



# Housing affordability

Sydney and Melbourne housing market update

**KPMG Economics**

—  
January 2019



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# Executive Summary

- A year and a half has now passed since KPMG Economics last research paper, [Housing affordability: What's driving house prices in Sydney and Melbourne?](#), and during that time the housing markets in Sydney and Melbourne have experienced material declines in median dwelling prices.
- Our previous forecasts for FY17 and FY18 closely matched realised price movements, albeit median dwelling prices in Sydney held up for slightly longer than we anticipated.
- One element in this analysis that is different to KPMG's previous report is the explicit inclusion of the number of foreign students studying in Australia. The ABS includes foreigners as residents within Estimated Resident Population (ERP) statistics only where those individuals satisfy the Net Overseas Migration (NOM) "12/16 month rule"<sup>1</sup>. To the extent that all foreign students slip through the 12/16 month rule, the underestimation of Australia's population could be notable.
- In September 2018 there were just over 800,000 foreign students studying in Australia, of which 305,000 were located in New South Wales and nearly 260,000 were located in Victoria. Even adopting a higher occupancy rate of 3.5 foreign students per dwelling, the accommodation demand by foreign students is estimated to have been around 87,300 dwellings in Sydney and 78,500 dwellings in Melbourne in 2018.
- While the tighter prudential lending controls placed on Authorised Deposit Taking Institutions (ADI's) by the Australian Prudential Regulatory Authority (APRA) have now been loosened, it appears the current Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry ("Hayne Royal Commission") has caused ADI's to reassess their internal processes with respect to lending to all borrowers, which has also resulted in a contraction in credit being provided to domestic investors purchasing residential property.
- There has also been a sharp decline in the number of residential properties purchased by foreigners. The latest Foreign Investment Review Board (FIRB) data<sup>2</sup> shows that just under 13,200 residential properties in Australia were purchased by foreigners during 2016-17, which represents a significant fall from the 40,100 residential properties sold to foreigners during the previous financial year.
- Based on updated input parameters and our assumptions as to how key agents in the market will behave, we anticipate the Sydney and Melbourne dwelling markets to perform quite differently over the next few years.
- In broad terms, we expect real prices for Sydney residential property to continue to soften during FY19, bottom out in FY20, before experiencing moderate growth in FY21. For Melbourne we expect residential property to experience about half the real price decline of that in Sydney in FY19, before increasing by around 2.4% in FY20 and around 4.7% in FY21.
- Based on our dwelling price forecasts the peak-to-trough adjustment in real prices for residential property is expected to be about -13% in Sydney and -5% in Melbourne.

# Introduction

KPMG Economics has previously prepared two research papers<sup>3</sup> on the factors influencing house prices and housing affordability, with a particular focus on the two largest housing markets in Australia; Sydney and Melbourne.

Our last research paper, [\*Housing affordability: What's driving house prices in Sydney and Melbourne?\*](#), applied econometric modelling techniques to reach a conclusion that home buyers already intuitively knew; housing markets are complex. This complexity stems from the fact that while house prices are influenced by a range of factors, like interest rates, building activity and population growth, these factors influence house prices in combination and often counter balance each other to some degree.

KPMG's analysis found there to be a long-run relationship between house prices and variables relating to the stock of dwellings, population and lending to residential property investors. That is, over time house prices tend to revert back to the equilibrium suggested by the long run relationship, but that in the short run transitory dynamics can counteract or reinforce this reversion to long run equilibrium.

The model developed by KPMG seeks to encapsulate these short and long run dynamics of the property market. We have previously described this cycle in the following simplified way; price pressures induces new construction activity; dwellings are over supplied relative to current demand; prices drop (or stay flat); access to financing for new development becomes tighter, resulting in a decline in new supply; demand soaks up the excess supply over time; prices rise; access to finance is opened up again; developers start building again; and dwellings are over supplied (again).

Our analysis found that by the end of FY2016 short term factors had pushed median dwelling prices for Sydney and Melbourne above their long term equilibrium prices by about 10% and 4% respectively. At the time we also suggested this degree of disequilibrium had been experienced previously in these housing markets, and they had managed to return to equilibrium without a severe price shock.

A year and a half has now passed since our last research paper, and during that time the housing market in Sydney and Melbourne has experienced, to varying degrees, a decline in dwelling prices. Various commentators are now suggesting the housing market is set to fall further in the coming year(s), with "a 10% or so price falls in Sydney and Melbourne"<sup>4</sup>.

Data is now available for the period up to the end of FY2018; two additional years of information in which to incorporate within our analysis. KPMG Economics has updated our modelling results for this data, and also reconsidered the likely parameter values that may materialise over the next few years.

The remainder of this report includes

- a discussion on recent trends in dwelling price movements in Sydney and Melbourne;
- commentary on how key parameters influential to determining dwelling prices have moved in the last two years; and
- what our short term price forecasts are for dwelling prices in Sydney and Melbourne based on our expectations of the model parameter values during that period.

# Recent trends in dwelling prices

The dwelling price series used in this study is one constructed from data provided by the Real Estate Institute of Australia (REIA).

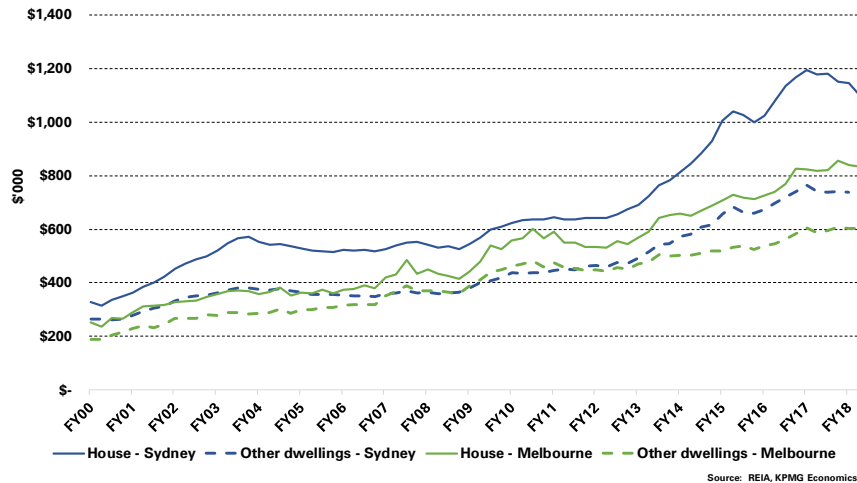
KPMG Economics has continued to utilise the REMF1 and REMF2 datasets from the Real Estate Institute of Australia (REIA). These datasets contain information on the average quarterly median prices by capital city for houses and other dwellings respectively.

The median dwelling price series used in this analysis is the June quarter values, which we then 'deflate' by using a 4-quarter rolling average of the weighted average of the eight capital cities all groups CPI index (rebased so June Quarter 2018 = 100.0) to establish a real median dwelling price series for Sydney and Melbourne.

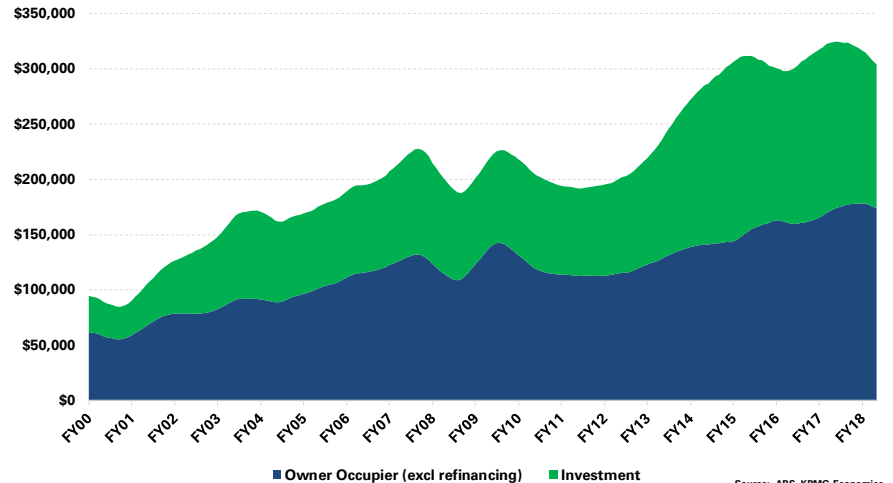
Chart 1 presents nominal median prices for houses and other dwellings for Sydney and Melbourne since the beginning of the new century. This analysis shows median Sydney house and other residential dwelling prices peaked in the June quarter 2017, reaching nearly \$1.2m and \$765,000 respectively. Melbourne on the other hand has experienced oscillating prices for houses and other residential dwellings, with an initial peak in the March quarter 2017, followed then by a dip, rise and dip again.

Housing finance data, as presented in Chart 2, is another indicator that suggests that the housing market in Australia has slowed, with lending to owner-occupiers now declining after peaking in June 2018, while lending to investors peaked nearly 3 years earlier in July 2015.

**Chart 1**  
Nominal Median Prices for Houses and Other Residential Dwellings  
Sydney and Melbourne



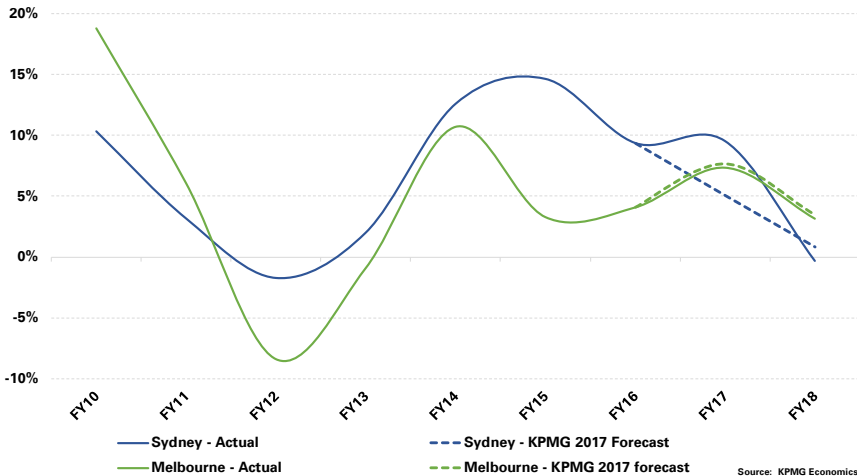
**Chart 2**  
Housing Finance, Owner Occupier (excluding refinancing) and  
Investor Lending, Australia (12-months, seasonally adjusted, \$ millions)



# Recent trends in dwelling prices

Our previous report presented expected movement in real dwelling prices for Sydney and Melbourne between FY17 and FY21. As shown in Chart 3, our forecasts for FY17 and FY18 closely matched realised price movements, albeit median dwelling prices in Sydney held up for slightly longer than we anticipated. Notably, KPMG's forecasts for median dwelling real price movements in Melbourne were virtually the same as actual outcomes.

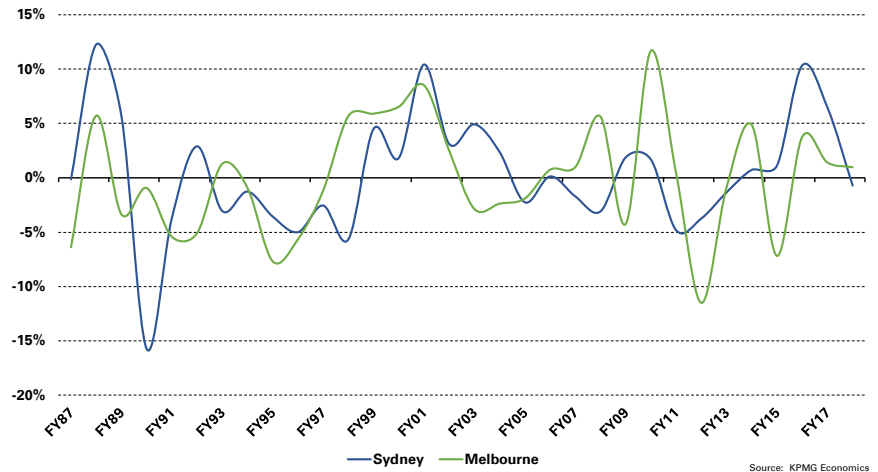
**Chart 3**  
Annual change in Real Dwelling Prices, Sydney and Melbourne  
Actual and KPMG Forecast



Also noted in our previous report, at the end of FY16 dwelling prices in Sydney and Melbourne were respectively about 10% and 4% overvalued compared to their theoretical “fair value” levels.

However, as shown in Chart 4, by the end of FY18 median dwelling prices had fallen to now be just below their theoretical “fair value” levels in Sydney and marginally above their theoretical “fair value” levels in Melbourne.

**Chart 4**  
Difference between Actual and “Fair Value” Median Dwelling Price  
Sydney and Melbourne



The short run median dwelling price rarely, if ever, aligns for a period of time with the “theoretical “fair value” price as factors like population growth, new supply, interest rates, and investor demand constantly pull and push the short run price towards and away from the long run price. So while the recent price declines for both Sydney and Melbourne have realigned short and long run prices, this does not mean these housing markets are now in balance, and changes in dwelling prices will automatically revert to an upwards growth trajectory.

# Recent trends in factors influencing dwelling prices

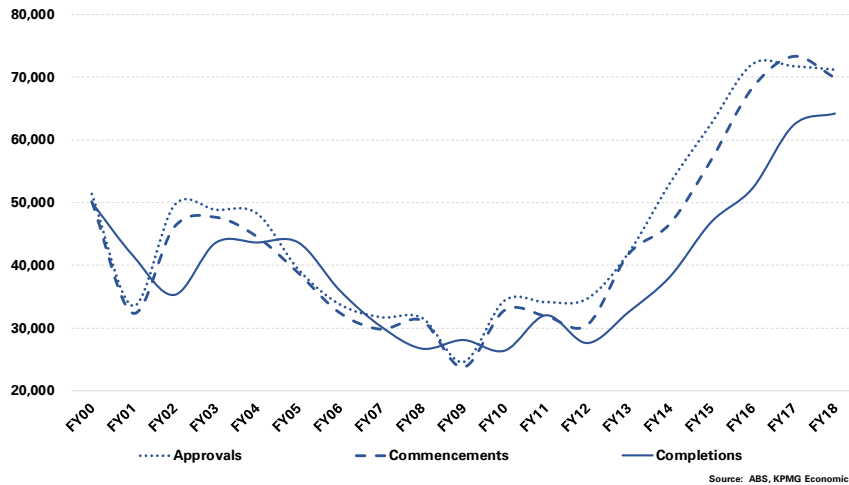
In this section of the report we discuss recent trends in those factors which influence house prices in Sydney and Melbourne

## Supply of residential dwellings

As at the end of June 2018 there were approximately 3,111,600 and 2,593,000 residential dwellings<sup>5</sup> accommodating the populations of New South Wales and Victoria, a net increase of 106,600 and 109,300 for each respective jurisdiction since the end of June 2016.

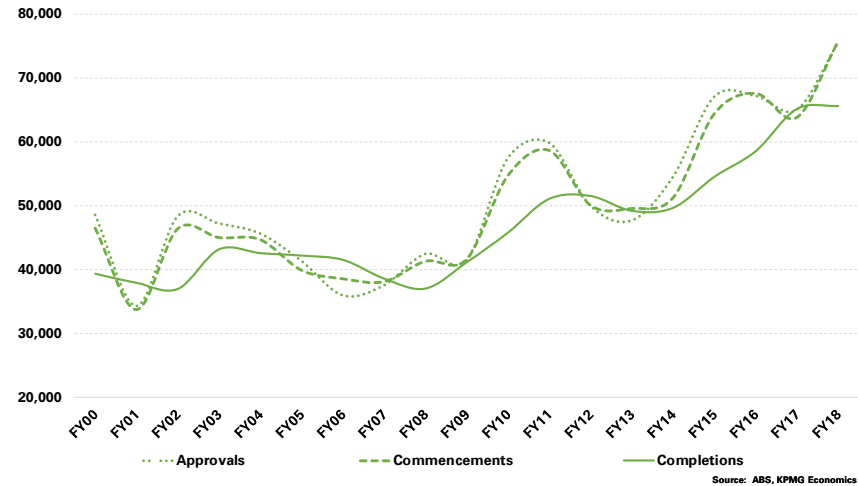
In terms of dwelling construction activity<sup>6</sup>, 126,600 dwellings were completed during the last two years in New South Wales, which is nearly 27,500 more than the number of new dwellings completed in FY15 and FY16.

**Chart 5**  
Residential Building Activity by Financial Year, New South Wales  
Approvals, Commencements and Completions



Victoria experienced an even higher level of new dwelling completions over the same period, being 130,700. This building activity over the past two years represented a 15.6% increase in dwelling completions in Victoria over FY15 and FY16.

**Chart 6**  
Residential Building Activity by Financial Year, Victoria  
Approvals, Commencements and Completions



The type of new dwellings supplied into each residential market was noticeably different between the two jurisdictions. New South Wales had nearly 72,000 new other residential dwellings completed during FY17 and FY18 compared to about 52,000 new houses. Victoria however recorded new dwelling completions of nearly 70,000 houses and about 61,000 new other residential dwellings.

# Recent trends in factors influencing dwelling prices

## Residential property investors

Buyers of residential property, such as owner occupiers, first home buyers, domestic investors and foreign investors, are influenced by a range of factors that drive their individual buying decision. In particular, the Commonwealth Treasury suggests the demand for residential properties “is affected by interest rates, financial regulation, incomes, demographics as well as the prices of alternative investments such as equities”.

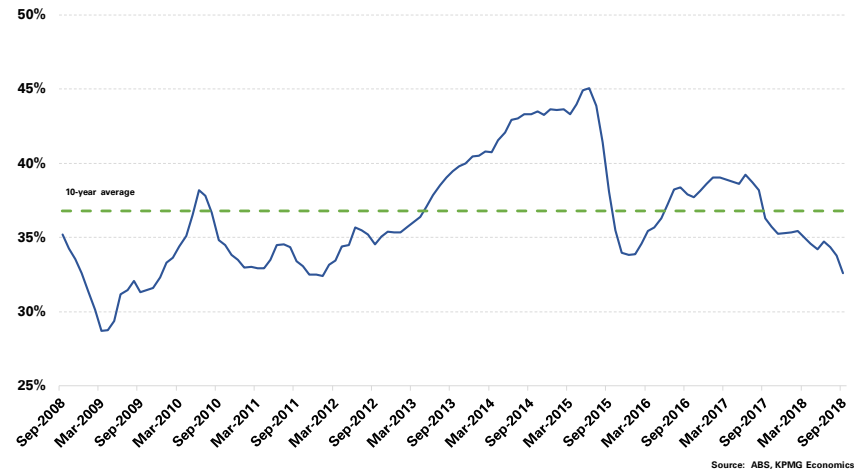
In the context of property investors and financial regulation, the Australian Prudential Regulation Authority (APRA) introduced a range of “supervisory measures” over the past few years to improve mortgage lending practices. These measures have included capping annual investor credit growth for Authorised Deposit Taking Institutions (ADI's) to 10% (from December 2014 to 30 June 2018) and limit the flow of new interest-only lending to 30 per cent of total new residential mortgage lending (from March 2017 to 31 December 2018).

Most recently, APRA announced on 19 December 2018 that it will remove its supervisory benchmark on interest-only residential mortgage lending by ADIs from 1 January 2019 on the basis that “the introduction of the benchmark has led to a marked reduction in the proportion of new interest-only lending, which is now significantly below the 30 per cent threshold”.

As shown in Chart 7, these tighter prudential rules put in place by APRA, combined with a proactive tightening in lending practices of ADI's, has seen lending to investors as a proportion of total lending to purchase residential real estate fall from 39.2% in the June quarter 2017 to 31.7% in October 2018.

Chart 7

Lending to Investors as a Proportion of Total Lending to Purchase Residential Property



While APRA rules provide the framework governing the lending practices of ADI's, it seems the current Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry (“Hayne Royal Commission”) has caused many ADI's to reassess their internal processes with respect to lending to borrowers, which has also resulted in a contraction in credit being provided to domestic investors purchasing residential property.

This means that while APRA have now loosened their rule over lending by ADI's to residential property investors, tighter internal controls by ADI's in response to the Hayne Royal Commission is likely to mean that domestic investors may take some time to return to the market to the same or similar extent as in more recent years.



# Recent trends in factors influencing dwelling prices

## Foreign investors

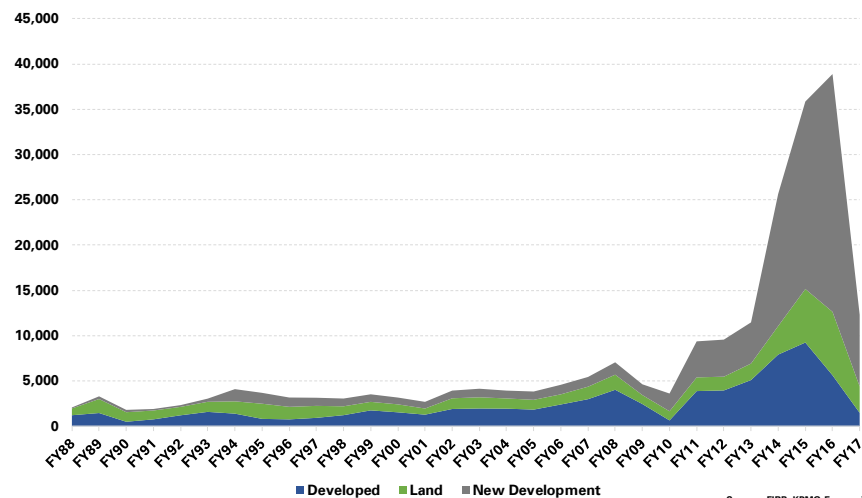
There has also been a sharp decline in the number of residential properties purchased by foreigners. The latest Foreign Investment Review Board (FIRB) data shows that just under 13,200 residential properties in Australia were purchased by foreigners during 2016-17, which represents a significant fall compared to the 40,100 residential properties sold to foreigners during the previous financial year.

While the FIRB Annual Report does not specifically identify the country of investor purchasing residential property, it does however provide information on the country of investor by broad industry sector, of which “Real Estate” is one category. The latest data shows foreign investors from China decreased their acquisitions of real estate in Australia by more than 50% between FY16 and FY17, down from \$31.9Bn to \$15.3Bn.

During the past two years the Chinese Government, through its foreign exchange regulator, has implemented a range of foreign currency controls in order to “prevent money laundering and terrorist financing”, as well as in an effort to conserve foreign exchange reserves.

While Chinese residents had been subject to a US\$50,000 annual limit on the amount of Chinese Yuan they could exchange into foreign currency each year, the controls over this process stepped up from the beginning of 2017. The State Administration of Foreign Exchange (“SAFE”) implemented additional administrative procedures scrutinising the permissible purposes for the use of the foreign currency, which includes payment for personal and business travel, overseas study, medical care, commodity trading, insurance and consulting services<sup>8</sup>.

**Chart 8**  
Annual Sales of Residential Property to FIRB Approved Purchasers



Source: FIRB, KPMG Economics

Importantly, the application form specifically notes the purchasing foreign exchange for unregulated purposes, including investment in overseas real estate or stocks by individuals, is forbidden, and that residents who violate the rules will be put on a watch list by SAFE and may face cancellation of their right to buy foreign currency for the current year and the following two years.

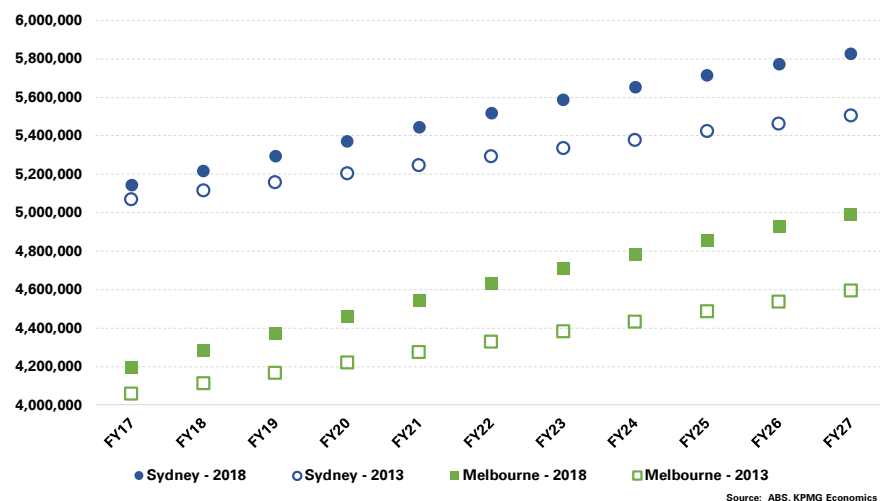
It is clear the new rules and the tightening with the enforcement of the existing rules with respect to foreign currency controls, combined with less favourable tax treatments by the Commonwealth and some State governments for foreign property investors, has caused Chinese investors to exit the residential property market in Australia, at least for the short term.

# Recent trends in factors influencing dwelling prices

## Working Age Population

The ABS has also just released new population projections for Australia using 2017 as the base year<sup>9</sup>, noting our previous house price analysis used the 2013 ABS population projections. These new projections show that a notably higher proportion of Australia's working age population and total population is expected to be located within New South Wales and Victoria than previously forecast. The reason why this is important in the context of this report is that our modelling shows for each 1% increase in the working age population relative to the total population, real dwelling prices rise by between 1.5% and 2.0%.

**Chart 9**  
**ABS Estimates of Working Age Population, New South Wales and Victoria**  
**2013 Projections and 2018 Projections**



The 2013 ABS population (Series B) projections anticipated that by the end of 2018 New South Wales and Victoria's working age population would be around 5.07 million and 4.06 million respectively. The latest ABS 2017 (Series B) projections now suggest the working age populations of New South Wales and Victoria are about 150,000 persons and 230,000 more than the 2013 projections.

## Foreign students

One element that is different to KPMG's previous report is the explicit inclusion of the number of foreign students studying in Australia<sup>10</sup>. The ABS includes foreigners as residents within Estimated Resident Population (ERP) statistics where those individuals satisfy the Net Overseas Migration (NOM) "12/16 month rule".

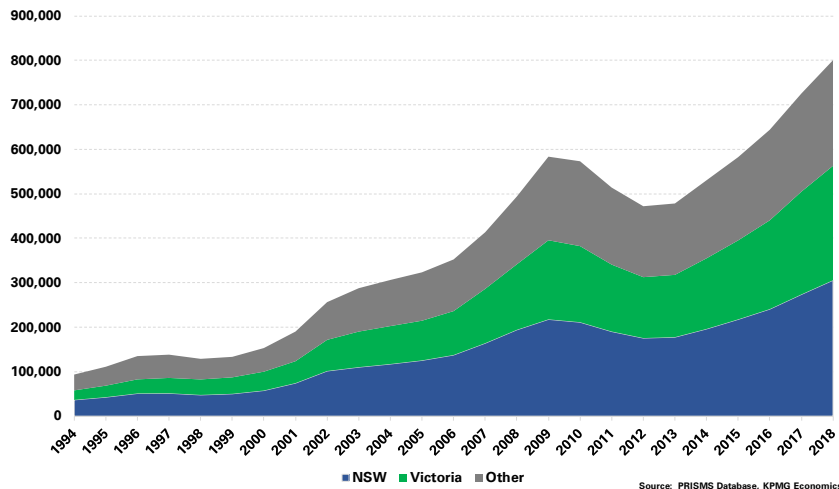
The 12/16 month rule works on the basis "that overseas travellers (whether Australian residents or overseas visitors) who are in Australia for a total of 12 months (defined as 365 days) or more during the 16 month period (defined as 486 days) following an overseas movement will be added to NOM estimates. Similarly, travellers who are overseas for 12 months or more out of the 16 month follow-up period will be subtracted from NOM estimates".

On the assumption that foreign students would return to their home country for the extended summer break, and possibly for the mid-year break, their stay in Australia over a 16 month period is likely to be 10 to 11 months, and therefore they would be excluded from the ERP statistics.

# Recent trends in factors influencing dwelling prices

To the extent that all foreign students slip through the 12/16 rule, the underestimation of Australia's population is notable. That is, in September 2018 there were just over 800,000 foreign students studying at Higher Education, Vocational Education, Schools and ELICOS institutions in Australia, of which 305,000 were located in New South Wales and nearly 260,000 were located in Victoria. Even adopting a higher occupancy rate of 3.5 foreign students per dwelling, the accommodation demand for foreign students would have been around 87,300 dwellings in Sydney and 78,500 dwellings in Melbourne in 2018.

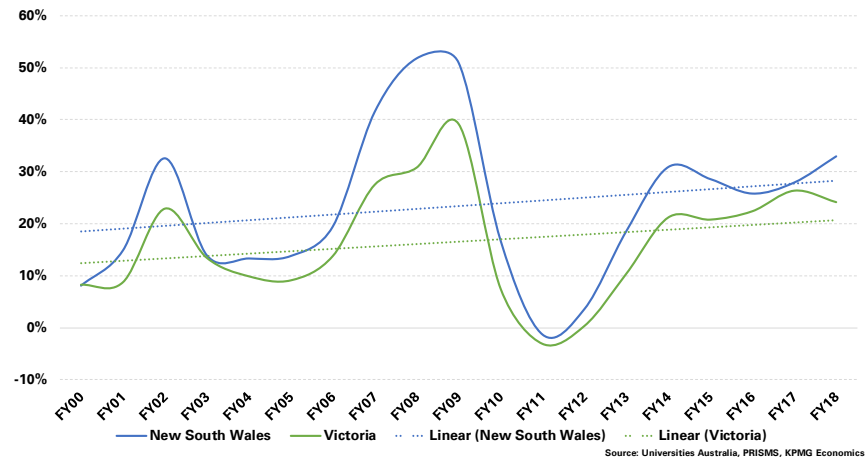
**Chart 10**  
Foreign Students Studying in Australia by Jurisdiction and Year



Our analysis also shows foreign students studying in New South Wales and Victoria have been taking an increasing proportion of the new stock of accommodation entering the market each year.

We have identified the increase in the stock of dwellings each year in New South Wales and Victoria since 2000 and compared this to the incremental number of foreign students studying in each jurisdiction plus an allowance for the proportion of foreign students who do not return to their country of origin following their graduation<sup>11</sup>. Chart 11 shows the dwellings required to accommodate foreign students and graduated foreign students remaining in Australia in 2000 represented around 10% of the incremental dwelling stock entering the market in that year. The years immediately prior to the GFC saw this demand requirement as a proportion of new supply peak at just over 50% in New South Wales and about 40% in Victoria. Since 2013, proportionate demand has stayed around the 30% level for New South Wales and around the mid-20%’s in Victoria.

**Chart 11**  
Proportion of Incremental Dwelling Stock per annum required to accommodate Foreign Students and Graduated Foreign Students remaining in Australia



# Inputs into dwelling price forecasts

KPMG Economics has prepared forecasts of house prices in Sydney and Melbourne for the period FY19 to FY21 using our models. Some of the values of the explanatory variables contained in the model are based on the forecasts in KPMG's most recent Quarterly Economic Outlook (inflation, cash rates and lending margins) and on our best estimates of the responses of domestic and foreign investors. Population growth rates are sourced from the ABS. Given the inherent uncertainty around these projections we have developed two scenarios to indicate the sensitivity of our results to the key assumptions. The following table summarises the forecast parameter values for each year in the forward outlook.

**Table 1**  
**Proposed Parameter Values for Dynamic Error Correction Models by Financial Year**

	Year ended 30 June	2015(a)	2016(a)	2017(a)	2018(a)	2019(f)	2020(f)	2021(f)
Lending to property investors as % of total lending to purchase residential property	High	43.8%	36.1%	38.6%	35.3%	31.0%	32.0%	34.0%
	Low	43.8%	36.1%	38.6%	35.3%	30.0%	29.0%	31.0%
No. of properties approved by FIRB for purchase by foreign investors	High	36,841	40,141	13,198	11,000(f)	14,000	17,000	20,000
	Low	36,841	40,141	13,198	11,000(f)	14,000	17,000	20,000
Building approvals – NSW ('000)	High	62,546	72,078	71,778	71,219	59,600	54,100	49,200
	Low	62,546	72,078	71,778	71,219	59,400	53,500	48,700
Building approvals – Victoria ('000)	High	67,045	67,170	65,003	75,581	64,200	60,400	57,400
	Low	67,045	67,170	65,003	75,581	63,400	58,100	55,200
Housing stock – NSW ('000)	High	2,943.6	2,986.3	3,046.0	3,105.3	3,170.7	3,220.2	3,265.1
	Low	2,943.6	2,986.3	3,046.0	3,105.3	3,170.0	3,220.0	3,264.4
Housing stock – Victoria ('000)	High	2,432.9	2,483.7	2,540.6	2,593.0	2,663.8	2,724.0	2,780.6
	Low	2,432.9	2,483.7	2,540.6	2,593.0	2,663.8	2,723.2	2,777.6
Real mortgage interest rates	Central	3.7%	4.0%	3.5%	3.2%	3.2%	3.4%	3.5%

Source: KPMG Economics

# Inputs into dwelling price forecasts

Key assumptions underpinning the parameter values contained in Table 1 include:

- From a building activity perspective house commencements generally follow housing approvals within the same year, but commencements represent about 99% of approval numbers. Further, house completions usually lag house commencements by 1 year, with completions representing around 94% to 95% of housing commencements in the period t-1;
- While the prudential controls implemented by APRA have recently been lifted, the change in lending practices by ADI's as a consequence of these stricter rules, combined with the banking sectors response to the Hayne Royal Commission, are still anticipated to limit the proportion of finance being provided to domestic investors purchasing residential property to between 30% (low) and 35% (high) by 2021;
- Cash rate and inflation will follow forecasts prepared by KPMG Economics as per the November 2018 edition of the *KPMG Quarterly Economic Outlook*; and
- Population growth rates will follow the ABS Population Projections Series B as presented in ABS Cat.No 3222.0 (November 2018 edition).

One assumption that has not been explicitly considered or discussed is the potential impact of Labor's proposed changes to Negative Gearing and Capital Gains tax should it win the next Federal election<sup>12</sup>.

While it is not our normal practice to make any political comment, on this topic we recognise to leave this issue untouched from a pure economics perspective is akin to finishing an exam and purposefully leaving the last few questions unanswered.

We broadly understand the core components of these proposed tax reform policies are:

- Capital Gains Tax – reduce the discount from 50% to 25% across all asset classes. No change to Owner Occupied dwellings.
- Negative Gearing – investment losses can be offset against investment income only for all asset classes (i.e., can't offset investment losses against labour income), with the exception of newly built rental properties where the current Negative Gearing arrangements will continue to apply (i.e., investment losses can be offset against all sources of income).

We also understand that all existing investments will be grandfathered, although it is still unclear what the cut-off date for this will be.

# Dwelling price forecasts

Based on KPMG Economics forecasting model, the input parameters presented above, and our assumptions as to how key agents in the market will behave, we anticipate the Sydney and Melbourne dwelling markets to perform quite differently over the next few years. Charts 12 to 17 in the following pages present historic and forecast dwelling prices by property type and market for the period FY00 to FY21.

In broad terms, we expect real median prices for Sydney residential property to continue to soften during FY19, bottom out in FY20, and then experience moderate growth in FY21. Our analysis shows that dwelling prices in Sydney are much more sensitive to the demand created by domestic investors than dwelling prices in Melbourne. It is predominately this factor that is causing the difference in expected dwelling price growth between the two markets. Again in broad terms, we expect Melbourne residential property to experience about half the real median price decline of that in Sydney in FY19, before increasing by around 2.4% in FY20 and around 4.7% in FY21.

In this update report we have additionally prepared forecasts for houses and other residential dwellings (consistent with the REIA definition and price series).

For Sydney, real median house prices are forecast, on average, to decline by 4.3% in FY19, further decline by 1.3% in FY20 and then experience growth of about 3.5% in FY21. Real median other residential property in Sydney is forecast to experience a price fall of 4.7% in FY19, but then stay flat with growth of 0.1% in FY20, and then stronger growth of 3.7% in FY21.

For Melbourne, we expect real median house prices to experience a decline of 2.0% in FY19, which will then turn around to positive growth of around 3.0% and nearly 5.0% for FY20 and FY21 respectively.

Other residential property in Melbourne is expected to see a larger fall in real median prices by 2.9% in FY19, but then rebound with real median prices increasing by 1.8% and 4.4% in FY20 and FY21 respectively.

Importantly, these price forecasts are predicated on the continual, albeit tighter, availability of credit by Australia's banking sector to finance the purchasing of residential property by both owner occupiers and investors. To the extent this availability of credit becomes tighter beyond what we have assumed in our analysis, then our house price forecasts are likely to be optimistic.

It is important to highlight that any overreaction to the Hayne Royal Commission by the domestic banking sector that results in a tightening of credit more than what would be considered necessary to achieve "normal" prudential lending standards could have a seriously negative effect on dwelling prices in Australia.

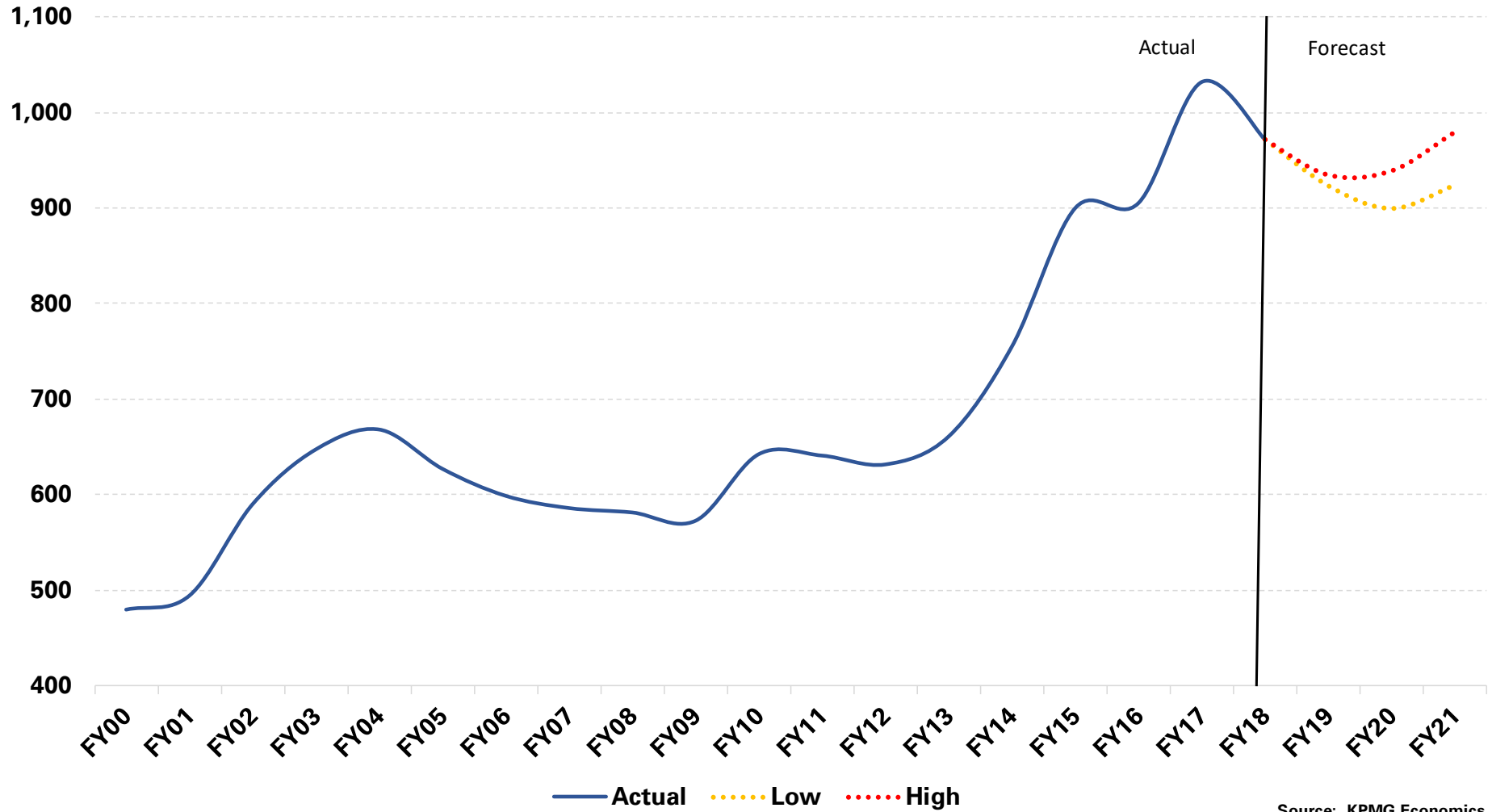
The peak-to-trough decline in real median dwelling prices implied by our forecasts are presented in Table 2 below.

Table 2 Forecast peak-to-trough real median dwelling price movements			
	Dwellings	Houses	Other Residential
Sydney	-12.9%	-13.1%	-11.9%
Melbourne	-4.5%	-4.5%	-5.4%

Source: REIA, KPMG Economics

## Chart 12

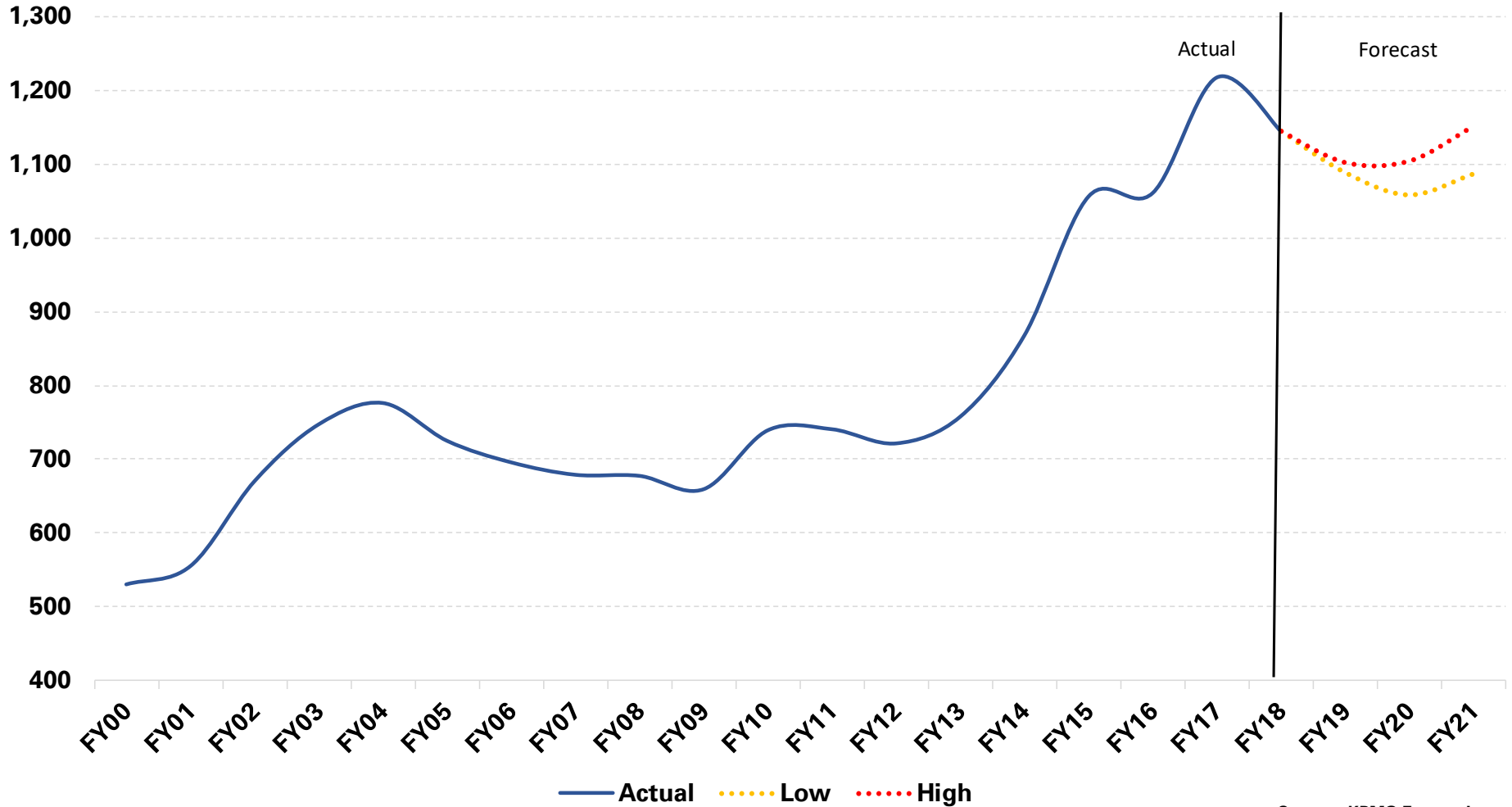
### Sydney Dwelling Prices (\$'000 real) Actual & Forecast



Source: KPMG Economics

### Chart 13

## Sydney House Prices (\$'000 real) Actual & Forecast

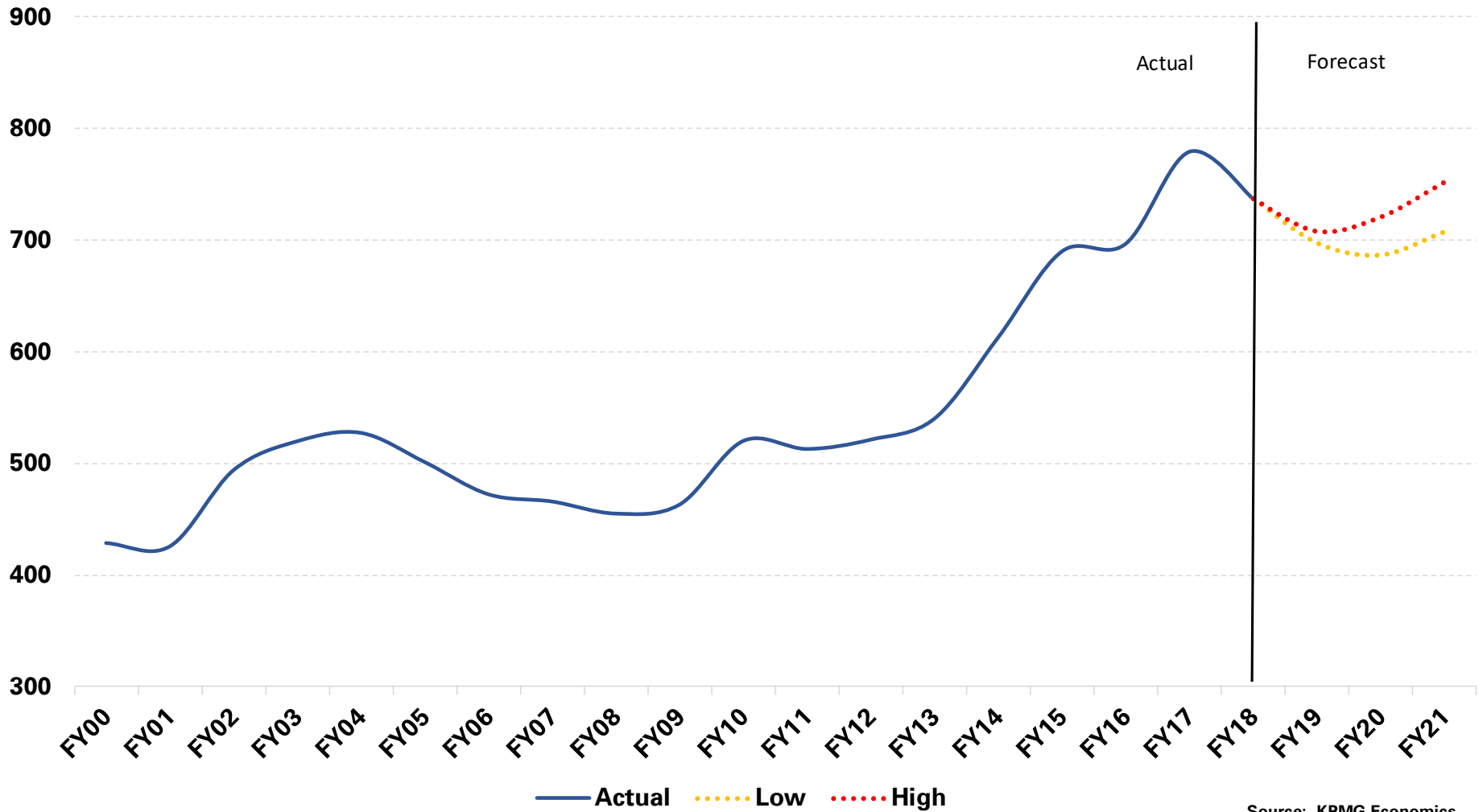


Source: KPMG Economics



## Chart 14

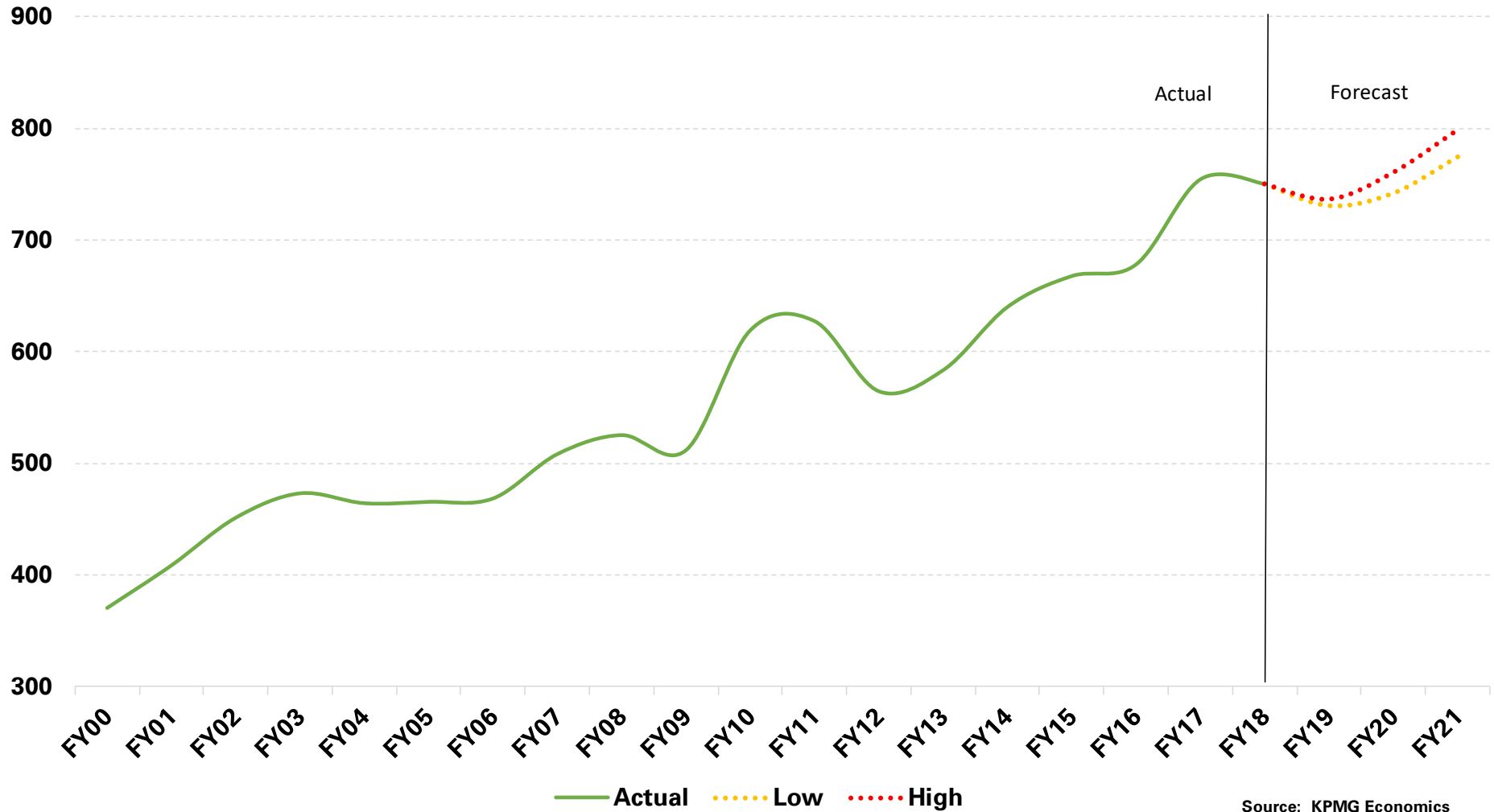
### Sydney Other Residential Prices (\$'000 real) Actual & Forecast



Source: KPMG Economics

## Chart 15

### Melbourne Dwelling Prices (\$'000 real) Actual & Forecast

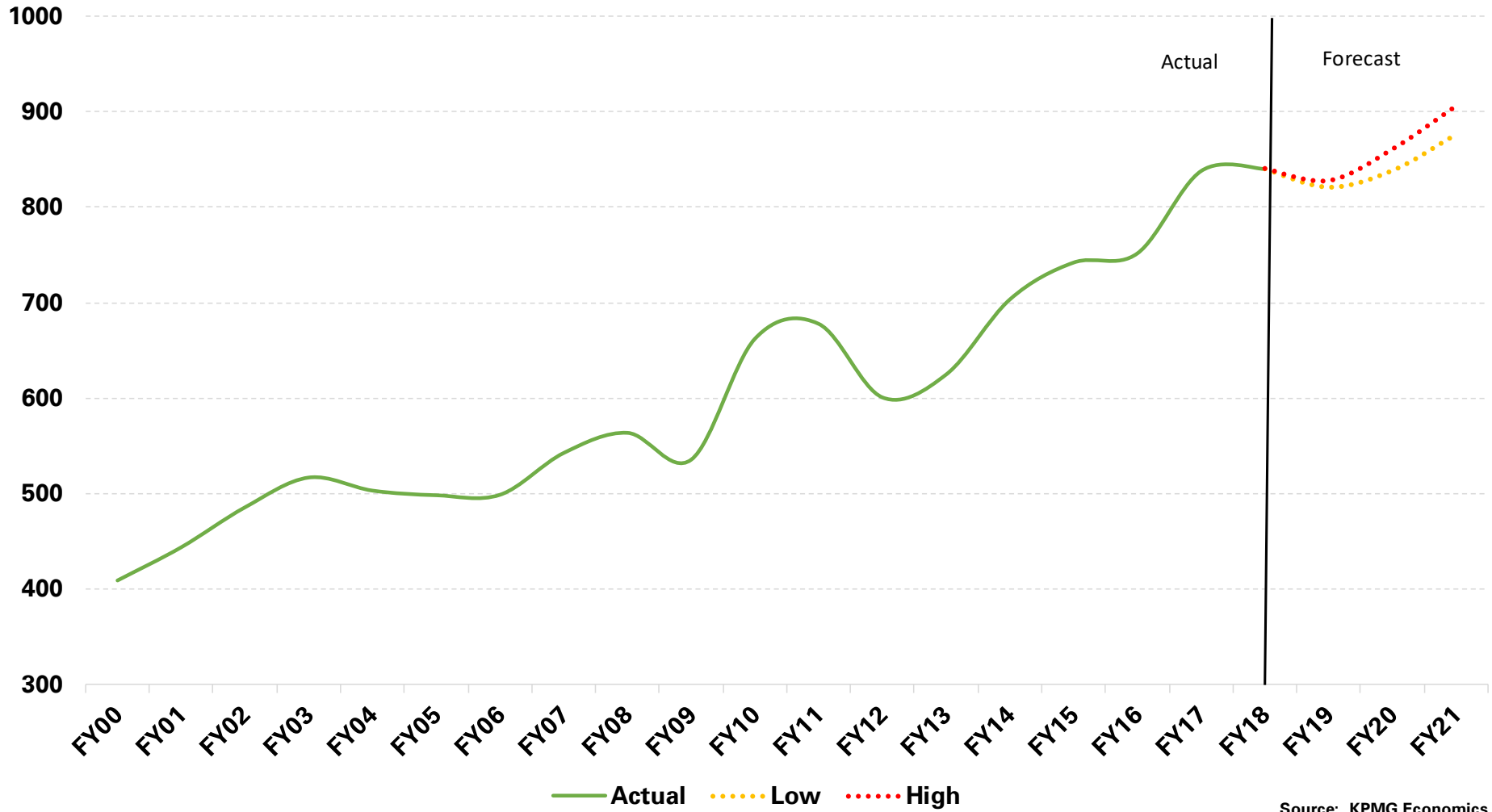


Source: KPMG Economics

# Chart 16

## Melbourne House Prices (\$'000 real)

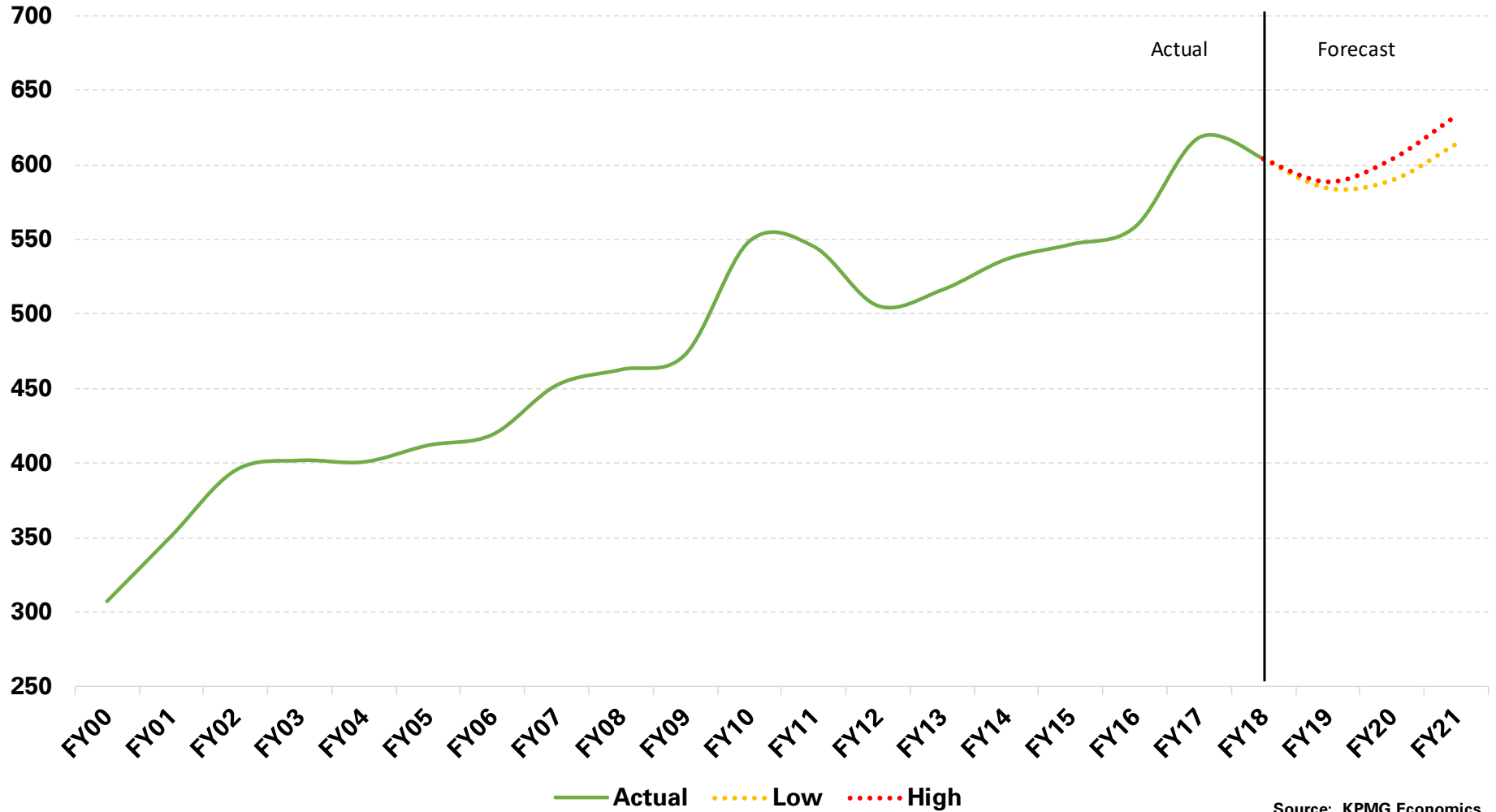
### Actual & Forecast



Source: KPMG Economics

## Chart 17

### Melbourne Other Residential Prices (\$'000 real) Actual & Forecast



Source: KPMG Economics

# Closing

KPMG Economics have been analysing the two largest housing markets in Australia for more than a decade now, particularly in the context of advising the government on issue like housing affordability and stamp duty reforms. Through this work we have developed and refined dwelling price models which, as shown in our previous public reports, have generated forecasts that have closely matched realised price movements.

At the moment it seems there is one story after another that presents various commentators views that house prices in Sydney and Melbourne will continue to fall, including suggestions of double-digit declines, over the next year. Our updated analysis also suggests residential dwelling in Sydney and Melbourne are likely to experience declining prices in FY19, which will continue into FY20 for houses Sydney.

Our analysis also suggests the price declines will be more moderate than what other commentators are suggesting, and there is likely to be a noticeable difference in expected price growth between Sydney and Melbourne. That is, we anticipate Melbourne to suffer about half the percentage price falls as forecast for Sydney in FY19, and Melbourne should also experience a faster and stronger turn around in its residential property market than will Sydney during FY20 and FY21.

Our forecasts are based on a number of explicit and implicit assumptions regarding related market activity and agent behavior. One of those assumptions discussed in the report is the continued availability of credit to finance the purchasing of residential property by both owner occupiers and investors. Again, to the extent this availability of credit becomes tighter beyond what we have assumed in our analysis, then our house price forecasts are likely to be optimistic.

Finally, one factor that has not been explicitly considered in our modelling is the potential impact of Labor's proposed changes to Negative Gearing and Capital Gains tax should it win the next Federal election.

Again, while it is not our normal practice to make any political comment, on this topic we recognise to leave this issue untouched from a pure economics perspective is akin to finishing an exam and purposefully leaving the last few questions unanswered.

From an investment market perspective it would seem these policies are unlikely to distort the investment mix decision based on existing settings (i.e., property versus shares or other assets), with the exception of investments made by superannuation funds who we understand will be exempt from these changes. These policies could have some impact on investment in dwellings for rental purposes, especially in the short term as it will take time for the developer market to produce new dwelling stock for tax approved investments.

Overall, the policies proposed are sound, but their introduction would need to be managed carefully.

# Appendix 1 - KPMG Economics Dwelling Price modelling framework

KPMG Economics dwelling price model for Sydney and Melbourne is based on error-correction model (ECM) framework. This framework was chosen as our analysis found that over time house prices tend to revert back to the equilibrium suggested by the long run relationship, but that in the short run transitory dynamics can counteract or reinforce this reversion to long run equilibrium.

KPMG Economics' preferred long run equilibrium relationship for Sydney and Melbourne median dwelling prices<sup>9</sup> can be expressed as:

$$\ln Y = \alpha + \beta X_1 + \theta \ln X_2 + \delta \ln X_3 + \sigma X_4 + \mu$$

Y	Real median dwelling prices as per the June quarter REIA house and attached dwelling data
X <sub>1</sub>	Ratio of borrowing by investors to total lending for residential property, Australia
X <sub>2</sub>	Working aged population (15 to 64 years)
X <sub>3</sub>	Housing stock
X <sub>4</sub>	Dummy variable representing the introduction and existence of tighter APRA controls for residential lending

Again, the ECM framework recognises that Y can deviate from its long run equilibrium level in the short run but that if the long run relationship is robust then there will be a tendency for Y to revert to the equilibrium level over time.

The short run model captures the mechanisms driving the dynamics of Y. In simple terms, when long run equilibrium is reached all first difference variables (ie: those represented with a Δ prefix) converge to a value of 0, leaving the long run relationship to determine the value of Y.

In the short run a range of variables (including lagged changes in Y) can have transitory impacts on Y, counteracting or reinforcing its transitions towards equilibrium. The parameter gamma (γ) measures the speed with which disequilibrium is eliminated over time.

This is captured by embedding the long run relationship within a dynamic model as follows

$$\begin{aligned} \Delta \ln Y_t = & \alpha + \sum_{s=1}^S \pi_s \times \Delta \ln Y_{t-s} + \sum_{s=1}^S \lambda_s \times \Delta \ln X_{1t-s} \\ & + \sum_{s=0}^S \zeta_s \times \Delta \ln Z_{1t-s} + \sum_{s=0}^S \rho_s \times \Delta Z_{2t-s} \\ & - \gamma [\ln Y - A - B \times \ln X] + \varepsilon_t \end{aligned}$$

Where:

Z <sub>1</sub>	Number of residential properties sold to FIRB approved buyers
Z <sub>2</sub>	Real mortgage interest rate

# Endnotes, Links and Sources

1. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3412.0Explanatory%20Notes12016-17?OpenDocument>
2. <http://firb.gov.au/about/publication/2016-17-annual-report/>
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6. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8731.0Oct%202018?OpenDocument> and <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8752.0Jun%202018?OpenDocument>
7. <https://www.apra.gov.au/media-centre/media-releases/apra-remove-interest-only-benchmark-residential-mortgage-lending>
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9. <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3222.0>
10. Enrolment data are derived from the Commonwealth Provider Registration and International Student Management System (PRISMS) database, and is for all education sectors (Higher Education, Vocational Education, Schools and ELICOS), and by students on a student visa. Data is initially uploaded into PRISMS by educational providers when an enrolment is offered to a prospective student before a visa is granted, and again when a student obtains and uses their visa to enter Australia and starts studying. The Department of Immigration and Citizenship (DIAC) updates PRISMS as students enter or leave Australia or change their visa or residence status. Providers also update PRISMS when students change courses or fail to comply with student visa requirements. PRISMS receives data electronically every night from DIAC as student visas are granted or cancelled and as students are recorded on DIAC systems as entering Australia. Only enrolments that represent students who have actually started studying in Australia are counted in the international student enrolment data.
11. <https://www.universitiesaustralia.edu.au/Media-and-Events/media-releases/OPINION--How-international-students-benefit-Australia#.XCrvuNhJPY>
12. <https://www.alp.org.au/negativegearing>

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