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## How Predictable? Rent Growth and Returns in Sydney and Melbourne Housing Markets

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## Abstract

We construct rent-price ratios for houses and units in 82 local government areas in the Sydney and Melbourne markets for the period 1985/86-2015. Using this annual data we employ long-horizon regression techniques and find that rent-price ratios (i.e. rental yields) have predictive content for both future real housing returns and future growth rates of real rents. However rents and returns have greater predictability in Sydney than in Melbourne. Using a variance decomposition for the rent-price ratio implied by the present-value model, we find that variation in rental yields of units in Sydney is almost fully accounted for by expected changes in future rent growth and returns. There appears to be no role for rational bubbles in influencing the prices of Sydney units. In contrast – on average – lesser portions of the variance in rental yields on houses in Sydney (two thirds) and Melbourne (one third) and units in Melbourne (60 percent) is explained by expected future returns and rents. Evidently there is scope for (stochastic) rational bubbles to have affected these markets. Our results point to an important difference between the behaviour of residential housing markets and stock markets. In the stock market, current changes in dividend-price ratios do not appear to reflect important variations in future dividend growth. Our results for Sydney and Melbourne suggest that current changes in rent-price ratios do signal future changes in rent growth.

JEL Classification Numbers: C22, G17, R31

Key Words: rent-price ratio, housing returns, rent growth, long horizon regression

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## 1 Introduction

In the ongoing debate about the significant movements of housing prices over the past 20-30 years the rent-price ratio has emerged as the key metric in understanding the housing market. *The Economist* uses the rent-price ratio as an indicator of under- or over-valuation of housing markets and documents significant recent declines in rent-price ratios in many markets – including the Sydney and Melbourne markets. The implicit assumption made by the *The Economist* is that low rent-price ratios are predicting low (and possibly even negative) returns and in the short run. The key empirical question is then whether rent-price ratios predict future returns or future rent growth. That is, do the lower rent-price ratios predict lower returns or, as investors might prefer, do they predict higher growth rates in rents?

There is a large empirical literature investigating the predictability of stock returns, starting with Fama and French (1988) and Campbell and Shiller (1988), with a more recent example Cochrane (2008)[1]. This analysis is done within the present-value model framework (Cochrane 2001) and a standard finding is that the dividend-price ratio contains information about future stock returns but not about future dividend growth rates. The current consensus interpretation of the empirical studies is that that stock returns and excess returns have a predictable component. It is also generally held that the evidence of predictability becomes clearer by focusing on forecasts of returns over longer horizons.

In contrast with the stock market, there have been a more limited number of studies looking at the predictability of housing returns (Case and Shiller, 1990; Capozza and Seguin 1996; Gallin 2008; Hartzvi and Otto 2008; Engsted and Pedersen 2015) and, while there is no clear consensus on the predictability of returns, the three most recent studies have found some evidence of predictability. A number of studies using US data have looked at and found some evidence of predictability in rents (Clark 1995; Sinai and Souleles 2005; Gallin 2008) but a cross-country study by Engsted and Pedersen (2015) found conflicting results for the predictability of rents, while an earlier study of Sydney Local Government Arears (LGAs) (Hartzvi and Otto, 2008) found little evidence of rent-price ratios predicting rents.

In this paper we have constructed rent-price ratios for the period 1985/86-2015 for detached houses and units in 82 LGAs in the cities of Sydney and Melbourne. For comparability with the studies of the stock market, we apply Cochrane's present-value model to housing and use long-horizon regression techniques to examine the predictability of returns to

[1] Bourdoukh, Richardson and Whitelaw (2008) noted that the Fama and French paper had (to date) been cited over 250 times and documents "what has become one of the dominant stylised facts in empirical finance". Cochrane (2008) was one of a series of papers in *The Review of Financial Studies* (Vol. 21 No. 4) which looked at the predictability of stock returns.

residential housing. We then use a variance decomposition for the rent-price ratio implied by the present-value model to assess what percentage of variation in rent-price ratios is explained by expected changes in future rent growth and returns.

Another debate has centred on the variance in rent-price ratios across markets and, in that context, a number of studies have looked at the large and widening variance in rent-price ratios between US cities (Gyourko, Mayer and Sinai, 2013) but lack of data has seen little analysis on variance within urban markets. In the Sydney and Melbourne markets we observe significant and persistent variation in rent-price ratios in the LGAs within the cities. Again the question is whether this variance reflects variance in expected rent growth or returns between markets.

The paper starts with some observations on the data. Then we review previous studies before setting out the present-value model. In the next sections we look at the empirical results for rent-price predicting returns and rent growth in the markets, at the variance decomposition of the rent-price ratios, and then there is a discussion of the results.

## 2 Preliminary Observation on the Data

For LGAs in the greater metropolitan areas of Sydney and Melbourne we have data on annual mean and median price, and median rent, for houses and units, commencing in 1986 and 1985 respectively. Taking the median price and rent series we have constructed annual series for rent-price ratios for 51 LGAs in the Sydney region for the period 1986-2015 and for 31 LGAs in Melbourne for the period 1985-2014. A full discussion of the sources and methodology is in Appendix A.

Observing rent-price ratios over the period 1985-2015, we see a substantial decline across all markets (Figure 1). The aggregate market rent-price ratio in the second half the 1980s was over 7%, whereas current rent-price ratios are closer to 4%. Consistent with that we observe that average price growth has been about 2 to 3 times average rent growth over this 30 year period (see Tables B1 to B4). The secular decline in the rent-price ratios in this period is consistent with (and possibly caused by) a similar decline in real interest rates (Figure 2). As outlined below in the present-value model, the risk free interest rate is a key determinant of the rent-price ratio. The 1980s was a period of high inflation and high real interest rates, conducive to high rent-price ratios. But the return to low inflation in the 1990s led to a lagged decline in real interest rates which fell from around 5% to around 2%. This decline in real interest rates roughly matches the decline in rent-price ratios.

There is a slight difference in timing between the Sydney and Melbourne markets. In the case of Sydney, the fall in the rent-price ratio started in the first half of the 1990s. One

interpretation is that the Sydney market was more responsive to the decline in interest rates and the Sydney market has tended to lead the other cities (Bewley, Dvornak and Livera, 2004). However, macroeconomic variables also influence the relative performance of housing markets (Otto, 2007), The Victorian economy was hit harder by the recession of 1989-1991 and its unemployment rate stayed well above that of NSW in the first half of the 1990s before closing the gap in the second half. Reflecting these factors, the Melbourne market lagged with rent-price ratios actually rising slightly in the first half of the 1990s and then declining steeply from about 1996.

Across LGAs, there is a clear variance in rent-price ratios and this variance appears to be persistent over the whole period. If we aggregate the LGAs into inner, middle and outer zones and by price, we observe that inner city LGAs have lower rent-price ratios and also that higher priced LGAs have lower rent-price ratios (Figures 3 and 4). The latter is consistent with the observation by Eisfelt and Demers (2015) and Himmelberg, Mayer and Sinai (2005) across 30 and 46 US cities respectively, that higher priced cities have lower rent-price ratios. Eisfelt and Demers also observed that the offset is that over the period the cities with high prices and low rent-price ratios experienced higher capital gains, so that total returns (net rent plus capital gain) were approximately the same for both high and low price cities. For a shorter period 2012-14 they construct net rent-price ratios for 2,357 zip code areas within the 30 cities. At this intra-urban level, they also find rent-price ratios are inversely related to price levels but, in contrast with cities, find that capital gains are inversely related to price. That is, higher rent-price ratios are not offset by lower capital gains, and low priced zip codes show higher returns than high priced zip codes.

In our data for Sydney and Melbourne LGAs we find that average price-rent ratios are negatively correlated with both average price growth and average rent growth, see Figures 5 to 8. An LGA with a relatively low price-rent ratio tends to experience higher growth in prices and rents. These relationships are stronger for Melbourne than for Sydney.

## 3 Previous Studies on the Predictability of Rent-Price Ratios

Case and Shiller (1990) tested whether prices and excess returns in four US cities in the period 1970-86 could be forecast as a function of the rent–price ratio. They found the rent-price ratio had a positive, but not statistically significant effect, in predicting prices and excess returns. When other independent variables – construction costs, adult population growth and real disposable income – were added to the regression, the sign for the rent-price ratio turned

negative. They interpreted the predictability of prices as an indication of inefficiency in the housing market.

Capozza and Seguin (1996) argue that "if information has been efficiently impounded into housing prices, then the rent-price ratio should have significant predictive power for future capital gains." They use decennial census data (1960, 1970, 1980 and 1990) for rents for 64 metropolitan areas matched against prices to examine how cross-sectional differences in the rent-price ratio are related to ten-year changes in prices in those metro areas. They use realised capital gains as proxy for expected capital gains. Results with a simple regression of log prices on rent-price ratio, with a dummy for each time period (to capture variation in price movement in each period), shows that the rent-price ratio is economically and statistically insignificant.

A number of papers have looked at whether the rent-price ratio helped predict future changes in rents. Clark (1995) used a similar approach to Capozza and Seguin and also with decennial rent data and found that the rent-price ratio is significantly and negatively related to subsequent changes in rents. That is, (urban areas with relatively) high rent-price ratios appear to subsequently predict lower increases in rents. Sinai and Souleles (2005) also show that a lower rent-price ratio is associated with a higher expected growth rate of rents, holding constant other important factors including differences in risk (volatility of rents) across metro areas.

Gallin (2008) used quarterly data for the US 1970-2003 and found that house prices and house rents were cointegrated. Gallin then tested a long-horizon model to test how changes in rents and prices over a 4 year time horizons are related to the rent-price ratio at the start of the period. Gallin finds those periods in which rent-price ratios are low are typically followed by periods in which rent growth is higher than usual and price growth is lower than usual. If interest rates are included as an additional explanatory variable, the rent –price ratio retains its explanatory power but interest rates are positively related to rents and negatively related to prices. Thus periods of high interest rates are typically followed by periods of higher rent growth and lower price growth. Gallin used bootstrap analysis to test and reject the hypothesis that rents do all the correcting. He finds that rents rise significantly less than expected than if rents were to do all the correcting. On the other hand, his results did not reject the null that prices do all the correcting.

Hartzvi and Otto (2008), using quarterly data of rents and prices for LGAs in Sydney for the period 1991-2006, found evidence that variations in rent-price ratios predicted real returns but little evidence that it predicted future real rent growth. That study also found that a significant proportion of the variation in rent-price ratios in outer Sydney LGAs was not explained by either rents or returns, pointing to a possible role for a speculative bubble.

Engsted and Pedersen (2015) use the present-value framework to examine the predictability of housing returns and rent growth by the rent-price ratio in eighteen OECD countries for the period 1970-2011. They find quite marked cross-country differences in the results of their tests. One reasonably consistent finding across countries is that (an increase in) the rent-price ratio predicts (higher) future real returns. In the case of future rent growth, results are less consistent with the present-value model; while for 12 countries, including Australia and the US, a lower rent-price ratio signals higher real growth rates of future rents, for six countries the reverse is true.[2] Furthermore, the results for real rents tend to be sensitive to the choice of period.[3] In the case of Australia, the period 1995-2011 has the expected negative sign but the sign is positive for the earlier period 1972-1994, while the reverse is true for the US which has the expected negative sign for the earlier period but a positive sign for period 1995-2011.

Campbell, Davis, Gallin and Martin (2009) use the present-value model to compute the variance decomposition of rent-price ratios for owner-occupied housing in 28 US markets. They do not explicitly examine predictability of returns and rents, rather the authors use a VAR and the present-value model to decompose the variance of the rent-price ratio into contributions from variance and co-variances in the predictable components of rent growth, real risk free rate and excess housing returns. For the initial part of their sample (1975-1996) variation in risk premia is argued to be the most important driver of variation in rental yields; it is somewhat less important for latter sample period (1997-2007), a boom period. Co-variances between expected future premia and rent growth are positive and this acts to dampen variation in rental yields.

## 4 Present-value Relation for Housing

Given our the data on house prices and rents we define the annual gross real return to housing as:

$$\left(1 + R_{t+1}^{h}\right) \equiv \frac{P_{t+1}^{h} + V_{t+1}^{h}}{P_{t}^{h}} \tag{1}$$

Where $P^h$ is the real (or relative) price of housing and $V^h$ is the real annual value of rent on housing (where no expenses associated with housing are deducted from the figure for rent). In computing real returns we treat houses and units separately.

Following Campbell and Shiller (1988) we can derive a log-linear approximation to (1),

$$r_{t+1}^{h} \approx k + \rho p_{t+1}^{h} + (1 - \rho) v_{t+1}^{h} - p_{t}^{h} \tag{2}$$

[2] Engsted and Pedersen (2015) page 268, Table 4.
[3] Engsted and Pedersen (2015) page 272, Table 7.

and, after adding and subtracting $v_t^h$, iterate forward to obtain:

$$v_t^h - p_t^h = -\frac{k}{1-\rho} + E_t\left[\sum_{j=0}^{\infty} \rho^j(-\Delta v_{t+1+j}^h + r_{t+1+j}^h)\right] \quad (3)$$

In obtaining (3) we have imposed the condition that

$$\lim_{j\to\infty} \rho^j p_{t+j}^h = 0 \quad (4)$$

which rules out the presence of rational speculative bubbles.

Equation (3) forms the basis for our investigation of housing returns. It implies that any variation in the log rent-price ratio must be due to agents' expectations of future changes in real rent growth and/or a change in future returns to housing. A current low value for the rent-to price ratio must be followed by high growth in real rents $\Delta v^h$ or low returns $r^h$, or some combination of both outcomes.

### *4.1 Long-horizon Regressions*

A standard technique for investigating the predictability of stock returns is via a long-horizon regression. These models have the following basic form;

$$x_{t+m} - x_t = \alpha_m + \beta_m\left(v_t^h - p_t^h\right) + u_{t+m} \quad (5)$$

where the regressor is the cumulative growth rate in the variable of interest over increasingly long horizons. The estimate of $\beta_m$ and the R-squared from (5) provide a measure of the ability of the rent-price ratio to forecast different variables. We use (5) to examine the ability of the rent-price ratio to forecast real housing returns and growth in real rents.

## 5 Empirical Results for Long-horizon Regressions

We use tables to report averages of coefficient estimates and statistics for LGAs in Sydney and Melbourne. Results for individual LGAs are summarized using graphs, with a complete set of results for all LGAs in Sydney and Melbourne reported in Appendix C.

### *5.1 Forecasting Returns*

We begin by examining whether the rent-price ratio is able to forecast future housing returns. For each LGA in Sydney and Melbourne the following model is estimated by OLS;

$$\sum_{m=1}^{5} r_{t+m}^h = \alpha_m + \beta_m\left(v_t^h - p_t^h\right) + u_{t+m} \quad (6)$$

where $r^h$ is the log of real housing returns, and $(v-p)$ is the log of the rent-price ratio. Given we have a maximum of 30 annual observations for most LGAs, we restrict ourselves to models with m≤5. Standard errors are computed using Hansen and Hodrick's (1980) formula, with auto-covariances greater than m-1 set to zero. Separate results are reported for returns to houses and units in both Sydney and Melbourne.

*Returns to Houses*

Results from estimating equation (6) for houses in Sydney LGAs are reported in Table 1 and Figure 8. Table 1 presents a summary of the results across all LGAs, showing averages for estimates of $\beta_m$, t-statistics and R-squareds. It is evident from Table 1 that rent-price ratios (or rental yields) have considerable ability to predict future returns to houses in the Sydney market. Predictability tends to increase with the forecast horizon. At the one year horizon the average $R^2$ across LGAs – associated with equation (6) – is 0.15, but this figure increases to 0.36 at a five year horizon. Consistent with the present-value model, point estimates of $\beta_m$ are always positive, implying that a low rental yield is an indicator of future lower real returns to houses. Figure 8 reports the t-statistics on $\hat{\beta}_m$ for m=1 and m=3 – ordered from smallest to largest – along with the 5% critical value, for each LGA. At a one year horizon, $\beta_m$ is statistically significant in slightly under one-third of the Sydney LGAs, however at the three year forecast horizon, this proportion rises to about 90 percent of LGAs.

Table 2 and Figure 9 report the results obtained for forecasting returns to houses in Melbourne LGAs. It is evident from both table and figure that real housing returns in Melbourne are much less predictable by rental yields than is the case for Sydney. Average coefficient estimates, t-statistics and R-squareds are lower for Melbourne and at a three year horizon there is evidence of significant predictability of house returns in only 10 percent of its LGAs. While the point estimates of $\beta_m$ are positive – and hence consistent with the present-value model – it is clear from Figure 9 that the coefficient estimates are statistically significant in only a relatively small number of LGAs; and this is the case for all forecast horizons up to m=5.

*Returns to Units*

The results for the predictability of returns to units in Sydney are reported in Table 3 and Figure 10. For units, evidence of return predictability by rental yields is stronger than in the case of houses. Even at the one year horizon, unit returns are significantly predictable in close to 60 percent of LGAs and this figure rises to above 90 percent by m=4. For LGAs in Melbourne returns to units are more predicable by rental yields than are returns to houses. From Table 4 we see that returns are predictable in about 40 percent of LGAs at forecast horizons of 1 to 3 years. Somewhat unexpectedly though, the proportion of rejections of $\beta_m = 0$ declines for horizons m=4 and m=5. As is the case with returns to houses in Melbourne, predictability of unit returns does not tend to increase with the forecast horizon, (compare Figure 9 and Figure 11).

### *5.2 Forecasting Rent Growth*

We now examine whether future rental growth is forecastable by the rent-price ratio. In a world where expected future returns to housing were roughly constant, the present-value relationship (3) implies that the rent-price ratio should reflect (and consequently forecast) future changes in real rental growth rates. This implies the following forecasting model,

$$\sum_{m=1}^{5} \Delta v_{t+m}^{h} = \alpha_m + \beta_m \left( v_t^h - p_t^h \right) + u_{t+m} \qquad (7)$$

where $\Delta v^h$ is the change in the log of real rents, and $(v - p)$ is the log of the rent-price ratio. As before we only consider models with m≤5 and present results for both houses and units Sydney and Melbourne.

*Rent Growth for Houses*

Table 5 and Figure 12 summarise the results for real rent growth predictability across LGAs in Sydney. House rental yields do not have much predictive ability for the growth rate of rents at short horizons (i.e. m≤2), however predictability does increase over longer horizons, and at m=5 (years) the average $R^2$ across all Sydney LGAs is 0.39. Point estimates of $\beta_m$ are overwhelming negative, consistent with the present-value model's prediction that a low rent-price ratio is a signal of higher future growth rates in real rents. Figure 5 confirms the marked increase in the statistical significance of $\hat{\beta}_m$ as the forecast horizon is increased from one to five years.

Results for house rents in Melbourne LGAs are reported in Table 6 and Figure 13. On average rental yields on houses seem to be somewhat better predictors of future rent growth than they are of future returns; (compare Table 6 and 2). At the 5-year horizon, the average $R^2$ across Melbourne LGAs is 0.31 and rent growth is predictable in about 65 percent of LGAs. Figure 6 shows the t-statistics on $\hat{\beta}_m$ for m=1 and m=5 – ordered from largest to smallest – along with the 5% critical value. As is the case with returns to houses, rental yields generally have less predictive ability for future real rent growth across LGAs in Melbourne than for Sydney LGAs.

*Rent Growth for Units*

The predictability of rent growth for units by the rental yield is summarized in Table 7 and Figure 14 for Sydney and in Table 8 and Figure 15 for Melbourne. For both cities the findings for units are broadly in line with those obtained for houses. In Sydney rental yields on units have statistically significant predictive content for real rent growth in around 70-80% of LGAs, at horizons of 4 or 5 years. For Melbourne the results are somewhat weaker, with statistical significance found in only about 50% of LGAs at m=5.

In most LGAs in Sydney we find evidence that rental yields forecast both future returns to housing and future growth rates for rent. Predictability increases with the forecast horizon, with the maximum predictability of returns occurring at around 3-4 years; while for rent growth maximum predictability is over a 5 year horizon.

For the Melbourne data we find less support across LGAs that rental yields are good predictors of returns or rent growth. Real returns to houses in Melbourne's LGAs are relatively unpredictable by their rental yields. There is somewhat more predictability for returns to units, but this tends to be at shorter horizons. Rent-price ratios in Melbourne are better predictors of future rent growth than they are of future returns.

## 6 Variance Decomposition for Rent-price Ratio

Following Cochrane (1991) we can use equation (3) to decompose the (unconditional variance) of the rent-price ratio. Re-writing equation (3), we multiply both sides by $(v_t^h - p_t^h) - E(v_t^h - p_t^h)$ and take the unconditional expectation:

$$E[(v_t^h - p_t^h) - E(v_t^h - p_t^h)]^2 = cov(v_t^h - p_t^h, -\sum_{j=0}^{\infty} \rho^j \Delta v_{t+1+j}^h) + cov(v_t^h - p_t^h, \sum_{j=0}^{\infty} \rho^j r_{t+1+j}^h) \quad (8)$$

or;

$$var(v_t^h - p_t^h) = -cov(v_t^h - p_t^h, \sum_{j=0}^{\infty} \rho^j \Delta v_{t+1+j}^h) + cov(v_t^h - p_t^h, \sum_{j=0}^{\infty} \rho^j r_{t+1+j}^h) \quad (9)$$

Thus the present-value model predicts – in the absence of explosive bubbles – variation in the rent-price ratio must be due to either forecast changes in real rental growth or forecast changes in real housing returns. Equation (9) can be used to calculate the approximate contributions of expected rents and returns to variation in the rental yield. To do this we use a finite approximation to the infinite sum and replace the population moments by their sample counterparts:

$$\widehat{var}(v_t^h - p_t^h) = -\widehat{cov}(v_t^h - p_t^h, \sum_{j=0}^{T} \hat{\rho}^j \Delta v_{t+1+j}^h) + \widehat{cov}(v_t^h - p_t^h, \sum_{j=0}^{T} \hat{\rho}^j r_{t+1+j}^h) \quad (10)$$

In our analysis we set T=5 years and estimate $\hat{\rho} = \frac{1}{1+\exp(\overline{v-p})}$.

Table 9 presents a summary of the variance decompositions for houses and units in Sydney and Melbourne. For Sydney the estimates suggest that on average real rental growth and future returns account for about 2/3 of the variation in the rent-price ratio for houses and about 90 percent of the variation for units. In the case of units there is little variation in rental yields that is not accounted for by future rents and returns, which tends to rule out any role for a rational bubble. This is less apparent in the case of houses, where about 1/3 of the variation in rental yields does not seem to reflect either future rental growth or returns and this would be

consistent with a rational bubble process producing (non-fundamental) variation in house prices.

Consistent with rental yields not being as good predictors, much less of the variation in rental yields in the Melbourne markets is accounted for by future rents and returns – about 1/3 for house and about 60% for unit markets. That is, much less variation is not accounted for by future rents or returns and more potentially by a rational bubble. The results in Table 9 are averages across LGAs and there is considerable cross-section variation across LGAs. This is illustrated in Figures 16 to 19.

The contribution of the real bond rate to the variance of the rent-price ratio is shown in the third row in Table 9. In each of the four market segments only about 15 percent of the variance in the rent-price ratio can be attributed to changing expectations about future real interest rates.

## 7 Discussion of Results

We have observed that rent-price ratios do show some evidence of predicting both rents and returns. The result for real rents is consistent with the Gallin (2008) result for the US metropolitan housing markets and with the result from Engsted and Pedersen (2015) for Australia and the US. However, bearing in mind that the predictability of real rents varies somewhat between sub-markets, there is reason to be cautious. The earlier study by Hartzvi and Otto (2007) for Sydney LGAs for the period 1991-2006 found little evidence that rent-price ratios predicted rents, while Engsted and Pedersen found that the aggregate market in Australia – and in most OECD countries - was sensitive to the time periods. For the period 1995-2011, it did predict real rents, but the relationship was in the wrong direction for 1972-1994. This suggests caution in relying on the low rent-price ratios as predicting higher growth rate in rents.

That there is some prediction of rents is at odds with the strong consensus of findings for the stock market. In the case of the stock market, there is a much longer span of history with multiple cycles with most studies using data from the period from 1924 ( e.g. Cochrane, 1992) and Campbell and Shiller looked at data for the US stock market for 1871-1986. In contrast, the period 1985-2015 is relatively short, not least because it includes at most two cycles in the housing market.

In the stock market literature, a related debate concerns whether or not the persistently low dividend/earnings yields that emerged in the 1990s and 2000s represent a structural break from historic norms. (Lettau, Ludvigson and Wachter, 2008). The period 1985-2015 for the housing

market covers this period when low earnings-price ratios emerged in the stock market, linked to the structural decline in inflation and real and nominal interest rates from the high levels of the 1970s and 1980s. Engsted and Pedersen (2015) indirectly refer to impact of the role of the large shift in inflation. If we had a span of rent-price ratios for housing markets for the 60 year period 1925-85, we might observe a similar and clearer structural decline in rent-price ratios. Related to, this period also includes some structural shifts of specific moment to the housing market, notably the deregulation of housing finance markets in the 1980s. The period since about 2001 has seen rent-price ratios persistently lower and showing less variance than in the preceding period.

In terms of the variance decomposition, Cochrane (1992) found that 'slightly *more* than 100% of the variance of the price-dividend ratios is accounted for, verifying the approximation and rejecting bubbles. However, the variance of price–dividend ratios is largely due to changing forecasts of returns rather than to changing forecasts of dividend growth.'[4] For dwelling markets, only in the unit market in Sydney is close to 100% of variance in rent-price ratios accounted for, which is consistent with the general notion that housing markets are less efficient (Case and Shiller, 1990) and more susceptible to bubbles. Relative to the stock market, more of the variance is explained by changes in expected rent growth, but much less is explained by changes in discount rates.

An optimistic interpretation would be that current changes in rent-price ratios signal future changes in rent growth. However, if there is any doubt about the results on predictability of rent growth, this could translate to more being explained by returns or more susceptibility of housing markets to bubbles.

## 8 Conclusion

In this paper we have introduced a unique time series of rents, prices and rent-price ratios for the submarkets in Australia's largest two cities of Sydney and Melbourne. Over the period 1985-2015, we observe that there is limited variance in returns between the two cities, and between detached house and unit markets across LGAs within those two cities. Markets which have generated higher capital gains have seen this offset by low rental income returns (low rent-price ratios) and vice versa markets with lower capital gains have shown higher rental income returns (high rent-price ratios) over this 30 year period.

Then, using long horizon regressions, we have observed that rent-price ratios for most of those submarkets have predictive content for both returns and future rent growth. The latter

[4] Cochrane (1992) page 264: see results for variance decomposition in Table 3.

result adds to a majority conclusion in recent housing studies and is in contrast with clear negation of any link between dividend-price ratios and dividend growth in the equity market literature. The variance decomposition then highlights that typically less than 100% of the variance in housing markets is accounted for, compared with more than 100% for equities, implying some risk of bubbles.

The question which remains open is whether this reflects a fundamental behavioural difference between the housing and equity markets or is perhaps an artefact of the shorter measured time span of housing markets.

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*Table 1: Regression of Returns on Rent-Price Ratio for Sydney Houses*

| m (years) | $\hat{\beta}_m$ | t-stat | $R^2$ | Proportion Reject ($\beta_m = 0$) |
|---|---|---|---|---|
| 1 | 0.13 | 1.82 | 0.15 | 0.31 |
| 2 | 0.28 | 2.22 | 0.25 | 0.75 |
| 3 | 0.35 | 2.81 | 0.29 | 0.90 |
| 4 | 0.39 | 2.76 | 0.32 | 0.82 |
| 5 | 0.45 | 2.61 | 0.36 | 0.84 |

Notes: Figures in the first three columns are simple averages of estimates obtained for each individual LGA. Total number of LGAs is 51. The final column indicates the proportion of LGAs for which the null hypothesis of no predictability is rejected.

*Table 2: Regression of Returns on Rent-Price Ratio for Melbourne Houses*

| m (years) | $\hat{\beta}_m$ | t-stat | $R^2$ | Proportion Reject ($\beta_m = 0$) |
|---|---|---|---|---|
| 1 | 0.06 | 1.23 | 0.05 | 0.06 |
| 2 | 0.13 | 1.37 | 0.09 | 0.10 |
| 3 | 0.19 | 1.50 | 0.12 | 0.10 |
| 4 | 0.21 | 1.38 | 0.11 | 0.16 |
| 5 | 0.20 | 1.01 | 0.08 | 0.06 |

Notes: Figures in the first three columns are simple averages of estimates obtained for each individual LGA. Total number of LGAs is 31. The final column indicates the proportion of LGAs for which the null hypothesis of no predictability is rejected.

*Table 3: Regression of Returns on Rent-Price Ratio for Sydney Units*

| m (years) | $\hat{\beta}_m$ | t-stat | $R^2$ | Proportion Reject ($\beta_m = 0$) |
|---|---|---|---|---|
| 1 | 0.19 | 2.52 | 0.23 | 0.59 |
| 2 | 0.36 | 3.40 | 0.36 | 0.80 |
| 3 | 0.47 | 3.87 | 0.41 | 0.84 |
| 4 | 0.52 | 3.91[A] | 0.43 | 0.92[A] |
| 5 | 0.59 | 3.88 | 0.46 | 0.92 |

Notes: See Table 1.
[A] Hansen-Hodrick variance-covariance matrix is not positive-definite for one LGA when h=4, so average for t-statistics and the proportion of rejections omit this case.

*Table 4: Regression of Returns on Rent-Price Ratio for Melbourne Units*

| m (years) | $\hat{\beta}_m$ | t-stat | $R^2$ | Proportion Reject ($\beta_m = 0$) |
|---|---|---|---|---|
| 1 | 0.10 | 1.84 | 0.09 | 0.39 |
| 2 | 0.22 | 2.02 | 0.16 | 0.35 |
| 3 | 0.32 | 2.11 | 0.21 | 0.35 |
| 4 | 0.38 | 1.96 | 0.21 | 0.29 |
| 5 | 0.39 | 2.44 | 0.19 | 0.19 |

Notes: See Table 2. In calculating this table the total number of LGAs used is 28. Data on unit rents are unavailable for 3 LGASs.

*Table 5: Regressions of Rent Growth on Rent-Price Ratio for Sydney Houses*

| m (years) | $\hat{\beta}_m$ | t-stat | $R^2$ | Proportion Reject ($\beta_m = 0$) |
|---|---|---|---|---|
| 1 | -0.02 | -0.87 | 0.06 | 0.16 |
| 2 | -0.06 | -1.02 | 0.10 | 0.12 |
| 3 | -0.11 | -1.69 | 0.19 | 0.33 |
| 4 | -0.17 | -2.60 | 0.30 | 0.73 |
| 5 | -0.22 | -4.24 | 0.39 | 0.88 |

Notes: See Table 1.

*Table 6: Regressions of Rent Growth on Rent-Price Ratio for Melbourne Houses*

| m (years) | $\hat{\beta}_m$ | t-stat | $R^2$ | Proportion Reject ($\beta_m = 0$) |
|---|---|---|---|---|
| 1 | -0.03 | -1.30 | 0.08 | 0.23 |
| 2 | -0.05 | -0.98 | 0.11 | 0.13 |
| 3 | -0.09 | -1.09 | 0.15 | 0.13 |
| 4 | -0.14 | -1.65 | 0.21 | 0.32 |
| 5 | -0.22 | -2.74 | 0.31 | 0.65 |

Notes: See Table 2.

*Table 7: Regressions of Rent Growth on Rent-Price Ratio for Sydney Units*

| m (years) | $\hat{\beta}_m$ | t-stat | $R^2$ | Proportion Reject ($\beta_m = 0$) |
|---|---|---|---|---|
| 1 | -0.02 | -0.80 | 0.07 | 0.22 |
| 2 | -0.07 | -1.14 | 0.12 | 0.18 |
| 3 | -0.15 | -1.86 | 0.20 | 0.37 |
| 4 | -0.22 | -2.80 | 0.31 | 0.69 |
| 5 | -0.30 | -4.46[^] | 0.41 | 0.84[^] |

Notes: See Table 1.
[^] Hansen-Hodrick variance-covariance matrix is not positive-definite for one LGA when h=4, so average for t-statistics and the proportion of rejections omit this case.

*Table 8: Regressions of Rent Growth on Rent -Price Ratio for Melbourne Units*

| m (years) | $\hat{\beta}_m$ | t-stat | $R^2$ | Proportion Reject ($\beta_m = 0$) |
|---|---|---|---|---|
| 1 | -0.03 | -0.92 | 0.06 | 0.14 |
| 2 | -0.06 | -0.80 | 0.08 | 0.07 |
| 3 | -0.10 | -0.93 | 0.11 | 0.11 |
| 4 | -0.17 | -1.46 | 0.16 | 0.29 |
| 5 | -0.27 | -2.44 | 0.26 | 0.54 |

Notes: See Table 2. In calculating this table the total number of LGAs used is 28. Data on unit rents are unavailable for 3 LGASs.

*Table 9: Variance Decomposition for Rent-to-Price Ratio - Average for LGAs.*

| | Sydney | | Melbourne | |
|---|---|---|---|---|
| | Houses | Units | Houses | Units |
| Real Rents | -21 | -30 | -17 | -23 |
| Real Returns | 45 | 62 | 15 | 34 |
| **Total** | **66** | **93** | **32** | **57** |
| Real Rate | 15 | 15 | 15 | 16 |
| Excess Return | 30 | 48 | 0 | 18 |

Notes:

*Figure 1: Sydney and Melbourne Rent-Price Ratios*

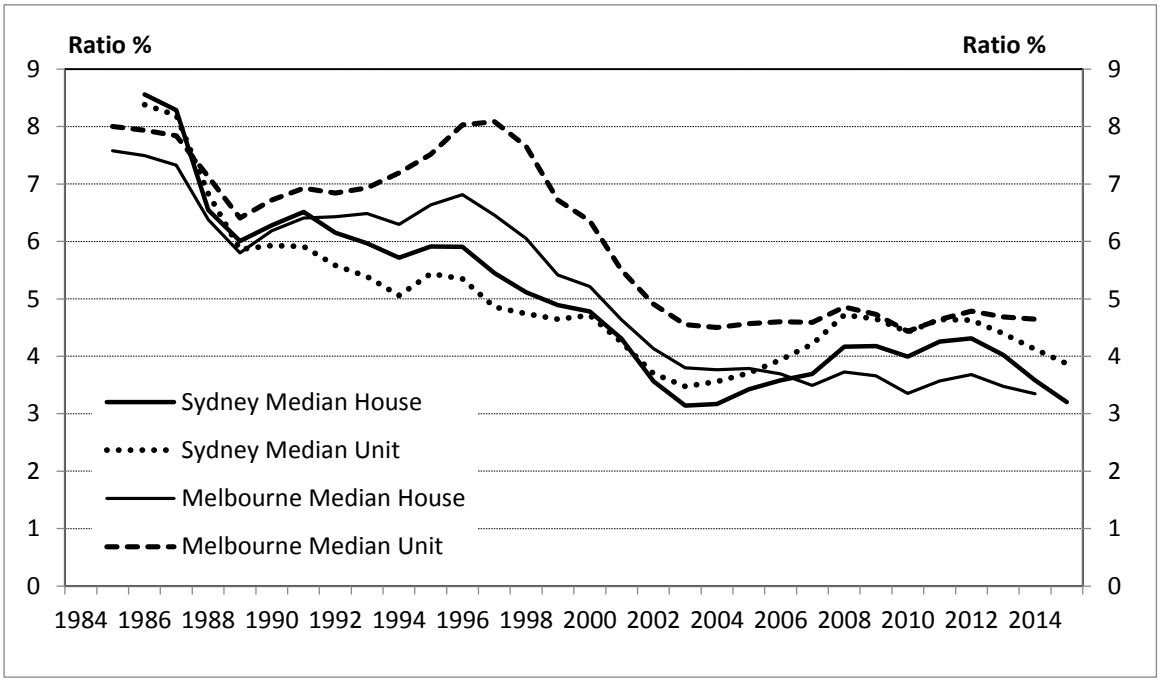



*Figure 2: Sydney-Melbourne Rent-Price Ratio vs. Real Interest Rate*

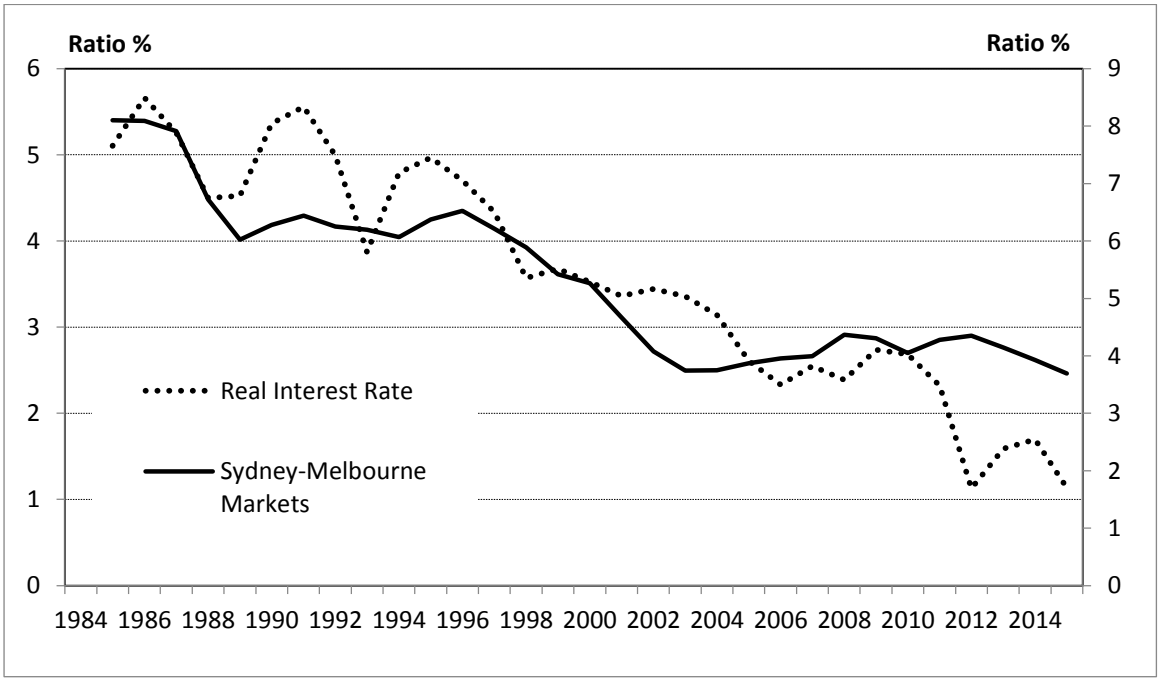


*Figure 3: House Rent-Price Ratios for LGAs by Zones in Sydney*

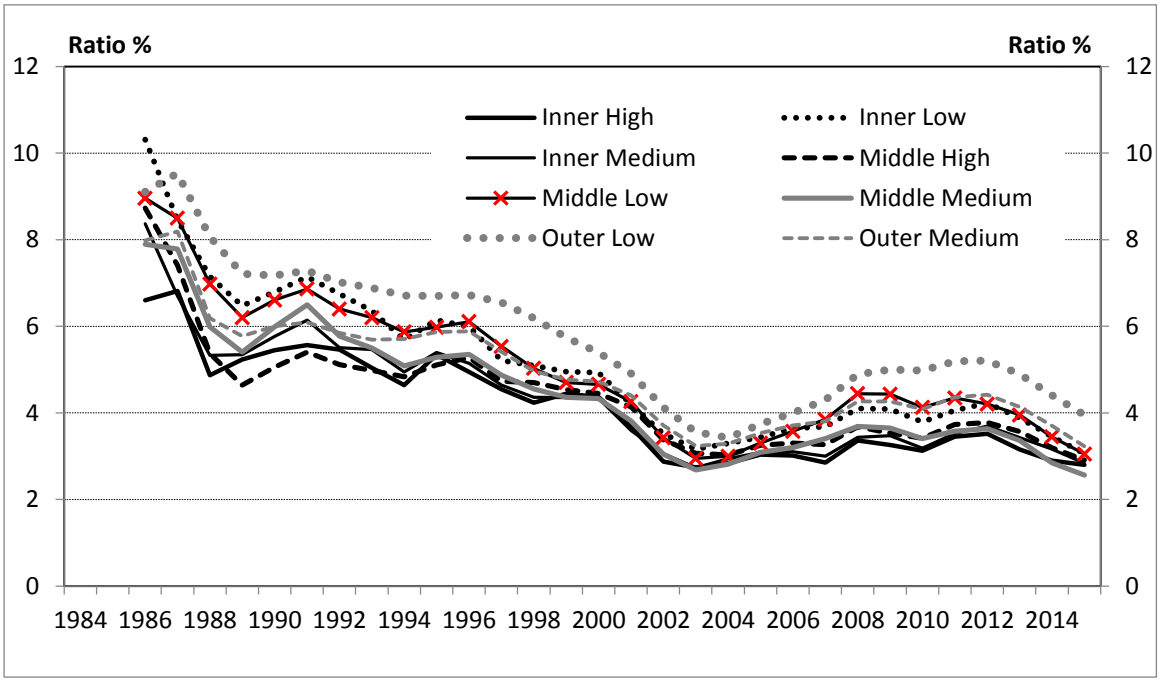



*Figure 4: Rent-Price Ratios for LGAs by Zones in Melbourne*

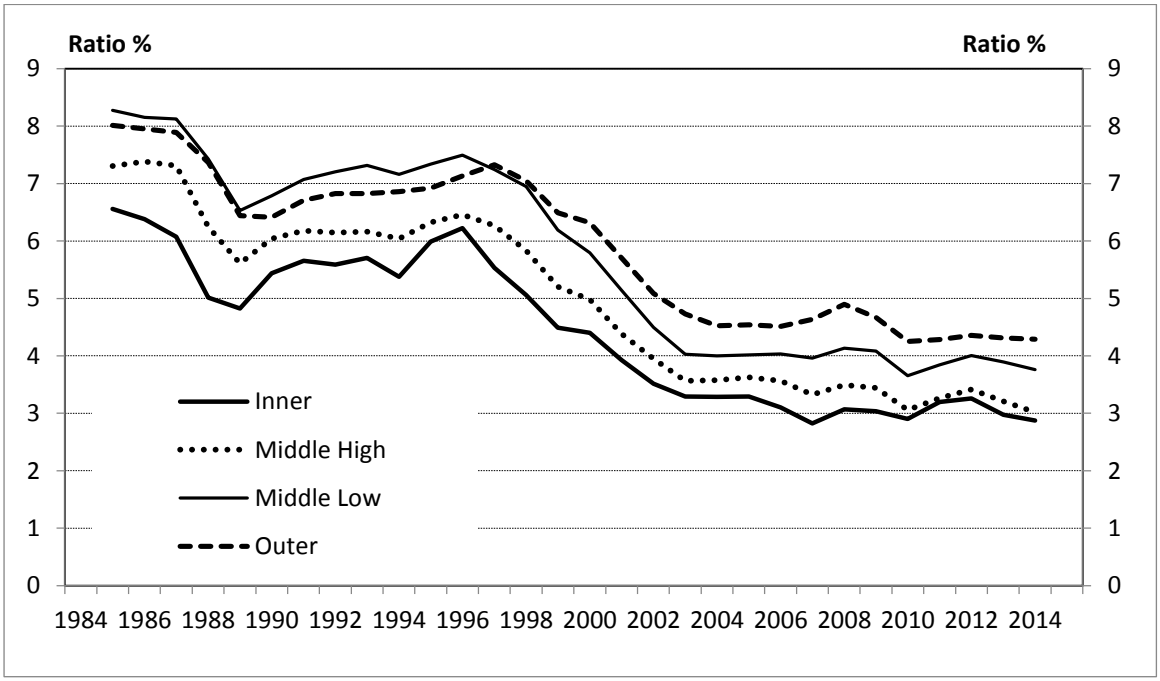


*Figure 5: Rent-price ratio vs Price growth for Houses in Sydney LGAs (1986-2015)*

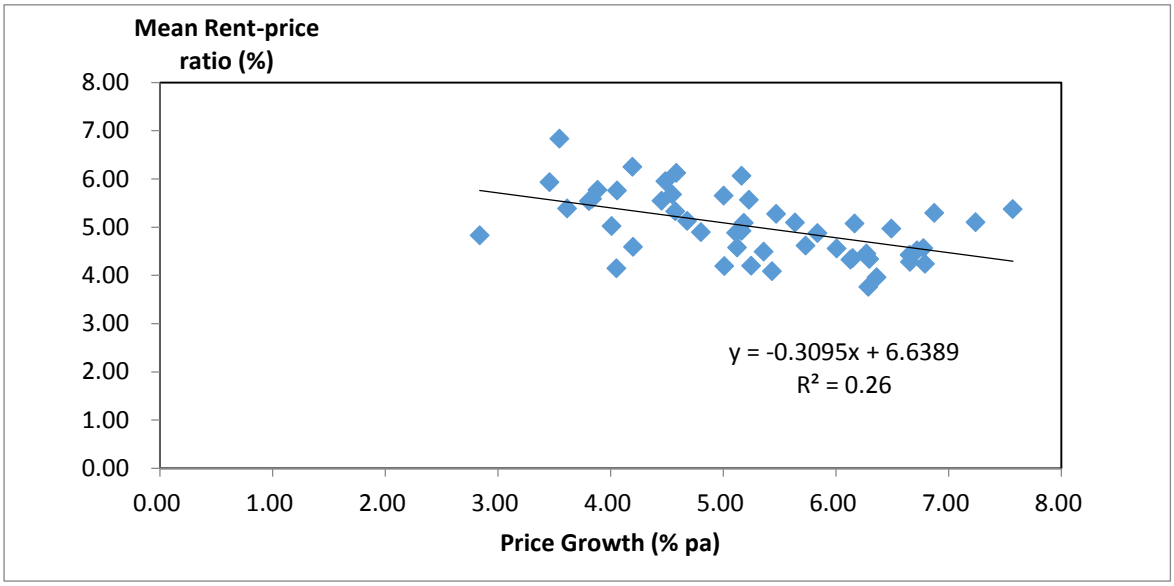



*Figure 5: Rent-price ratio vs Rent growth for Houses in Sydney LGAs (1986-2015)*

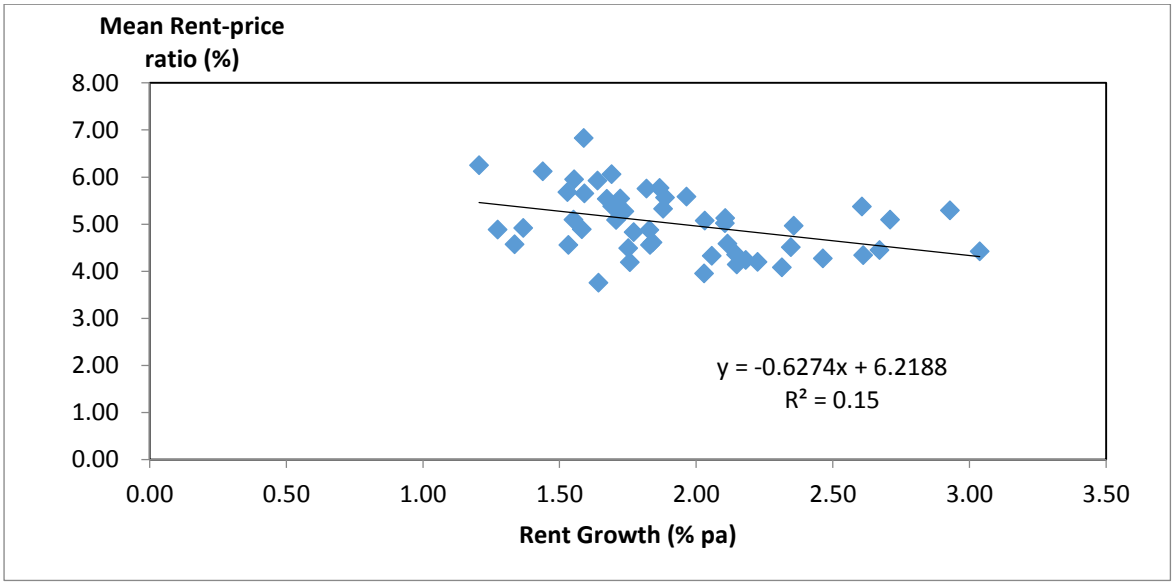


*Figure 6: Rent-price ratio vs Price growth for Houses in Melbourne LGAs (1985-2015)*

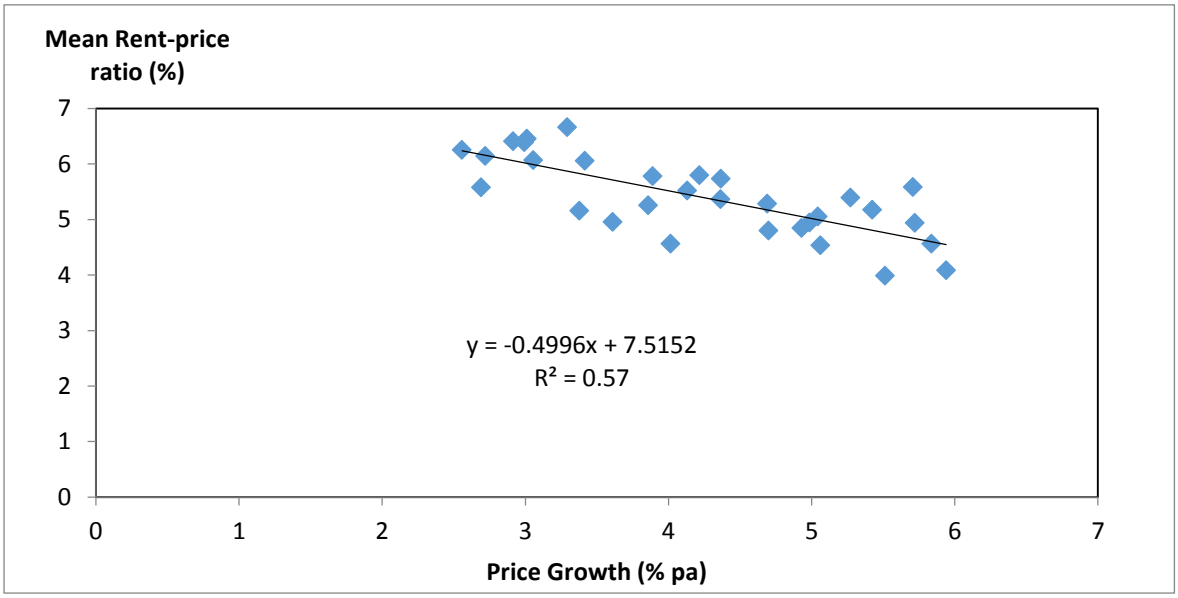



*Figure 7: Rent-price ratio vs Rent growth for Houses in Melbourne LGAs (1985-2015)*

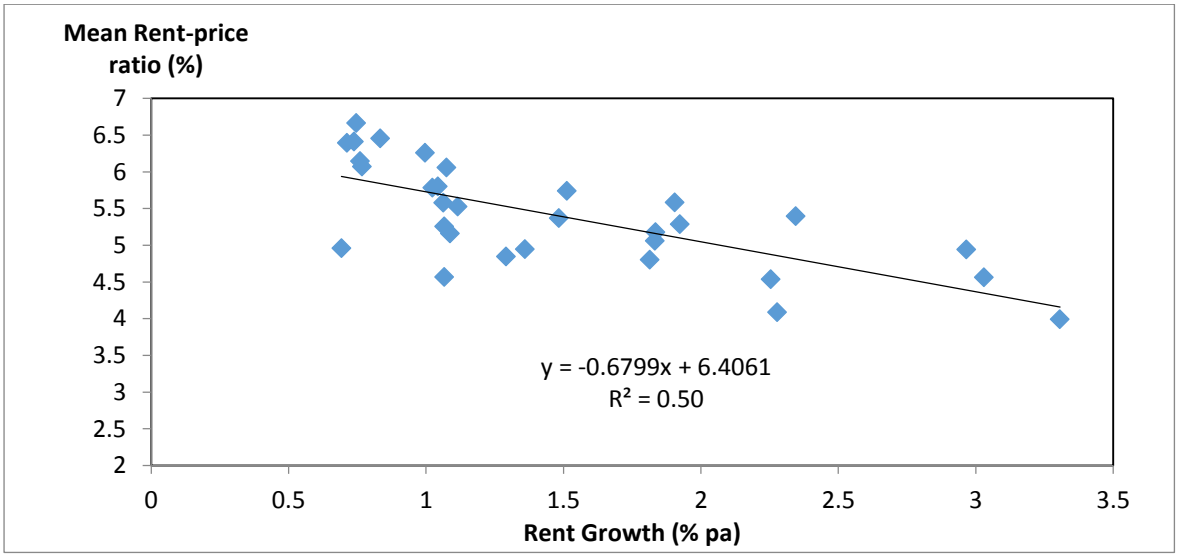


*Figure 8: Rent-Price Ratio as a Predictor of Future Returns for Sydney Houses*

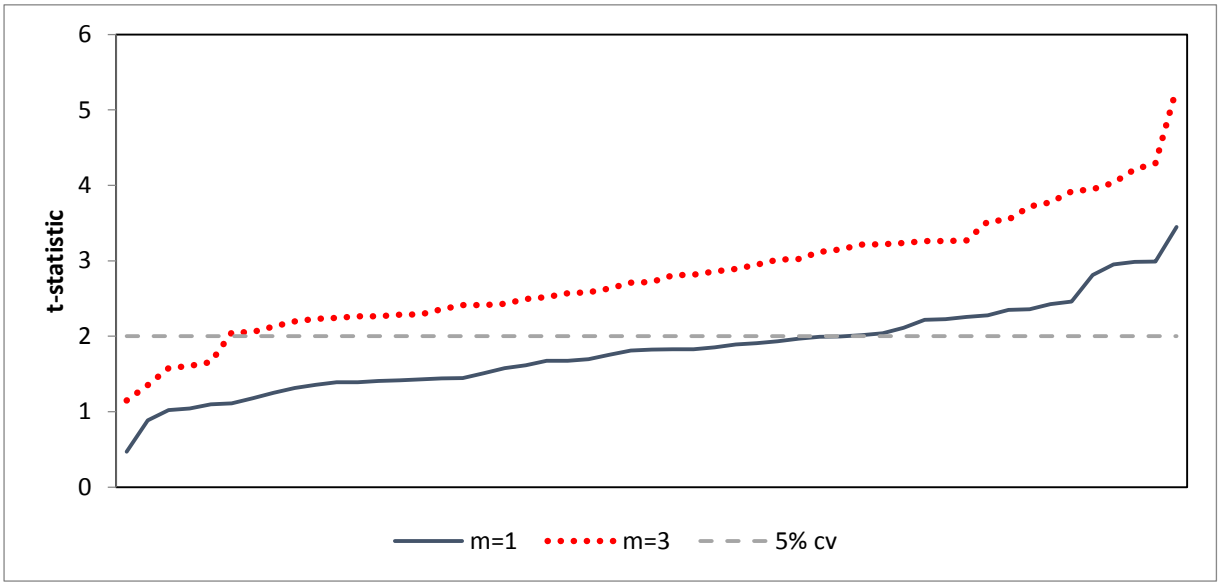



*Figure 9: Rent-Price Ratio as a Predictor of Future Returns for Melbourne Houses*

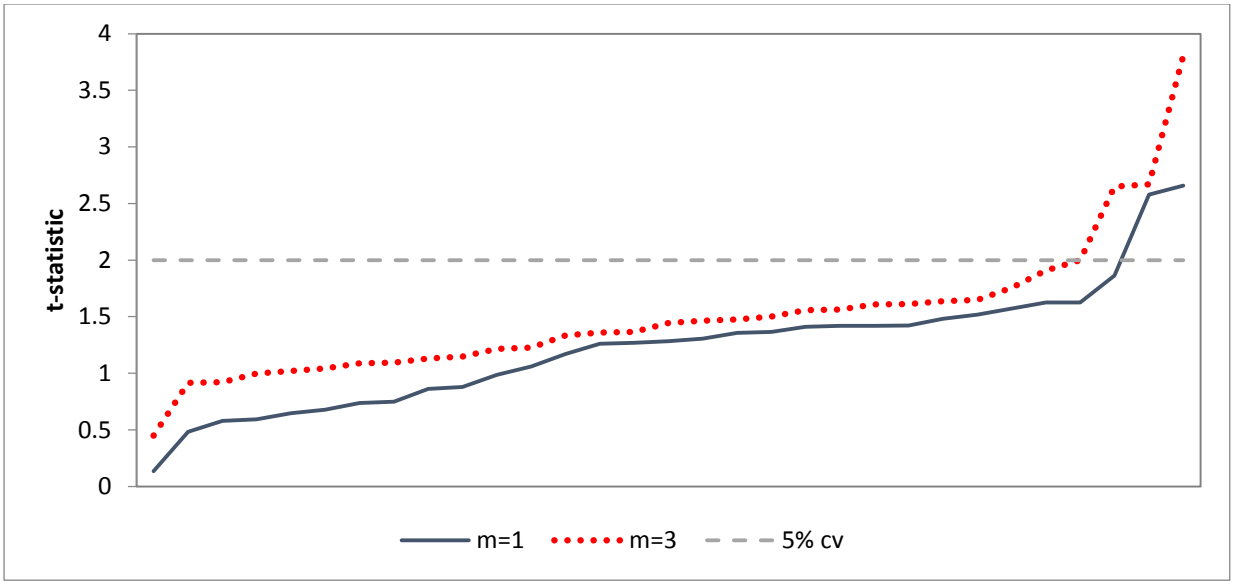


*Figure 10: Rent-Price Ratio as a Predictor of Future Returns for Sydney Units*

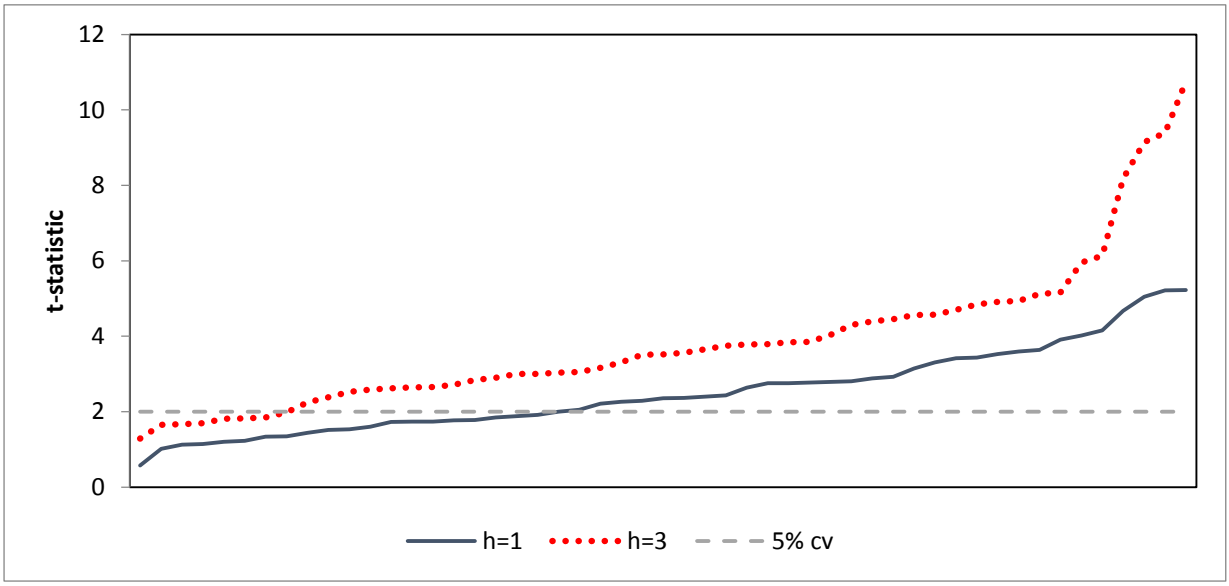



*Figure 11: Rent-Price Ratio as a Predictor of Future Returns for Melbourne Units*

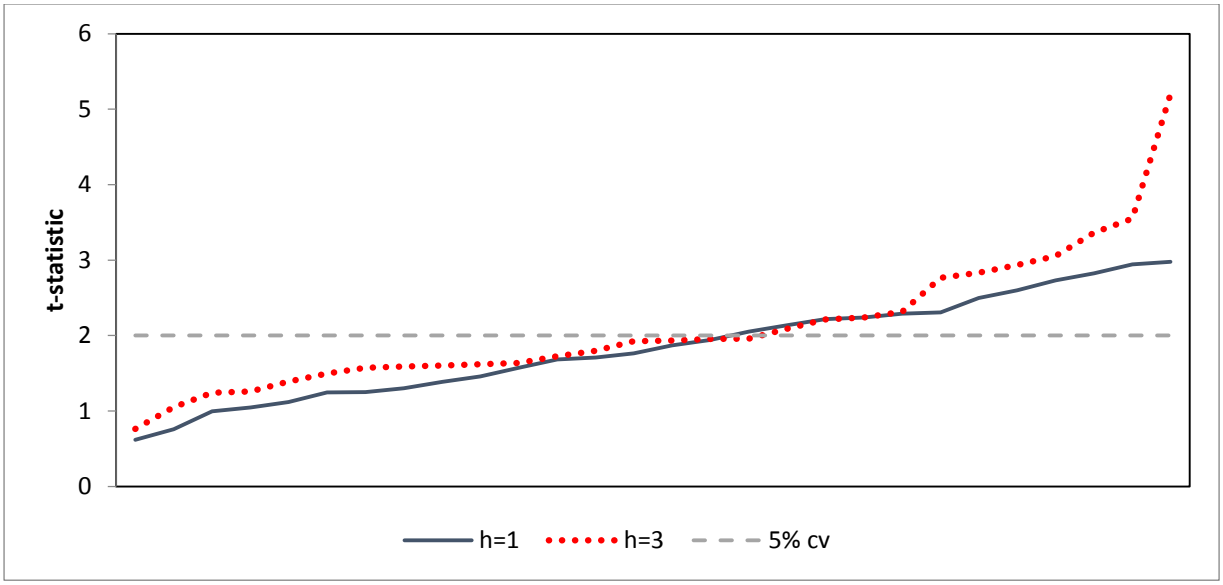


*Figure 12: Rent-Price Ratio as a Predictor of Future Rent Growth for Sydney Houses*

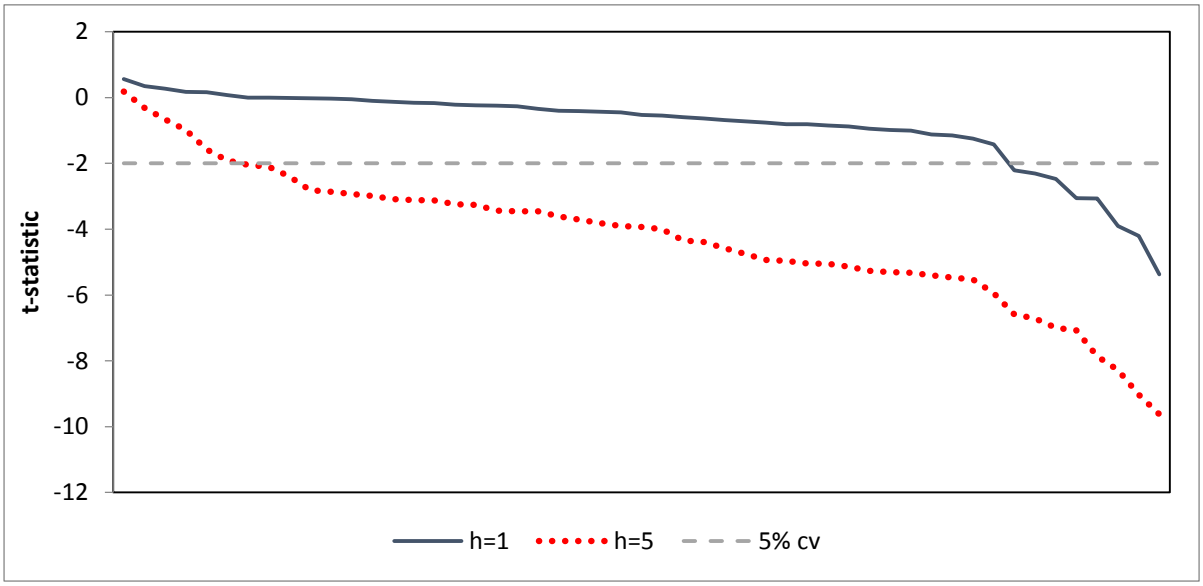



*Figure 13: Rent-Price Ratio as a Predictor of Future Rent Growth for Melbourne Houses*

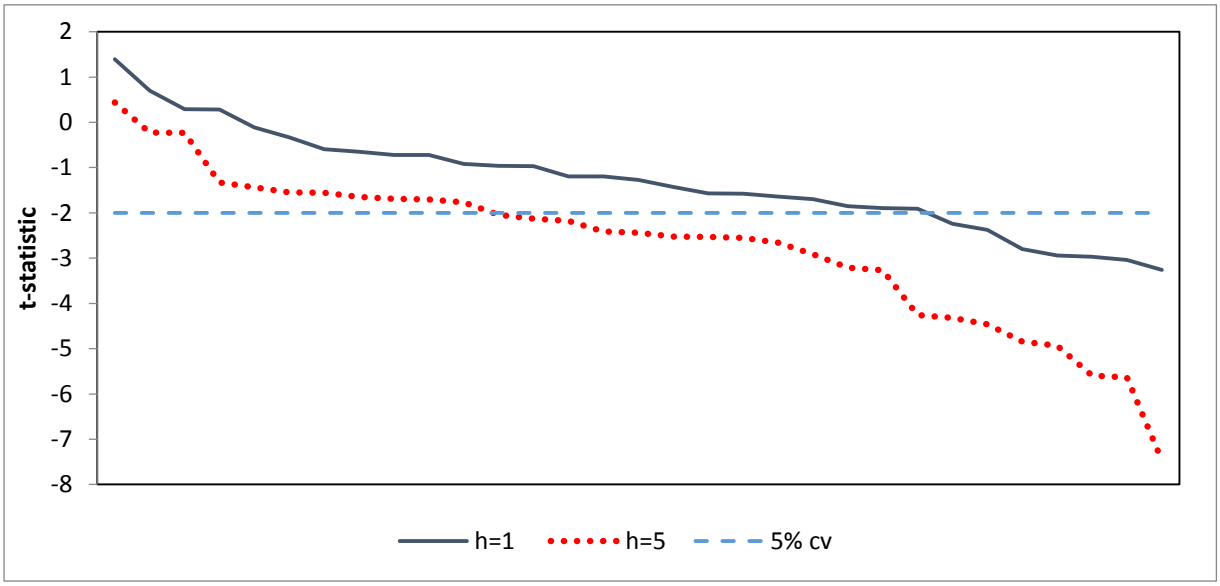


*Figure 14: Rent-Price Ratio as a Predictor of Future Rent Growth for Sydney Units*

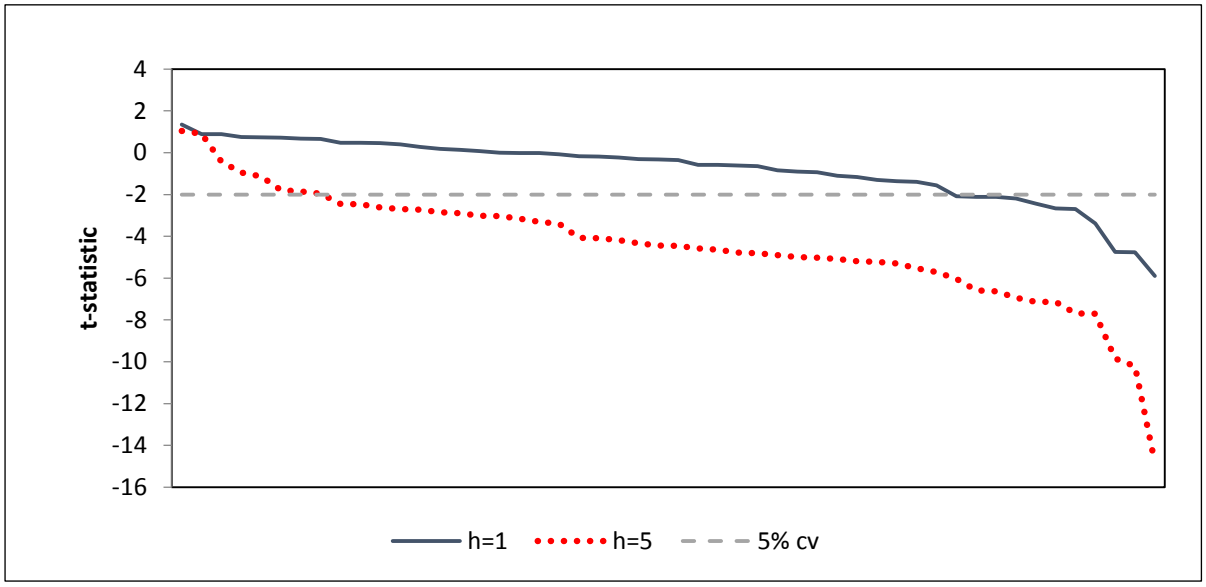



*Figure 15: Rent-Price Ratio as a Predictor of Future Rent Growth for Melbourne Units*

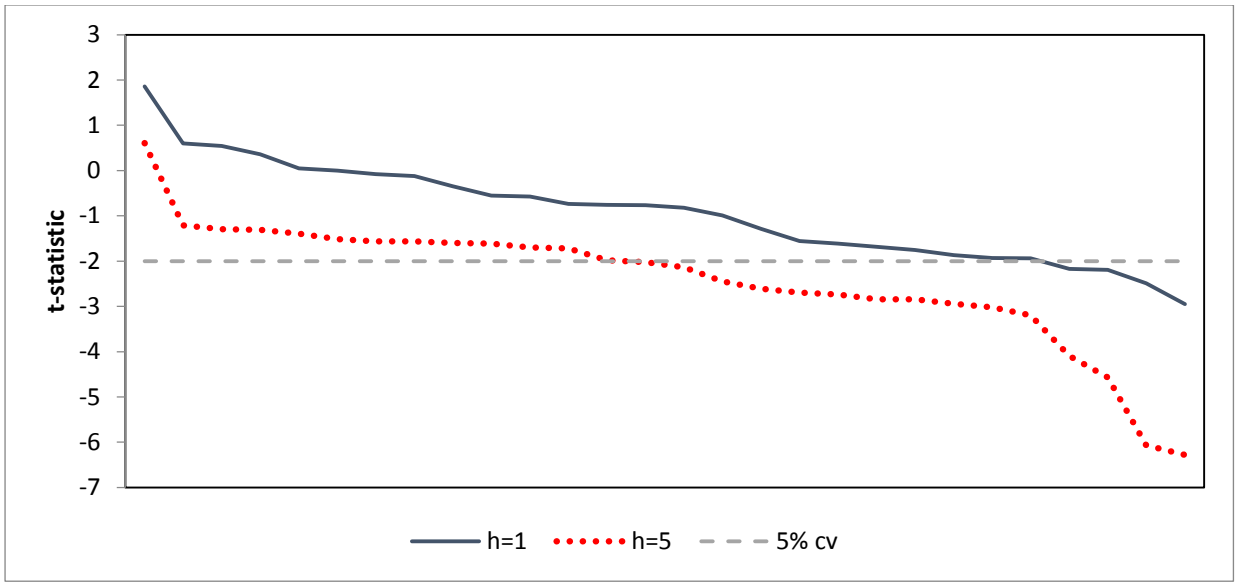


*Figure 16: Variance Decomposition for Rent-Price Ratio for Sydney Houses by LGAs*

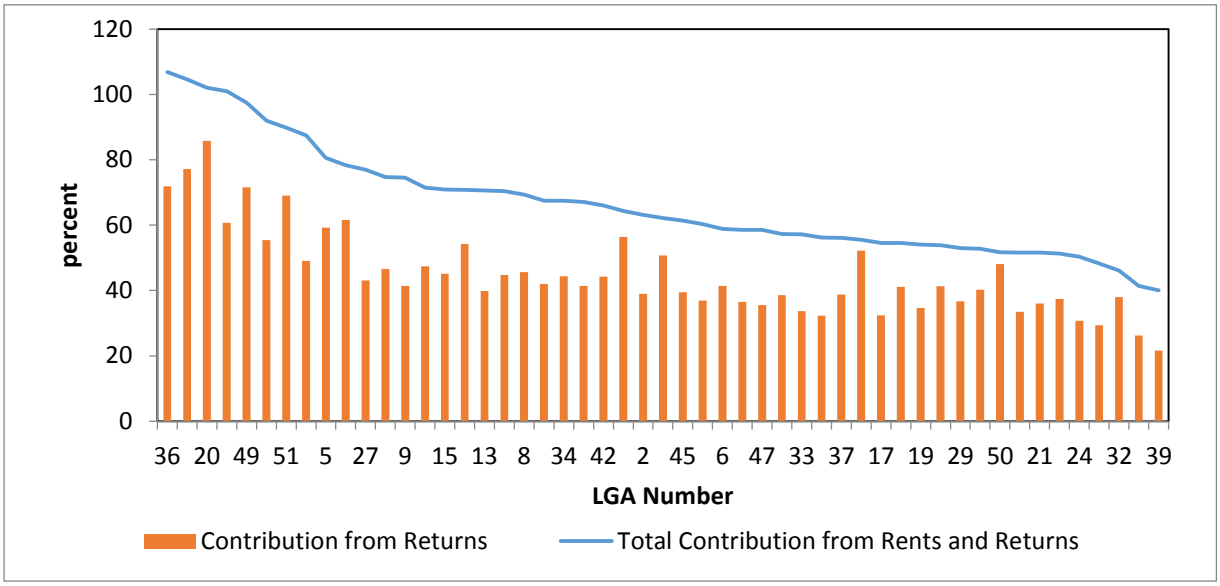



*Figure 17: Variance Decomposition for Rent-Price Ratio for Sydney Units by LGAs*

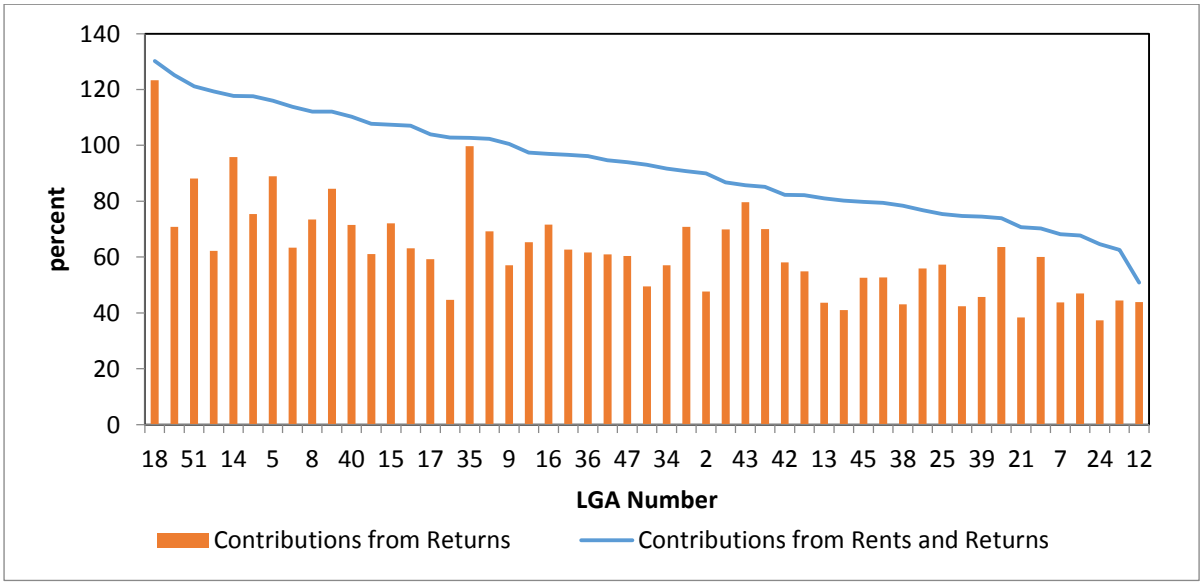


*Figure 18: Variance Decomposition for Rent-Price Ratio for Melbourne Houses by LGAs*

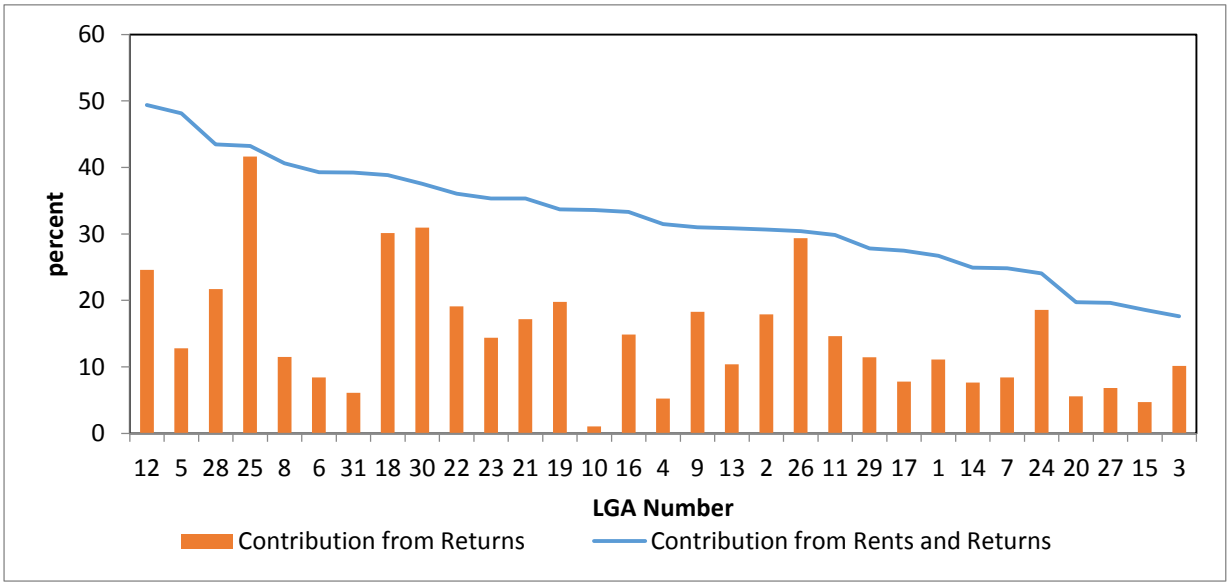
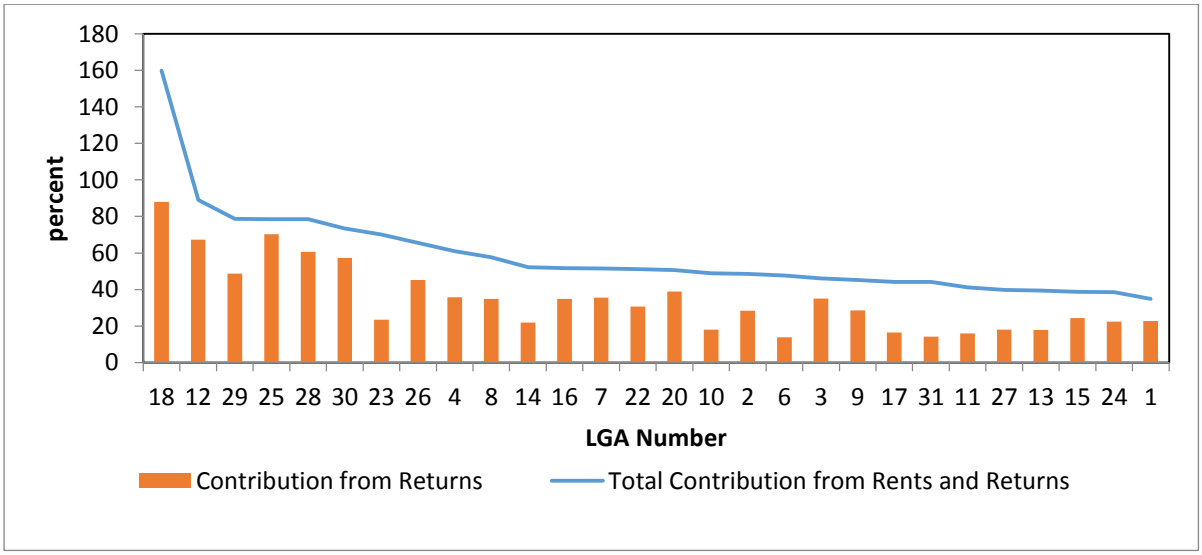



*Figure 19: Variance Decomposition for Rent-Price Ratio for Melbourne Units by LGAs*



## Appendix A: Data Construction and Sources

### *Sydney*

The Sydney house and unit price series from 1991-2014 is published in the NSW Land and Property Information (LPI) *Sales and Rent Report* and is based on all sales in the period. The series are specified in terms of strata and non-strata dwellings but strata dwellings are predominantly units and non-strata is closely aligned with detached and semi-detached houses, so they are regarded as close proxies for unit and house prices. The data is published quarterly and for both median and mean prices. For the period prior to 1991, we use the LGA series constructed by Abelson (1991) which was sourced from the same LPI series and starts in 1979.[5]

The Sydney rent series has been collated by the LPI from actual rents paid by tenants and recorded in rental agreements lodged with the Department as required by legislation.[6] For the period 1990-2014 the data for individual LGAs is available from the *Sales and Rent Report*. Estimates are disaggregated into rent series for 2 and 3 bedroom detached houses, and all detached houses, 1 and 2 bedroom units and all units, and estimates for all dwelling types by 1, 2, 3 and 4 plus bedrooms and all bedrooms. The all bedrooms detached houses and all units rent series are used for the housing and unit markets respectively. In some LGAs semi-detached houses are a significant part of the house market. However, the 2006 and 2011 Census estimates for rents allow observation of rents for both detached and semi-detached houses by LGA. This indicates that differences are not significant and that the detached house rent series is a suitable series for these LGAs.

For the period 1986-1990, the LPI *Rent Report* provides quarterly data on rents for 1, 2 and 3 bedroom dwellings for the Sydney metropolitan market aggregated into 12 regions. No distinction in these series was made between houses (detached vs semi-detached) or units. However, 1 bedroom dwellings are predominantly units and 3 bedroom dwellings are predominantly houses, so some variation in growth between units and houses can be captured. For these years, growth in rents in individual LGAs for that period has been imputed from the region within which those LGAs reside. This necessarily means less variation in the growth rate of LGA rents in this early period.

When the Sydney unit series is compared with Census estimates for 1991-2006, the ratio of the series to Census rents is pretty steady (see Table A1), confirming the level and movement

[5] The Department provided Peter Abelson with access to the then unpublished data from which he extracted a sample and collated into a median price series for each LGA. Peter Abelson provided us with a copy of his series.
[6] Landlord and Tenant (Amendment) Act (1948)

of the rent series in this period. Given the source of this data is all rents this consistency should be expected.

*Melbourne*

The Melbourne house and unit price series start in 1970 and are collated by the Victorian Valuer-General's Office (VG) as median and mean series in its *A Guide to Property Values*. The series are based on all sales in the calendar year. In 1994, the then 79 LGAs in Melbourne were merged into 31 LGAs and the VG re-cast the sales series back to 1985 on the new boundaries.

In the case of Melbourne, the Victorian Department of Human Services (DHS) has collected similar rental data to that for Sydney based on rental agreements from 1999, with estimates disaggregated into median rents for 2, 3 and 4 bedroom houses (detached and semi-detached) and 1, 2, and 3 bedroom units. A series is not published for all houses and all units. Using the 2006 Census estimates of houses and units by number of bedrooms as weights, we constructed a weighted median rents series. These bedroom sizes account for most houses and units but for 0, 1 and 5+ bedroom houses, we use the 2006 Census ratio of rents for these sizes against 2 and 4 bedroom rents respectively, while for 0 and 4 bedroom units, the ratio against 1 and 2 bed units is used.

For the period 1985-1998, the DHS collected rent data based on asking rents advertised in the major metropolitan and local area newspapers. Asking rents were collated for 2 and 3 bedroom houses and 1, 2 bedroom units at LGA level for 1986-1994, and then by suburb for 1995-1998. These historical series for the then 79 LGAs and suburbs have been aggregated into estimates for the 31 post-1994 LGAs for the period 1986-1999. Asking rents are not actual rents but, as agents set asking rents with a reasonable idea as to the prevailing market, they are expected to be a good approximation. Census rent data allows some verification of the data. However, the Census data is collected in broad rent ranges and prior to 2006 the published rent data was an aggregation of all types (public and private, units and houses), so the Census only provides indicative guidance. For Melbourne units, we observe that the rent series is above the Census estimates for 1991-1996-2001 censuses by a similar margin. Since the post-1999 (and hence 2001) data is actual rents, and since the Census and series indicate a similar movement in the period 1991-2001, it provides some indication that the level of asking rents in 1991 and 1996 is close to the mark.[7]

[7] For the 1991, 1996 and 2001 Census years, the ABS published estimates of rents by LGA for all types in aggregate. That is, no distinction is made between private and (subsidised) public rents and between houses and units. Hence, it is not possible to use the Census to give an accurate benchmark. In the 1971 and earlier Censuses,

*Rents versus Prices*

When matching rents against prices, the price series are for the aggregate of tenanted and owner-occupied dwellings. A priori, we expect that owner-occupied dwellings are of a higher quality than tenanted dwellings, so that actual rents will understate equivalent rents on owner-occupied dwellings and, it follows, actual rents against prices will understate rent–price ratios. However, quantifying the quality difference is problematic. One measure we do have is the number of bedrooms which is available by dwelling type and by ownership in the Census data for 2006 and 2011.[8] In Table A2 the data for 2011 is illustrated. It shows that for Sydney and Melbourne, owner-occupied houses on average had 16.8% and 16.1% respectively more bedrooms than rented houses, while units had 14.1% and 19.4% more bedrooms. This is evidence of a(n expected) quality difference, but the Census data also shows that rents rise less than proportionately to the increase in number of bedrooms. Constructing a rent series based on number of bedrooms, imputed owner-occupied rents for houses in Sydney and Melbourne are 6.9% and 5.1% higher than actual rents and for units are 6.6% and 5.1% higher. The aggregate for owner-occupied and rented dwellings becomes a difference of 5.7% and 4.2% for houses and 2.8% and 2.6% for units. On this measure of quality, this indicates that actual rents understate rents for the aggregate market but not by a degree that suggests the movement in rents and rent-price ratios is not a good indicator of the market.

*Gross versus Net Rents*

The rent series for Sydney and Melbourne are for gross rents. Ideally, in constructing rent-price ratios and returns, we would use net rents, or gross rents less non-interest expenses. Detailed data on expenses (depreciation, maintenance, insurance and rates and taxes) are not available for houses and units at LGA level. There is some data on rates and taxes for dwellings in LGAs but no split by houses verses units and, in the Australian context, local government rates and taxes is a relatively small component of expenses.

Australian Tax Office data on the rental incomes reported by landlords indicates that expenses are a significant share of gross rents. For the 21 year period 1992/93-2012/13, expenses reported averaged 47.4% of gross rental income, with minimal variation (standard deviation of 1.4%).[9] Estimates for NSW and Victoria for 2012/13 show ratios of 44.4% and

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more disaggregated data was published on the rents (by structure and ownership) while the 2006 and 2011 Censuses allow very detailed analysis.

[8] For the 1971 and 2001 Census years, the ABS published number of bedrooms by structure but not by ownership.

[9] Australian taxation statistics 2012–13 Table 1: Individuals Selected items, for income years 1978–79 to 2012–13

44.5%.[10] Expenses include maintenance, local government rates and taxes and depreciation. It will include land tax which is not an expense for owner-occupiers but which is a relatively small expense for investors. It will also implicitly include the cost of a rented property being vacant (reflected in lower rental income) which again is not an expense for owner-occupiers. And the literature also suggests that owner-occupied dwellings are generally better maintained so that depreciation and maintenance costs would be lower. However, if owner-occupiers are 'better tenants', that could also be reflected in lower rents.

In aggregate, if we assume the expense ratio applies to the market, it tells us that net rental returns are lower than the gross rental returns. We might expect that between low and high priced LGAs and between units and houses there is some variation in the expense ratios but at this juncture the data required to verify any variation is not available.

### *Data Sources*

#### *Melbourne Dwelling Rents*

A quarterly Rental Report was published from June quarter 1988 by the then Department of Planning and Housing. Overlapping the quarterly reports is the "Annual rental report: a statistical summary of Melbourne's private rental market by municipality (LGA)" which was published from 1986/87-1993/94. Copies of earlier reports of rent prior to 1999 are not available on the website but are housed in the State Library of Victoria. Name changes mean the department is now (in 2016) part of the Victorian Department of Human Services (DHS) http://www.dhs.vic.gov.au/about-the-department/documents-and-resources/research,-data-and-statistics

#### *Melbourne Dwelling Prices*

The Valuer-General's Office (VG) has collated detailed property sales data by local government areas (LGA) and published it in annual 'A Guide to Property Values' since 1972. With the merger of LGAs in 1994, the VG recast the series for house, unit and land prices on the new LGA boundaries back to 1985 and it is these series (available in excel spreadsheet) that have been used. Name changes mean the department is now (in 2016) part of Victorian Department of Environment, Land, Water and Planning (DELWP but the web address reflects a previous name.

http://www.dtpli.vic.gov.au/property-and-land-titles/property-information/property-prices

#### *Sydney Dwelling Rents and Prices*

[10] Australian taxation statistics 2012–13 Table 4: Individuals Selected items, by taxable income, state/territory, gender and taxable status, for 2012/13 income year

Land and Property Information (LPI) in the then Department of Housing published a quarterly report 'Rent report: private rental market trends in NSW' from June quarter 1987-June quarter 1997. Land and Property Information (LPI) then published a quarterly 'Rent and Sales Report' from September quarter 1997. The paper reports contain rental data back to 1986. From 1990 (1991 for sale prices), the data is available in excel spreadsheets. LPI is now part of NSW Department of Family and Community Services (DFCS). Abelson (1992) used data provided by the LPI to construct his annual LGA price series from 1979. There is also an ABS series for LGA house prices for fiscal year 1976/77 published in the Abelson (1991) paper, again sourced from data held by LPI.

http://www.housing.nsw.gov.au/about-us/reports-plans-and-papers/rent-and-sales-reports

*Table A1: Comparative Statistics on the Rental Series*

| | Sydney Houses vs Census | | | | Sydney House vs REIA Series 1986-2013 2012/13 prices | |
|---|---|---|---|---|---|---|
| | 1991 | 1996 | 2001 | 2006 | REIA Mean (86-13) | 344.7 |
| Census Estimate | 192.2 | 225.1 | 301.9 | 341.0 | Series Mean (86-13) | 448.7 |
| Series Estimate | 223.7 | 257.2 | 324.1 | 377.2 | Correlation Co-efficient | 0.579 |
| Ratio | 1.16 | 1.14 | 1.07 | 1.11 | Ratio Series/REIA | 1.30 |
| | Sydney Units vs Census | | | | Sydney Units vs REIA Series 1988-2013 2012/13 prices | |
| | 1991 | 1996 | 2001 | 2006 | REIA Mean | 349.7 |
| Census Estimate | 145.6 | 170.4 | 228.5 | 263.0 | Series Mean | 368.3 |
| Series Estimate | 172.2 | 206.1 | 272.1 | 311.7 | Correlation Co-efficient | 0.997 |
| Ratio | 1.18 | 1.21 | 1.19 | 1.19 | Ratio Series/REIA | 1.05 |
| | Melbourne Houses vs Census | | | | Melbourne Houses vs REIA Series 1985-2013 2012/13 prices | |
| Rent per week $ nominal | 1991 | 1996 | 2001 | 2006 | REIA Mean (85-13) | 281.8 |
| Census Estimate | 145.5 | 162.3 | 216.5 | 258.5 | Series Mean (85-13) | 326.9 |
| Series Estimate | 166.5 | 186.5 | 239.1 | 289.9 | Correlation Co-efficient | 0.899 |
| Ratio | 1.14 | 1.15 | 1.10 | 1.12 | Ratio Series/REIA | 1.16 |
| | Melbourne Units vs Census | | | | Melbourne Units vs REIA Series 1988-2013 2012/13 prices | |
| Rent per week $ nominal | 1991 | 1996 | 2001 | 2006 | REIA Mean 1988-2013 | 263.1 |
| | 117.8 | 131.2 | 174.6 | 208.5 | Series Mean 1988-2013 | 289.2 |
| Series Estimate | 139.0 | 159.6 | 203.6 | 245.6 | Correlation Co-efficient | 0.995 |
| Ratio | 1.18 | 1.22 | 1.16 | 1.18 | Ratio Series/REIA | 1.10 |

*Table A2: 2011 Census Data for Rents and Bedrooms for Sydney and Melbourne LGAs*

| | Houses | | Units | |
|---|---|---|---|---|
| | Sydney (average) | | | |
| | Bedrooms (no.) | Rents ($ pw) | Bedrooms (no.) | Rents ($ pw) |
| Rented | 2.95 | 442 | 1.84 | 439 |
| Owner-occupied | 3.44 | 472 | 2.10 | 467 |
| All | 3.34 | 467 | | 451 |
| | Melbourne (average) | | | |
| Rented | 2.86 | 368 | 1.79 | 348 |
| Owner-occupied | 3.32 | 386 | 2.13 | 369 |
| All | 3.22 | 383 | 1.91 | 357 |

## Appendix B: Housing Market Summary Statistics for LGAs in Sydney and Melbourne

*Table B1: Sydney House Market 1986-2015*

| $s 2012/13 prices; Growth rate per annum (%) | Median House Price $'000 | | Median Rent Per Week | | House Rent-Price Ratio (%) | | | | Gross return (%) |
|---|---|---|---|---|---|---|---|---|---|
| LGA/Zone | Mean 86-15 | Mean Growth Rate | Mean 86-15 | Mean Growth Rate | Mean 86-15 | 1986 | 2015 | Δ86 – 15 | Mean 86-15 |
| Mosman | 1,697 | 5.44 | 1,200 | 2.31 | 3.68 | 6.43 | 2.69 | -3.74 | 9.11 |
| Woollahra | 1,534 | 5.25 | 1,079 | 2.23 | 3.66 | 6.71 | 2.88 | -3.83 | 8.91 |
| Inner High | 1,594 | 5.33 | 1,124 | 2.26 | 3.67 | 6.60 | 2.80 | -3.80 | 8.99 |
| Ashfield | 655 | 6.72 | 494 | 2.35 | 3.92 | 8.74 | 2.60 | -6.15 | 10.64 |
| Botany Bay | 611 | 6.49 | 516 | 2.36 | 4.40 | 9.81 | 3.11 | -6.70 | 10.89 |
| Leichhardt | 678 | 7.24 | 570 | 2.71 | 4.37 | 10.8 | 3.10 | -7.74 | 11.62 |
| Marrickville | 550 | 6.88 | 484 | 2.93 | 4.57 | 9.54 | 3.21 | -6.34 | 11.45 |
| Sydney | 626 | 7.57 | 547 | 2.61 | 4.54 | 12.2 | 3.10 | -9.11 | 12.12 |
| Inner Low | 621 | 7.05 | 526 | 2.66 | 4.40 | 10.3 | 3.06 | -7.25 | 11.46 |
| Lane Cove | 1,007 | 6.15 | 744 | 2.15 | 3.84 | 8.03 | 2.63 | -5.40 | 9.99 |
| North Sydney | 1,067 | 6.79 | 767 | 2.18 | 3.74 | 9.52 | 2.65 | -6.87 | 10.53 |
| Randwick | 894 | 6.30 | 655 | 2.61 | 3.81 | 8.13 | 2.92 | -5.21 | 10.10 |
| Waverley | 1,103 | 6.66 | 811 | 3.04 | 3.82 | 8.16 | 3.00 | -5.16 | 10.48 |
| Inner Medium | 985 | 6.44 | 720 | 2.55 | 3.80 | 8.36 | 2.84 | -5.53 | 10.25 |
| Hunters Hill | 1,140 | 6.36 | 770 | 2.03 | 3.51 | 9.91 | 2.97 | -6.94 | 9.87 |
| Ku-ring-gai | 971 | 5.13 | 789 | 1.34 | 4.22 | 8.76 | 3.02 | -5.74 | 9.35 |
| Manly | 1,071 | 6.27 | 819 | 2.67 | 3.98 | 8.79 | 3.24 | -5.56 | 10.25 |
| Strathfield | 843 | 6.29 | 515 | 1.64 | 3.17 | 7.58 | 2.07 | -5.51 | 9.46 |
| Willoughby | 980 | 6.13 | 731 | 2.06 | 3.88 | 8.79 | 2.83 | -5.97 | 10.01 |
| Middle High | 981 | 5.65 | 751 | 1.72 | 3.98 | 8.73 | 2.91 | -5.82 | 9.63 |
| Auburn | 439 | 6.17 | 368 | 2.03 | 4.36 | 9.30 | 2.94 | -6.36 | 10.53 |
| Bankstown | 427 | 5.18 | 378 | 1.71 | 4.60 | 8.76 | 3.30 | -5.45 | 9.78 |
| Canterbury | 493 | 5.84 | 410 | 1.83 | 4.33 | 8.91 | 2.91 | -6.00 | 10.17 |
| Parramatta | 442 | 5.64 | 383 | 1.55 | 4.50 | 9.16 | 2.92 | -6.24 | 10.14 |
| Middle Low | 448 | 5.57 | 386 | 1.72 | 4.48 | 8.96 | 3.05 | -5.91 | 10.05 |
| Burwood | 663 | 6.78 | 491 | 1.83 | 3.85 | 9.29 | 2.35 | -6.94 | 10.63 |
| Canada Bay | 760 | 6.66 | 537 | 2.46 | 3.68 | 7.98 | 2.49 | -5.49 | 10.33 |
| Hurstville | 568 | 5.36 | 440 | 1.75 | 4.03 | 7.55 | 2.75 | -4.80 | 9.39 |
| Kogarah | 687 | 5.01 | 489 | 1.76 | 3.70 | 6.42 | 2.58 | -3.84 | 8.71 |
| Rockdale | 567 | 5.73 | 447 | 1.84 | 4.09 | 8.18 | 2.76 | -5.43 | 9.83 |
| Ryde | 656 | 6.01 | 500 | 1.53 | 3.96 | 8.47 | 2.42 | -6.04 | 9.97 |
| Middle Medium | 642 | 5.87 | 481 | 1.84 | 3.90 | 7.90 | 2.56 | -5.33 | 9.77 |
| Blacktown | 323 | 5.16 | 337 | 1.69 | 5.43 | 10.1 | 3.82 | -6.29 | 10.59 |
| Blue Mountains | 318 | 4.45 | 310 | 1.72 | 5.07 | 9.30 | 4.31 | -4.98 | 9.53 |
| Camden | 362 | 4.49 | 374 | 1.55 | 5.38 | 9.43 | 4.13 | -5.30 | 9.87 |
| Campbelltown | 287 | 4.20 | 318 | 1.21 | 5.75 | 9.65 | 4.15 | -5.50 | 9.95 |
| Fairfield | 344 | 5.01 | 336 | 1.59 | 5.08 | 9.07 | 3.48 | -5.59 | 10.08 |
| Gosford | 357 | 4.58 | 336 | 1.88 | 4.89 | 8.66 | 4.06 | -4.60 | 9.46 |
| Hawkesbury | 346 | 4.55 | 340 | 1.53 | 5.12 | 9.54 | 4.08 | -5.46 | 9.67 |
| Holroyd | 392 | 5.47 | 357 | 1.74 | 4.73 | 9.31 | 3.28 | -6.04 | 10.20 |
| Liverpool | 363 | 3.89 | 363 | 1.87 | 5.20 | 6.89 | 3.90 | -2.99 | 9.08 |
| Penrith | 311 | 4.58 | 333 | 1.44 | 5.58 | 9.67 | 3.99 | -5.68 | 10.16 |
| Wollondilly | 339 | 5.23 | 322 | 1.89 | 4.94 | 10.4 | 4.10 | -6.35 | 10.17 |
| Wyong | 284 | 4.06 | 292 | 1.82 | 5.35 | 8.89 | 4.73 | -4.16 | 9.41 |
| Outer Low | 330 | 4.62 | 332 | 1.65 | 5.24 | 9.10 | 3.95 | -5.15 | 9.87 |
| The Hills Shire | 582 | 5.17 | 506 | 1.37 | 4.53 | 8.36 | 2.88 | -5.48 | 9.69 |
| Hornsby | 606 | 5.11 | 520 | 1.27 | 4.46 | 8.63 | 2.93 | -5.70 | 9.57 |
| Pittwater | 812 | 4.20 | 664 | 2.11 | 4.26 | 6.30 | 3.51 | -2.80 | 8.46 |
| Sutherland | 585 | 4.80 | 504 | 1.58 | 4.48 | 8.35 | 3.38 | -4.98 | 9.28 |
| Warringah | 727 | 4.68 | 655 | 2.11 | 4.68 | 7.44 | 3.61 | -3.83 | 9.37 |
| Outer Medium | 632 | 4.86 | 547 | 1.63 | 4.50 | 7.98 | 3.23 | -4.76 | 9.36 |
| ALL Sydney LGAs | 536 | 5.34 | 460 | 1.83 | 4.46 | 8.56 | 3.21 | -5.35 | 9.80 |
| High | 1,697 | 7.57 | 1,200 | 3.04 | 5.75 | 12.2 | 4.73 | -9.11 | 12.12 |
| Low | 284 | 3.89 | 292 | 1.21 | 3.17 | 6.43 | 2.42 | -2.80 | 8.46 |
| Standard Deviation | 329 | 0.94 | 207 | 0.45 | 0.62 | 1.20 | 0.61 | 1.19 | 0.73 |

*Table B1 (continued): Sydney House Market 1986-2015*

| $s 2012/13 prices; Growth rate per annum (%) | Median House Price $'000 | | Median Rent Per Week | | House Rent-Price Ratio (%) | | | | Gross return (%) |
|---|---|---|---|---|---|---|---|---|---|
| LGA/Zone | Mean 86-15 | Mean Growth Rate | Mean 86-15 | Mean Growth Rate | Mean 86-15 | 1986 | 2015 | Δ86 – 15 | Mean 86-15 |
| Cessnock | 206.0 | 3.55 | 234 | 1.65 | 5.92 | 8.91 | 5.41 | -3.50 | 9.46 |
| Kiama | 472.5 | 4.05 | 341 | 2.15 | 3.75 | 5.78 | 3.63 | -2.15 | 7.81 |
| Lake Macquarie | 315.7 | 3.62 | 300 | 1.69 | 4.94 | 7.42 | 4.56 | -2.87 | 8.56 |
| Maitland | 274.6 | 3.46 | 284 | 1.64 | 5.38 | 8.29 | 4.86 | -3.42 | 8.84 |
| Newcastle | 309.1 | 3.81 | 301 | 1.67 | 5.06 | 7.63 | 4.42 | -3.21 | 8.87 |
| Port Stephens | 328.8 | 2.84 | 282 | 1.77 | 4.45 | 6.20 | 4.61 | -1.60 | 7.29 |
| Shellharbour | 324.5 | 3.84 | 320 | 1.97 | 5.13 | 7.45 | 4.88 | -2.57 | 8.96 |
| Wollongong | 371.8 | 4.01 | 328 | 2.11 | 4.59 | 6.89 | 4.34 | -2.56 | 8.60 |
| Near Sydney LGAs | 322.5 | 3.71 | 302 | 1.82 | 4.87 | 7.29 | 4.52 | -2.77 | 8.58 |

*Table B2: Sydney Unit Market 1986-2015*

| $s 2012/13 prices; Growth rate per annum (%) | Median Unit Price $'000 | | Median Rent Per Week | | Unit Rent-Price Ratio (%) | | | | Gross return (%) |
|---|---|---|---|---|---|---|---|---|---|
| LGA/Zone | Mean 86-15 | Mean Growth Rate | Mean 86-15 | Mean Growth Rate | | Mean 86-15 | Mean Growth Rate | Mean 86-15 | Mean Growth Rate |
| Mosman | 525 | 4.79 | 448 | 1.85 | 4.71 | 8.86 | 3.89 | -4.97 | 9.50 |
| Woollahra | 640 | 5.07 | 494 | 2.08 | 4.34 | 7.17 | 3.11 | -4.07 | 9.41 |
| Inner High | 602 | 4.99 | 479 | 2.01 | 4.43 | 7.64 | 3.31 | -4.33 | 9.42 |
| Ashfield | 346 | 6.10 | 321 | 2.14 | 5.31 | 10.5 | 3.50 | -7.04 | 11.4 |
| Botany Bay | 375 | 6.21 | 345 | 3.15 | 5.44 | 10.9 | 4.68 | -6.25 | 11.6 |
| Leichhardt | 495 | 5.11 | 393 | 2.82 | 4.48 | 6.55 | 3.46 | -3.09 | 9.58 |
| Marrickville | 339 | 6.28 | 307 | 2.57 | 5.40 | 10.2 | 3.65 | -6.57 | 11.7 |
| Sydney | 459 | 5.05 | 463 | 3.00 | 5.61 | 7.77 | 4.39 | -3.38 | 10.7 |
| Inner Low | 424 | 5.40 | 397 | 2.84 | 5.30 | 8.24 | 4.04 | -4.20 | 10.7 |
| Lane Cove | 415 | 4.43 | 388 | 1.65 | 5.14 | 8.77 | 4.01 | -4.76 | 9.57 |
| North Sydney | 543 | 4.44 | 472 | 1.61 | 4.77 | 8.16 | 3.67 | -4.49 | 9.21 |
| Randwick | 463 | 5.24 | 420 | 2.40 | 5.09 | 9.00 | 4.07 | -4.93 | 10.3 |
| Waverley | 504 | 5.80 | 452 | 2.65 | 5.13 | 8.93 | 3.71 | -5.22 | 10.9 |
| Inner Medium | 495 | 5.02 | 440 | 2.14 | 4.95 | 8.60 | 3.83 | -4.76 | 9.98 |
| Hunters Hill | | | 396 | 1.65 | | | 3.60 | | |
| Ku-ring-gai | 554 | 3.86 | 442 | 1.99 | 4.29 | 7.02 | 4.15 | -2.87 | 8.15 |
| Manly | 570 | 5.04 | 481 | 2.23 | 4.78 | 8.60 | 3.92 | -4.68 | 9.82 |
| Strathfield | 384 | 4.27 | 364 | 2.42 | 5.07 | 7.25 | 4.31 | -2.93 | 9.34 |
| Willoughby | 506 | 4.83 | 472 | 1.56 | 5.16 | 9.83 | 3.92 | -5.91 | 9.99 |
| Middle High | 522 | 4.64 | 453 | 1.94 | 4.77 | 8.45 | 3.96 | -4.49 | 9.42 |
| Auburn | 324 | 5.53 | 311 | 2.91 | 5.57 | 9.42 | 4.55 | -4.87 | 11.1 |
| Bankstown | 309 | 4.12 | 311 | 1.86 | 5.47 | 8.49 | 4.49 | -4.00 | 9.59 |
| Canterbury | 256 | 5.04 | 268 | 1.91 | 5.91 | 10.1 | 4.20 | -5.87 | 11.0 |
| Parramatta | 324 | 5.05 | 308 | 2.10 | 5.30 | 9.25 | 4.05 | -5.20 | 10.4 |
| Middle Low | 293 | 4.98 | 292 | 2.08 | 5.59 | 9.53 | 4.24 | -5.29 | 10.6 |
| Burwood | 410 | 4.69 | 364 | 2.44 | 4.89 | 7.39 | 3.93 | -3.46 | 9.59 |
| Canada Bay | 502 | 5.41 | 452 | 2.45 | 4.97 | 9.21 | 4.03 | -5.17 | 10.4 |
| Hurstville | 352 | 5.09 | 318 | 1.97 | 5.03 | 9.26 | 3.87 | -5.40 | 10.1 |
| Kogarah | 383 | 4.35 | 352 | 1.77 | 5.09 | 7.64 | 3.69 | -3.95 | 9.44 |
| Rockdale | 366 | 4.29 | 340 | 2.10 | 5.17 | 7.79 | 4.20 | -3.58 | 9.46 |
| Ryde | 381 | 5.23 | 316 | 2.14 | 4.71 | 8.85 | 3.73 | -5.12 | 9.94 |
| Middle Medium | 395 | 4.85 | 352 | 2.14 | 4.95 | 8.38 | 3.92 | -4.45 | 9.80 |
| Blacktown | 267 | 3.88 | 245 | 1.81 | 5.10 | 7.35 | 4.10 | -3.25 | 8.98 |
| Blue Mountains | | | 212 | 1.83 | | | 4.43 | | |
| Camden | | | 249 | 1.72 | | | 4.34 | | |
| Campbelltown | 215 | 4.35 | 223 | 1.83 | 5.78 | 9.17 | 4.51 | -4.66 | 10.1 |
| Fairfield | 210 | 4.87 | 230 | 1.41 | 6.26 | 10.8 | 4.06 | -6.69 | 11.1 |
| Gosford | | | 256 | 1.64 | | | 4.31 | | |
| Hawkesbury | | | 238 | 0.99 | | | 3.61 | | |
| Holroyd | 288 | 4.38 | 290 | 2.13 | 5.53 | 8.19 | 4.35 | -3.84 | 9.91 |
| Liverpool | 242 | 5.17 | 241 | 1.74 | 5.81 | 11.2 | 4.27 | -6.91 | 11.0 |
| Penrith | 236 | 5.37 | 229 | 1.57 | 5.68 | 12.1 | 4.19 | -7.96 | 11.0 |
| Wollondilly | | | 211 | 1.62 | | | 3.95 | | |
| Wyong | | | 218 | 1.83 | | | 4.82 | | |
| Outer Low | 254 | 4.39 | 246 | 1.73 | 5.42 | 8.99 | 4.26 | -4.73 | 9.81 |
| The Hills Shire | | | 353 | 2.06 | | | 3.77 | | |
| Hornsby | 399 | 3.84 | 360 | 1.64 | 4.91 | 7.05 | 3.79 | -3.26 | 8.74 |
| Pittwater | | | 390 | 2.02 | | | 3.88 | | |
| Sutherland | 381 | 4.63 | 334 | 1.57 | 4.98 | 8.62 | 3.65 | -4.97 | 9.61 |
| Warringah | 416 | 4.78 | 384 | 1.96 | 5.14 | 9.07 | 4.11 | -4.97 | 9.92 |
| Outer Medium | 403 | 4.57 | 361 | 1.78 | 5.00 | 8.46 | 3.86 | -4.60 | 9.56 |
| ALL Sydney LGAs | 418 | 4.91 | 373 | 2.16 | 4.97 | 8.38 | 3.87 | -4.51 | 9.88 |
| High | 640 | 6.28 | 494 | 3.15 | 6.26 | 12.1 | 4.82 | -7.04 | 11.7 |
| Low | 210 | 3.84 | 211 | 0.99 | 4.29 | 6.55 | 3.11 | -2.87 | 8.15 |
| Standard Deviation | 110 | 0.63 | 85 | 0.45 | 0.44 | 1.34 | 0.36 | 1.29 | 0.85 |

*Table B2 (continued): Sydney Unit Market 1986-2015*

| $s 2012/13 prices; Growth rate per annum (%) | Median Unit Price $'000 | | Median Rent Per Week | | Unit Rent-Price Ratio (%) | | | | Gross return (%) |
|---|---|---|---|---|---|---|---|---|---|
| LGA/Zone | Mean 86-15 | Mean Growth Rate | Mean 86-15 | Mean Growth Rate | Mean 86-15 | 1986 | 2015 | Δ86 – 15 | Mean 86-15 |
| Cessnock | 206 | 3.55 | 234 | 1.65 | 5.92 | 8.91 | 5.41 | -3.50 | 9.46 |
| Kiama | 472 | 4.05 | 341 | 2.15 | 3.75 | 5.78 | 3.63 | -2.15 | 7.81 |
| Lake Macquarie | 316 | 3.62 | 300 | 1.69 | 4.94 | 7.42 | 4.56 | -2.87 | 8.56 |
| Maitland | 275 | 3.46 | 284 | 1.64 | 5.38 | 8.29 | 4.86 | -3.42 | 8.84 |
| Newcastle | 309 | 3.81 | 301 | 1.67 | 5.06 | 7.63 | 4.42 | -3.21 | 8.87 |
| Port Stephens | 329 | 2.84 | 282 | 1.77 | 4.45 | 6.20 | 4.61 | -1.60 | 7.29 |
| Shellharbour | 325 | 3.84 | 320 | 1.97 | 5.13 | 7.45 | 4.88 | -2.57 | 8.96 |
| Wollongong | 372 | 4.01 | 328 | 2.11 | 4.59 | 6.89 | 4.34 | -2.56 | 8.60 |
| Near Sydney LGAs | 323 | 3.71 | 302 | 1.82 | 4.87 | 7.29 | 4.52 | -2.77 | 8.58 |

*Table B3: Melbourne House Market 1985-2015*

| | Median House Price $'000 2012/13 prices | | Median Rent Per Week $s 2012/13 prices | | House Rent-Price Ratio (%) | | | | Gross return (% pa) |
|---|---|---|---|---|---|---|---|---|---|
| **LGA/Zone** | Mean 85-14 | Mean Growth Rate (%) 1985-14 | Mean 85-14 | Mean Growth Rate (%) 1985-14 | Mean 85-14 | 1985 | 2014 | Δ85 – 14 | Mean 85-14 |
| Bayside | 703.5 | 5.04 | 523.4 | 2.24 | 4.53 | 6.80 | 3.10 | -3.70 | 9.58 |
| Booroondara | 727.8 | 5.92 | 479.0 | 2.26 | 4.09 | 6.34 | 2.29 | -4.05 | 10.01 |
| Glen Eira | 514.2 | 5.41 | 431.9 | 1.82 | 5.18 | 8.40 | 3.07 | -5.32 | 10.58 |
| Melbourne | 459.3 | 5.25 | 421.5 | 2.33 | 5.39 | 7.90 | 3.49 | -4.41 | 10.65 |
| Port Phillip | 616.8 | 5.82 | 479.2 | 3.01 | 4.56 | 6.88 | 3.15 | -3.72 | 10.38 |
| Stonnington | 738.6 | 5.49 | 502.6 | 3.29 | 3.99 | 5.06 | 2.74 | -2.32 | 9.48 |
| Yarra | 485.2 | 5.70 | 402.7 | 2.95 | 4.94 | 7.36 | 3.42 | -3.94 | 10.64 |
| Inner LGAs | 626.7 | 5.51 | 462.9 | 2.54 | 4.67 | 6.96 | 3.04 | -3.92 | 10.17 |
| Banyule | 347.5 | 3.84 | 313.6 | 1.05 | 5.25 | 7.39 | 3.36 | -4.04 | 9.10 |
| Darebin | 352.2 | 5.03 | 293.0 | 1.82 | 5.06 | 7.70 | 3.13 | -4.57 | 10.08 |
| Kingston | 362.2 | 4.35 | 327.6 | 1.47 | 5.37 | 7.85 | 3.48 | -4.36 | 9.71 |
| Manningham | 464.6 | 4.00 | 365.9 | 1.05 | 4.57 | 6.37 | 2.77 | -3.61 | 8.56 |
| Monash | 404.6 | 4.91 | 321.4 | 1.27 | 4.85 | 7.36 | 2.65 | -4.71 | 9.76 |
| Moonee Valley | 410.3 | 4.68 | 327.3 | 1.80 | 4.80 | 7.33 | 3.26 | -4.07 | 9.48 |
| Whitehorse | 396.4 | 4.97 | 322.0 | 1.34 | 4.95 | 7.58 | 2.73 | -4.84 | 9.91 |
| Middle High LGAs | 391.1 | 4.52 | 324.4 | 1.39 | 4.98 | 7.37 | 3.05 | -4.31 | 9.50 |
| Brimbank | 248.0 | 3.04 | 264.9 | 0.75 | 6.07 | 8.22 | 4.29 | -3.93 | 9.11 |
| Casey | 246.3 | 2.98 | 280.0 | 0.70 | 6.39 | 8.96 | 4.68 | -4.28 | 9.37 |
| Frankston | 242.5 | 2.99 | 275.1 | 0.82 | 6.45 | 8.69 | 4.68 | -4.01 | 9.45 |
| Greater Dandenong | 252.0 | 3.36 | 225.1 | 1.07 | 5.16 | 6.80 | 3.55 | -3.25 | 8.52 |
| Hobson's Bay | 314.5 | 4.35 | 297.7 | 1.49 | 5.74 | 8.16 | 3.65 | -4.51 | 10.08 |
| Knox | 300.7 | 3.87 | 301.6 | 1.01 | 5.78 | 8.22 | 3.65 | -4.57 | 9.65 |
| Maribyrnong | 319.9 | 5.69 | 278.5 | 1.89 | 5.58 | 9.47 | 3.27 | -6.20 | 11.27 |
| Maroondah | 310.6 | 4.11 | 294.5 | 1.10 | 5.52 | 7.87 | 3.36 | -4.52 | 9.64 |
| Moreland | 337.3 | 4.67 | 297.9 | 1.91 | 5.29 | 7.78 | 3.58 | -4.20 | 9.96 |
| Mornington | 291.4 | 4.20 | 277.9 | 1.03 | 5.80 | 8.96 | 3.65 | -5.31 | 10.00 |
| Middle Low LGAs | 286.3 | 3.97 | 279.3 | 1.18 | 5.78 | 8.31 | 3.84 | -4.48 | 9.75 |
| Cardinia | 233.2 | 2.70 | 257.7 | 0.74 | 6.14 | 8.49 | 4.85 | -3.63 | 8.85 |
| Hume | 242.3 | 2.54 | 273.4 | 0.98 | 6.26 | 7.62 | 4.89 | -2.74 | 8.80 |
| Melton | 224.4 | 3.27 | 257.8 | 0.73 | 6.66 | 9.43 | 4.57 | -4.86 | 9.94 |
| Nillumbuk | 376.1 | 3.59 | 332.9 | 0.68 | 4.96 | 7.14 | 3.12 | -4.02 | 8.55 |
| Whittlesea | 270.5 | 2.67 | 274.1 | 1.05 | 5.58 | 6.98 | 4.39 | -2.59 | 8.25 |
| Wyndham | 234.2 | 2.90 | 266.1 | 0.72 | 6.41 | 8.41 | 4.53 | -3.89 | 9.31 |
| Yarra Ranges | 263.1 | 3.40 | 281.3 | 1.06 | 6.06 | 8.67 | 4.46 | -4.21 | 9.45 |
| Outer LGAs | 263.4 | 3.05 | 277.6 | 0.85 | 6.01 | 8.11 | 4.40 | -3.70 | 9.05 |
| **All Melbourne LGAs** | 377.1 | 4.46 | 330.6 | 1.57 | 5.40 | 7.75 | 3.61 | -4.14 | 9.86 |
| **High** | 738.6 | 5.82 | 523.4 | 3.29 | 6.66 | 9.47 | 4.89 | -6.20 | 11.27 |
| **Low** | 224.4 | 2.54 | 257.7 | 0.68 | 3.99 | 5.06 | 2.29 | -2.59 | 8.25 |
| **Standard Deviation** | 146.7 | 1.04 | 79.0 | 0.71 | 0.58 | 0.77 | 0.68 | 0.72 | 0.63 |

*Table B4: Melbourne Unit Market 1985-2015*

| | Median Unit Price $'000 2012/13 prices | | Median Rent Per Week $s 2012/13 prices | | Unit Rent-Price Ratio (%) | | | | Gross return (% pa) |
|---|---|---|---|---|---|---|---|---|---|
| **LGA/Zone** | Mean 85-14 | Mean Growth Rate (%) 1985-14 | Mean 85-14 | Mean Growth Rate (%) 1985-14 | Mean 85-14 | 1985 | 2014 | Δ85 – 14 | Mean 85-14 |
| Bayside | 407.5 | 4.01 | 355.1 | 2.05 | 4.92 | 6.62 | 3.81 | -2.81 | 8.94 |
| Booroondara | 361.6 | 4.11 | 337.0 | 1.91 | 5.25 | 7.22 | 3.88 | -3.33 | 9.36 |
| Glen Eira | 318.2 | 4.34 | 308.7 | 2.37 | 5.53 | 7.08 | 4.07 | -3.00 | 9.87 |
| Melbourne | 363.4 | 3.04 | | | | | | | |
| Port Phillip | 330.7 | 4.44 | 419.9 | 2.58 | 7.26 | 9.50 | 5.65 | -3.85 | 11.69 |
| Stonnington | 344.0 | 3.97 | 400.2 | 2.01 | 6.62 | 8.71 | 5.02 | -3.69 | 10.59 |
| Yarra | 327.3 | 5.40 | 401.0 | 3.27 | 7.04 | 10.26 | 5.68 | -4.58 | 12.44 |
| Inner LGAs | 354.2 | 3.97 | 370.3 | 2.37 | 6.22 | 8.04 | 4.96 | -3.08 | 10.19 |
| Banyule | 292.5 | 3.28 | 282.8 | 1.44 | 5.45 | 6.77 | 4.01 | -2.76 | 8.74 |
| Darebin | 236.7 | 4.15 | 270.4 | 2.12 | 6.65 | 8.75 | 4.95 | -3.80 | 10.81 |
| Kingston | 266.8 | 3.89 | 259.7 | 1.90 | 5.51 | 7.40 | 4.23 | -3.18 | 9.41 |
| Manningham | 350.2 | 3.72 | 309.8 | 1.88 | 4.98 | 6.29 | 3.74 | -2.55 | 8.71 |
| Monash | 315.1 | 4.03 | 285.7 | 2.32 | 5.11 | 6.17 | 3.82 | -2.35 | 9.14 |
| Moonee Valley | 280.5 | 4.39 | 285.3 | 1.68 | 5.93 | 9.68 | 4.51 | -5.17 | 10.32 |
| Whitehorse | 312.0 | 3.89 | 288.0 | 1.77 | 5.19 | 6.65 | 3.66 | -2.99 | 9.08 |
| Middle High LGAs | 293.4 | 3.88 | 283.1 | 1.87 | 5.55 | 7.39 | 4.13 | -3.26 | 9.43 |
| Brimbank | 200.6 | 3.58 | 231.2 | 1.09 | 6.57 | 10.45 | 5.16 | -5.29 | 10.15 |
| Casey | 205.1 | 2.33 | 243.6 | 1.14 | 6.70 | 7.67 | 5.45 | -2.21 | 9.03 |
| Frankston | 198.4 | 2.63 | 235.7 | 1.12 | 6.67 | 8.18 | 5.32 | -2.86 | 9.30 |
| Greater Dandenong | 192.8 | 2.97 | 223.7 | 1.53 | 6.59 | 7.75 | 5.15 | -2.61 | 9.56 |
| Hobson's Bay | 251.5 | 4.20 | 252.7 | 1.08 | 5.88 | 9.69 | 4.01 | -5.68 | 10.08 |
| Knox | 247.7 | 3.29 | 257.8 | 1.08 | 5.85 | 8.26 | 4.40 | -3.86 | 9.14 |
| Maribyrnong | 223.3 | 5.21 | 264.0 | 1.85 | 7.61 | 12.76 | 4.98 | -7.78 | 12.82 |
| Maroondah | 243.4 | 3.28 | 252.1 | 1.15 | 5.86 | 7.86 | 4.30 | -3.56 | 9.14 |
| Moreland | 252.7 | 4.28 | 274.0 | 1.92 | 6.39 | 9.29 | 4.78 | -4.51 | 10.67 |
| Mornington | 233.9 | 3.01 | 230.5 | 0.81 | 5.58 | 8.14 | 4.36 | -3.78 | 8.58 |
| Middle Low LGAs | 225.0 | 3.46 | 246.5 | 1.28 | 6.37 | 9.01 | 4.79 | -4.21 | 9.83 |
| Cardinia | | | | | | | | | |
| Hume | 216.9 | 2.12 | 239.4 | 1.45 | 6.02 | 6.42 | 5.31 | -1.11 | 8.14 |
| Melton | | | | | | | | | |
| Nillumbuk | 291.0 | 3.04 | 300.5 | 0.95 | 5.81 | 7.76 | 4.28 | -3.48 | 8.85 |
| Whittlesea | | | | | | | | | |
| Wyndham | | | | | | | | | |
| Yarra Ranges | 222.2 | 3.01 | 257.6 | 0.93 | 6.58 | 8.50 | 4.72 | -3.79 | 9.59 |
| Outer LGAs | 240.1 | 2.66 | 245.3 | 1.01 | 6.14 | 7.56 | 4.77 | -2.79 | 8.80 |
| **All Melbourne LGAs** | 267.0 | 3.60 | 280.2 | 1.62 | 6.07 | 8.08 | 4.68 | -3.41 | 9.67 |
| **High** | 407.5 | 5.40 | 419.9 | 3.27 | 7.61 | 12.76 | 5.68 | -7.78 | 12.84 |
| **Low** | 192.8 | 2.12 | 230.5 | 0.81 | 4.07 | 5.30 | 3.66 | -1.11 | 8.14 |
| **Standard Deviation** | 61.2 | 0.82 | 53.6 | 0.57 | 0.63 | 1.55 | 0.71 | 1.38 | 0.97 |

## Appendix C: Full Results by LGA

*Table C1: LHR Coefficient Estimates and T-Statistics for Returns to Houses in Sydney LGAs*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ashfield | 1 | 0.13 | 2.00 | 0.24 | 2.02 | 0.30 | 2.29 | 0.27 | 1.96 | 0.31 | 1.84 |
| Auburn | 2 | 0.11 | 1.82 | 0.26 | 2.13 | 0.33 | 2.43 | 0.35 | 2.23 | 0.40 | 2.20 |
| Bankstown | 3 | 0.12 | 1.91 | 0.27 | 2.16 | 0.35 | 2.41 | 0.38 | 2.33 | 0.42 | 2.40 |
| Blacktown | 4 | 0.09 | 1.68 | 0.24 | 2.35 | 0.34 | 2.81 | 0.41 | 2.85 | 0.47 | 2.65 |
| Blue Mountains | 5 | 0.14 | 2.04 | 0.31 | 3.13 | 0.41 | 4.04 | 0.49 | 4.52 | 0.56 | 3.97 |
| Botany Bay | 6 | 0.16 | 1.99 | 0.28 | 2.02 | 0.31 | 2.23 | 0.37 | 2.36 | 0.43 | 2.46 |
| Burwood | 7 | 0.12 | 1.68 | 0.24 | 1.89 | 0.27 | 2.52 | 0.27 | 2.58 | 0.31 | 2.54 |
| Camden | 8 | 0.11 | 1.45 | 0.27 | 2.23 | 0.34 | 2.71 | 0.38 | 2.49 | 0.45 | 2.43 |
| Campbelltown | 9 | 0.09 | 1.25 | 0.25 | 1.92 | 0.32 | 2.41 | 0.36 | 2.15 | 0.42 | 2.05 |
| Canada Bay | 10 | 0.11 | 2.26 | 0.22 | 2.06 | 0.28 | 2.50 | 0.31 | 2.47 | 0.35 | 2.35 |
| Canterbury | 11 | 0.12 | 1.89 | 0.24 | 1.90 | 0.29 | 2.13 | 0.30 | 1.79 | 0.34 | 1.80 |
| Cessnock | 12 | 0.08 | 1.39 | 0.22 | 1.73 | 0.36 | 1.66 | 0.45 | 1.55 | 0.54 | 1.67 |
| Fairfield | 13 | 0.08 | 1.31 | 0.22 | 1.77 | 0.31 | 2.05 | 0.37 | 2.25 | 0.42 | 2.20 |
| Gosford | 14 | 0.15 | 2.11 | 0.34 | 2.93 | 0.44 | 3.72 | 0.50 | 3.88 | 0.58 | 3.58 |
| Hawkesbury | 15 | 0.10 | 1.93 | 0.23 | 2.42 | 0.34 | 2.82 | 0.39 | 2.96 | 0.44 | 2.79 |
| Holroyd | 16 | 0.13 | 1.81 | 0.30 | 2.13 | 0.37 | 2.58 | 0.39 | 2.51 | 0.43 | 2.41 |
| Hornsby | 17 | 0.13 | 1.85 | 0.27 | 2.27 | 0.32 | 2.72 | 0.33 | 2.37 | 0.35 | 2.03 |
| Hunters Hill | 18 | 0.33 | 3.45 | 0.46 | 2.93 | 0.52 | 3.77 | 0.52 | 5.19 | 0.47 | 5.73 |
| Hurstville | 19 | 0.13 | 1.58 | 0.30 | 2.01 | 0.35 | 2.57 | 0.34 | 2.10 | 0.37 | 1.90 |
| Kiama | 20 | 0.12 | 1.44 | 0.27 | 1.99 | 0.44 | 2.24 | 0.60 | 2.48 | 0.75 | 2.75 |
| Kogarah | 21 | 0.09 | 1.11 | 0.22 | 2.09 | 0.27 | 2.27 | 0.31 | 2.05 | 0.38 | 2.39 |
| Ku-ring-gai | 22 | 0.23 | 2.95 | 0.45 | 3.10 | 0.48 | 5.29 | 0.39 | 5.46 | 0.36 | 3.25 |
| Lake Macquarie | 23 | 0.05 | 0.89 | 0.16 | 1.37 | 0.29 | 1.58 | 0.44 | 1.70 | 0.57 | 1.84 |
| Lane Cove | 24 | 0.15 | 1.62 | 0.29 | 2.13 | 0.28 | 3.22 | 0.26 | 2.27 | 0.31 | 2.09 |
| Leichhardt | 25 | 0.17 | 2.36 | 0.27 | 2.28 | 0.34 | 3.15 | 0.37 | 4.16 | 0.42 | 4.35 |
| Liverpool | 26 | 0.07 | 1.02 | 0.18 | 1.47 | 0.27 | 1.61 | 0.37 | 1.95 | 0.49 | 2.55 |
| Maitland | 27 | 0.08 | 1.43 | 0.18 | 1.55 | 0.26 | 1.35 | 0.35 | 1.30 | 0.44 | 1.29 |
| Manly | 28 | 0.25 | 2.81 | 0.45 | 2.67 | 0.48 | 4.29 | 0.48 | 4.02 | 0.53 | 2.84 |
| Marrickville | 29 | 0.15 | 2.42 | 0.31 | 2.42 | 0.36 | 3.24 | 0.34 | 2.73 | 0.37 | 2.46 |
| Mosman | 30 | 0.17 | 2.35 | 0.33 | 2.90 | 0.44 | 3.12 | 0.48 | 2.33 | 0.56 | 2.10 |
| Newcastle | 31 | 0.03 | 0.47 | 0.12 | 0.93 | 0.24 | 1.15 | 0.38 | 1.28 | 0.49 | 1.41 |
| North Sydney | 32 | 0.26 | 2.22 | 0.40 | 2.37 | 0.41 | 3.95 | 0.36 | 3.69 | 0.38 | 2.70 |
| Parramatta | 33 | 0.11 | 1.42 | 0.25 | 1.87 | 0.30 | 2.20 | 0.32 | 2.06 | 0.36 | 2.06 |
| Penrith | 34 | 0.10 | 1.36 | 0.25 | 2.13 | 0.34 | 2.64 | 0.40 | 2.55 | 0.47 | 2.37 |
| Pittwater | 35 | 0.17 | 1.18 | 0.33 | 2.48 | 0.37 | 3.27 | 0.42 | 2.59 | 0.51 | 2.60 |
| Port Stephens | 36 | 0.07 | 1.04 | 0.21 | 2.03 | 0.36 | 2.26 | 0.50 | 2.22 | 0.64 | 2.21 |
| Randwick | 37 | 0.17 | 2.28 | 0.29 | 2.13 | 0.31 | 2.89 | 0.32 | 2.64 | 0.39 | 2.58 |
| Rockdale | 38 | 0.13 | 1.76 | 0.32 | 2.25 | 0.38 | 3.02 | 0.37 | 2.44 | 0.40 | 2.18 |
| Ryde | 39 | 0.09 | 1.41 | 0.22 | 1.72 | 0.24 | 2.29 | 0.21 | 1.65 | 0.24 | 1.53 |
| Shellharbour | 40 | 0.09 | 1.51 | 0.23 | 1.76 | 0.40 | 2.06 | 0.56 | 2.13 | 0.71 | 2.36 |

*Table C1 Continued*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strathfield | 41 | 0.14 | 2.46 | 0.28 | 3.06 | 0.34 | 3.55 | 0.36 | 2.74 | 0.41 | 2.96 |
| Sutherland Shire | 42 | 0.13 | 2.01 | 0.29 | 2.59 | 0.35 | 2.86 | 0.39 | 2.62 | 0.44 | 2.55 |
| Sydney | 43 | 0.17 | 2.99 | 0.32 | 2.56 | 0.37 | 3.92 | 0.40 | 6.03 | 0.43 | 5.46 |
| The Hills Shire | 44 | 0.12 | 1.97 | 0.27 | 2.35 | 0.38 | 3.22 | 0.39 | 3.02 | 0.41 | 2.60 |
| Warringah | 45 | 0.15 | 1.10 | 0.30 | 2.33 | 0.30 | 2.95 | 0.31 | 1.95 | 0.39 | 2.09 |
| Waverley | 46 | 0.16 | 2.23 | 0.25 | 2.30 | 0.33 | 3.02 | 0.35 | 2.88 | 0.41 | 2.57 |
| Willoughby | 47 | 0.19 | 2.98 | 0.33 | 2.47 | 0.36 | 3.52 | 0.34 | 4.04 | 0.35 | 3.68 |
| Wollondilly | 48 | 0.15 | 1.83 | 0.18 | 2.39 | 0.31 | 3.26 | 0.38 | 3.37 | 0.45 | 3.18 |
| Wollongong | 49 | 0.10 | 1.70 | 0.24 | 2.14 | 0.40 | 2.36 | 0.54 | 2.39 | 0.65 | 2.46 |
| Woollahra | 50 | 0.17 | 1.39 | 0.33 | 2.68 | 0.34 | 3.26 | 0.40 | 2.92 | 0.49 | 2.88 |
| Wyong | 51 | 0.15 | 1.83 | 0.34 | 2.90 | 0.46 | 4.21 | 0.56 | 4.51 | 0.64 | 3.88 |
| **Mean** | | **0.13** | **1.82** | **0.28** | **2.22** | **0.35** | **2.81** | **0.39** | **2.76** | **0.45** | **2.61** |

*Table C2: LHR Coefficient Estimates and T-Statistics for Returns to Houses in Melbourne LGAs*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Banyule | 1 | 0.05 | 1.17 | 0.13 | 1.38 | 0.19 | 1.46 | 0.20 | 1.22 | 0.16 | 0.78 |
| Bayside | 2 | 0.08 | 1.62 | 0.17 | 1.61 | 0.22 | 1.56 | 0.23 | 1.43 | 0.21 | 1.13 |
| Booroondara | 3 | 0.07 | 1.27 | 0.14 | 1.44 | 0.19 | 1.48 | 0.18 | 1.23 | 0.14 | 0.84 |
| Brimbank | 4 | 0.04 | 0.99 | 0.10 | 0.96 | 0.15 | 1.02 | 0.14 | 0.96 | 0.08 | 0.49 |
| Cardinia | 5 | 0.06 | 1.42 | 0.13 | 1.51 | 0.16 | 1.50 | 0.19 | 1.28 | 0.16 | 0.82 |
| Casey | 6 | 0.04 | 0.86 | 0.09 | 0.99 | 0.14 | 1.23 | 0.16 | 1.11 | 0.11 | 0.62 |
| Darebin | 7 | 0.04 | 1.06 | 0.10 | 1.16 | 0.15 | 1.22 | 0.15 | 1.05 | 0.11 | 0.67 |
| Frankston | 8 | 0.02 | 0.58 | 0.08 | 0.82 | 0.13 | 1.00 | 0.16 | 0.95 | 0.15 | 0.72 |
| Glen Eira | 9 | 0.07 | 1.57 | 0.16 | 1.66 | 0.22 | 1.65 | 0.24 | 1.49 | 0.23 | 1.20 |
| Greater Dandenong | 10 | 0.01 | 0.14 | 0.03 | 0.33 | 0.07 | 0.45 | 0.07 | 0.38 | 0.02 | 0.10 |
| Hobson's Bay | 11 | 0.05 | 1.42 | 0.10 | 1.26 | 0.15 | 1.33 | 0.19 | 1.31 | 0.20 | 1.09 |
| Hume | 12 | 0.08 | 1.63 | 0.18 | 1.65 | 0.27 | 1.76 | 0.32 | 1.68 | 0.32 | 1.23 |
| Kingston | 13 | 0.04 | 0.88 | 0.10 | 1.03 | 0.15 | 1.09 | 0.16 | 0.93 | 0.13 | 0.63 |
| Knox | 14 | 0.03 | 0.59 | 0.09 | 0.98 | 0.15 | 1.15 | 0.17 | 0.97 | 0.11 | 0.56 |
| Manningham | 15 | 0.03 | 0.68 | 0.09 | 0.89 | 0.13 | 0.92 | 0.12 | 0.69 | 0.07 | 0.31 |
| Maribyrnong | 16 | 0.05 | 1.31 | 0.11 | 1.35 | 0.17 | 1.56 | 0.20 | 1.52 | 0.19 | 1.18 |
| Maroondah | 17 | 0.03 | 0.65 | 0.09 | 0.98 | 0.14 | 1.13 | 0.15 | 0.99 | 0.11 | 0.57 |
| Melbourne | 18 | 0.09 | 1.37 | 0.19 | 1.80 | 0.29 | 2.00 | 0.34 | 2.00 | 0.37 | 1.93 |
| Melton | 19 | 0.06 | 1.48 | 0.12 | 1.41 | 0.19 | 1.64 | 0.25 | 1.60 | 0.28 | 1.35 |
| Monash | 20 | 0.02 | 0.48 | 0.07 | 0.77 | 0.12 | 0.92 | 0.12 | 0.74 | 0.08 | 0.41 |
| Moonee Valley | 21 | 0.06 | 1.41 | 0.13 | 1.47 | 0.19 | 1.61 | 0.22 | 1.53 | 0.20 | 1.28 |
| Moreland | 22 | 0.06 | 1.36 | 0.14 | 1.43 | 0.21 | 1.61 | 0.25 | 1.51 | 0.24 | 1.18 |
| Mornington | 23 | 0.04 | 1.26 | 0.09 | 1.24 | 0.14 | 1.37 | 0.18 | 1.40 | 0.19 | 1.25 |
| Nillumbuk | 24 | 0.12 | 2.58 | 0.27 | 3.21 | 0.41 | 3.81 | 0.46 | 2.94 | 0.41 | 1.79 |
| Port Phillip | 25 | 0.13 | 2.66 | 0.27 | 2.42 | 0.39 | 2.67 | 0.44 | 2.82 | 0.45 | 2.33 |
| Stonnington | 26 | 0.09 | 1.52 | 0.19 | 1.67 | 0.28 | 1.91 | 0.32 | 2.08 | 0.35 | 1.86 |
| Whitehorse | 27 | 0.04 | 0.74 | 0.09 | 1.00 | 0.14 | 1.09 | 0.14 | 0.90 | 0.10 | 0.53 |
| Whittlesea | 28 | 0.07 | 1.28 | 0.17 | 1.37 | 0.27 | 1.44 | 0.31 | 1.28 | 0.29 | 0.93 |
| Wyndham | 29 | 0.05 | 1.42 | 0.11 | 1.36 | 0.17 | 1.36 | 0.19 | 1.14 | 0.18 | 0.81 |
| Yarra | 30 | 0.10 | 1.86 | 0.23 | 2.39 | 0.32 | 2.65 | 0.36 | 2.72 | 0.36 | 2.26 |
| Yarra Ranges | 31 | 0.03 | 0.75 | 0.09 | 0.87 | 0.13 | 1.04 | 0.14 | 0.96 | 0.08 | 0.54 |
| Mean | | 0.06 | 1.23 | 0.13 | 1.37 | 0.19 | 1.50 | 0.21 | 1.38 | 0.20 | 1.01 |

*Table C3: LHR Coefficient Estimates and T-Statistics for Returns to Units in Sydney LGAs*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ashfield | 1 | 0.23 | 3.43 | 0.40 | 2.52 | 0.48 | 2.90 | 0.46 | 3.31 | 0.47 | 3.62 |
| Auburn | 2 | 0.14 | 2.29 | 0.28 | 2.29 | 0.35 | 2.52 | 0.39 | 2.88 | 0.43 | 3.10 |
| Bankstown | 3 | 0.21 | 2.40 | 0.43 | 3.74 | 0.51 | 4.30 | 0.54 | 4.83 | 0.55 | 4.74 |
| Blacktown | 4 | 0.10 | 1.74 | 0.26 | 2.22 | 0.41 | 3.31 | 0.53 | 3.65 | 0.59 | 3.11 |
| Blue Mountains | 5 | 0.20 | 2.43 | 0.33 | 3.33 | 0.54 | 3.66 | 0.70 | 3.76 | 0.87 | 3.84 |
| Botany Bay | 6 | 0.15 | 2.88 | 0.25 | 2.28 | 0.33 | 2.71 | 0.35 | 2.83 | 0.39 | 3.10 |
| Burwood | 7 | 0.22 | 3.42 | 0.40 | 2.94 | 0.46 | 2.62 | 0.42 | 2.30 | 0.42 | 2.25 |
| Camden | 8 | 0.11 | 1.52 | 0.24 | 1.71 | 0.39 | 2.25 | 0.51 | 2.25 | 0.65 | 2.65 |
| Campbelltown | 9 | 0.16 | 1.84 | 0.34 | 3.26 | 0.49 | 5.16 | 0.52 | 4.72 | 0.52 | 3.38 |
| Canada Bay | 10 | 0.33 | 3.15 | 0.50 | 3.37 | 0.59 | 4.56 | 0.58 | 6.27 | 0.63 | 5.36 |
| Canterbury | 11 | 0.19 | 2.79 | 0.37 | 3.14 | 0.45 | 3.51 | 0.42 | 3.39 | 0.41 | 3.40 |
| Cessnock | 12 | 0.13 | 1.35 | 0.22 | 1.31 | 0.36 | 1.67 | 0.52 | 2.18 | 0.71 | 2.82 |
| Fairfield | 13 | 0.14 | 1.74 | 0.34 | 2.30 | 0.43 | 3.05 | 0.43 | 2.71 | 0.43 | 2.43 |
| Gosford | 14 | 0.11 | 1.61 | 0.29 | 1.96 | 0.51 | 2.58 | 0.71 | 3.39 | 0.95 | 4.30 |
| Hawkesbury | 15 | 0.08 | 1.23 | 0.21 | 1.36 | 0.37 | 1.69 | 0.52 | 2.02 | 0.68 | 2.52 |
| Holroyd | 16 | 0.20 | 3.60 | 0.42 | 3.91 | 0.57 | 4.04 | 0.63 | 3.47 | 0.67 | 3.35 |
| Hornsby | 17 | 0.16 | 2.06 | 0.37 | 4.90 | 0.49 | 4.40 | 0.53 | 3.56 | 0.58 | 3.25 |
| Hunters Hill | 18 | 0.60 | 3.53 | 0.68 | 5.00 | 0.90 | 3.79 | 1.28 | na | 1.09 | 4.97 |
| Hurstville | 19 | 0.25 | 3.31 | 0.47 | 3.72 | 0.50 | 4.57 | 0.46 | 3.91 | 0.49 | 4.81 |
| Kiama | 20 | 0.17 | 1.91 | 0.28 | 2.42 | 0.48 | 3.16 | 0.65 | 2.91 | 0.75 | 2.64 |
| Kogarah | 21 | 0.14 | 1.34 | 0.28 | 2.34 | 0.32 | 2.38 | 0.37 | 2.35 | 0.40 | 2.33 |
| Ku-ring-gai | 22 | 0.23 | 3.64 | 0.36 | 3.02 | 0.40 | 4.45 | 0.37 | 5.36 | 0.40 | 4.86 |
| Lake Macquarie | 23 | 0.06 | 1.13 | 0.16 | 1.54 | 0.29 | 1.65 | 0.43 | 1.58 | 0.56 | 1.73 |
| Lane Cove | 24 | 0.23 | 2.92 | 0.39 | 2.76 | 0.43 | 3.00 | 0.36 | 2.17 | 0.35 | 1.99 |
| Leichhardt | 25 | 0.21 | 1.77 | 0.42 | 4.14 | 0.45 | 3.52 | 0.47 | 2.72 | 0.55 | 2.94 |
| Liverpool | 26 | 0.18 | 2.21 | 0.35 | 4.05 | 0.51 | 5.95 | 0.55 | 8.30 | 0.61 | 7.85 |
| Maitland | 27 | 0.07 | 1.20 | 0.18 | 2.19 | 0.28 | 1.99 | 0.34 | 1.52 | 0.45 | 1.52 |
| Manly | 28 | 0.34 | 1.54 | 0.66 | 5.15 | 0.66 | 9.14 | 0.62 | 7.28 | 0.62 | 3.89 |
| Marrickville | 29 | 0.17 | 2.26 | 0.35 | 3.31 | 0.42 | 3.75 | 0.43 | 3.83 | 0.47 | 3.98 |
| Mosman | 30 | 0.39 | 5.05 | 0.72 | 7.55 | 0.77 | 10.75 | 0.66 | 9.85 | 0.63 | 7.99 |
| Newcastle | 31 | 0.04 | 0.57 | 0.16 | 1.10 | 0.34 | 1.81 | 0.51 | 1.99 | 0.66 | 2.03 |
| North Sydney | 32 | 0.27 | 4.16 | 0.52 | 6.30 | 0.60 | 8.18 | 0.52 | 5.11 | 0.51 | 3.57 |
| Parramatta | 33 | 0.22 | 1.88 | 0.46 | 3.57 | 0.53 | 4.94 | 0.54 | 6.97 | 0.56 | 7.21 |
| Penrith | 34 | 0.18 | 2.36 | 0.39 | 3.93 | 0.48 | 5.12 | 0.49 | 6.29 | 0.51 | 6.80 |
| Pittwater | 35 | 0.14 | 2.75 | 0.29 | 2.66 | 0.48 | 3.00 | 0.70 | 3.84 | 0.88 | 5.46 |
| Port Stephens | 36 | 0.07 | 1.02 | 0.15 | 0.90 | 0.30 | 1.29 | 0.48 | 2.01 | 0.70 | 2.94 |
| Randwick | 37 | 0.22 | 5.22 | 0.41 | 4.14 | 0.49 | 4.70 | 0.48 | 4.55 | 0.52 | 4.36 |
| Rockdale | 38 | 0.15 | 1.78 | 0.32 | 2.95 | 0.39 | 2.84 | 0.39 | 2.41 | 0.41 | 2.39 |
| Ryde | 39 | 0.20 | 2.77 | 0.39 | 3.36 | 0.44 | 3.79 | 0.42 | 4.07 | 0.43 | 4.57 |
| Shellharbour | 40 | 0.10 | 1.44 | 0.22 | 1.81 | 0.38 | 1.85 | 0.51 | 1.76 | 0.64 | 1.91 |

*Table C3 Continued*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strathfield | 41 | 0.33 | 5.21 | 0.62 | 5.09 | 0.66 | 3.84 | 0.57 | 2.35 | 0.55 | 2.18 |
| Sutherland Shire | 42 | 0.14 | 2.64 | 0.32 | 4.92 | 0.43 | 4.91 | 0.50 | 4.73 | 0.56 | 4.74 |
| Sydney | 43 | 0.19 | 4.02 | 0.40 | 7.37 | 0.56 | 6.14 | 0.69 | 6.22 | 0.80 | 6.42 |
| The Hills Shire | 44 | 0.19 | 2.75 | 0.42 | 3.59 | 0.60 | 4.84 | 0.69 | 4.28 | 0.80 | 4.72 |
| Warringah | 45 | 0.21 | 3.91 | 0.39 | 3.05 | 0.45 | 3.57 | 0.45 | 2.91 | 0.48 | 2.42 |
| Waverley | 46 | 0.27 | 2.37 | 0.43 | 3.03 | 0.40 | 3.85 | 0.47 | 3.36 | 0.58 | 3.93 |
| Willoughby | 47 | 0.29 | 4.68 | 0.55 | 12.80 | 0.65 | 9.39 | 0.61 | 11.21 | 0.60 | 10.65 |
| Wollondilly | 48 | 0.12 | 2.00 | 0.23 | 1.63 | 0.36 | 1.82 | 0.46 | 2.37 | 0.57 | 3.24 |
| Wollongong | 49 | 0.10 | 1.73 | 0.25 | 2.07 | 0.40 | 2.64 | 0.53 | 2.56 | 0.66 | 2.48 |
| Woollahra | 50 | 0.26 | 2.80 | 0.34 | 3.89 | 0.44 | 3.03 | 0.52 | 2.75 | 0.61 | 2.90 |
| Wyong | 51 | 0.10 | 1.14 | 0.26 | 1.49 | 0.49 | 2.65 | 0.71 | 4.46 | 0.93 | 4.19 |
| **Mean** | | **0.19** | **2.52** | **0.36** | **3.40** | **0.47** | **3.87** | **0.53** | **3.91** | **0.59** | **3.88** |

*Table C4: LHR Coefficient Estimates and T-Statistics for Returns to Units in Melbourne LGAs*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Banyule | 1 | 0.07 | 1.57 | 0.18 | 1.60 | 0.28 | 1.64 | 0.33 | 1.42 | 0.32 | 1.08 |
| Bayside | 2 | 0.11 | 1.71 | 0.22 | 1.68 | 0.29 | 1.50 | 0.32 | 1.36 | 0.32 | 1.10 |
| Booroondara | 3 | 0.17 | 2.31 | 0.35 | 3.20 | 0.47 | 2.76 | 0.49 | 2.16 | 0.45 | 1.54 |
| Brimbank | 4 | 0.11 | 2.60 | 0.23 | 2.56 | 0.34 | 2.94 | 0.40 | 3.21 | 0.41 | 3.09 |
| Cardinia | 5 | na | na | na | na | na | na | na | na | na | na |
| Casey | 6 | 0.05 | 1.12 | 0.10 | 1.06 | 0.14 | 1.05 | 0.15 | 0.92 | 0.17 | 0.80 |
| Darebin | 7 | 0.09 | 1.87 | 0.21 | 1.88 | 0.33 | 1.96 | 0.41 | 1.79 | 0.44 | 1.58 |
| Frankston | 8 | 0.06 | 1.25 | 0.14 | 1.20 | 0.24 | 1.26 | 0.35 | 1.38 | 0.43 | 1.40 |
| Glen Eira | 9 | 0.11 | 2.14 | 0.24 | 2.11 | 0.35 | 2.09 | 0.38 | 1.70 | 0.36 | 1.31 |
| Greater Dandenong | 10 | 0.03 | 0.76 | 0.09 | 0.72 | 0.16 | 0.76 | 0.22 | 0.81 | 0.25 | 0.78 |
| Hobson's Bay | 11 | 0.07 | 1.68 | 0.13 | 1.83 | 0.17 | 1.59 | 0.23 | 1.59 | 0.21 | 1.13 |
| Hume | 12 | 0.13 | 2.83 | 0.31 | 2.62 | 0.49 | 2.83 | 0.63 | 2.74 | 0.74 | 2.46 |
| Kingston | 13 | 0.08 | 1.39 | 0.17 | 1.38 | 0.24 | 1.24 | 0.27 | 1.11 | 0.22 | 0.75 |
| Knox | 14 | 0.05 | 1.05 | 0.16 | 1.54 | 0.26 | 1.93 | 0.29 | 1.88 | 0.26 | 1.37 |
| Manningham | 15 | 0.09 | 1.46 | 0.17 | 1.83 | 0.26 | 1.60 | 0.28 | 1.24 | 0.30 | 1.02 |
| Maribyrnong | 16 | 0.10 | 2.05 | 0.21 | 2.16 | 0.31 | 2.21 | 0.41 | 2.15 | 0.42 | 1.82 |
| Maroondah | 17 | 0.06 | 1.25 | 0.15 | 1.45 | 0.22 | 1.62 | 0.24 | 1.42 | 0.20 | 0.90 |
| Melbourne | 18 | 0.26 | 2.29 | 0.49 | 2.56 | 0.69 | 3.06 | 0.84 | 4.63 | 0.83 | 26.76 |
| Melton | 19 | na | na | na | na | na | na | na | na | na | na |
| Monash | 20 | 0.08 | 1.76 | 0.20 | 1.71 | 0.31 | 1.80 | 0.41 | 1.87 | 0.47 | 1.76 |
| Moonee Valley | 21 | 0.12 | 2.94 | 0.22 | 2.60 | 0.32 | 2.32 | 0.38 | 2.16 | 0.37 | 1.94 |
| Moreland | 22 | 0.09 | 2.22 | 0.19 | 1.81 | 0.28 | 1.72 | 0.34 | 1.57 | 0.36 | 1.38 |
| Mornington | 23 | 0.05 | 1.30 | 0.11 | 1.77 | 0.18 | 1.93 | 0.23 | 1.49 | 0.26 | 1.10 |
| Nillumbuk | 24 | 0.10 | 2.24 | 0.21 | 2.27 | 0.30 | 2.24 | 0.33 | 1.80 | 0.30 | 1.27 |
| Port Phillip | 25 | 0.20 | 2.98 | 0.42 | 3.42 | 0.63 | 3.55 | 0.76 | 3.11 | 0.82 | 2.54 |
| Stonnington | 26 | 0.16 | 2.50 | 0.28 | 3.11 | 0.40 | 3.36 | 0.46 | 2.98 | 0.50 | 2.36 |
| Whitehorse | 27 | 0.06 | 0.99 | 0.15 | 1.37 | 0.24 | 1.57 | 0.26 | 1.24 | 0.23 | 0.83 |
| Whittlesea | 28 | 0.11 | 1.94 | 0.28 | 1.90 | 0.45 | 1.95 | 0.56 | 1.80 | 0.65 | 1.78 |
| Wyndham | 29 | na | na | na | na | na | na | na | na | na | na |
| Yarra | 30 | 0.21 | 2.73 | 0.40 | 3.97 | 0.52 | 5.20 | 0.59 | 3.94 | 0.60 | 3.15 |
| Yarra Ranges | 31 | 0.04 | 0.62 | 0.13 | 1.23 | 0.19 | 1.39 | 0.18 | 1.35 | 0.18 | 1.22 |
| **Mean** | | **0.10** | **1.84** | **0.22** | **2.02** | **0.32** | **2.11** | **0.38** | **1.96** | **0.39** | **2.44** |

*Table C5: LHR Coefficient Estimates and T-Statistics for House Rents in Sydney LGAs*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ashfield | 1 | -0.02 | -0.68 | -0.05 | -0.70 | -0.09 | -1.13 | -0.15 | -1.91 | -0.22 | -3.43 |
| Auburn | 2 | -0.01 | -0.43 | -0.05 | -0.74 | -0.12 | -1.45 | -0.20 | -2.60 | -0.26 | -4.74 |
| Bankstown | 3 | -0.01 | -0.53 | -0.05 | -0.80 | -0.12 | -1.75 | -0.20 | -2.95 | -0.28 | -5.32 |
| Blacktown | 4 | -0.02 | -0.98 | -0.07 | -1.11 | -0.14 | -2.02 | -0.21 | -3.79 | -0.28 | -7.86 |
| Blue Mountains | 5 | -0.01 | -0.45 | -0.04 | -0.79 | -0.10 | -1.96 | -0.17 | -3.29 | -0.21 | -5.04 |
| Botany Bay | 6 | -0.01 | -0.40 | -0.03 | -0.49 | -0.07 | -0.85 | -0.14 | -1.77 | -0.19 | -2.93 |
| Burwood | 7 | 0.00 | -0.16 | -0.03 | -0.45 | -0.08 | -1.16 | -0.14 | -2.36 | -0.19 | -5.47 |
| Camden | 8 | -0.02 | -0.94 | -0.06 | -1.21 | -0.12 | -2.54 | -0.19 | -4.43 | -0.25 | -9.03 |
| Campbelltown | 9 | -0.04 | -1.25 | -0.09 | -1.25 | -0.18 | -2.15 | -0.27 | -4.01 | -0.35 | -8.28 |
| Canada Bay | 10 | 0.00 | -0.10 | -0.03 | -0.41 | -0.08 | -1.16 | -0.15 | -2.27 | -0.20 | -5.14 |
| Canterbury | 11 | -0.02 | -0.76 | -0.05 | -0.73 | -0.12 | -1.55 | -0.20 | -2.72 | -0.27 | -5.27 |
| Cessnock | 12 | -0.07 | -3.06 | -0.14 | -2.47 | -0.22 | -2.59 | -0.29 | -3.02 | -0.35 | -3.71 |
| Fairfield | 13 | -0.02 | -0.81 | -0.07 | -1.13 | -0.16 | -2.16 | -0.26 | -3.79 | -0.34 | -6.99 |
| Gosford | 14 | 0.01 | 0.16 | -0.01 | -0.14 | -0.07 | -1.19 | -0.13 | -2.93 | -0.17 | -5.05 |
| Hawkesbury | 15 | -0.03 | -1.12 | -0.07 | -1.18 | -0.13 | -2.05 | -0.20 | -3.64 | -0.26 | -6.72 |
| Holroyd | 16 | -0.01 | -0.24 | -0.04 | -0.62 | -0.12 | -1.44 | -0.20 | -2.89 | -0.28 | -5.40 |
| Hornsby | 17 | -0.01 | -0.24 | -0.07 | -1.14 | -0.14 | -1.79 | -0.20 | -2.25 | -0.26 | -3.08 |
| Hunters Hill | 18 | -0.07 | -1.15 | -0.04 | -0.65 | -0.07 | -1.10 | -0.11 | -1.77 | -0.11 | -1.57 |
| Hurstville | 19 | -0.01 | -0.21 | -0.03 | -0.55 | -0.09 | -1.24 | -0.15 | -1.99 | -0.22 | -3.81 |
| Kiama | 20 | -0.03 | -1.42 | -0.06 | -1.03 | -0.08 | -1.05 | -0.11 | -1.40 | -0.14 | -2.04 |
| Kogarah | 21 | -0.01 | -0.41 | -0.04 | -0.98 | -0.09 | -1.93 | -0.13 | -2.55 | -0.17 | -4.00 |
| Ku-ring-gai | 22 | 0.00 | 0.00 | -0.06 | -1.00 | -0.14 | -2.10 | -0.20 | -2.44 | -0.27 | -2.99 |
| Lake Macquarie | 23 | -0.10 | -5.37 | -0.20 | -3.84 | -0.27 | -4.35 | -0.32 | -4.81 | -0.36 | -4.93 |
| Lane Cove | 24 | -0.03 | -0.85 | -0.07 | -1.37 | -0.13 | -2.65 | -0.18 | -2.79 | -0.21 | -3.46 |
| Leichhardt | 25 | 0.01 | 0.35 | 0.00 | -0.07 | -0.05 | -0.69 | -0.10 | -1.71 | -0.14 | -3.45 |
| Liverpool | 26 | -0.02 | -1.01 | -0.07 | -1.57 | -0.13 | -2.26 | -0.19 | -3.58 | -0.25 | -6.59 |
| Maitland | 27 | -0.08 | -2.48 | -0.17 | -2.39 | -0.23 | -2.26 | -0.28 | -2.35 | -0.33 | -2.40 |
| Manly | 28 | 0.01 | 0.17 | -0.01 | -0.14 | -0.05 | -0.62 | -0.07 | -0.66 | -0.08 | -0.66 |
| Marrickville | 29 | 0.01 | 0.28 | -0.02 | -0.23 | -0.07 | -0.96 | -0.13 | -1.74 | -0.18 | -2.81 |
| Mosman | 30 | 0.03 | 0.56 | 0.05 | 0.52 | 0.06 | 0.44 | 0.06 | 0.39 | 0.03 | 0.18 |
| Newcastle | 31 | -0.11 | -4.20 | -0.20 | -3.75 | -0.28 | -3.86 | -0.33 | -3.56 | -0.36 | -3.24 |
| North Sydney | 32 | 0.00 | 0.08 | -0.01 | -0.13 | -0.04 | -0.63 | -0.07 | -0.83 | -0.09 | -0.99 |
| Parramatta | 33 | -0.01 | -0.59 | -0.05 | -0.87 | -0.12 | -1.67 | -0.20 | -2.92 | -0.27 | -5.53 |
| Penrith | 34 | -0.02 | -0.81 | -0.05 | -0.95 | -0.12 | -1.75 | -0.19 | -3.03 | -0.26 | -5.31 |
| Pittwater | 35 | -0.01 | -0.55 | -0.05 | -1.32 | -0.09 | -1.71 | -0.13 | -1.80 | -0.16 | -2.10 |
| Port Stephens | 36 | -0.09 | -3.90 | -0.16 | -3.17 | -0.22 | -2.90 | -0.26 | -3.01 | -0.30 | -3.12 |
| Randwick | 37 | 0.00 | -0.03 | -0.02 | -0.32 | -0.08 | -0.87 | -0.13 | -1.64 | -0.18 | -3.26 |
| Rockdale | 38 | 0.00 | -0.13 | -0.03 | -0.57 | -0.09 | -1.37 | -0.15 | -2.13 | -0.21 | -3.61 |
| Ryde | 39 | -0.02 | -0.88 | -0.06 | -1.28 | -0.12 | -1.94 | -0.17 | -2.70 | -0.23 | -4.34 |
| Shellharbour | 40 | -0.06 | -2.21 | -0.10 | -1.69 | -0.15 | -1.95 | -0.20 | -2.48 | -0.25 | -3.12 |

*Table C5 Continued*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strathfield | 41 | 0.00 | 0.00 | -0.02 | -0.35 | -0.06 | -1.05 | -0.12 | -2.91 | -0.16 | -7.07 |
| Sutherland Shire | 42 | -0.02 | -0.64 | -0.06 | -1.11 | -0.12 | -1.89 | -0.17 | -2.57 | -0.23 | -3.91 |
| Sydney | 43 | -0.01 | -0.27 | -0.03 | -0.58 | -0.06 | -1.09 | -0.11 | -2.41 | -0.15 | -4.57 |
| The Hills Shire | 44 | -0.01 | -0.34 | -0.05 | -0.75 | -0.12 | -1.38 | -0.19 | -2.22 | -0.27 | -4.39 |
| Warringah | 45 | -0.02 | -0.73 | -0.07 | -1.32 | -0.14 | -2.18 | -0.19 | -2.60 | -0.23 | -2.87 |
| Waverley | 46 | 0.00 | -0.02 | -0.02 | -0.27 | -0.05 | -0.85 | -0.09 | -1.22 | -0.13 | -1.91 |
| Willoughby | 47 | -0.01 | -0.17 | -0.05 | -0.80 | -0.13 | -2.02 | -0.19 | -3.12 | -0.25 | -3.93 |
| Wollondilly | 48 | -0.05 | -2.31 | -0.09 | -1.76 | -0.15 | -3.49 | -0.22 | -6.60 | -0.28 | -9.62 |
| Wollongong | 49 | -0.05 | -3.07 | -0.09 | -2.06 | -0.13 | -2.19 | -0.18 | -3.29 | -0.23 | -4.96 |
| Woollahra | 50 | 0.00 | -0.06 | 0.00 | -0.01 | -0.03 | -0.33 | -0.05 | -0.44 | -0.04 | -0.32 |
| Wyong | 51 | 0.00 | -0.02 | -0.02 | -0.26 | -0.08 | -1.20 | -0.15 | -2.92 | -0.21 | -5.94 |
| **Mean** | | **-0.02** | **-0.87** | **-0.06** | **-1.02** | **-0.11** | **-1.69** | **-0.17** | **-2.60** | **-0.22** | **-4.24** |

*Table C6: LHR Coefficient Estimates and T-Statistics for House Rents in Melbourne LGAs*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Banyule | 1 | -0.02 | -0.97 | -0.02 | -0.97 | -0.08 | -0.92 | -0.14 | -1.31 | -0.22 | -2.18 |
| Bayside | 2 | -0.01 | -0.59 | -0.01 | -0.59 | -0.06 | -1.12 | -0.10 | -1.64 | -0.15 | -2.44 |
| Booroondara | 3 | 0.01 | 0.28 | 0.01 | 0.28 | -0.01 | -0.21 | -0.05 | -0.72 | -0.11 | -1.43 |
| Brimbank | 4 | -0.04 | -1.91 | -0.04 | -1.91 | -0.15 | -1.57 | -0.24 | -2.41 | -0.36 | -5.59 |
| Cardinia | 5 | -0.06 | -2.24 | -0.06 | -2.24 | -0.20 | -1.87 | -0.31 | -2.61 | -0.43 | -3.21 |
| Casey | 6 | -0.06 | -2.97 | -0.06 | -2.97 | -0.19 | -2.13 | -0.28 | -3.02 | -0.39 | -4.84 |
| Darebin | 7 | -0.03 | -1.70 | -0.03 | -1.70 | -0.10 | -1.31 | -0.15 | -1.59 | -0.22 | -2.52 |
| Frankston | 8 | -0.06 | -3.04 | -0.06 | -3.04 | -0.19 | -2.40 | -0.26 | -3.20 | -0.36 | -4.25 |
| Glen Eira | 9 | -0.01 | -0.65 | -0.01 | -0.65 | -0.06 | -0.79 | -0.10 | -1.24 | -0.16 | -2.04 |
| Greater Dandenong | 10 | -0.06 | -2.80 | -0.06 | -2.80 | -0.21 | -1.91 | -0.30 | -2.53 | -0.42 | -4.46 |
| Hobson's Bay | 11 | -0.03 | -0.92 | -0.03 | -0.92 | -0.09 | -1.38 | -0.13 | -2.07 | -0.21 | -4.94 |
| Hume | 12 | -0.02 | -0.72 | -0.02 | -0.72 | -0.12 | -0.95 | -0.20 | -1.52 | -0.32 | -2.66 |
| Kingston | 13 | -0.03 | -1.57 | -0.03 | -1.57 | -0.11 | -1.33 | -0.18 | -1.74 | -0.26 | -2.53 |
| Knox | 14 | -0.04 | -1.89 | -0.04 | -1.89 | -0.11 | -1.15 | -0.16 | -1.53 | -0.26 | -2.41 |
| Manningham | 15 | -0.02 | -0.96 | -0.02 | -0.96 | -0.08 | -0.90 | -0.14 | -1.17 | -0.21 | -1.56 |
| Maribyrnong | 16 | -0.04 | -2.38 | -0.04 | -2.38 | -0.12 | -1.78 | -0.16 | -2.14 | -0.23 | -3.27 |
| Maroondah | 17 | -0.03 | -1.85 | -0.03 | -1.85 | -0.12 | -1.41 | -0.19 | -1.88 | -0.28 | -2.92 |
| Melbourne | 18 | -0.01 | -0.34 | -0.01 | -0.34 | -0.01 | -0.06 | -0.04 | -0.46 | -0.11 | -1.65 |
| Melton | 19 | -0.03 | -1.64 | -0.03 | -1.64 | -0.11 | -1.54 | -0.14 | -1.57 | -0.19 | -1.69 |
| Monash | 20 | -0.03 | -1.43 | -0.03 | -1.43 | -0.08 | -0.87 | -0.13 | -1.15 | -0.20 | -1.71 |
| Moonee Valley | 21 | -0.03 | -1.57 | -0.03 | -1.57 | -0.09 | -1.40 | -0.15 | -2.14 | -0.22 | -4.32 |
| Moreland | 22 | -0.02 | -1.19 | -0.02 | -1.19 | -0.08 | -1.09 | -0.14 | -1.55 | -0.22 | -2.55 |
| Mornington | 23 | -0.04 | -3.26 | -0.04 | -3.26 | -0.13 | -2.66 | -0.19 | -3.97 | -0.26 | -7.47 |
| Nillumbuk | 24 | 0.04 | 1.39 | 0.04 | 1.39 | 0.17 | 1.17 | 0.17 | 0.79 | 0.13 | 0.44 |
| Port Phillip | 25 | 0.02 | 0.70 | 0.02 | 0.70 | 0.03 | 0.35 | 0.02 | 0.21 | -0.02 | -0.22 |
| Stonnington | 26 | 0.01 | 0.29 | 0.01 | 0.29 | 0.04 | 0.51 | 0.02 | 0.25 | -0.02 | -0.23 |
| Whitehorse | 27 | -0.02 | -1.27 | -0.02 | -1.27 | -0.07 | -0.90 | -0.12 | -1.17 | -0.19 | -1.77 |
| Whittlesea | 28 | -0.03 | -0.72 | -0.03 | -0.72 | -0.09 | -0.54 | -0.17 | -0.92 | -0.28 | -1.55 |
| Wyndham | 29 | -0.03 | -1.19 | -0.03 | -1.19 | -0.11 | -1.17 | -0.17 | -1.50 | -0.24 | -2.13 |
| Yarra | 30 | 0.00 | -0.12 | 0.00 | -0.12 | -0.01 | -0.10 | -0.04 | -0.54 | -0.08 | -1.33 |
| Yarra Ranges | 31 | -0.07 | -2.94 | -0.07 | -2.94 | -0.22 | -2.45 | -0.32 | -3.45 | -0.41 | -5.63 |
| **Mean** | | **-0.03** | **-1.30** | **-0.03** | **-1.30** | **-0.09** | **-1.09** | **-0.14** | **-1.60** | **-0.22** | **-2.74** |

*Table C7: LHR Coefficient Estimates and T-Statistics for Unit Rents in Sydney LGAs*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ashfield | 1 | 0.02 | 0.72 | 0.01 | 0.15 | -0.04 | -0.40 | -0.13 | -1.26 | -0.22 | -3.02 |
| Auburn | 2 | -0.04 | -1.30 | -0.12 | -1.42 | -0.22 | -2.24 | -0.32 | -3.80 | -0.40 | -6.59 |
| Bankstown | 3 | 0.01 | 0.14 | -0.07 | -0.59 | -0.21 | -2.40 | -0.35 | -5.64 | -0.46 | -14.83 |
| Blacktown | 4 | -0.04 | -1.11 | -0.11 | -1.51 | -0.21 | -2.81 | -0.33 | -5.16 | -0.42 | -9.85 |
| Blue Mountains | 5 | -0.01 | -0.39 | -0.03 | -0.46 | -0.10 | -0.89 | -0.18 | -2.10 | -0.27 | na |
| Botany Bay | 6 | -0.03 | -0.91 | -0.08 | -1.24 | -0.15 | -2.04 | -0.24 | -3.29 | -0.32 | -4.80 |
| Burwood | 7 | 0.01 | 0.28 | -0.02 | -0.14 | -0.09 | -0.70 | -0.18 | -1.53 | -0.27 | -3.03 |
| Camden | 8 | -0.12 | -2.08 | -0.17 | -2.62 | -0.20 | -2.64 | -0.25 | -3.23 | -0.34 | -4.99 |
| Campbelltown | 9 | -0.03 | -0.83 | -0.08 | -1.05 | -0.18 | -1.76 | -0.30 | -2.91 | -0.43 | -4.90 |
| Canada Bay | 10 | 0.02 | 0.66 | 0.01 | 0.15 | -0.05 | -0.49 | -0.12 | -1.40 | -0.17 | -2.46 |
| Canterbury | 11 | 0.00 | -0.02 | -0.06 | -0.57 | -0.18 | -1.54 | -0.32 | -2.70 | -0.44 | -4.46 |
| Cessnock | 12 | 0.02 | 0.75 | 0.03 | 0.39 | 0.04 | 0.39 | 0.07 | 0.60 | 0.10 | 0.91 |
| Fairfield | 13 | -0.02 | -0.93 | -0.09 | -1.59 | -0.20 | -3.03 | -0.30 | -4.97 | -0.40 | -7.13 |
| Gosford | 14 | -0.02 | -1.39 | -0.05 | -1.43 | -0.09 | -1.72 | -0.15 | -2.62 | -0.22 | -5.02 |
| Hawkesbury | 15 | -0.07 | -2.12 | -0.13 | -1.66 | -0.19 | -1.95 | -0.25 | -2.89 | -0.33 | -4.77 |
| Holroyd | 16 | 0.03 | 0.89 | 0.01 | 0.06 | -0.07 | -0.67 | -0.17 | -1.74 | -0.26 | -4.33 |
| Hornsby | 17 | -0.01 | -0.23 | -0.10 | -1.02 | -0.24 | -2.90 | -0.37 | -5.40 | -0.46 | -7.68 |
| Hunters Hill | 18 | -0.17 | -2.19 | -0.20 | -2.79 | -0.17 | -6.26 | 0.02 | 0.19 | 0.09 | 1.04 |
| Hurstville | 19 | 0.02 | 0.47 | -0.02 | -0.19 | -0.11 | -1.05 | -0.20 | -1.93 | -0.28 | -3.30 |
| Kiama | 20 | -0.05 | -1.55 | -0.09 | -1.94 | -0.13 | -1.73 | -0.18 | -2.42 | -0.25 | -2.73 |
| Kogarah | 21 | -0.01 | -0.30 | -0.06 | -0.67 | -0.16 | -1.63 | -0.26 | -3.21 | -0.36 | -6.63 |
| Ku-ring-gai | 22 | -0.03 | -0.58 | -0.12 | -0.97 | -0.27 | -1.92 | -0.44 | -3.93 | -0.57 | -6.94 |
| Lake Macquarie | 23 | -0.11 | -4.74 | -0.22 | -4.45 | -0.30 | -4.29 | -0.37 | -4.06 | -0.44 | -4.09 |
| Lane Cove | 24 | -0.01 | -0.18 | -0.05 | -0.60 | -0.12 | -1.12 | -0.22 | -1.95 | -0.30 | -2.62 |
| Leichhardt | 25 | 0.00 | -0.07 | -0.05 | -0.55 | -0.11 | -1.07 | -0.16 | -1.61 | -0.18 | -1.79 |
| Liverpool | 26 | -0.02 | -0.65 | -0.07 | -1.21 | -0.16 | -2.22 | -0.24 | -3.67 | -0.32 | -6.04 |
| Maitland | 27 | -0.09 | -4.76 | -0.18 | -4.73 | -0.27 | -5.43 | -0.34 | -6.61 | -0.39 | -5.71 |
| Manly | 28 | 0.02 | 0.74 | -0.01 | -0.28 | -0.08 | -1.39 | -0.15 | -1.69 | -0.20 | -1.86 |
| Marrickville | 29 | 0.00 | 0.01 | -0.03 | -0.56 | -0.09 | -1.31 | -0.16 | -2.36 | -0.23 | -5.20 |
| Mosman | 30 | 0.05 | 1.35 | 0.03 | 0.50 | -0.02 | -0.37 | -0.08 | -1.44 | -0.16 | -3.15 |
| Newcastle | 31 | -0.14 | -5.89 | -0.27 | -5.93 | -0.36 | -5.31 | -0.44 | -5.15 | -0.48 | -4.44 |
| North Sydney | 32 | 0.02 | 0.68 | -0.03 | -0.37 | -0.12 | -1.78 | -0.23 | -3.32 | -0.28 | -4.08 |
| Parramatta | 33 | 0.00 | 0.07 | -0.05 | -0.50 | -0.14 | -1.40 | -0.25 | -2.59 | -0.34 | -4.18 |
| Penrith | 34 | -0.02 | -0.61 | -0.07 | -0.89 | -0.16 | -2.02 | -0.26 | -3.75 | -0.34 | -5.08 |
| Pittwater | 35 | -0.04 | -1.16 | -0.05 | -0.68 | -0.05 | -0.49 | -0.03 | -0.37 | -0.02 | -0.43 |
| Port Stephens | 36 | -0.07 | -3.39 | -0.15 | -2.54 | -0.23 | -2.50 | -0.32 | -2.92 | -0.39 | -3.41 |
| Randwick | 37 | 0.01 | 0.18 | -0.03 | -0.37 | -0.10 | -1.25 | -0.16 | -2.50 | -0.21 | -5.30 |
| Rockdale | 38 | -0.02 | -0.58 | -0.08 | -1.01 | -0.18 | -2.09 | -0.27 | -3.77 | -0.37 | -7.13 |
| Ryde | 39 | -0.01 | -0.35 | -0.06 | -0.91 | -0.14 | -1.67 | -0.22 | -2.91 | -0.30 | -5.53 |
| Shellharbour | 40 | -0.06 | -2.12 | -0.11 | -1.42 | -0.18 | -1.55 | -0.27 | -1.98 | -0.35 | -2.69 |

*Table C7 Continued*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strathfield | 41 | 0.00 | -0.02 | -0.09 | -0.45 | -0.22 | -0.99 | -0.41 | -2.01 | -0.58 | -2.85 |
| Sutherland Shire | 42 | -0.01 | -0.32 | -0.04 | -0.69 | -0.11 | -1.53 | -0.18 | -2.82 | -0.25 | -5.23 |
| Sydney | 43 | 0.03 | 0.90 | 0.02 | 0.39 | 0.00 | -0.04 | -0.04 | -0.49 | -0.07 | -1.96 |
| The Hills Shire | 44 | -0.11 | -1.36 | -0.16 | -1.93 | -0.23 | -1.92 | -0.25 | -2.36 | -0.38 | -2.89 |
| Warringah | 45 | -0.01 | -0.17 | -0.05 | -0.75 | -0.13 | -1.61 | -0.21 | -2.16 | -0.27 | -2.45 |
| Waverley | 46 | 0.01 | 0.46 | -0.01 | -0.07 | -0.04 | -0.48 | -0.07 | -0.81 | -0.11 | -1.13 |
| Willoughby | 47 | 0.01 | 0.40 | -0.05 | -0.56 | -0.15 | -2.03 | -0.27 | -5.64 | -0.37 | -10.21 |
| Wollondilly | 48 | -0.08 | -2.66 | -0.14 | -2.28 | -0.20 | -2.78 | -0.25 | -3.51 | -0.31 | -4.59 |
| Wollongong | 49 | -0.07 | -2.70 | -0.14 | -2.09 | -0.20 | -2.26 | -0.29 | -3.16 | -0.37 | -4.64 |
| Woollahra | 50 | 0.02 | 0.47 | 0.01 | 0.08 | -0.04 | -0.37 | -0.07 | -0.71 | -0.11 | -0.95 |
| Wyong | 51 | -0.05 | -2.43 | -0.11 | -2.29 | -0.18 | -3.01 | -0.27 | -5.05 | -0.35 | -7.70 |
| **Mean** | | **-0.02** | **-0.80** | **-0.07** | **-1.14** | **-0.15** | **-1.86** | **-0.22** | **-2.80** | **-0.30** | **-4.46** |

*Table C8: LHR Coefficient Estimates and T-Statistics for Unit Rents in Melbourne LGAs*

| LGA | No. | $\widehat{\beta}_1$ | t-stat | $\widehat{\beta}_2$ | t-stat | $\widehat{\beta}_3$ | t-stat | $\widehat{\beta}_4$ | t-stat | $\widehat{\beta}_5$ | t-stat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Banyule | 1 | 0.00 | -0.12 | -0.01 | -0.09 | -0.03 | -0.23 | -0.08 | -0.61 | -0.17 | -1.21 |
| Bayside | 2 | -0.02 | -0.55 | -0.04 | -0.41 | -0.06 | -0.48 | -0.14 | -0.90 | -0.24 | -1.51 |
| Booroondara | 3 | 0.02 | 0.54 | 0.02 | 0.32 | 0.01 | 0.13 | -0.04 | -0.37 | -0.15 | -1.31 |
| Brimbank | 4 | -0.04 | -1.94 | -0.08 | -1.41 | -0.13 | -1.68 | -0.20 | -2.65 | -0.29 | -6.28 |
| Cardinia | 5 | na | na | na | na | na | na | na | na | na | na |
| Casey | 6 | -0.05 | -1.75 | -0.11 | -1.69 | -0.19 | -2.30 | -0.29 | -4.04 | -0.39 | -6.07 |
| Darebin | 7 | -0.01 | -0.34 | -0.02 | -0.31 | -0.05 | -0.49 | -0.12 | -0.91 | -0.20 | -1.60 |
| Frankston | 8 | -0.05 | -1.56 | -0.10 | -1.32 | -0.14 | -1.30 | -0.20 | -1.63 | -0.26 | -2.02 |
| Glen Eira | 9 | 0.02 | 0.60 | 0.02 | 0.21 | -0.01 | -0.10 | -0.10 | -0.65 | -0.22 | -1.56 |
| Greater Dandenong | 10 | -0.06 | -2.17 | -0.13 | -1.57 | -0.20 | -1.65 | -0.28 | -2.12 | -0.38 | -3.02 |
| Hobson's Bay | 11 | -0.05 | -1.93 | -0.11 | -1.40 | -0.16 | -1.47 | -0.22 | -1.83 | -0.33 | -2.74 |
| Hume | 12 | 0.00 | 0.05 | -0.01 | -0.16 | -0.04 | -0.40 | -0.14 | -1.40 | -0.25 | -2.84 |
| Kingston | 13 | -0.04 | -1.29 | -0.06 | -0.76 | -0.10 | -0.78 | -0.17 | -1.16 | -0.27 | -1.72 |
| Knox | 14 | -0.07 | -2.49 | -0.12 | -1.99 | -0.18 | -1.85 | -0.25 | -2.22 | -0.36 | -2.95 |
| Manningham | 15 | -0.02 | -0.57 | -0.03 | -0.53 | -0.06 | -0.68 | -0.11 | -1.01 | -0.18 | -1.57 |
| Maribyrnong | 16 | -0.03 | -1.61 | -0.06 | -1.36 | -0.10 | -1.44 | -0.14 | -1.74 | -0.20 | -2.45 |
| Maroondah | 17 | -0.05 | -2.19 | -0.10 | -1.56 | -0.16 | -1.57 | -0.25 | -2.07 | -0.35 | -2.84 |
| Melbourne | 18 | -0.16 | -1.68 | -0.29 | -1.31 | -0.33 | -1.51 | -0.47 | -2.27 | -0.70 | -2.69 |
| Melton | 19 | na | na | na | na | na | na | na | na | na | na |
| Monash | 20 | 0.00 | -0.08 | -0.01 | -0.10 | -0.03 | -0.30 | -0.08 | -0.68 | -0.14 | -1.29 |
| Moonee Valley | 21 | -0.02 | -0.74 | -0.05 | -0.67 | -0.09 | -0.89 | -0.16 | -1.42 | -0.26 | -2.61 |
| Moreland | 22 | -0.02 | -0.82 | -0.05 | -0.69 | -0.09 | -0.87 | -0.15 | -1.26 | -0.24 | -2.14 |
| Mornington | 23 | -0.10 | -2.95 | -0.19 | -2.67 | -0.27 | -2.90 | -0.38 | -3.08 | -0.50 | -3.20 |
| Nillumbuk | 24 | -0.03 | -0.77 | -0.06 | -0.78 | -0.10 | -0.76 | -0.15 | -1.10 | -0.22 | -1.62 |
| Port Phillip | 25 | 0.07 | 1.86 | 0.13 | 1.48 | 0.17 | 1.44 | 0.15 | 1.14 | 0.08 | 0.60 |
| Stonnington | 26 | 0.01 | 0.36 | -0.01 | -0.07 | -0.05 | -0.44 | -0.13 | -1.30 | -0.25 | -4.57 |
| Whitehorse | 27 | -0.03 | -0.99 | -0.06 | -0.83 | -0.11 | -0.92 | -0.18 | -1.29 | -0.29 | -1.98 |
| Whittlesea | 28 | -0.05 | -0.76 | -0.09 | -0.60 | -0.06 | -0.35 | -0.08 | -0.50 | -0.18 | -1.40 |
| Wyndham | 29 | na | na | na | na | na | na | na | na | na | na |
| Yarra | 30 | 0.00 | 0.00 | 0.01 | 0.17 | -0.01 | -0.13 | -0.10 | -0.94 | -0.19 | -1.70 |
| Yarra Ranges | 31 | -0.09 | -1.87 | -0.18 | -2.28 | -0.24 | -2.23 | -0.29 | -2.82 | -0.36 | -4.10 |
| **Mean** | | **-0.03** | **-0.92** | **-0.06** | **-0.80** | **-0.10** | **-0.93** | **-0.17** | **-1.46** | **-0.27** | **-2.44** |

*Table C9: VDC of Rent-to-Price Ratios for Units and Houses in Sydney LGAs*

| | | Units | | | | | Houses | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LGA | No. | Rent Growth | Real Returns | Total | Real Bond Rate | Excess Returns | Rent Growth | Real Returns | Total | Real Bond Rate | Excess Returns |
| Ashfield | 1 | -18 | 45 | 63 | 16 | 29 | -19 | 29 | 48 | 14 | 16 |
| Auburn | 2 | -42 | 48 | 90 | 13 | 35 | -24 | 39 | 63 | 12 | 27 |
| Bankstown | 3 | -47 | 61 | 108 | 13 | 48 | -26 | 41 | 67 | 14 | 27 |
| Blacktown | 4 | -44 | 63 | 107 | 15 | 49 | -26 | 45 | 70 | 14 | 31 |
| Blue Mountains | 5 | -27 | 89 | 116 | 13 | 76 | -21 | 59 | 81 | 16 | 43 |
| Botany Bay | 6 | -32 | 42 | 75 | 14 | 29 | -17 | 41 | 59 | 15 | 27 |
| Burwood | 7 | -24 | 44 | 68 | 23 | 21 | -15 | 26 | 41 | 12 | 14 |
| Camden | 8 | -39 | 73 | 112 | 14 | 60 | -24 | 46 | 69 | 15 | 31 |
| Campbelltown | 9 | -43 | 57 | 101 | 15 | 42 | -33 | 41 | 74 | 15 | 27 |
| Canada Bay | 10 | -17 | 70 | 87 | 18 | 52 | -18 | 33 | 52 | 14 | 20 |
| Canterbury | 11 | -39 | 41 | 80 | 14 | 27 | -24 | 32 | 56 | 14 | 18 |
| Cessnock | 12 | 7 | 44 | 51 | -6 | 50 | -36 | 55 | 92 | 15 | 41 |
| Fairfield | 13 | -37 | 44 | 81 | 13 | 31 | -31 | 40 | 71 | 13 | 26 |
| Gosford | 14 | -22 | 96 | 118 | 14 | 81 | -17 | 62 | 78 | 17 | 45 |
| Hawkesbury | 15 | -35 | 72 | 107 | 15 | 57 | -26 | 45 | 71 | 15 | 30 |
| Holroyd | 16 | -25 | 72 | 97 | 16 | 55 | -25 | 42 | 67 | 14 | 28 |
| Hornsby | 17 | -45 | 59 | 104 | 16 | 44 | -22 | 32 | 55 | 16 | 17 |
| Hunters Hill | 18 | 7 | 123 | 130 | 7 | 116 | -11 | 51 | 62 | 13 | 37 |
| Hurstville | 19 | -27 | 53 | 79 | 17 | 36 | -19 | 35 | 54 | 14 | 20 |
| Kiama | 20 | -28 | 84 | 112 | 16 | 69 | -16 | 86 | 102 | 18 | 68 |
| Kogarah | 21 | -32 | 38 | 71 | 19 | 19 | -16 | 36 | 52 | 14 | 22 |
| Ku-ring-gai | 22 | -58 | 45 | 103 | 15 | 29 | -24 | 37 | 60 | 16 | 21 |
| Lake Macquarie | 23 | -51 | 63 | 114 | 19 | 44 | -40 | 61 | 101 | 18 | 43 |
| Lane Cove | 24 | -27 | 37 | 65 | 21 | 17 | -20 | 31 | 50 | 15 | 15 |
| Leichhardt | 25 | -18 | 57 | 75 | 18 | 39 | -13 | 40 | 53 | 14 | 26 |
| Liverpool | 26 | -32 | 65 | 97 | 12 | 54 | -24 | 47 | 71 | 14 | 33 |
| Maitland | 27 | -44 | 49 | 93 | 13 | 36 | -34 | 43 | 77 | 19 | 24 |
| Manly | 28 | -20 | 71 | 91 | 15 | 56 | -8 | 56 | 64 | 16 | 41 |
| Marrickville | 29 | -21 | 47 | 68 | 13 | 33 | -16 | 37 | 53 | 14 | 23 |
| Mosman | 30 | -15 | 70 | 85 | 17 | 53 | 3 | 52 | 56 | 17 | 35 |
| Newcastle | 31 | -54 | 71 | 125 | 14 | 57 | -38 | 49 | 87 | 18 | 31 |
| North Sydney | 32 | -27 | 55 | 82 | 18 | 37 | -8 | 38 | 46 | 15 | 23 |
| Parramatta | 33 | -34 | 61 | 95 | 15 | 46 | -24 | 34 | 57 | 13 | 21 |
| Penrith | 34 | -35 | 57 | 92 | 11 | 46 | -23 | 44 | 67 | 15 | 29 |
| Pittwater | 35 | -3 | 100 | 103 | 22 | 78 | -17 | 54 | 71 | 19 | 35 |
| Port Stephens | 36 | -34 | 62 | 96 | 9 | 53 | -35 | 72 | 107 | 20 | 52 |
| Randwick | 37 | -21 | 56 | 77 | 18 | 38 | -17 | 39 | 56 | 15 | 24 |
| Rockdale | 38 | -35 | 43 | 78 | 18 | 25 | -19 | 39 | 57 | 14 | 25 |
| Ryde | 39 | -29 | 46 | 75 | 16 | 30 | -18 | 22 | 40 | 13 | 8 |
| Shellharbour | 40 | -39 | 71 | 110 | 19 | 53 | -27 | 77 | 105 | 18 | 59 |

*Table C9 Continued*

| | | Units | | | | | Houses | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LGA | No. | Rent Growth | Real Returns | Total | Real Bond Rate | Excess Returns | Rent Growth | Real Returns | Total | Real Bond Rate | Excess Returns |
| Strathfield | 41 | -57 | 62 | 119 | 10 | 52 | -14 | 37 | 51 | 12 | 26 |
| Sutherland Shire | 42 | -24 | 58 | 82 | 15 | 43 | -22 | 44 | 66 | 17 | 28 |
| Sydney | 43 | -6 | 80 | 86 | 19 | 60 | -13 | 41 | 55 | 13 | 28 |
| The Hills Shire | 44 | -33 | 69 | 102 | -1 | 70 | -22 | 37 | 59 | 15 | 21 |
| Warringah | 45 | -27 | 53 | 80 | 19 | 33 | -22 | 39 | 61 | 18 | 22 |
| Waverley | 46 | -10 | 60 | 70 | 17 | 43 | -13 | 41 | 54 | 15 | 26 |
| Willoughby | 47 | -34 | 60 | 94 | 14 | 46 | -23 | 35 | 59 | 16 | 19 |
| Wollondilly | 48 | -34 | 63 | 97 | 16 | 47 | -28 | 47 | 75 | 14 | 33 |
| Wollongong | 49 | -42 | 75 | 118 | 19 | 56 | -26 | 72 | 97 | 20 | 52 |
| Woollahra | 50 | -10 | 64 | 74 | 17 | 46 | -4 | 48 | 52 | 15 | 34 |
| Wyong | 51 | -33 | 88 | 121 | 9 | 79 | -21 | 69 | 90 | 17 | 52 |
| **Mean** | | **-30** | **62** | **93** | **15** | **48** | **-21** | **45** | **66** | **15** | **30** |

*Table C10: VDC of Rent-to-Price Ratios for Units and Houses in Melbourne LGAs*

| | | Units | | | | | Houses | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LGA | No. | Rent Growth | Real Returns | Total | Real Bond Rate | Excess Returns | Rent Growth | Real Returns | Total | Real Bond Rate | Excess Returns |
| Banyule | 1 | -12 | 23 | 35 | 18 | 5 | -16 | 11 | 27 | 14 | -3 |
| Bayside | 2 | -20 | 28 | 49 | 20 | 8 | -13 | 18 | 31 | 15 | 3 |
| Booroondara | 3 | -11 | 35 | 46 | 18 | 17 | -7 | 10 | 18 | 13 | -3 |
| Brimbank | 4 | -25 | 36 | 61 | 16 | 20 | -26 | 5 | 31 | 16 | -11 |
| Cardinia | 5 | na | na | na | na | na | -35 | 13 | 48 | 19 | -7 |
| Casey | 6 | -34 | 14 | 48 | 17 | -3 | -31 | 8 | 39 | 17 | -9 |
| Darebin | 7 | -16 | 36 | 51 | 15 | 20 | -16 | 8 | 25 | 14 | -6 |
| Frankston | 8 | -23 | 35 | 58 | 16 | 19 | -29 | 11 | 41 | 16 | -5 |
| Glen Eira | 9 | -17 | 29 | 45 | 19 | 10 | -13 | 18 | 31 | 13 | 5 |
| Greater Dandenong | 10 | -31 | 18 | 49 | 15 | 3 | -33 | 1 | 34 | 15 | -14 |
| Hobson's Bay | 11 | -25 | 16 | 41 | 14 | 2 | -15 | 15 | 30 | 12 | 2 |
| Hume | 12 | -22 | 67 | 89 | 13 | 54 | -25 | 25 | 49 | 18 | 7 |
| Kingston | 13 | -22 | 18 | 39 | 20 | -2 | -20 | 10 | 31 | 15 | -5 |
| Knox | 14 | -30 | 22 | 52 | 18 | 4 | -17 | 8 | 25 | 15 | -7 |
| Manningham | 15 | -14 | 24 | 39 | 19 | 5 | -14 | 5 | 19 | 15 | -10 |
| Maribyrnong | 16 | -17 | 35 | 52 | 11 | 24 | -18 | 15 | 33 | 12 | 3 |
| Maroondah | 17 | -28 | 17 | 44 | 17 | 0 | -20 | 8 | 27 | 15 | -7 |
| Melbourne | 18 | -72 | 88 | 160 | -4 | 92 | -9 | 30 | 39 | 15 | 15 |
| Melton | 19 | na | na | na | na | na | -14 | 20 | 34 | 14 | 6 |
| Monash | 20 | -12 | 39 | 51 | 18 | 21 | -14 | 6 | 20 | 13 | -7 |
| Moonee Valley | 21 | -22 | 31 | 52 | 16 | 15 | -18 | 17 | 35 | 14 | 3 |
| Moreland | 22 | -21 | 31 | 51 | 16 | 15 | -17 | 19 | 36 | 15 | 4 |
| Mornington | 23 | -47 | 23 | 70 | 16 | 7 | -21 | 14 | 35 | 12 | 2 |
| Nillumbuk | 24 | -16 | 22 | 38 | 16 | 6 | 6 | 19 | 24 | 14 | 4 |
| Port Phillip | 25 | 8 | 70 | 78 | 18 | 52 | -2 | 42 | 43 | 17 | 24 |
| Stonnington | 26 | -20 | 45 | 65 | 16 | 29 | -1 | 29 | 30 | 16 | 13 |
| Whitehorse | 27 | -22 | 18 | 40 | 19 | -1 | -13 | 7 | 20 | 13 | -6 |
| Whittlesea | 28 | -18 | 61 | 78 | 18 | 42 | -22 | 22 | 43 | 22 | 0 |
| Wyndham | 29 | na | na | na | na | na | -16 | 11 | 28 | 16 | -4 |
| Yarra | 30 | -16 | 57 | 73 | 18 | 39 | -7 | 31 | 38 | 16 | 15 |
| Yarra Ranges | 31 | -30 | 14 | 44 | 15 | -1 | -33 | 6 | 39 | 18 | -12 |
| **Mean** | | **-23** | **34** | **57** | **16** | **18** | **-17** | **15** | **32** | **15** | **0** |