

What is housing (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

## **Workshop: After the Boom – Where to From Here?**

What is housing – (consumption good, investment good, asset class, industry, infrastructure), and, what role does it play as an automatic stabilizer?

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## **FOREWORD**

This is a paper about the role of residential housing as an automatic stabiliser prepared for the CHRANZ Workshop, *After the Boom – Where to From Here?* It focuses on the attributes identified through recent inquiries in New Zealand; evidence-based research and other literature from both New Zealand and overseas.

I'd particularly like to thank the Centre for Housing Research and the Reserve Bank of New Zealand for organising this workshop. The selection of papers prepared for the workshop demonstrates the range of housing research that exists about housing in New Zealand. In addition, however, the papers exemplify the considerable amount of knowledge required, both to manage the immediate financial and housing crisis and to maximise the contribution that housing makes over time to families, whanau, society and the economy.

Please note the disclaimer following the Table of Contents.

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## **1 Background and Approach to Define Housing**

The nightmare started in the United States on June 12, 2007. This is when the news broke that two Bear Stearns hedge funds, speculating in mortgage-backed securities, were melting down. This was followed by further financial institution collapses and other consequential impacts that escalated into a world wide recession. Powerful and iconic institutions, including Bear Stearns, AIG, Lehman Brothers and the Royal Bank of Scotland, all failed in major ways.

Residential housing was at the centre of the nightmare where a house price boom, propelled by a rapid increase in credit, collapsed into a free fall bust. While the nightmare was illuminated through sub-prime mortgages, its causes and consequences were wider than that. Indeed, in New Zealand, the house price boom was underpinned by more conventional mortgages.

Everywhere in the world people had been buying houses at high loan to value ratios, often at over 100% of the inflated value of their homes. Americans had had twelve years of strong consumer spending and New Zealanders' consumption was also high for at least six of those years. Since the bubble burst into the recession, stress fractures have emerged around construction and other building-sector related activities with households' debt increasing even while mortgage borrowing is falling away.

There have been impacts in New Zealand that will have longstanding implications for people and their families, businesses, government and the economy. The house prices boom and the impact of an unanticipated fall in housing demand on property developers (prior to the peak in prices) are two of the factors that had a particularly significant impact here.

Residential housing interacts with the economy in a range of ways, but as well as a direct economic value, it also has amenity value. Housing's amenity characteristics are another reason that the consequences of the meltdown are tragic for large numbers of people. Gaining greater knowledge of what housing is, including the role it plays as a consumption good, investment good, asset class, industry and infrastructure, has the potential to develop a more informed housing policy. A case can be made that policy measures that enhance housing's amenity value, also enhance its power as an automatic stabiliser.

### **Recent New Zealand House Price and Consent Trends**

The increase in real house prices that occurred during the past decade occurred in all regions of New Zealand and had an impact on all types of property (urban, rural, commercial, and industrial). This was unlike the mid-1990s boom, which was largely related to the Auckland area.

Interestingly, though, the recent boom has seen price rises for accommodation isolated to owner occupied houses. The prices for rental accommodation in New Zealand have risen less sharply (at about the same rate as overall inflation). [FEC, 2008 p.20]

In 2008, house prices softened, reflected in slowing house sales and some house prices decreasing below their valuation. The time taken to sell a house had increased, reflecting lower levels of demand for housing. These factors put downward pressure on house prices.

A leading indicator of housing market changes, residential building consents, showed a 40.8 percent fall in May 2009, compared with the same month a year earlier. Consents fell at a slower rate of 20.1 percent in June 2008. Consents normally result in a completed dwelling within a year so this fall reflects a rapid slowing in dwelling construction.

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This drop in New Zealand dwelling construction happened in combination with declining household consumption, employment and overall economic growth. By June 2008, inflationary pressures were no longer coming from the housing market but from increased fuel, energy and food prices.

On 26 July 2007, the RBNZ raised the official cash rate (OCR) to 8.25 percent and kept it there for nearly a year. Then, on 24 July 2008, the Governor of the RBNZ dropped the OCR by 0.25, from 8.25 percent to 8.00 percent. This drop came after a year of softening in bank mortgage lending and around six months of softening house prices.

A question debated at the time is whether the decision to keep the OCR at above 8.00 percent between July 2007 and July 2008 had prolonged high house prices in New Zealand for several months after prices softened in other countries. Certainly, by 2007 New Zealand building consents were at their lowest in 22 years.

The RBNZ Governor did respond to the slowing economy by dropping the OCR continuously in the second half of 2008 and into 2009. On 12 March 2009, the OCR was dropped to 3 percent. On 30 April this year, it was dropped to 2.50 percent.

A month ago, on 8 June 2009, Quotable Value New Zealand (QVNZ) published figures that showed New Zealand house property prices fell 8.1 percent in the year to May 2009. While the fall was a slight improvement on the 9.2 percent fall recorded for the year to April 2009, the national average house sale price declined from \$372,981 in April to \$371,555 in May. QVNZ spokeswoman, Glenda Whitehead, noted that:

*“The coming winter months are traditionally a slow period for the property market and will provide a true test...”*

Shortly after the publication of these figures, Terralink published figures that showed mortgagee sales had reached 1 for every 25 transactions in April 2009. This was the highest level of mortgagee sale transactions in 15 years. In April 2009, there were 251 forced sales compared with 90 in April 2008. The numbers of forced sales have increased consistently month on month during 2009. These sales are hitting ordinary homeowners with 36 percent of the forced sales driven by the major trading banks.

Further, a Dominion Post article on 25 June 2009 reported trading bank research that showed around a quarter of mortgagees could not change banks to find better mortgage terms because their loan to value ratio exceeded the equity in their home.

The official New Zealand Treasury forecast is for house prices to continue to decline, identifying rising unemployment as a key determinant of reducing demand for housing. Treasury estimates that house prices that already declined in March year 2009, will decline by another 12 percent in the year-ended March 2010. It is important to note, though, that net migration flows (New Zealanders returning home) are generating demand for housing when the housing stock is already in short supply. The price effects of their purchases of housing at the margin may offset what would otherwise have been a more dramatic fall in house prices.

## **Approach**

There has been much recent official inquiry in New Zealand related to volatile house price trends. This inquiry has addressed topics that have a direct relevance to understanding the many contributions made by the residential housing market, with both financial and social effects. Housing trends relate to trends in the business cycle. The next step is for the conclusions from the inquiries to be reviewed with the aim of implementing policy change in a way that is most beneficial to New Zealanders, their social wellbeing and the economy.

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The case made by this paper is based on conclusions that have been reached by these various inquiries. This includes the 2007/08 Finance and Expenditure Select Committee (FEC) Inquiry into the Future Monetary Policy Framework (FEC Inquiry), the Department of Prime Minister and Cabinet's House Prices Unit (DPMC) Report and the publications of the Commerce Select Committee Inquiry into Housing Affordability (CSC Inquiry).<sup>1</sup>

Leamer [2007] provides a perspective about the importance of housing's influence on the business cycle. He concludes that:

*"...Keynesian thinking, monetarism, rational expectations and the real business cycle all suffer from the same problem – too much theory and not enough data. In particular, none of these comes to grips with the role of housing in modern US recessions...if you look up "real estate" in the index to Mankiw's (2007) best selling Principles of Macroeconomics, you will find real exchange rates, real GDP, real interest rates, real variables, and even reality, but no real estate. Under "housing" you will find a reference to the CPI and to rent control, but no reference to the business cycle..." [Leamer 2007, p.1]*

In fact, Leamer was unable to find any macroeconomic textbook that places real estate front and centre in the analysis of the business cycle. He likens the current state of macroeconomics to the state of medicine in 18th century France where the physicians staged high level and never got below the skin. Leamer quotes Frederick Brown's biography *Flaubert [18--]*, pg 12] that described things as follows:

*"Never dissecting a dead person or laying hands on a sick one, future physicians became thoroughly conversant with Hippocrates and Galne, but remained largely ignorant of humanity in the flesh. Proud to be called antiquarum tenac, this establishment, which scoffed, for example at William Harvey's discovery that blood circulates, regarded surgery as a subordinate discipline, a manual or "mechanical" trade, fit for the dexterous and the inarticulate...Threatened as they increasingly were, they sought shelter from modern times in the distinction conferred upon humanists by their knowledge of the language that gave one access to medical scripture. However skilful the artisan, without Latin he spoke without intellectual authority."*

Leamer notes further that the lack of knowledge about housing is a bigger problem than with just how it is treated in theory. Even empirical researchers appear to have ignored the role housing plays in the economy.

*"The NBER macroeconomics data miners have largely missed housing too...Housing is treated with the same level of interest that housing starts has in the Index of Leading Indicators: one of many things that might predict a recession..." [Leamer, 2007 pg 2].*

He exclaims:

*"Something is wrong here. Housing is the most important sector in our economic recessions and any attempt to control the business cycles needs to focus especially on residential investment. But housing presents a special control problem because monetary policy affects mostly the timing of the building but not the total building...After a surge in building, there has to be a time-out, like we are experiencing today, before building can get back to normal, and before this channel through which monetary policy affects the real economy is operative again. **The FED can stimulate now, or later, but not both.**"*

Leamer carried out a number of compilations including a analysis (applying various econometric tools) of the contributions of housing to GDP growth. He finds that residential investment appears to make only a small contribution to long-run growth, but for recessions and

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<sup>1</sup> In addition, the Cabinet Paper 'Policy proposals to improve choices and reduce costs in the housing market' and the Local Government and Environment Select Committee were also included as part of the review of current and on-going New Zealand-based inquiries and/or proposed legislation.

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recoveries, “residential investment is very very important.” [Leamer, 2007, p. 10]. “*It is residential investment that contributes most to weakness before recessions.... It’s a Consumer Cycle, not a business cycle...*” [Leamer, p. 16]

The implications of this are that prevention of a consumer cycle requires special focus on the volatile components which, according to Leamer’s regression analysis, include investment in residences and durables. In other words, to reduce volatility and sustain the economy, it is important to target the sustainable building of homes and cars, and sustainable rates of appreciation of homes [Leamer, p.17].

### **Amenity Value of Housing**

A complex set of relationships determines the outcomes for residential housing. This important sector contributes in a fundamental way both to the wealth of the nation, as well as to the health of the population and its social cohesion.

Macroeconomic research of the interface between housing and monetary policy should take into account the complexity of these relationships. Knowledge of the inter-relationships is needed to achieve an optimum balance between households, banks, the financial system, the external tradable sector and the economy at large.

Based on its size relative to the rest of the capital market in New Zealand, housing is a major asset class (though it seems to be rarely treated as such). Housing also has amenity value and it provides shelter given the other tangible and intangible features of a home. To be more effective, macroeconomic policy needs to be more developed to take into account both these important attributes of housing because: (1) they directly influence housing values and economic stabilisation; and (2) of the indirect role that housing plays to underpin the security and social cohesion of a country, through, amongst other things, its (positive) effect on health, education, labour force participation and productivity. These features of the housing market are described by the DPMC [DPMC, 2008] in the *House Prices Unit Report*.

Mishkin [2007] and the International Monetary Fund [IMF, 2008] examined how housing contributes to macroeconomic trends. They note that investment in housing has the advantage over other investments, even where other investments provide a higher overall rate of return, because of its characteristic as a form of disciplined savings.

In other words, for those who strive to own their homes, home purchase and mortgage repayments are a compulsory form of saving. This aspect is what makes housing one of the few forms of both consumption and saving. It is also important to recognise that for a majority of homeowners, housing is their only form of long-term investment.

### **Profile of the New Zealand Housing Market**

Total New Zealand occupied dwellings equalled 1,454,175 according to the 2006 Census. Over 1,000,000 of these were owner-occupied dwellings. Owner-occupied dwellings were 66.9 percent of all dwellings as at the 2006 Census, compared to 73.8 percent in 1991.

A feature of the New Zealand housing market is the growing stock of homes owned by non-occupiers, including private persons, trusts or businesses. Also part of the non-occupier category were 172,836 unoccupied dwellings in 2006. These include second or holiday homes and the rising (though still small) number of homes owned by non-residents. While the number of overseas owners is relatively small, it can have an impact on prices at the margin, particularly for higher priced homes.

At the same time that the housing boom “crisis” was attracting the attention of financial-sector policy advisers, affordability was creating concerns throughout the economy [Treasury, 2006]. The affordability issues generated responses across a range of government agencies including

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Treasury, Housing New Zealand Corporation (HNZC), Ministry of Social Development (MSD), Ministry of Health (MOH), the Department of Building and Housing (DBH) and State Services Commission (SSC), leading to the focused initiative led by DPMC to set up the House Prices Unit.

The DPMC House Prices Unit reported:

*“Another observation relates to the difference in the input of housing prices on those with and without homes. When house prices increase, there is a redistribution of wealth from non-homeowners to existing homeowners. A mortgage-free homeowner may regard ownership as a hedge against rising house costs. Other advantages to existing homeowners are that they can use the investment equity to borrow against consumption and/or assets and/or to sell and accumulate equity.”* [DPMC 2008, p.14].

Focused on housing affordability, the CSC inquiry aimed to ensure that as many New Zealand families as possible are able to achieve the goal of home ownership at a fair and reasonable price. The focus of the CSC Inquiry was to identify and quantify all components of the cost of housing for first home buyers in New Zealand and examine significant shifts over time. Related to monetary policy, the CSC considered households' ability to service debt (to meet costs that include mortgage interest rates) and to access finance and the range of financing products available to first homeowners.

These formal inquiries into housing were initiated during the New Zealand house price boom. This was prior to August 2007, when the sub-prime crisis caused a collapse of world financial markets. Even so, a number of useful observations can be made when the relevant submissions and reports from the inquiries are considered when examining recent changes in the residential housing market.

The following sections briefly discuss the role of housing as a consumption good, as an asset class and investment good, its contribution to industry and as infrastructure. Based on this, Section 6 outlines how this provides a wider context for interrogating housing and macro-economic trends and Section 7 summarises the way this systematic approach can be applied to address the current crisis.

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## 2 Housing as a Consumption Good

For many families, purchasing a house is the most significant consumption decision in their lifetime. Unlike many consumption items that are used up soon after purchase, however, a house is expected to have a long life. The expectation is that a house will have a life of at least fifteen years according to warranty cover, fifty years based on depreciation guidelines and there are well-built homes in New Zealand that are over 150 years old. This compares with the average age of existing New Zealand housing stock which is over 60 years.<sup>2</sup>

The impact of changes in asset values on household spending and saving decisions mean that house price fluctuations have been a key factor taken into account by monetary policy decisions (particularly noticeable in the last five years). This is not only because these price rises added directly to inflationary pressures but also because of perceptions that they impacted on consumption (and the resulting additional demand for goods and services put upward pressure on prices).<sup>3</sup>

Availability of credit prior to the recent recession meant that people could trade up to a larger/better house, or simply use some of the equity in an existing home to finance either consumption spending or a purchase of an investment property. Both are evidence of housing as a consumption good.

The net appreciation of house prices during the first half of this decade did result in an increase in household wealth for many home owners. In its submission to the FEC, the RBNZ argued [RBNZ submission, 2007] that this then stimulated household consumption and aggregate demand.

These trends are described in the macroeconomic literature as standard life-cycle wealth effects operating through house prices. They are specified as an important element in the monetary transmission mechanism. It is because of this effect that changes in house prices are of interest to central banks.

A question addressed by some submissions and advisors to the FEC Inquiry was about how closely correlated consumption spending is with the residential house-price cycle. An effect of rising house prices on wealth is that higher net worth enables people to fund more consumption either by borrowing against the higher-valued assets, applying increased income to consumption rather than increasing mortgage repayments and/or by passive withdrawal of the increased equity when the house is sold.

The New Zealand Chambers of Commerce told the FEC:

*“Big increases in the value of houses make people more willing to borrow more and encourage people to go out and purchase. They feel more confident about their own wealth and are prepared to go out and buy some goods they perhaps wouldn’t [sic] be buying if they felt that times were tougher.” [FEC, 2008 p.20].*

The FEC noted *“that this has been encouraged by the active promotion by some banks and financial institutions of mortgage-funded spending. Understanding the reasons for rising house prices is important for monetary policy. While house prices may move in response to changes in the fundamental determinants of demand and supply, such as changes in construction costs, the supply of land, demographics, and cultural factors, they may also move for speculative reasons – in the expectation that in the short-term house prices will rise above their long-run fundamentals.” [FEC, 2008 p.21].*

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<sup>2</sup> There is a wide range in the quality of the housing stock with some estimates suggesting as much as 90 percent of the housing stock requiring significant adjustment to meet current building standards.

<sup>3</sup> The RBNZ’s *Financial Stability Report* November 2008 has revised the value of residential housing assets to \$592 billion as at June 2008.

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In the past several years, prior to July 2008, the RBNZ warned consumers in its Monetary Statements and other public releases that increased consumption should not be based on an apparent increase in the equity of their homes. The RBNZ pointed out that the rises in asset values was caused by more accessible credit and demand pressures contributing to housing price rises, rather than a change in the long-run fundamentals of home ownership.

An implication of the RBNZ's recent Monetary Policy Statements is that if households had saved, rather than purchasing over-priced housing, there would have been less demand pressure on housing. In addition, by saving, rather than consuming, there would have been less pressure on consumer prices overall. It would be easy to conclude with hindsight that the RBNZ's statements were right on the mark. Certainly in comparison with the United States where both the Clinton and Bush Administrations were actively pushing low-income families into home ownership during the boom period, the RBNZ's stance was the prudent one.

This issue, however, provides another example of the need for deeper research about the interactions between residential housing and monetary policy, to develop a knowledge base about what is happening to households' other activities. Turning to the behaviours of households since the deterioration in the economy, a question is whether households over-reacted by slowing consumption too much.

Mishkin [2006] outlines a range of contrasting views about whether consumption is affected more by changes in housing wealth more than by other sources of wealth. He comes to the conclusion that the answer to this question is inherently empirical. Reference to the empirical evidence, however, is inconclusive.

Case, Quigley and Shiller [2005] analysed pooled cross-country time-series data and found that the elasticity of consumer spending to housing wealth is between 11 and 17 percent, while it is only 2 percent for stock market wealth. Others find less difference but the elasticity is higher for housing. Ludwig and Slok [2002] find the effects from housing wealth exceed those from stock market wealth in 16 OECD countries.

When Case, Quigley and Shiller [2005] conduct a similar analysis on state-level data for the United States, they find that the elasticity of consumer spending to housing wealth is between five and nine percent, while the elasticity with respect to stock market wealth is not statistically different from zero. On the other hand, when they used Australian state-level data they found that the stock market has a larger effect than housing wealth.

There is also research, by Attanasio and others [2005] that suggests that house prices and consumer spending tend to respond to a common factor that is not directly measured – the factor might be more related to income expectations than to the additional wealth from appreciation in house prices.

Summing up the empirical work, Mishkin [2006, p.15] believes that the evidence is too mixed, partly because of the limitations of available data. He is *“sceptical of conclusions based on cross-country results in the literature because they do not account for the fact that housing – wealth effects should be expected to vary considerably across countries, given substantial institutional differences in the structure of their financial systems and distributions of income and assets across households.”*

The other empirical evidence that Mishkin considers [2006, p.16] is empirical research on mortgage equity withdrawals on consumer spending. Here he is also sceptical of the results to date that have been based on information about what home owners spend when they withdraw additional mortgage equity. The research to date fails to clearly isolate causality so it is not possible to be conclusive whether households are making purchases that they would not have otherwise made were the mortgage finance unavailable.

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An important point about observations from the macro-econometric models used at the United States Federal Reserve Board about the long-run propensity to consume out of financial wealth (whether wealth is from stocks, real estate, or other assets) was made by Mishkin [2007, p.9]. The observations that show these are based on relationships embedded in the models. In other words, these relationships drive the models – they are not empirically-based results discovered through application of the models.

Mishkin notes in addition, that the consumption effect derived from changes in housing wealth is likely to be larger than that derived from other assets, particularly equities, because housing assets generate wealth for a much larger proportion of the population than other forms of wealth. For example, in New Zealand, about two-thirds of households are homeowners but very few households invest in the stock market. As at December 2008, the market capitalisation of the New Zealand stock exchange was less than 10 percent of the value of housing assets.

A Bank of England working paper by Attanasio, Blow et al. [2005] did explore these consumption effects using empirical data and concluded that over much of the past 25 years, the cycles of house price and consumption growth have been closely synchronised. The paper examines three main hypotheses for this co-movement that have been proposed in the literature:

- first, that an increase in house prices raises households' wealth, particularly for those in a position to trade down the housing ladder, which increases their desired level of expenditure;
- second, that house price growth increases the collateral available to home owners, reducing credit constraints and thereby facilitating higher consumption; and
- third, that house prices and consumption have tended to be influenced by common factors.

The Bank of England found that the relationship between house prices and consumption is stronger for younger than older households, and that the consumption of home owners and renters are equally aligned with the house price cycle. The authors believe that this suggests that neither the wealth nor the collateral channels have been the principal cause of the relationship between house prices and consumption—instead, the most important factor is likely to have been common causality.

Aron, Muellbauer and Murphy [2006] find that there is widespread disagreement about the role of housing wealth in explaining consumption. Unfortunately, much of the existing empirical literature is marred by poor controls for the common drivers of house prices and consumption, such as income, income growth expectations, interest rates, credit supply conditions, other assets and indicators of income uncertainty (e.g. changes in the unemployment rate).

For instance, while the easing of credit supply conditions is usually followed by a house price boom, failure to control for the direct effect of credit liberalisation on consumption can over-estimate the effect of housing wealth or collateral on consumption. Aron *et al* estimate an empirical model for United Kingdom consumption from 1972 to 2005, grounded in theory, and with more complete empirical controls than hitherto used.

Lehnert [2004] illustrates the nature of research that is possible when there are longer-term data sets available, such as that 1968-1993 United States panel study of income dynamics. He tests the credit-market effects of housing wealth shocks by estimating the consumption elasticity of house price shocks among households in different age quintiles. Younger households face faster expected income growth and hence would like to borrow more than older households. He estimates consumption elasticities from housing wealth by age quintile. As predicted by theory, the youngest group has a higher elasticity of consumption than the next two age quintiles.

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Lehnert's approach defines another area where investigation of specific housing trends might inform policy that would make a difference to housing volatility and affordability:

- housing choices are made by factors that tend to materialise in different age cohorts, particularly with regards to their behaviour towards a housing asset as a wealth gain, or loss buffer;
- younger cohorts use the house as an income buffer, and older cohorts (near retirement age) have the highest sensitivity to wealth gains; and
- conversely, some younger households do have a high sensitivity to wealth gains, due to the number of times that they move and in doing so, realise some capital gain.

In conclusion, there appears to be empirical evidence to support policy concerns about the potential for housing asset value changes to impact on consumption. Further empirical investigation is required, however, to better understand the magnitude and timing of this impact, the associated role of automatic stabilisers and most importantly, whether what is happening to household well being in both the short and long term is having other (negative) offsetting impacts on economic activity which is averaged out or simply unspecified by the models used to monitor macroeconomic trends.

Clearly, there is some relationship between housing and consumption by the household. The monetary policy mechanism as currently specified does not capture the elements of this in a way that leads to a comprehensive understanding of housing's potential to reduce volatility.

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### **3 Housing: Asset Class and Investment Good**

New Zealand's residential housing asset class was valued at \$617 billion in December 2008 [RBNZ, 2008]. In comparison, the capitalisation of the NZ Stock Exchange (NZX) was \$54 billion [NZX 2008] and funds under management were \$74 billion [Statistics NZ 2008]. RBNZ 2007 data show that housing's share of total household wealth in New Zealand rose from around 60 percent in 1970 to just over 70 percent by 2006.

Furthermore:

- mortgages lent on housing assets are the biggest liability of the New Zealand financial system.
- the Government's state housing is its third largest asset (after the electricity and road transport infrastructure).

From the above comparison of asset values, it is clear that residential housing is a major asset class. On the asset side, household balance sheets tended to expand relative to income as rising house prices contributed to rising house asset prices. Household balance sheets will be contracting now that house prices are falling. It is important, however, to analyse this in relation to the profile of home ownership.

#### **Segmenting Housing by Ownership**

For the third of New Zealand homes owned without mortgage, the value of their holdings of housing assets will have expanded as the house prices rose without a matching rise in liability. For those households aware of their balance sheet, there would have been a recognised increase in their equity during the house price boom and a fall since. Their equity in other investments would have fallen in the downturn.

It is the third of households with outstanding mortgages who are likely to be most acutely aware of the boom and bust of house prices. For them, the asset values will have increased with house prices, but the level of mortgage interest rates and the overall levels of mortgage debt would have impacted on the household's net asset position. It is likely that their level of debt funding was increased relative to their incomes in order to fund more housing as prices rose. Now that house prices have fallen, a proportion of this group will have mortgage obligations that are of a higher amount than value of their homes. The majority of this group will have experienced a serious fall in both their equity in their homes and their overall equity. While this may have been partially offset by reduced liability from falling interest rates, the stickiness of interest rates downward and that preponderance of fixed mortgages will have limited this for the majority.

The other third of the population lives in rental accommodation. There is evidence that the increase in the supply of rental properties, purchased for investment purposes during the boom phase, may have been a factor keeping rent increases or at below the rate of inflation. In current market conditions, however, there are pressures that could bring rentals up coming from landlords desperate to meet mortgage obligations, an increase in demand from previous mortgage holders needing to sell down and from those who would otherwise want to become home owners needing to stay in the rental market longer in order to save the larger deposit now required.

In conclusion, the downward change in housing asset values has the potential to slow the economic upturn. The consequences of this for the residential housing market could be dramatic because household balance sheets will be further stretched.

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### **Segmenting Housing as an Investment Source**

Two other segments of the housing market to consider are those households whose balance sheets include both personal home ownership and property investment and those households who borrowed against their mortgages for business purposes.

Evidence that it was the rising house (asset) prices, rather than the prospect of rental income, that attracted investors into the housing market, was examined in an analysis of data by Scobie, Le and Gibson [2007]. They found that 15 percent of all households in New Zealand owned an investment property, including holiday homes, rental property, timeshares and/or overseas property. Further, Scobie et al.[2007] found that around 12 percent of households in the 45-54 age group own investment properties, compared with 5 percent in the 25-34 and 65-74 age groups. Of those households that owned investment property, around half owned two investment properties, around a third owned one property and the rest owned three or more investment properties.

The ANZ Property Investors Survey [ANZ, 2007] shows that property investors tend to be higher income earners, with a mean annual household income of \$80,000 - \$90,000 and with 37 percent having household income in excess of \$100,000.

Responses to this survey added to the evidence of a growing number of people purchasing properties as investments during the housing boom. When house prices were going up, many of these investors were responding to the potential capital gains from the then rapidly increasing house prices.

The National Landlord Survey [Centre for Research, Evaluation and Social Assessment, 2003] outlined the following benefits of owning rental properties as identified by landlords:

- 38 percent cited capital gains;
- 32 percent cited regular income stream;
- 25 percent cited retirement investment/income;
- 9 percent cited tax advantages; and
- 8 percent cited rent paying off the mortgage.

The 2003 National Landlord Survey also found that over 20 percent of landlords had been landlords for less than a year and over 50 percent had been landlords for less than eight years.

Turning to those households who borrowed against their mortgages for business purposes, there is anecdotal evidence that this is a large group.

There are around 350,000 business entities in New Zealand, with over 80 percent employing five or fewer people. Many of these entities rely on housing finance to capitalise their businesses. Further research is required to understand the implications of the recent boom / bust cycle on their business activities (and their households).

### **Conclusion: Housing's Role as an Asset Class is Complex**

Analysis of the impact of the residential housing market by segment indicates that any policy that treats households in a "one-size fits all" fashion will fail to address both the role of housing as New Zealand households' largest asset and the economic consequences felt by home owners as the boom and bust in house prices has dramatically swung their balance sheets from strong to weak.

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

#### **4 Housing's Contribution to Industry**

During the peak housing activity, there was significant growth in non-bank sources of mortgage lending worldwide. In New Zealand, this included mortgage brokers and other mortgage providers who operated outside the Basel I provisions. Transactions by these non-bank financial institutions are likely to have contributed to the expansion of credit in the first half of the decade, underpinning the boom. During the boom, many property developers acquired finance from non-bank sources both to purchase land and to invest in construction developments. The failures of these non-bank financial institutions contributed to the current downturn in New Zealand. The softening of immigration from 2007 and the consequent reduction in demand housing pressures is likely to have impacted on property developers in a way that caused them to accelerate the downward spiral in the New Zealand housing market.

The role that the construction industry plays in the economy is described in the Department of Building and Housing November 2008 briefing to its incoming minister (its BIM).

Noting that “*Activity in the building and construction (including housing) sector has a significant impact on New Zealand's economic performance*”, other relevant points from the DBH BIM are paraphrased below:

- the sector contributes around 5% GDP;
- the total capital spend in the building and constructions sector is more than \$20 billion per annum of which around \$8 billion is surplus after input costs;
- the sector also contributes to activity in a number of related sectors (manufacturing, transport, property and business services);
- it has a significant impact on consumption levels (home ownership and the value of people's homes affects their perceptions of their wealth and financial security);
- currently about 176,000 people are employed in the building and construction sector (about 8% of people employed in New Zealand in 2007/08) – this figure is projected to decline as a result of the current economic downturn; and
- housing, along with commercial/industrial construction, is a key component of the infrastructure needed to support the successful growth of Auckland (and other cities).

Prior to the house price bust, there were signs of the development of a construction industry that was becoming more responsive to changes in housing demand. Growth in building consents and dwellings initially lagged behind the sharp population growth associated with net migration inflows during 2002 and 2003, [DPMC, 2008 p.35]. By June 2003, however, consents for new dwellings reached 30,000 per annum and increased further to more than 33,000 in the year to June 2004, before dropping back to around 26,000 a year in the 2005, 2006 and 2007 June years. This represented a sizable step up in building activity from a historical average of around 20,000 building consents a year.

Also important when considering housing construction is its wider economic impact in regard to job creation for those feeding raw materials into the industry, product demand and so on. This was described in the Housing 2008 BIM.

*What happens in the building and constructions sector has a “multiplier effect” on the wider economy. The level of activity and the productivity of the sector will be important to New Zealand's economic recovery and growth”. [Housing BIM, 2008].*

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

Other relevant points from the Housing BIM are listed below:

- The surge in demand for new houses from the mid- 1990s lifted prices, and while the number of dwellings has risen in line with the population, the cost of supplying new dwellings has increased sharply:
  - population growth, lower interest rates during much of the 1980s and 1990s, and, increasing availability of credit, all contributed to the boost in demand; and
  - expectations of future price increases also played a role then, driving prices higher;
  - the magnitude of this impact is highly uncertain;
  - supply responses in the housing market tend to be slow as it takes time to turn undeveloped land into new houses or to subdivide land;
  - not all regions have seen increased dwellings to match population growth, with shortfalls in supply emerging in some areas - particularly Manukau;\*
  - this surge in demand increased the construction industry's need for resources and increased the prices of sections, materials and labour as well as lifting margins in the industry.

The net result of the growth in building activity until 2007 was an increase in dwellings. Between the 2001 Census and 2006 Census, there was an addition of 125,000 dwellings throughout New Zealand. Around 110,000 of these were new occupied dwellings, with an increase of around 15,000 unoccupied dwellings.

This large increase in dwellings is somewhat different to the experience of some countries where the house price booms was seen as the direct result of housing supply unable to keep pace with housing demand. For example, this was the experience of both the United Kingdom and Australia, where the supply response was more muted.

The DPMC [2008, p.37] applied assumptions about household size and building consents, to Statistics New Zealand population data to further analyse supply trends. This analysis found a shortage of dwellings at the aggregate level in 2002 and 2003. This shortage appears to have been more than filled by surpluses in the following years, suggesting that there was no shortage of dwellings by June 2007, for both average household sizes of 2.5 and 2.7 used in the analysis.

If the desired household size is assumed to be 2.3 people per household, then the analysis suggested that there was a small shortage of households in 2007. A household size of 2.3 people, however, is lower than the Statistics NZ projection of the expected average household size by 2021.

The numbers are also sensitive to assumptions about the percentages of building consents that end up as new dwellings. For example, if an assumption of 70 percent is used, the implication is that there was a shortage of houses in 2007.

With the increase in dwellings between the 2001 Census and the 2006 Census of around 125,000, there were just under 138,000 new consents that were issued over the same period. This calculation suggests that 90 percent of consents were converted with new dwellings.

DPMC further noted that *“the use of a conservative estimate of 80% of building consents being converted into dwellings builds in an allowance for the construction of holiday homes that are not occupied by households on a regular basis.”* [DPMC, 2008 p.38]

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

Further indicators examined in the DPMC, Report [2008, p.41] include relatively flat rent price changes in recent years and little change in the housing crowding statistic reported in the 2007 Social Report [MSD 2007]. This supports the hypothesis that the increase in dwelling stock is close to that required to house the population, although there are some regions where there may still be excess demand. There was some levelling off of the long-term decline in crowding in Manukau and “*signs that shortfalls have emerged in the Auckland region. These shortfalls are likely to have added to price pressure and led to some increase in average household size.*” [DPMC, 2008 p.41].

There is a careful balance to be achieved between housing supply and demand. Given the number of determinants of demand and supply, more knowledge is required.

### **Relationship between the Building Industry and the Financial System**

Housing has led economic activity back up during previous economic downturns. Certainly, the apparent under-supply of housing suggests that this could happen in the current cycle.

Construction capacity, however, is highly dependent on access to finance and the availability of land for construction. While the downturn in the economy has led to reduced prices for land, there is evidence that many sellers are hanging on to it rather than sell at the lower prices. This may be one reason why access to land remains a problem for the home construction industry.

Another challenge caused by the current recession in New Zealand is that the nature and structure of the construction industry has changed from the boom period. Many property developers have been effected by the collapse of the finance companies. Any systematic analysis of the residential housing market needs to include a comprehensive interrogation of the drivers behind this sector. For example, continuing high interest rates in real terms will impact on both construction costs and housing demand. A barrier for many builders, though, may be getting finance at all.

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

## 5 Housing as Infrastructure

Amongst housings' attributes is its role as part of economic (and social) infrastructure. Given the Government's current priority to develop New Zealand's infrastructure, there are benefits in recognising the role that housing plays in infrastructure planning and development.

Below are some pertinent observations:

- during the boom, new housing supply tended to come in the form of large, relatively expensive houses on the fringes of cities, which added to pressure on infrastructure costs shared between less dense populations spread over wider spaces, or new developments in new areas without infrastructure;
- housing, along with commercial/industrial construction, is a key component of the infrastructure that will support the successful evolution of the Auckland "Super City" (and other cities);
- permanent migrants now include an increasing number of returning New Zealanders and (despite the recession) there is a continued need for appropriately-skilled migrants, creating a requirement for more new houses;
- planning the supply of housing as part of the infrastructure requirements of changing populations is important for managing the otherwise potentially inflationary impacts of the housing market.

The FEC addressed the role that housing plays in the development of infrastructure.

*We recommend to the Government that recognition be made of the infrastructure requirements of increasing population, and that it ensures that neither immigration policy nor inadequate infrastructure act as constraints on non-inflationary growth. [FEC, 2008 p.24-25]*

In addition to the boxed recommendation above, relating to housing and its role in infrastructure, the Government notes in its response to the FEC inquiry that it proposes to:

- *“review legislation and regulations around urban design to simplify procedures, lower costs and improve building;*
- *encourage the Reserve Bank to continue to communicate its views on the housing market and how housing impacts on inflation and the wider economy, and for it to get involved in wider reviews of the housing market and options for dealing with the problems;*
- *enhance the Residence Programme, including a new visa type to allow qualified individuals to be in New Zealand for a short period while they search for high skilled employment;*
- *create an infrastructure Ministerial portfolio and the development of a 20-year National Infrastructure Plan to prioritise infrastructure investment and policy;*
- *continue to improve the understanding of how fiscal policy interacts with the monetary and general economic policy, especially in the context of the current economic and financial crisis;*
- *be more transparent about the relative importance of economic stability in the context of the fiscal strategy; [and]*

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

- *support Statistics New Zealand to further increase the benefit and use of existing data statistics to avoid duplication and where possible reduce compliance costs, subject to privacy issues, and further increase the coverage of the official productivity data series, as technical constraints and budget considerations allow.” [Government Response, 2009 p.2-3].*

### **Productivity Performance**

The RBNZ continues to highlight the distinction between cyclical and structural inflation drivers such as resource scarcity and the impact this has on productivity. Missing from this analysis is the ongoing role that housing plays in supporting and enabling increased productivity.

There has been much recent research on the role of housing and some examples of this have been included in the bibliography. HNZC, with its focus on social housing, CHRANZ research on a range of social housing trends [CHRANZ 2007 a,b,c,d,e] CRANZ [2006], work by CRESA [eg 2007], DTZ [2004, 2005, 007, 2008], Motu, Howden-Chapman [2006], Morrison [2008, 2009], Murphy and others is highly relevant here. The Reserve Bank has undertaken or commissioned work by Briggs, Burns and Dwyer [2007], Coleman [2007]

Based on this research, housing provides a much wider range of goods and services and has a much wider range of impacts than can be seen when the focus of the analysis is on house price trends. In regards to its impact on productivity, housing provides a central meeting place for child rearing where parents can go to work while children go to nearby schools. Macroeconomic models only capture these behaviours in an aggregate way and the description of the monetary transmission mechanism is focused on other things.

Could it be that a faster increase in productivity would be achieved if what is known about housing was integrated into the analysis of productivity? In the absence of a systematic framework to examine this question, the implication is that the answer is no. Yet given the size of the residential housing market, the role it plays in consumption, investment, industry and infrastructure, at the very least it's important to ask the question whether by better understanding the relationship between housing and productivity, it might also be possible to find a lever to increase productivity faster than current rates.

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

## 6 Interrogating Housing and Macro-economic Trends

Leamer was concerned that there was neither macroeconomic analysis nor analysis of housing data trends in the United States. In comparison, New Zealand is well endowed with housing trend data.

BERL [2004] addressed the available housing data, what it shows and the gaps. Since then, there have been further developments in the collection of New Zealand housing data, including, for example, the development of data relating to housing as an asset and routine collection and publication of data about the house construction industry.

The major source of house sales, price and value data is QVNZ. QVNZ regularly updates its valuation and property sales data and its land and improvements house valuation data. Based on this, it routinely updates house valuations for TLA rating purposes using consistent criteria, but at staggered time periods designed to get complete coverage of New Zealand's housing stock over a three to five year period. QVNZ data is a collection of a complete set for every dwelling and is consistent throughout the country. The collection of a consistent set of house valuation data for all existing dwellings nationwide may be unique to New Zealand.<sup>4</sup>

### Trend Data that can be Compiled to Gain Knowledge about Housing

Other housing data that is collected and by whom is listed below:

- Department of Building and Housing – the Tenancy Bond data base, (weekly rent, bond amount, number of bedrooms, landlord type, house or flat from 1987 onwards);
- DBH – collects data on the housing stock, the building industry and managers;
- Massey University – Real Estate Market Outlook Survey;
- NZ Property Council – collects data on commercial property only;
- HNZC – has information on its tenants' demographic and socio-economic status, dwelling data on type, size, age, condition and location; history of tenant rent /arrear data;
- REINZ – residential property sale data;
- Terraline/Terranet – house sale data;
- Statistics NZ – census data and various random samples and surveys (see Figure 12);
- census data includes household tenure, number of bedrooms, number of people living in the house, number of storeys, household characteristics and composition, household income. Ownership (mortgage, non-mortgage or rent deciles);
  - building consents issued, value of building work put in place;
  - housing quality report (predominately based on 2001 Census data);
  - survey of Family Income and Employment (SoFIE), a “wave” survey managed in conjunction with the RBNZ;
  - household Savings Survey 2001 – includes asset and debt data;
  - household Economic Survey.

The Figure below compiled for the DPMC house prices unit describes the data collected by Statistics NZ in more detail.

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<sup>4</sup> Most other countries collect house sales and house valuation data from different sources and New Zealand may be one of the few countries where there is a consistent nationwide series of house price data.

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

**Figure 1: Household Survey Information Available from Statistics New Zealand**

Survey	Period	Survey type	Major information	Respondents
HES	1974-	Random sample. Annual survey up to 1988, triennial afterwards	Household income & expenditures. Some information on assets	Approximately 3,000 private households resident in NZ (2,800 in 2006/07 HES).
SOFIE	2002-	Longitudinal survey - data collected annually from same respondent over 8 years	Record changes in living arrangements, employment, income and wealth	Data collected from over 22,000 eligible individuals aged 15 years and over in 11,500 households in wave 1
HSS	2001, 2009	Random cross sectional nationwide survey	Net worth and income for individuals & couples	5,374 including 2,392 individuals and 2,982 couples (2001 survey)
NZIS	1988-	Random cross sectional nationwide survey. June years	Wages & salaries and other household income	28,000 personal including 5,000 imputed records (June 2007 survey)
<b>Memo item:</b>				
Census	5 yearly (2006)	Official count of NZ population & dwellings	Accurate counts & statistics on characteristics of NZ population and dwellings	4.028m individuals (1.454m households) residing in 1.479m dwellings (2006 census)

HES refers to the household economic survey, SOFIE is the Survey of Family, Income and Employment, the HSS is the Household Savings Survey, and the NZIS is the New Zealand Income Survey.

Source: Statistics New Zealand as published in DPMC [2008].

### Collection of Housing Statistics

As the section shows above, there is considerable housing data available in New Zealand. Statistics New Zealand is empowered through its Act to utilise more fundamental economic information held by other Government departments and entities, rather than imposing new compliance measures in the collection of information.

### Housing as an Automatic Stabiliser

The RBNZ's functions of price stability and the maintenance of a sound financial system both have the potential to work in combination with housing market policy to increase the effectiveness of automatic stabilisers. For example, the RBNZ is working with the banking sector to implement the new international Basel II framework for assessing bank regulatory capital.

A fundamental principle of Basel II is that regulatory capital requirements should be sensitive to risk. In principle, this includes risks associated with the business cycle, where there is a positive correlation of such risks with the business cycle. Hence, it provides scope for managing macroeconomic (including the housing sector) activity. A key feature of good stabilisation measures is that they work automatically responding in a way that balances market interactions and smoothes volatility.

From the above discussion, it is clear that as well as an item in the consumers' price index contributing to price changes, housing is a major asset class. Housing also has amenity value, through providing shelter and the other tangible and intangible features of a home.

Housings' effectiveness as an automatic stabiliser would be increased by taking into account both these important attributes of housing because: (1) they directly influence housing values and economic stabilisation; and (2) of the indirect role that housing plays to underpin the security and social cohesion of a country, through, amongst other things, its (positive) effect on health, education, labour force participation and productivity.

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

There has been much discussion of the role of taxation in contributing to volatility in the housing market. Another area that also requires further analysis, however, is what is happening in the banking system, and in particular, with loan-to-value ratios of mortgage lending.

Noting that housing is both an asset and a source of housing services (measured by imputed income) that can be either owned by the occupier or a landlord, Ellis [2006, pp. 10-11] examines how, given these various features, the tax system can affect behaviour in multiple ways and at multiple points in the life-cycle of ownership. Using BIS data, Ellis compares Australia, Canada, France, Germany, the Netherlands, New Zealand, Sweden, Switzerland, the United States and the United Kingdom looking at the tax effects of mortgage deductibility, capital gains taxes, land/property taxes, tax treatment of negative gearing and depreciation.

Ellis [2006] points out that a transaction tax (such as stamp duty in Australia) has the potential to limit the incentive to turn properties over frequently and in this way reduce the extent that an upswing in housing prices can attract speculative demand aimed at short-term capital gains. Ellis found that there also appears to be a tendency for the average loan to property valuation ratio (LTV or LVR) to be higher in the countries where tax deductibility of mortgage payments is possible, such as the United States and the Netherlands. In the United Kingdom, where the deductibility of owner-occupied mortgage interest has been gradually removed over the 1990s, the prevalence of high LVR loans fell accordingly.

An area for systematic analysis in New Zealand is whether the tax system treatment of home ownership may have led households to acquire housing assets (properties to rent, second homes) in preference to other asset classes. Ellis' analysis of overseas housing trends suggests that this may both have led to higher LTV ratios and added to house price pressures during the boom.

When addressing the current economic downturn, knowledge about the relationship between the housing market and the financial system is important. This includes the examination of trends in loan-to-value ratios, an exercise already underway through the RBNZ. Given housings' wider attributes, this analysis would be enhanced if they could also be included as part of the equation.

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

## **7 Conclusion: Housing – Addressing the Current Crisis**

Housing is a major consumption good, an investment good, an industry and an important part of the New Zealand infrastructure. Housing has amenity value - it provides shelter and the other tangible and intangible features of a home. It is also one of New Zealand's largest and most valuable physical assets.

It is important to understand these important attributes of housing because:

- (1) they directly influence housing values and economic stabilisation; and
- (2) of the indirect role that housing plays to underpin the security and social cohesion of a country, through, amongst other things, its (positive) effect on health, education, labour force participation and productivity.

In addition, investment in housing has the advantage over other investments, even where other investments provide a higher overall rate of return, because of the characteristic of housing as a form of disciplined savings. As discussed above, for those who strive to own their homes, home purchase and mortgage repayments are a compulsory form of saving. This aspect of housing as one of the few forms of both consumption and saving has potential to reduce volatility in both housing and financial markets.

The economics and financial literature, from both New Zealand and overseas, shows that in the absence of a systematic approach for analysing housing trends, a pragmatic approach has been adopted. Housing has the potential to stabilize the New Zealand economy. It is time, however, that consideration was given to developing a systematic approach. Given the impact of the current economic crisis on households' wellbeing, this has the potential to also assist in turning the economy around.

It is important to be absolutely clear that any systematic and comprehensive research of the residential housing market requires more reporting and resources than what is available at the moment in any country.

Having said that, New Zealand is fortunate because of the number of long-term data series it has that are direct measures of housing trends and of important relational trends. By turning this into a systematic approach to housing analysis, there are opportunities to both improve the effectiveness of housing as an automatic stabiliser and as a contributor to social well being. Implementing the systematic approach now has the potential to bring a faster return to sustainable economic growth.

### **Addressing the Current Crisis**

A recent debate, the Great Economic Debate, held in Manukau in June 2009 agreed that New Zealand needs the following economic outcomes:

- (1) controlling inflation
- (2) achieving a less volatile exchange rate
- (3) increasing relative wages which also means raising our overall productivity
- (4) greater proportion of household savings invested in the tradable sector.

Seeing housing for all its attributes has the potential to assist in achieving these ends.

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

A more thorough and comprehensive approach to housing has the potential to address each of these positive outcomes as outlined below.

- (1) Controlling inflation: households have been quick to respond to the downturn, reducing consumption, increasing savings and paying off debt – looking at this response by segment –
  - o home owners who are mortgage free have balanced a real or perceived decline in the value of their largest asset by reducing their liabilities, consuming less to pay off debt;
  - o home owners with mortgages have balanced the reduction in their asset and equity values caused by a decline in their house's value by paying off their mortgages faster, made possible by lower interest rates and lower consumption;
  - o renters are likely to be impacted to a greater extent by unemployment and also by an acceleration in rent increase generated by a reduction in rental accommodation (as land lords sell) and through attempts by other landlords wishing to reduce their mortgage liability through rent increases.
- (2) Achieving a less volatile exchange rate – banks and other finance companies access international credit for lending, with mortgage lending making up by far the largest proportion of this lending. A more stable housing market will contribute to a slower increase in the money supply because less lending will be required and this will, in turn, help smooth out some of the volatility in the exchange rate.
- (3) Increasing relative wages (which also means raising our overall productivity) can be supported through a stable housing market where families can respond flexibly to labour market trends, moving easily between locations, and where the home building industry can grow in a stable way through the seamless construction of quality new/redecorated homes in areas where the new jobs are.
- (4) Greater proportion of household savings invested in the tradable sector has an increased probability of being achieved when households have the security of tenure in accessible, quality housing and can engage in productive activity that either helps generate growth in exports and tourism or contributes to a reduction in imports by using locally produced raw materials instead.

## **Conclusion**

This paper makes the case that housing has a number of attributes that determine its influence of the macroeconomy. Hence, a more systematic interrogation of housing data would provide knowledge both for managing trends in house prices as well as enhancing the other positive attributes that housing has. An important consideration is that unlike many other countries, New Zealand researchers and policy advisors already have access to much of the data required to undertake this more comprehensive analysis.

New Zealand, however, shares two key knowledge gaps with other countries. One gap relates to financial information, including historical analysis and forecasts, of mortgage loan to value ratios. The second key gap relates to the requirement for a systematic approach designed to interrogate the relationships between different housing drivers. This requires a cross agency/cross sector, public/private initiative to compile relational-data in a systematic analytical framework. This is then monitored and evaluated by housing experts with the background to develop the analysis into knowledge.

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

## Appendix A Glossary

Automatic Stabilisers	Government programmes and/or interventions used as a tool to reduce fluctuations in real GDP. They change, or are triggered automatically, based on GDP and individual's income, without any explicit policy action by the government.
Basel I	International prudential guidelines for trading banks that set out risk regulations for balance sheets.
Basel II	Updated international guidelines that set out risk projections for balance sheets. Include higher risk weights for mortgage loans to valuation ratios of 80 percent or over. Adopted by New Zealand's major banks in 2008.
BIM	Briefing to the Incoming Minister – reports by government agencies to ministers in a new government.
BIS	Bank for International Settlements
CHRANZ	Centre for Housing Research Aotearoa New Zealand
Consumer Sovereignty	Revenue earned directly by the RBNZ through the exchange of coins for bank notes. This independent source of funds provides resources to support the independent operations of the RBNZ.
CSC	Commerce Select Committee
CSC Inquiry	Commerce Select Committee Inquiry into Housing Affordability
DBH	Department of Building and Housing
DPMC	Department of Prime Minister and Cabinet
FEC	Finance and Expenditure Select Committee
FEC Inquiry	The Finance and Expenditure Select Committee Inquiry into the Future Monetary Policy Framework.
FED	Federal Reserve Bank (United States Central Bank)
GDP	Gross Domestic Product – a change in GDP is the change in economic growth.
HNZC	Housing New Zealand Corporation
Loan to Value Ratio (LVR)/ Loan To Valuation ratio (LTV)	The ratio of mortgage value to house and/or property value – $\text{loan to valuation ratio} = \frac{\text{loan value}}{\text{property value}} \times 100$
Macroeconomics	The study of aggregate national economic activity as a whole which includes analysis of growth, inflation and unemployment.

What is housing - (consumption good, investment good, asset class, industry, infrastructure)  
and what role does it play as an automatic stabilizer?

Micro Simulation Model	A quantitative model, which exploits real-world data in a highly disaggregated level (person, household or income unit) to estimate the impact of policy actions or shocks to the system.
Mortgage Deposit Gap /Cash Requirement Gap	The sum of the deposit and other up-front transaction costs required for home purchase.
Motu	Motu Economic and Public Policy Research
OECD	Organisation for Economic Cooperation and Development
OCR	The Official Cash Rate (OCR) is the interest rate set by the Reserve Bank to meet the inflation target specified in the Policy Targets Agreement. The agreement signed between the Minister of Finance and the Governor of the Reserve Bank, requires the Reserve Bank to keep inflation, on average over the medium term, at between 1 and 3 percent per annum. The OCR is the main tool of monetary policy used by the RBNZ for managing monetary conditions to stabilise prices. While it is an effective lever, there tends to be a lag between an announcement of the OCR and changes in the monetary system and its impact on inflation can be imprecise.
PTA	RBNZ's Policy Target Agreement that currently requires the RBNZ, in pursuing its price stability objective, to seek to avoid unnecessary instability in prices, interest rates and exchange rates.
PwC	PricewaterhouseCoopers
RBNZ	The Reserve Bank of New Zealand
RE	Rational Expectations
Risk	Probability of any adverse event at some time in the future.
SNZ	Statistics New Zealand – to avoid confusion with Standards New Zealand, Statistics New Zealand has adopted the fuller title but many reports in this literature search still apply the shorter acronym.
SoFIE	Survey of Family Income and Employment (published by Statistics New Zealand)
Unit	The Department of Prime Minister and Cabinet House Prices Unit (New Zealand 2007/08)
Volatility	Volatile means subject to sudden change, volatility is about the rate of change over time.

What is housing - (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?

## Appendix B Bibliography

This Bibliography specifically includes references used in the text. Further background to the discussion in the text can be found on the websites of the following:

- BASEL
- Centre for Housing Research Aotearoa New Zealand (CHRANZ)
- Commerce Select Committee (CSC)
- Department of Building and Housing (DBH)
- Department of Prime Minister and Cabinet (DPMC)
- Finance and Expenditure Committee (FEC)
- Housing New Zealand Corporation (HNZC)
- Reserve Bank of New Zealand (RBNZ)
- Statistics New Zealand
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