Murray and Mallee
Greater Hobart				
	Hobart	220.72	26,277	Brighton, Hobart, Sorell-Dodges Ferry
Rest of Tasmania				
	Launceston and North East	143.92	23,420	Launceston, Meander Valley-West Tamar
	South East	37.93	20,383	Central Highlands, Huon-Bruny Island, South East Coast
	West and North West	113.94	24,175	Burnie-Ulverstone, Devonport, West Coast
Greater Melbourne				
	Melbourne - Inner	599.56	42,859	Brunswick - Coburg, Darebin - South, Essendon, Melbourne City, Port Phillip, Yarra
	Melbourne - Inner East	371.36	45,498	Boroondara, Manningham - West, Whitehorse - West
	Melbourne - Inner South	416.99	38,946	Bayside, Glen Eira, Kingston, Stonnington - East
	Melbourne - North East	498.46	33,553	Banyule, Darebin - North, Nillumbik - Kinglake, Whittlesea - Wallan
	Melbourne - North West	360.90	26,923	Keilor, Macedon Ranges, Moreland - North, Sunbury, Tullamarine - Broadmeadows
	Melbourne - Outer East	506.30	34,345	Knox, Manningham - East, Maroondah, Whitehorse - East, Yarra Ranges
	Melbourne - South East	748.50	28,556	Cardinia, Casey, Dandenong, Monash

Appendix 2: Statistical Area 4 Classification* (Cont.)

Greater Capital City Statistical Area	Statistical Area 4	Population (ths)**	Income per capita, A$***	Major suburbs or areas within SA4
	Melbourne - West	724.95	29,904	Brimbank, Hobsons Bay, Maribyrnong, Melton - Bacchus Marsh, Wyndham
	Mornington Peninsula	290.91	28,456	Frankston, Mornington Peninsula
Rest of Victoria				
	Ballarat	155.87	25,537	Ballarat, Creswick - Daylesford - Ballan, Maryborough - Pyrenees
	Bendigo	149.86	23,946	Bendigo, Heathcote - Castlemaine - Kyneton, Loddon - Elmore
	Geelong	273.12	36,536	Barwon - West, Geelong, Surf Coast - Bellarine Peninsula
	Hume	165.03	25,098	Upper Goulburn Valley, Wangaratta - Benalla, Wodonga - Alpine
	Latrobe - Gippsland	266.08	23,555	Gippsland, Latrobe Valley, Wellington
	North West	147.98	18,360	Grampians, Mildura, Murray River - Swan Hill
	Shepparton	129.07	29,444	Campaspe, Moira, Shepparton
	Warrnambool and South West	121.00	25,176	Colac - Corangamite, Glenelg - Southern Grampians, Warrnambool
Greater Perth				
	Mandurah	99.85	36,125	Mandurah, North Dandalup
	Perth - Inner	180.80	53,570	Cottesloe - Claremont, Perth City
	Perth - North East	258.51	35,104	Bayswater - Bassendean, Mundaring, Swan
	Perth - North West	563.97	40,208	Joondalup, Stirling, Wanneroo
	Perth - South East	512.50	36,523	Armadale, Belmont Park - Victoria Park, Canning, Gosnells, South Perth
	Perth - South West	418.48	45,416	Cockburn, Fremantle, Kwinana, Melville, Rockingham
Rest of Western Australia				
	Bunbury	179.63	31,629	Augusta-Margaret River-Busselton, Bunbury, Manjimup
Australian Capital Territory	Australian Capital Territory	390.01	59,439	Belconnen, Canberra, Tuggeranong, Weston Creek, Woden Valley

*More information on SA4 regions, including boundaries and criteria for design, can be found at http://www.abs.gov.au/geography
**As at 2015Q2
***Total compensation of employees, divided by population, as at 2015Q2

Sources: ABS, Moody's Analytics

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