



## **Volume 1**

# Innovative Approaches to Reducing the Costs of Home Ownership

A Report Commissioned by The Menzies Research Centre  
for the Prime Minister's Home Ownership Task Force

Andrew Caplin  
New York University

Christopher Joye  
Cambridge University

Peter Butt  
Sydney University

Edward Glaeser  
Harvard University

Michael Kuczynski  
Cambridge University

All views expressed herein are the authors' and do not  
necessarily reflect those of The Menzies Research  
Centre, the sponsors of this project or the Universities  
with which the authors are associated

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“Change begets change. Nothing propagates so fast. If a man habituated to a narrow circle of cares and pleasures, out of which he seldom travels, steps beyond it, though for never so brief a space, his departure from the monotonous scene on which he has been an actor of importance would seem to be the signal for instant confusion...The mine which Time has slowly dug beneath familiar objects is sprung in an instant; and what was rock before, becomes but sand and dust.”

**Charles Dickens (1844)**

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## Chairman's Preface

The three reports published herein have been commissioned by the Menzies Research Centre as part of its Home Ownership Task Force which was undertaken at the suggestion of the Prime Minister in September 2003.

No part of the Australian dream is more instinctively human than the desire to own our own home. In recent years, however, that worthy ambition has become harder for many Australians to attain. This is not a function of high interest rates; they are at record lows, but rather is due to a combination of other factors including escalating property prices and, so we contend, inflexibilities in housing finance which limit its availability.

The Task Force has explored many aspects of the housing market, including constraints on the supply of housing. These reports present a series of innovative ideas, some of them worked out in considerable detail, others presented in a more conceptual fashion.

The most substantial report of the three is that whose leading authors are Christopher Joye and Andy Caplin. It deals with both the demand side and the supply side of the housing market. On the demand side, the report demonstrates that by allowing homeowners to use equity as well as debt finance, homeowners will benefit from a lower cost of home ownership and institutions will be able to access an enormous, and uncorrelated, asset class. The Joye/Caplin report also considers the supply side. For most of this century home prices have risen in line with home building costs. In recent years they have taken off on a trajectory of their own. The report offers some explanations for this disturbing decoupling and provides some new ideas for increasing the supply of housing.

The second report, by Joshua Gans and Stephen King, considers the challenges of making housing more accessible to low income earners. It examines, and finds wanting, the traditional approaches to public housing and proposes a new idea; the housing lifeline. This lifeline is designed to offer bridging assistance to homebuyers suffering from temporary economic hardship so that short term setbacks will not have disastrous long term consequences.

The third report, by David Moloney and Alastair Bor, examines the accessibility and flexibility of mortgage finance in Australia and proposes, in the light of international best practice, a range of innovative changes to make housing finance more available and more responsive to the needs of homebuyers and owners.

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While I have had the responsibility of chairing the Task Force, the driving intellectual leadership of this project has been supplied by Christopher Joye. As the 300 page first volume of these reports attest, Christopher has made an enormous contribution to the project. His work is not simply original and rigorous; it is also the product of a tireless dedication. All of us who have received emails from Christopher at all hours of the day know that his capacity for work knows no bounds. He has refused remuneration for his efforts and while many of our contributors have been extremely generous with their time, none more so than Christopher. There has never been a study of this kind to which so many leading minds have contributed. This is truly a collaborative effort, not possible before the Internet, with input from people working in many different time-zones and at least one (Christopher) working in all time-zones! All of these contributors were recruited by Christopher. He has demonstrated, therefore, remarkable intellect, creativity, leadership and determination. We are all in his debt.

All of our authors have been generous with their time. Andy Caplin, Chris' co-author of the first volume as well as the other contributors to that volume have likewise sought no remuneration. David Moloney and Alastair Bor, both of Booz Allen Hamilton, the authors of the third volume, also provided their services pro bono.

Likewise we have been very fortunate in receiving a large number of submissions, and we thank all those parties for their effort in assisting the Task Force.

We have had some expenses for assistance with research, computing services and the like and we have therefore been fortunate in receiving generous and much appreciated support both financial and in kind from a number of organisations, including Wizard Home Loans, the Housing Industry Association, JBWere, Booz Allen & Hamilton, Aussie Home Loans, Resimac, RAMS Home Loans, HomeStart Finance, Clayton Utz, Ebsworth & Ebsworth, Phillips Fox, ACNielsen.consult, and Home Australia.

The Menzies Research Centre, while affiliated with the Liberal Party, is neither an echo chamber for Government policies nor a substitute for the public service. Our aim is to promote independent, creative and practical ideas on subjects of public importance. Our political perspective is simply that of a commitment to individualism, enterprise and freedom of choice.

We recognise that the most challenging social issues are not susceptible to quick ideological answers. We need constantly to promote new approaches and new ideas in social policy as much as we do in science or technology. We believe that these reports do deliver a wide range of new

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ideas, many of them worked out in considerable, groundbreaking analytical detail.

We do not, however, regard these reports as the last word on the subject. They have been produced in a collaboration to which many have contributed. We hope that collaborative spirit will continue and that these reports will encourage further analysis and policy development, and, most importantly, encourage leaders in business and government to take up these ideas and put them to work.

A handwritten signature in black ink, appearing to read "Malcolm Turnbull". The signature is fluid and cursive, with the first name "Malcolm" written in a larger, more prominent script than the last name "Turnbull".

**Malcolm Turnbull**

Chairman, The Menzies Research Centre

## Acknowledgments

A great many people have in one way or another made significant contributions to this work (though they may not be aware of it). The Chairman of The Menzies Research Centre, Mr Malcolm Turnbull, is to be thanked for his vision and leadership in promoting this project at the outset, and, of course, for his many valuable and insightful contributions as it has evolved. We are also deeply indebted to the Prime Minister, the Hon. John Howard MP, who showed the courage to invite us to tackle one of the most perplexing and important social problems of our times—despite the obvious risks inherent in this course of action. At no point has he sought to impose his views on us; and so, we do not know whether he will share the opinions that we tender today. But without the Prime Minister’s profound leadership and his willingness to embrace new ideas, this work would not have been undertaken.

We would also like to recognize a number of other individuals, categorized according to profession: -

Academic: Professor Stephen Brown (New York University), Andrew Charlton Esq (Oxford University), Professor William Duncan (Queensland University of Technology), Joel Fabre Esq (University of Sydney), Professor Alex Frino (University of Sydney), Professor Joshua Gans (University of Melbourne), Professor William Goetzmann (Yale), Professor Ian Harper (University of Melbourne), Professor David Hayward (RMIT), Dr Elvis Jarnecic (University of Sydney), Professor Stephen King (University of Melbourne), Professor Warwick McKibbin (ANU), Professor Jayaram Muthuswamy (University of Sydney), Professor Barry Nalebuff (Yale), Professor Adrian Pagan (ANU), Professor John Quiggin (ANU), Professor Ray da Silva Rosa (University of Western Australia), Dr Raven Saks (Harvard), Professor Robert Shiller (Yale), Professor Diane Skapinker (University of Sydney), Professor Peter Swan (University of NSW), Alex Turnbull Esq (Harvard), Professor Terry Walter (University of NSW), Professor Justin Wolfers (Harvard), and Professor Richard Zeckhauser (Harvard).

Institutional: Rob Adams (First State Investments), Dan Andrews (RBA), Andrew Barger (Housing Industry Association), David Bell (Australian Bankers Association), Laura Bennett (Turnbull & Partners), Neil Bird (Urban

Pacific), Mark Bouris (Wizard Home Loans), Angus Boyd (Foxtel), Jason Briant (The Menzies Research Centre), Kieran Brush (RAMS), Jasmine Burgess (JP Morgan), Alexander Calvo (RBA), Louis Christopher (Australian Property Monitors), Tim Church (JB Were), Bob Cooper (Tobari Management), Tracy Conlan (CBA), Lorenzo Crepaldi (Ebsworth & Ebsworth), Peter Crone (Prime Minister's Office), Brendan Crotty (Australand), Margaret Doman (Cambridge Consulting), Tony Davis (Aussie Home Loans), Bob Day (Home Australia), Craig Drummond (JB Were), John Edwards (Residex), Lucy Ellis (RBA), Alex Erskine (Erskinomics), Jason Falinski (IAG), Arash Farhadieh (Phillips Fox), Guy Farrands (Macquarie Bank), Lyndell Fraser (CBA), Wayne Gersbach (Housing Industry Association), Steven Girdis (Macquarie Bank), Adam Gordon (Baltimore Partnership), Samuel Gullotta (Goldstream Capital), Michael Gurney (ABS), Jason Falinski (IAG), Martin Harris (First State Investments), Nick Hossack (Australian Bankers Association), Chris Johnson (NSW Government Architect), Alan Jones (2GB), Sally Jope (Brotherhood of St Laurence), PD Jonson (HenryThornton.com), Anatoly Kirievsky (RBA), Caroline Lemezina (Housing Industry Association), Steven Mackay (Ebsworth & Ebsworth), Angelo Malizis (Wizard Home Loans), Patrick Mangan (HomeStart Finance), Geordie Manolas (Goldman Sachs), Ramin Marzbani (ACNielsen.consult), Patrick McClure (Mission Australia), Gina McColl (BRW), Bill McConnell (AFR), Robert McCormack (Allens Arthur Robinson), John McFarlane (ANZ), Bruce McWilliam (Channel Seven), Robert McCuaig (Colliers Jardine), Peter McMahon (Clayton Utz), Alison Miller (Urban Development Institute of Australia), David Moloney (Booz Allen & Hamilton), Ruth Morschel (Housing Industry Association), Paul Murnane (JB Were), Darren Olney Fraser (Australian Public Trustees), Rod Owen (ABS), John Perrin (Prime Minister's Office), Daniel Pillemer (Goldman Sachs), Dr Michael Plumb (RBA), Dr Steven Posner (Goldman Sachs), Brian Salter (Clayton Utz), Eloise Scotford (High Court of Australia), Tony Scotford (Ebsworth & Ebsworth), Nick Selvaratnam (Goldman Sachs), Tony Shannon (Australian Property Monitors), Matthew Sherwood (ING), Tim Sims (Pacific Equity Partners), Dr Tom Skinner (Redbrick Partners), Arthur Sinodinos (Prime Minister's Office), Orysia Spinner (RAMS), Bryan Stevens (Real Estate Institute of Australia), Gary Storkey (HomeStart Finance), Arvid Streimann (UBS), Louise Sylvan (Australian Consumers Association),

John Symond (Aussie Home Loans), Scott Taylor (ACNielsen.consult), Simon Tennent (Housing Industry Association), Lucy Turnbull (City of Sydney), Nicholas van der Ploeg (Turnbull & Partners), Peter Verwer (Property Council of Australia), Nick Vrondas (JB Were), Colin Whybourne (Resimac), Charles Weiser (RAMS), and Simon Winston Smith (JP Morgan).

Family & Friends: Willis Ashton (in memoriam), Sean Burke, Adam Caplin, Ann Harriet Caplin, Charles Caplin, Eleanor Caplin (in memoriam), Olivia Caplin, David Endean, Amana Finley (in memoriam), Melissa Fitzpatrick, Lin Gourlay (especially), Aurelie Joye, Ashley Joye, Chloe Joye, Daisy Joye, Edward Joye (in memoriam), Ella Joye, Hermione Joye, Ian Joye (especially), Jett Joye, Judy Joye (especially), Kai Joye, Margaret Joye, Muriel Joye, Paula Joye, Penelope Joye, Saxon Joye, Ross Last, Jacqueline O'Sullivan, Frank Sensenbrenner, William Stephens, Sam Strong, Karim Tamsamani, Elizabeth Wilson, and Ruth Wyatt (especially).

As a final point, we wish to express our gratitude to Gordon Deane and Nelson Reynolds for their outstanding programming and research assistance, respectively, and The Menzies Research Centre for its financial support. All views expressed herein are our own and do not necessarily reflect those of the above individuals and organisations. Inquiries should be directed to [christopher.joye.2002@pem.cam.ac.uk](mailto:christopher.joye.2002@pem.cam.ac.uk)

**Please note that an individual's presence on this list does not necessarily have any bearing on their familiarity with our work and should not be interpreted as an endorsement of it.**

## Executive Summary

The goal of this synopsis is to provide the reader with a snapshot of what is a rather large and at times complicated body of work. We will endeavour to walk you through the report in a chronological fashion, stepping aside on occasion to discuss the results in more detail than would have been expected of just an introduction.

In July of 2002, Andrew Caplin and Christopher Joye published a 'primer' on a proposal for global housing finance reform under the auspices of The Menzies Research Centre, a leading Australian think-tank (see Caplin and Joye (2002b)). Several months later the Prime Minister, the Hon. John Howard MP, invited the Chairman of The Menzies Research Centre, Mr Malcolm Turnbull, to establish a Task Force to study innovative approaches to reducing the costs of home ownership, and the delivery of affordable housing assistance.

Readers may be aware that this is but one of three companion pieces. The two other reports, authored by Professor Joshua Gans and Professor Stephen King,<sup>1</sup> and Mr Alastair Bor and Mr David Moloney,<sup>2</sup> are synergistic with that which we present to you today. Whereas the former focus on a review of the application of low-income housing policy, the latter seek to enhance the microstructure of the existing mortgage market. Our opus concentrates on the broader ambition of 'disruptive change'; that is, the implementation of structural innovations that have the potential to alter the functions of the demand and supply sides of the housing market.

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<sup>1</sup> Professor Gans and Professor King, of the University of Melbourne, study the economic issues underlying low income housing policy in Australia. Subsequent to evaluating a number of alternatives, they submit their own solution. In brief, the authors believe that the short-term problem of housing affordability arises because of the income risks faced by disadvantaged dwellers, and the inability of the private market to provide appropriate services to overcome these difficulties. In response, they recommend that government establish a 'housing lifeline', which would be made available to any family that finds itself in a short-term tenure crisis. This mechanism would in fact constitute a form of 'social insurance', the likes of which has rarely been deployed before.

<sup>2</sup> Mr Bor and Mr Moloney, of Booz Allen & Hamilton, appraise the architecture of the housing finance market in the context of the various clienteles it serves. Subsequently, they tender a suite of suggestions which they believe would advance its functions.

At the heart of this initiative lies the same conception with which we started. Simply stated, it is beyond time for capitalism to develop a more human face. For centuries now, businesses in need of funds have been able to avail themselves of both debt and equity. Yet for households who aspire to expand, mortgage finance has been their one and only option. And so, despite the ever-growing sophistication of corporate capital markets, consumers around the world are forced to use only the crudest of financial instruments.<sup>3</sup> In our minds at least, the immature state of Australia's system of housing finance, and indeed those around the globe, is absolutely scandalous. The implications of these deficiencies vary from the merely inconvenient to the extremely tragic. Suffice to say that many of the severe economic complications that manifest throughout the course of a dweller's life-cycle can be attributed to the 'all-or-nothing constraint' on home ownership.

So how did we arrive at this curious set of arrangements? Throughout the nineteenth century most households rented their homes from wealthy landlords, since debt was available to few. This in and of itself is a crucial observation. Many of us tend to take for granted that mortgage finance has always been readily accessible. Nothing could be further from the truth. Much like the advent of derivative markets in the late 1970s, the widespread use of debt is a modern phenomenon. In fact, the emergence of a liquid secondary market only occurred in the last ten to fifteen years. If one looks back through time, it becomes apparent that mortgage contracts were not easily obtainable prior to the mid nineteenth century. The resultant dominance of rental accommodation (while not necessarily a bad thing) left many in a situation of tremendous vulnerability, subject to the constant risk of being removed from their homes, and the vagaries of a legal system that lavished property-owners with extraordinary powers. To make matters worse, decrepit living conditions characterised this kind of tenure, with a proliferation of slums in cities such as Sydney throughout the early twentieth century. All told, life was not especially good for the battlers of the age.

Even as the mortgage markets began to develop, the hazards to house and home persisted. The earliest such arrangements were of short duration, and those who could not refinance were frequently evicted from their residence. The problems of homelessness and squalor reached epidemic proportions with the collapse of the economy during the Great Depression. At around the same time, a nascent communist movement garnered momentum in both Australia and the UK, the seeds of which

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<sup>3</sup> This begs the question as to the absence of equity finance in the first instance. One answer instantly offers itself: securitisation. In the past, it was not practicable for a single unsponsored entity to go around gobbling up interests in individual properties in the vain hope that they could bundle these contracts into something that would look like a regulated holding. Fortunately, there has been spectacular progress of late in terms of the ability of private sector participants to package otherwise illiquid instruments into marketable securities.

many thought were sown in the difficult circumstances of the day. These events combined to energise renewed public interest in the supply of private housing services. Indeed, rapid growth in the rate of home ownership, and the transmission of the values it was believed to imbue, became a key political imperative.

Spurred on by economic and social ructions of this kind, the State and Federal Governments sought to actively expand the supply of housing finance, and by the mid 1930s mortgage markets had arrived in Australia. Without widespread support for these changes, it is doubtful whether they would have materialized at such great pace. Ironically enough, it was bureaucratic inertia of precisely the opposite ilk that was to stifle the growth of trading in mortgage-backed securities some fifty years later. Thankfully, reason prevailed, and today it is hard to imagine what life would be like without alternative lenders and the pressures they exert on the banks.

In this report, we renew our call for constituents to take the next brave step along the evolutionary housing finance path. It is our belief that there is no longer any need for the household sector to remain the poorer cousin of financial markets. That is to say, aspirants should be able to access a suite of debt and equity instruments that is no less rich than that which corporations avail themselves of every day. Nevertheless, if we were going to simply rehash the views presented in the primer, it would not have taken us nine long months and some 400 odd pages to accomplish! Why have we invested so much time and energy pulling all of this additional material together? Is it just an immature yearning to stretch out our moment on the public stage, or could there be more to it? Well, we would like to think that there is indeed more. The purpose of the original manuscript was exactly what its name implied—to introduce some unusual ideas that were in our own minds only embryonic in form. Today we have a great deal more to add to both these arguments, and some entirely new subjects. Here goes.

In what follows, we undertake four main tasks. First, we offer evidence that irresistible economic logic motivates the introduction of ‘equity finance’. Second, we tender a vast array of new information, drawn from, among other things, survey and focus group data, on the profound socio-economic benefits that these markets could deliver. Third, we demonstrate the proposal’s institutional viability, and pinpoint relatively minor adjustments to the legal, fiscal and regulatory structures that would be required in order to guarantee its success. In the fourth and final section of the report, we embark on a detailed appraisal of the ‘supply-side’ in the context of the debate about the rising costs of housing in this country. Just as we contend that it is vital to extend ownership opportunities to as many families as possible, we also think it is critical to remove artificial constraints on the supply of low-cost properties.

The report itself consists of four distinct ‘parts’. Parts One and Two take up the challenge of introducing the economic rationale underpinning our desire to eliminate the ‘indivisibility’ of the housing asset (which, in layperson’s terms, simply means allowing individuals to hold less than 100 percent of the equity in their home). Whereas the first part canvasses historical considerations, the second provides a much more rigorous quantitative elucidation. In particular, Part One shows that our ideas should not be interpreted as especially abnormal, since they flow from sound intellectual principles. In fact, the markets we advocate are so obvious that our profession builds its models as if they already exist! Strictly speaking, this is not entirely accurate. The embarrassing truth is that the economics community has taken the notion of ‘divisibility’ (i.e., the capacity to issue equity to an external party) to a ridiculous extreme. Indeed, in the minds of our colleagues, there is no such thing as home ownership, at least in the conventional sense. No, most economists prefer to abstract away from tenure choice and the housing asset’s many idiosyncrasies; rather, they assume that we all live in rental markets in which perfectly homogeneous housing services are seamlessly exchanged. Taking these fantasies one step further, they would have us believe that the dwellings in which we live are indistinguishable from both physical capital (e.g., machines), and consumption goods (e.g., bread). Who can therefore blame us for thinking that our contemporaries ought to be lambasted for their continued refusal to incorporate even the most basic features of the housing market into their models?

While it is fine for us to pontificate about the merits of relaxing the all-or-nothing constraint, a *sine qua non* of market development is a validation of the proposal’s commercial durability. Undeniably, the most important question here is whether the investor community will be prepared to acquire equity claims at prices that are acceptable to Australian households. Part Two addresses this matter by simulating the institutional demand and individual supply curves and studying equilibrium in the market for equity finance. Despite using divergent techniques, our findings with respect to feasibility are very similar. On the demand side, we conclude that there should be immense interest in securitized pools of enhanced home equity contracts—so much so that it is unlikely that there will be sufficient funds to sate institutional requirements. In fact, our tests indicate that this new asset-category could come to dominate the ‘optimal’ investor portfolio, with conservative participants dedicating at least 20 percent of all their capital to ‘augmented’ housing. At the same time, our modelling implies that a very large number of Australians would be willing to issue equity on terms that are attractive to both parties. We infer, therefore, that as a purely economic concern, these markets have the potential to sustain a large volume of trade. In the academic jargon, we have discovered ‘gains from trade’.

As with our evaluation of the innovation’s economic viability, the task of exploring its socio-economic implications is split into two sections. In

Part One, we explain how equity finance could enhance the average family's standard of living at every stage of the life-cycle. We find that it would accelerate the household's transition from the rental to the home ownership market while significantly increasing its disposable income and expected wealth at retirement. It would also lower mortgage costs, and thereby alleviate financial pressures in the middle years. Finally, it could release a large new pool of liquid assets for those who wish to remain in the dwelling debt-free in later life. In practical terms, our analysis suggests that when a 'representative' younger family use a mixture of debt and equity, the upfront costs of home ownership, and the interest and principal payments required thereafter, decline by around 30 percent. There is also a dramatic reduction in the household's risk of default, and a 70 percent rise in their liquid assets once they leave the workforce (see ES Table 1 and ES Figures 1 through 3 below).

Here we speculate that there may be transformations on an even larger scale than that which can be envisaged at this stage of the project. For example, empirical studies suggest that the rate of child-birth is influenced by the type of housing arrangement. In particular, an increase in the number of years spent in the parental home and higher levels of mortgage debt are associated with a reduction in family fecundity. Might these new markets impact positively on (organic) population growth? Would the increased rate of home ownership boost the quality of schools and local public amenities as a result of the residents' heightened commitment to their neighbourhoods? Could the advent of equity finance attenuate the severe cyclical fluctuations in the housing market? Finally, might a liquid secondary market enable other forms of risk sharing and spawn the development of derivative and futures contracts on residential real estate?

In all of the above cases, it should not be forgotten that the policy environment plays a central role. How well these new instruments function depends on the extent to which the key issues are carefully thought-through, and whether or not one can design them for broad public interest purposes. This in turn depends on the participation of policymakers, and their ability to rise above what can be a highly partisan process.

ES Table 1<sup>4</sup>

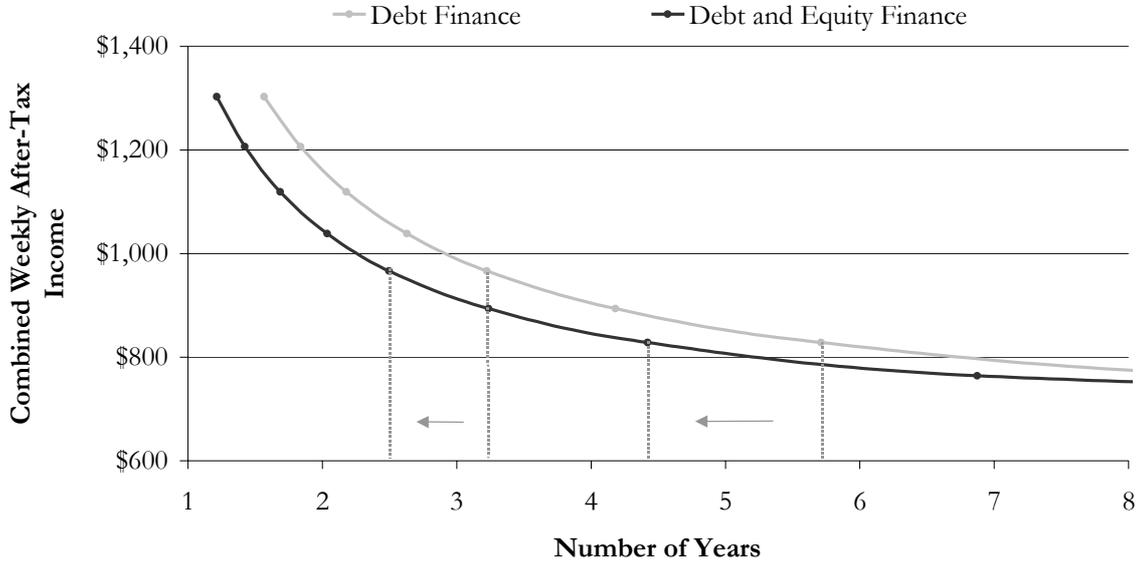
<b>Estimated Cost Savings on a \$250,000 Home When Using Both Debt and Equity Finance</b>			
<b>Category</b>	<b>Debt Finance</b>	<b>Debt and Equity Finance</b>	<b>Saving</b>
Home Loan	\$212,500	\$148,750	30.0%
Deposit	\$37,500	\$26,250	30.0%
Annual Interest & Principal	\$15,300	\$10,704	30.0%
Upfront Purchase Costs	\$53,297	\$41,260	22.6%
Savings Period	3.2YRS	2.5YRS	21.9%
Annual Disposable Income	\$(2,288)	\$2,340	\$4,628

Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors' estimates (see Chapter 1.5)

<sup>4</sup>This table assumes the existence of a couple aged under 35 who are currently saving to buy the dwelling of their dreams: they have no assets and no liabilities; they hope to acquire a first home in, say, Victoria worth \$250,000; their combined ordinary after-tax earnings are \$967 per week; they raise mortgage finance equivalent to 85 percent of the appraised value of the property (i.e., \$212,500); and their final consumption expenditures average \$649 per week. Now imagine a different state of nature—one in which they are able to draw on equity finance. Specifically, we suppose that an institutional partner contributes 30 percent of the appraised value of the house up front in exchange for its original investment plus 60 percent of the price appreciation and 30 percent of the depreciation. So how much less would it cost to acquire a \$250,000 home if one were willing to issue equity capital to an outside investor? ES Table 1 shows that by employing a mixture of both forms of finance, households are able to assuage a significant proportion of the economic pressures to which they would have been exposed in the contemporary scenario. The size of their home loan and the required deposit falls by nearly one-third. Concomitantly, there is a one-third decline in the couple's ongoing interest and principal payments to \$829 per month. Total purchase costs also plunge from \$53,297 to \$41,260. This in turn cuts the amount of time it takes them to save up to purchase a property in the first place. Indeed, it is now feasible for them to buy their Victorian property within two and a half years, whereas it would have originally taken three and a quarter years (see ES Figure 1). But wait, there's more—by relaxing the all-or-or-nothing constraint on home ownership, and using debt and equity finance, young Australian families would be able to access a new realm of consumption and investment possibilities (see ES Figure 2). In contrast to the couple's initial circumstances (wherein net disposable income was significantly negative), free cash flow is now positive at \$2,340 per annum. As such, our newly empowered dwellers can no longer be classified as part of the house poor. On the contrary, they might even be able to afford to think about establishing a family! To recap, the simple example above shows that by increasing the efficiency of their balance sheets, aspirational individuals can reduce their mortgage debt burden, the required deposit, the up-front purchase costs, and truncate that onerous period preceding the transaction during which they are forced to defer consumption in order to save to fund the acquisition. Post purchase, the use of equity finance contributes to a substantial decline in recurring interest and principal payments, and significantly boosts the home owner's disposable income. Finally, it would seem that lower income dwellers reap the greatest rewards in terms of minimising the time spent in the rental market and expediting their transition to owner-occupation (see ES Figure 3).

ES Figure 1

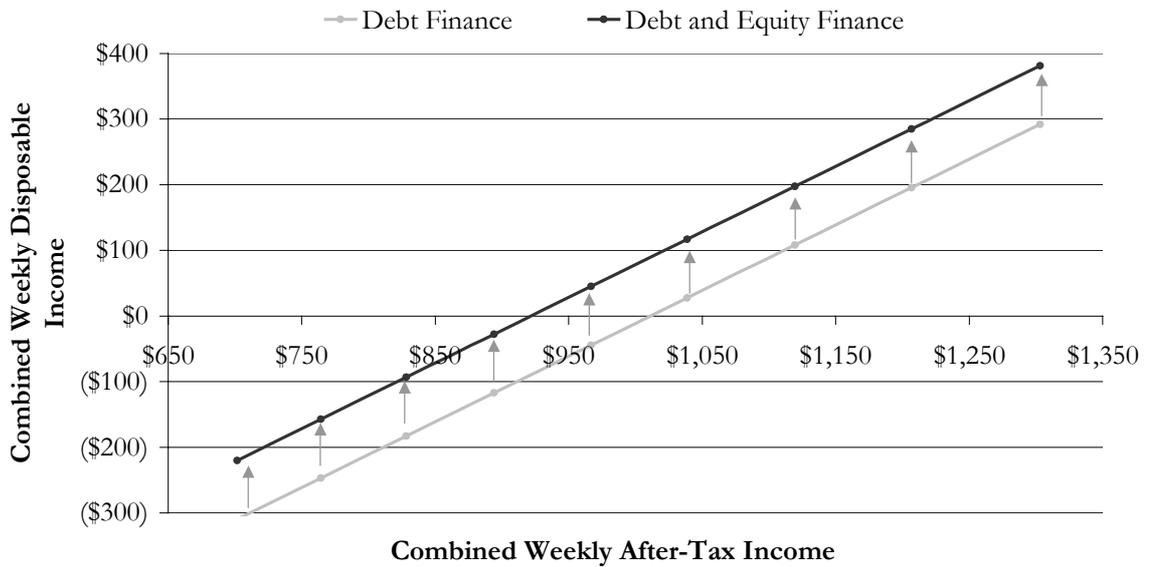
Time it Takes for a Couple to Save up for a \$250,000 Home Using Both Debt and Equity Finance



Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors' estimates (see Chapter 1.5)

ES Figure 2

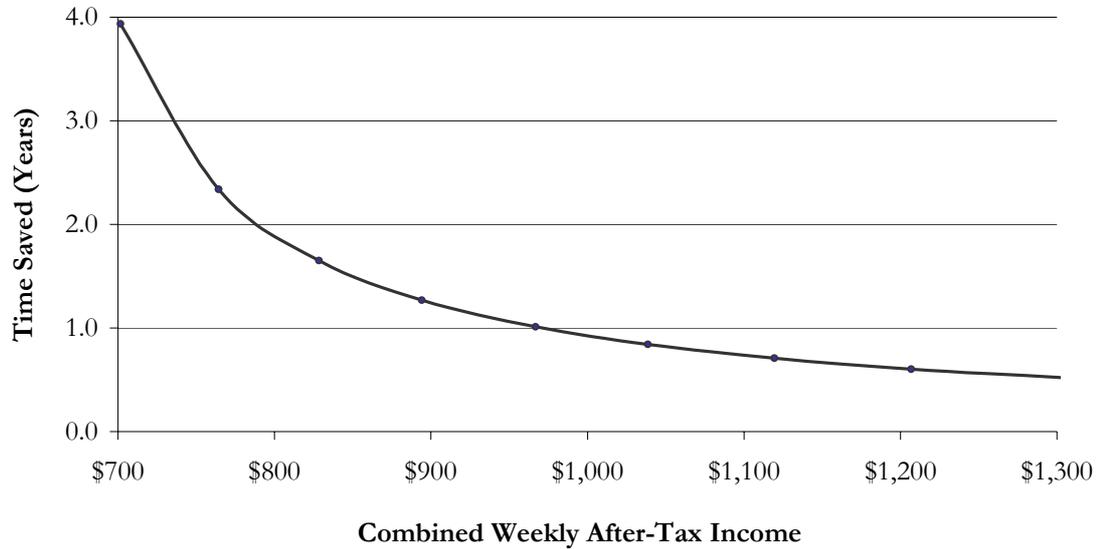
Combined Weekly Disposable Income after Covering Consumption Costs and Debt Servicing Requirements, as a Function of After-Tax Income



Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors' estimates (see Chapter 1.5)

**ES Figure 3**

**Accelerating the Household's Transition from the Rental to the Owner-Occupied Markets: The Impact of Equity Finance**

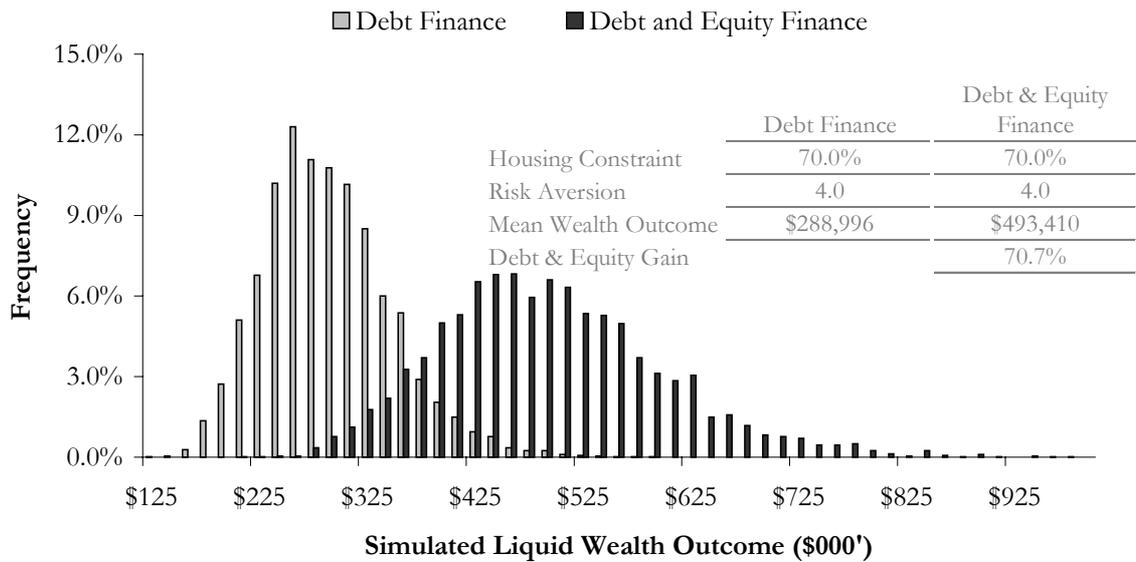


Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors' estimates (see Chapter 1.5)

**ES Figure 4<sup>5</sup>**

**Simulated Distributions of Liquid Wealth after Ten Years**

Shared-Appreciation Contract (LTV=30%; Gain=60%; Loss=30%), where Housing Constraint = 70%, and Risk Aversion Parameter = 4.0



Source: Authors' estimates (see Chapter 1.5)

<sup>5</sup> ES Figure 4 shows that there is a striking rightward shift in the retirement portfolio of dwellers when they issue equity claims.

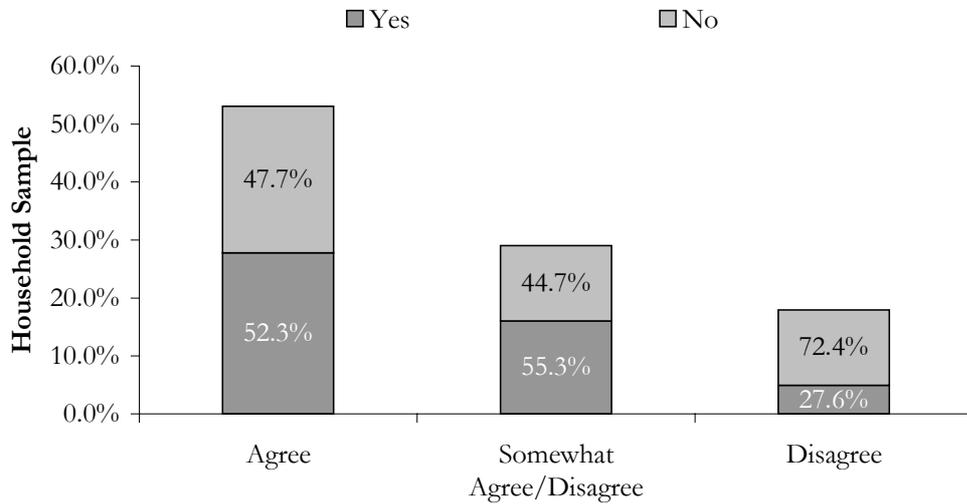
Part Two of the socio-economic exposition recognizes that markets play a valuable role if and only if they help us achieve goals that are salient in a social sense. Of course, the most powerful expression of this is to be found in the context of human satisfaction, not via theoretical estimates of utility and the like. We therefore went to the source itself and asked Australians who do not yet own a home for their views on the appeal of equity finance. And their message was loud and clear. In the opinion of these households, the ability to draw on both debt and equity when purchasing a property would be of great help in their struggle to get a foothold in the home ownership market. But what exactly did our results reveal? In a survey of a broad spectrum of consumers, we find that roughly one in two would be interested in supplying equity claims, even when subject to harsh financial terms (see ES Figures 5 and 6). By making some cautious assumptions about the rental segment alone, we calculate that the market opportunity would, at the very least, be in the order of \$130 billion. The supply-side of the equation is wrapped up via two focus groups, where we discover that nine out of ten liquidity-constrained dwellers (i.e., those on Centrelink payments) think that the introduction of this innovation would boost the likelihood of them acquiring a home to call their own. Throughout all of this it is worthwhile remembering that these products do not exist—anywhere. Hence, the enthusiasm so discerned has prevailed against the inherent unfamiliarity of the contracts in question.

Yet our work was not finished there. Oh no. With supply sewn up, we took a step back and asked ourselves: aside from the obvious candidates (i.e., institutions), are there any other members of the community who would be eager to obtain exposures to the securitised pools? And there certainly were. Roughly half of all non-owning households responded that they would prefer to invest exclusively in a portfolio consisting of residential real estate than in cash or a diversified fund. Perhaps most remarkably though, this was in spite of an explicit warning that such an investment could lose money in real terms. When we relaxed the restriction and allowed them to apportion their capital across cash, housing and a balanced fund, most of their wealth (about 40 percent) ended up in home equity. Thus, we feel confident that we also have the demand side of this market under control.

**ES Figure 5<sup>6</sup>**

**Non-Owning Survey Sample**

Would the availability of this new product increase the likelihood of you moving to a new home?



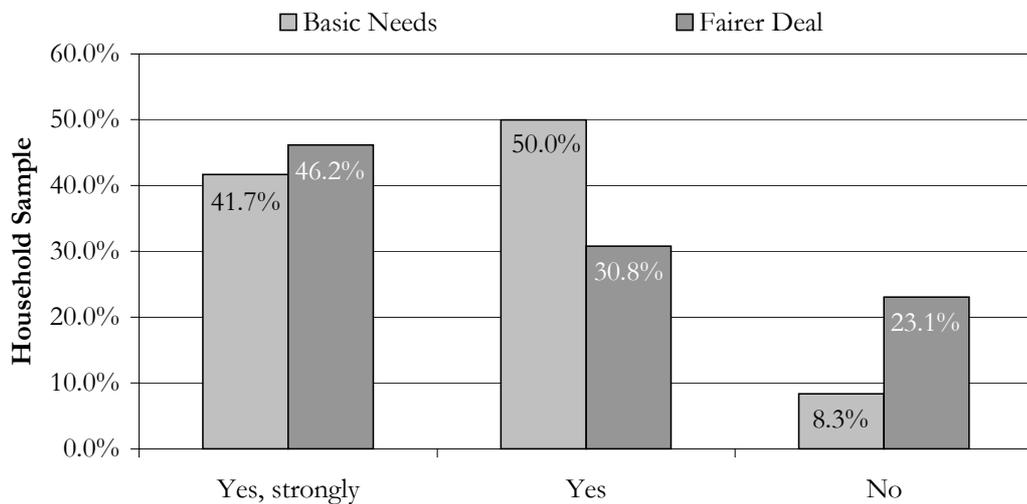
**If I lost even a month's pay, I would find it hard to make ends meet?**

Source: ACNielsen.consult and authors' analysis (see Chapter 2.5)

**ES Figure 6**

**Non-Owning Focus Group Sample**

Would the availability of this new product increase the likelihood of you moving to a new home?

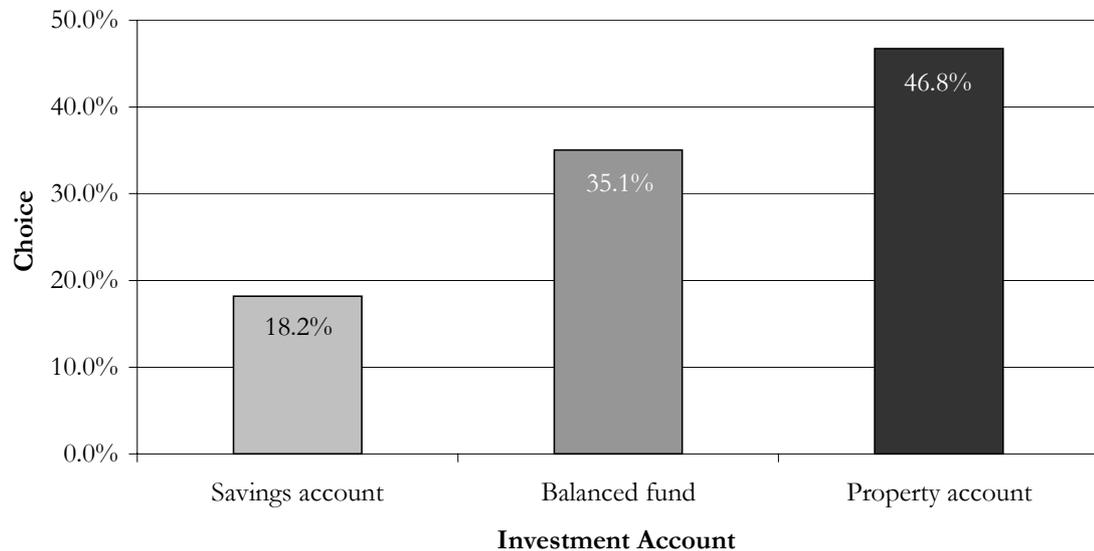


Source: HomeStart Finance and authors' analysis (see Chapter 2.5)

<sup>6</sup> Households who think of themselves as being encumbered by liquidity constraints appear most eager to capitalise on these opportunities.

**ES Figure 7<sup>7</sup>****Non-Owning Survey Sample**

To which of the following investments would you be most likely to allocate your money as part of this policy?



Source: ACNielsen.consult and authors' analysis (see Chapter 2.5)

Having satisfied the economic and social criteria, Part Three of the report offers an assessment of the proposal's institutional viability. As before, we find much room for optimism. It would appear that the prevailing legal and regulatory framework can flex to accommodate the introduction of equity finance. Most exciting though is the revelation that we can fashion these arrangements as either equity or hybrid debt instruments. The latter is an especially attractive alternative since it enables one to circumvent all of the legal and psychological complications implicit in 'co-ownership'. In particular, under the debt option, occupiers always own 100 percent of the home in which they live. Furthermore, the costs borne by the institution are noticeably reduced (to take but one example, stamp duty is no longer relevant). In this sense, we can have our economic cake, and eat it too!

So where are the much mooted impediments to progress? In the immortal words of George Harrison, "Let me tell you how it will be, there's one for you, nineteen for me." Our study of the proposal's institutional feasibility suggests that over-zealous regulatory authorities have the capacity to tax away the gains from trade. Here it is not so much the imposition of new levies, but rather the rigid interpretation of

<sup>7</sup> Here the data plainly says it all (see ES Figure 7 above). Unmistakably, the single most popular product is the property fund. Almost 50 percent of households would select this option when required to make an exclusive choice, which is an extraordinarily compelling result for the demand-side of the equity finance equation.

existing ones.<sup>8</sup> This was certainly the case with several small-scale efforts to launch equity-based products overseas. Yet what would make these actions especially perverse is that markets of this type present the Federal Government with unprecedented revenue raising possibilities. That is to say, the advent of equity finance would permit the Commonwealth to tax owner-occupied housing for the very first time. Naturally, these charges would only apply to the investor's holding. In this vein, we would submit that even the most bloody-minded of bureaucrats should be incentivized to encourage the promulgation of these products.

ES Table 2<sup>9</sup>

<b>How Valuable is Owner-Occupied Housing?</b>		
As at December 2002		
	<b>Total Value (bn)</b>	<b>Proportion</b>
<b>Owner-Occupied Housing</b>	\$2,478.1	47.4%
<b>Assets of ADIs</b>	\$1,033.3	19.8%
<b>Domestic Equities</b>	\$672.8	12.9%
<b>Investment Funds</b>	\$634.4	12.1%
<b>Corporate Debt Securities</b>	\$218.3	4.2%
<b>Government Debt Securities</b>	\$126.6	2.4%
<b>Asset Backed Debt Securities</b>	\$66.3	1.3%
<b>Total</b>	<b>\$5,229.8</b>	<b>100.0%</b>

Source: 2001 Census, Reserve Bank of Australia and author estimates (see Chapter 2.1)

Irrespective of what is decided in the post-publication period, we are convinced that the application of both debt and equity finance will eventually become standard industry practice. It is more a matter of whether that day will arrive in the near term or in the far-flung future; and that, truth be known, is a question that only you (i.e., consumers, decision-makers, investors and opinion-shapers) can answer. Unsurprisingly, it is our belief that Australia is well positioned to push the intellectual envelope and become the very first nation to develop primary and secondary markets in real estate equity. And at \$2.5 trillion, that is no small cheese (see ES Table 1 above).

<sup>8</sup> Note that we do not advocate any exemptions whatsoever.

<sup>9</sup> Just how big an asset-class is residential real estate? According to the 2001 Census, there are 7,072,202 private occupied dwellings in Australia. To get a feel for the order of magnitude involved, we multiply this number by the CBA/HIA all capital median established dwelling price at December 2002, which gives an almost incomprehensible \$2,478,099,580,800. We can therefore say with some confidence that the total value of residential property in Australia is in excess of \$2 trillion. By way of comparison, that is nearly four times the size of the value of companies listed on the Australian Stock Exchange, and over seven times larger than the Commonwealth, State and corporate debt markets combined.

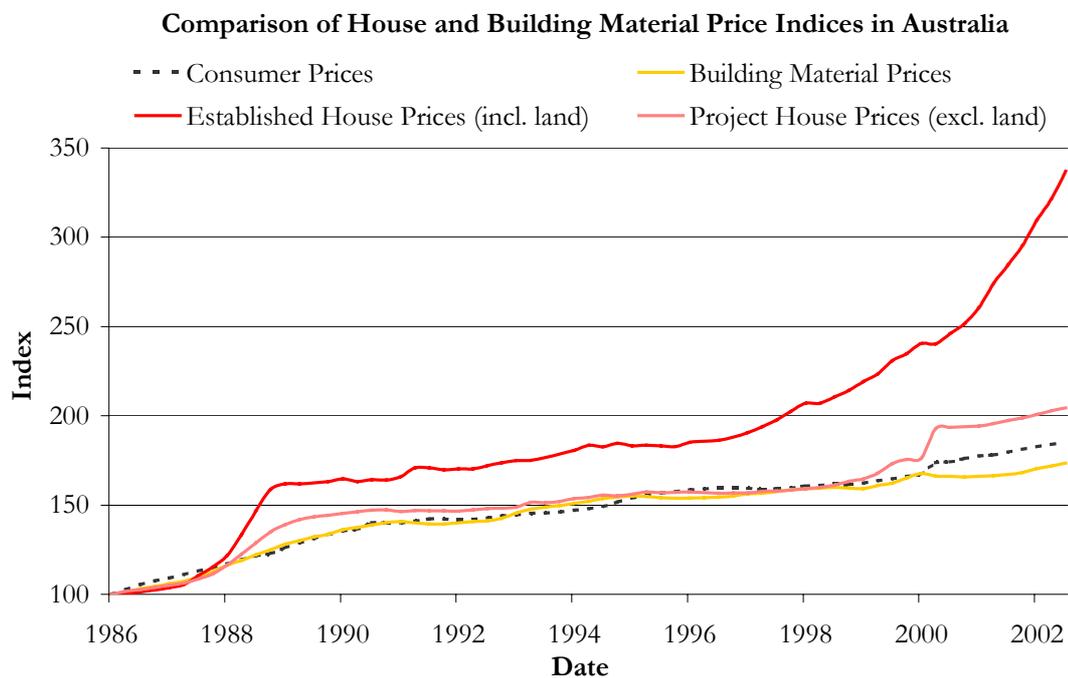
While the financial reforms described above could have profound implications for the lifestyles of many Australian households, we do not limit our analysis to just the demand-side of the housing market. No, that would be too easy! Accordingly, in Part Four of this report we conduct a thorough appraisal of the performance of the supply-side, which is set against the debate about the rising costs of home ownership in Australia. We conclude that while there is an affordability problem, it has nothing to do with the distribution of income, as many of the combatants would seem to imply. Rather, it appears to be an artefact of government regulations that severely constrict the stock of low-cost properties. When combined with burgeoning demand, these artificial constraints on supply propagate price rises. Consequently, we recommend expanding the affordability debate to encompass local and State government reform, in favour of simply confining ourselves to that perennial panacea—public housing. Specifically, we believe that several steps can be taken to enhance the elasticity of supply without resorting to subsidies, and which would contribute to a marked reduction in the costs of home ownership right across the country. In particular, we advocate a system in which local authorities are set (binding) targets vis-à-vis the number of new permits they issue during any given period. The size of these quotas would be determined according to a variety of factors, including environmental considerations, the density of existing dwellings, and cross-municipality prices. The principal objective here is to accelerate the approval and land release process so as to stimulate private sector investment in the delivery of low-cost housing.

Overall, we are optimistic that while our ideas may seem radical to some, the logic underpinning them is compelling. One hundred and fifty years ago, mortgage finance did not, for all intents and purposes, exist. In fact, the notion that seven out of ten Australians would own the home in which they live would have been far more outlandish than the initiatives we canvass herein. However, at the turn of the twentieth century, a variety of economic and social forces coalesced to stimulate public action. Stakeholders at the time recognized that the availability of debt finance would open the ownership door to many dwellers who were shackled by the landlords' yoke.

But much like a portrait in which only half the subject's face has been painted, Australia's system of housing finance remains very much a work in progress. Here it is our view that the nation once again stands at a historic set of crossroads. Absent substantive reform, the sustenance of our 'home owner society' is far from assured. Two key challenges confront policymakers. In the first instance, vigilant moves must be made to cut the cost of housing on the demand-side of the financing equation. The most powerful way to do this would be through relaxing the all-or-nothing constraint. Readers will become familiar with our argument that it makes no sense whatsoever for the average Australian family to have to tie up over two-thirds of all their wealth in the world in one highly illiquid and very risky asset: viz., the owner-occupied

residence. Indeed, in Part Two of the report we find that one in four families lose money (in real terms) when they come to sell the roof over their heads. For roughly one in ten dwellers, the situation is even more dire—these poor souls are subject to real price declines in excess of 13.4 percent! In this context, it is high time that we brought capitalism to the home front and provided all Australians with the option of issuing both debt and equity capital when purchasing their properties.

Yet just as important as eliminating distortions on demand is our desire to elastify the supply-side of this complex theatre. The analysis of Part Four indicates that there is a growing disjunction between the price of Australian homes and their underlying costs of production (see ES Table 3 and ES Figures 8 and 9 below). Significantly, this does not appear to be a manifestation of natural limitations on the availability of land, but rather a product of regulatory restrictions that artificially inflate the cost of housing. Viewed differently, these constraints on the construction of new dwellings and the release of greenfield and brownfield sites act as a burdensome tax on building, which in turn leads to a mismatch between the accommodation needs of Australian households and the stock of available homes. This brings us to a more general point, which is that many local and State Governments have failed to come to the affordable housing party. To a certain extent, this is an upshot of their deep-seated aversion to instituting changes that are likely to be perceived as disruptive to incumbent residents. While we believe that our solution goes a long way to addressing these concerns, it may not secure adequate political support. In the event that it does not succeed, councils still have an arsenal of other strategies on hand. As a minimum, they should strive to adopt clearer and more objective review standards, and expeditiously render land use decisions in an attempt to improve the ownership opportunities available to current and prospective home owners. The States, on the other hand, must make a much greater commitment to providing the vital physical infrastructure (or at least its funding) that is a precursor to new land being useful for housing purposes.

ES Figure 8<sup>10</sup>

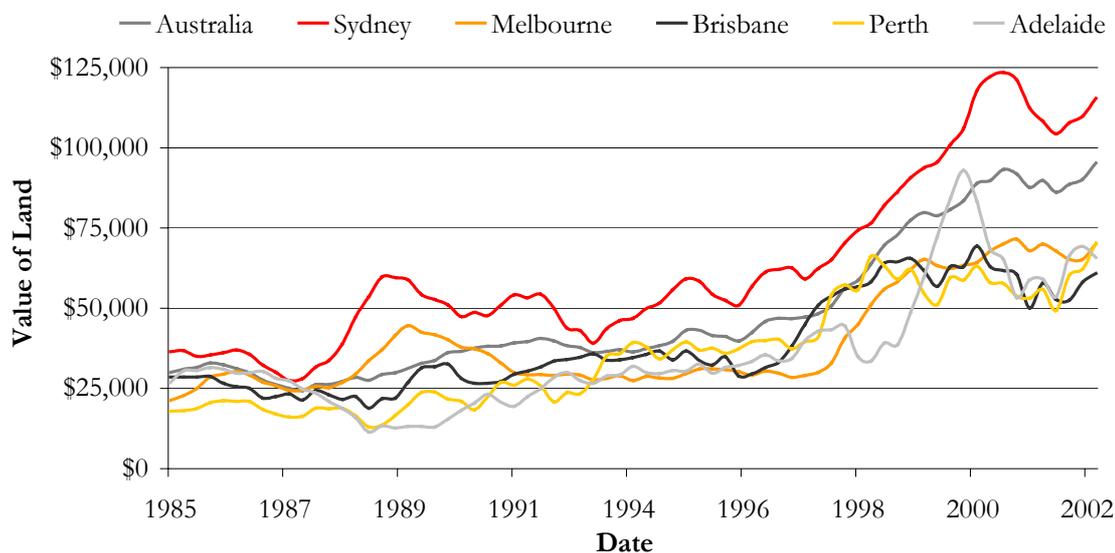
Source: Australian Bureau of Statistics (see Part Four)

<sup>10</sup> When thinking about the cost of supplying new housing, economists like to identify two broad components: the physical construction charges and everything else. Historically, building-related expenses (bricks and mortar, wood etc) have accounted for the lion's share of supply costs in Australia and the US. To get a better feel for this dynamic, we examine the time path of dwelling and building material prices, where the established (project) house price index includes (excludes) the cost of land. Prior to the asset price inflation of the late 1980s, all three lines hugged one another quite closely. Since that point, there has been a striking wedge between the price of established homes and the cost of the inputs used to build them. This disjunction has become increasingly large over the past one and a half decades, with unusually rapid growth during the last five years. Yet the high cost of home ownership in Australia has little to do with swelling construction prices, as the figure above clearly demonstrates. No, this phenomenon is an artefact of something else, which might be loosely referred to as the 'extrinsic' cost of land. Here it is useful to distinguish between market-based valuations that recognize control rights, and intrinsic measures of worth that make no attempt to incorporate such. Ultimately, a property's costs of production will be determined by three factors: the physical characteristics of the dwelling structure, the innate value of the turf on which it was built, and land use regulations that interfere with the market's estimate of the latter. These distortions may take the form of specific rights that attach to the lot in question (i.e., zoning), or holistic supply-side strategies that dictate the release of greenfield and brownfield sites. ES Figure 9 quantifies the real differential between new house prices and the value of approved private sector dwellings over time. This facilitates a more accurate comparison of the price of a property with its developer-estimated costs of production (which include all margins, taxes and related charges), where the disparity between the two should reflect the market value of land. In June 1985, the land component of the median Australian dwelling was valued at \$30,058. In constant dollar terms, today's equivalent figure is three times higher at \$103,306—a phenomenal increase in anyone's books.

ES Figure 9

**The Extrinsic Cost of Land: Real Differential Between New House Prices  
and the Value of Private Sector Dwellings**

Four Quarter Moving Average



Source: Australian Bureau of Statistics and the Housing Industry Association (see Part Four)

ES Table 4<sup>11</sup>

**A First Approximation of the Extrinsic Cost of Land**

December 2002

	<b>CBA/HIA Median New Dwelling Price</b>	<b>Value of Approved Private Sector Houses</b>	<b>Estimated Extrinsic Cost of Land</b>	<b>Proportion of New Dwelling Price</b>	<b>Proportion of Australian Average</b>
<b>Sydney</b>	\$538,200	\$180,453	\$357,747	66.5%	156.2%
<b>Melbourne</b>	\$326,200	\$169,463	\$156,737	48.0%	68.4%
<b>Brisbane</b>	\$305,700	\$154,704	\$150,996	49.4%	65.9%
<b>Adelaide</b>	\$299,200	\$128,772	\$170,428	57.0%	74.4%
<b>Perth</b>	\$231,000	\$143,239	\$87,761	38.0%	38.3%
<b>Australia</b>	\$390,000	\$161,016	\$228,984	58.7%	100.0%

Source: Australian Bureau of Statistics, Housing Industry Association and authors' estimates (see Part Four)

<sup>11</sup> ES Table 4 provides a nominal dissection of the data and shows that a considerable proportion of the housing costs in this country can be ascribed to the extrinsic value of land. In Sydney, 66.5 percent of the median dwelling price is attributable to this factor.

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In conclusion, let there be no doubt that the reforms we propose in this report are as critical to the welfare of Australian families today as was the emergence of the mortgage market at the turn of the last century. Notwithstanding this, policymakers as a breed are not known for their risk appetites. How many will be willing to put their reputations on the line to facilitate the changes we advocate? If history is of any guide, the portents do not look especially promising. Bold political leadership is a rare commodity, particularly in the sphere of financial innovation. Nonetheless, we have strong grounds to believe that such vision and foresight may already be in place, right here in Australia. In this regard, we have unambiguously put our money (or at least our time and effort) where our mouths are. Absent such faith in the current Australian leadership, there is no way that we would have poured so much time and energy into producing this report.

## Introduction

In July of 2002, Andrew Caplin and Christopher Joye published a ‘primer’ on a proposal for global housing finance reform under the auspices of The Menzies Research Centre, a leading Australian think-tank (see Caplin and Joye (2002b)). Several months later the Prime Minister, the Hon. John Howard MP, invited the Chairman of The Menzies Research Centre, Mr Malcolm Turnbull, to establish a Task Force to study innovative approaches to reducing the costs of home ownership, and the delivery of affordable housing assistance.

At the heart of this initiative lies the same conception with which we started. Simply stated, it is beyond time for capitalism to develop a more human face. For centuries now, businesses in need of funds have been able to avail themselves of both debt and equity. Yet for households who aspire to expand, mortgage finance has been their one and only option. And so, despite the ever-growing sophistication of corporate capital markets, consumers around the world are forced to use only the crudest of financial instruments.<sup>12</sup> In our minds at least, the immature state of Australia’s system of housing finance, and indeed those around the globe, is absolutely scandalous. The implications of these deficiencies vary from the merely inconvenient to the extremely tragic. Suffice to say that many of the severe economic complications that manifest throughout the course of a dweller’s life-cycle can be attributed to the ‘all-or-nothing constraint’ on home ownership.

So how did we arrive at this curious set of arrangements? Throughout the nineteenth century most households rented their homes from wealthy landlords, since debt was available to few (see Chapter 1.1). This in and of itself is a crucial observation. Many of us tend to take for granted that mortgage finance has always been readily accessible. Nothing could be further from the truth. Much like the advent of derivative markets in the late 1970s, the widespread use of debt is a modern phenomenon. In fact, the emergence of a liquid secondary market only occurred in the last ten to fifteen years (see Chapter 3.2). If one looks back through time, it becomes apparent that mortgage contracts were not easily obtainable prior to the mid nineteenth century.

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<sup>12</sup> This begs the question as to the absence of equity finance in the first instance. One answer instantly offers itself: securitisation. In the past, it was not practicable for a single unsponsored entity to go around gobbling up interests in individual properties in the vain hope that they could bundle these contracts into something that would look like a regulated holding. Fortunately, there has been spectacular progress of late in terms of the ability of private sector participants to package otherwise illiquid instruments into marketable securities.

The resultant dominance of rental accommodation (while not necessarily a bad thing) left many in a situation of tremendous vulnerability, subject to the constant risk of being removed from their homes, and the vagaries of a legal system that lavished property-owners with extraordinary powers. To make matters worse, decrepit living conditions characterised this kind of tenure, with a proliferation of slums in cities such as Sydney throughout the early twentieth century (see Chapter 1.2). All told, life was not especially good for the battlers of the age.

Even as the mortgage markets began to develop, the hazards to house and home persisted. The earliest such arrangements were of short duration, and those who could not refinance were frequently evicted from their residence. The problems of homelessness and squalor reached epidemic proportions with the collapse of the economy during the Great Depression. At around the same time, a nascent communist movement garnered momentum in both Australia and the UK, the seeds of which many thought were sown in the difficult circumstances of the day. These events combined to energise renewed public interest in the supply of private housing services. Indeed, rapid growth in the rate of home ownership, and the transmission of the values it was believed to imbue, became a key political imperative.

Spurred on by economic and social ructions of this kind, the State and Federal Governments sought to actively expand the supply of housing finance, and by the mid 1930s mortgage markets had arrived in Australia. Without widespread support for these changes, it is doubtful whether they would have materialized at such great pace. Ironically enough, it was bureaucratic inertia of precisely the opposite ilk that was to stifle the growth of trading in mortgage-backed securities some fifty years later. Thankfully, reason prevailed, and today it is hard to imagine what life would be like without alternative lenders and the pressures they exert on the banks.

In this report, we renew our call for constituents to take the next brave step along the evolutionary housing finance path. It is our belief that there is no longer any need for the household sector to remain the poorer cousin of financial markets. That is to say, aspirants should be able to access a suite of debt and equity instruments that is no less rich than that which corporations avail themselves of every day. Nevertheless, if we were going to simply rehash the views presented in the primer, it would not have taken us nine long months and some 400 odd pages to accomplish! Why have we invested so much time and energy pulling all of this additional material together? Is it just an immature yearning to stretch out our moment on the public stage, or could there be more to it? Well, we would like to think that there is indeed more. The purpose of the original manuscript was exactly what its name implied—to introduce some unusual ideas that were in our own minds only embryonic in form. Today we have a great deal more to add to both these arguments, and some entirely new subjects. Here goes.

In what follows, we undertake four main tasks. First, we offer evidence that irresistible economic logic motivates the introduction of ‘equity finance’. Second, we tender a vast array of new information, drawn from, among other things, survey and focus group data, on the profound socio-economic benefits that these markets could deliver. Third, we demonstrate the proposal’s institutional viability, and pinpoint relatively minor adjustments to the legal, fiscal and regulatory structures that would be required in order to guarantee its success. In the fourth and final section of the report, we embark on a detailed appraisal of the ‘supply-side’ in the context of the debate about the rising costs of housing in this country. Just as we contend that it is vital to extend ownership opportunities to as many families as possible, we also think it is critical to remove artificial constraints on the supply of low-cost properties.

The report itself consists of four distinct ‘parts’. Parts One and Two take up the challenge of introducing the economic rationale underpinning our desire to eliminate the ‘indivisibility’ of the housing asset (which, in layperson’s terms, simply means allowing individuals to hold less than 100 percent of the equity in their home). Whereas the first part canvasses historical considerations, the second provides a much more rigorous quantitative elucidation. In particular, Part One shows that our ideas should not be interpreted as especially abnormal, since they flow from sound intellectual principles. In fact, the markets we advocate are so obvious that our profession builds its models as if they already exist! Strictly speaking, this is not entirely accurate. The embarrassing truth is that the economics community has taken the notion of ‘divisibility’ (i.e., the capacity to issue equity to an external party) to a ridiculous extreme. Indeed, in the minds of our colleagues, there is no such thing as home ownership, at least in the conventional sense. No, most economists prefer to abstract away from tenure choice and the housing asset’s many idiosyncrasies; rather, they assume that we all live in rental markets in which perfectly homogeneous housing services are seamlessly exchanged. Taking these fantasies one step further, they would have us believe that the dwellings in which we live are indistinguishable from both physical capital (e.g., machines), and consumption goods (e.g., bread). Who can therefore blame us for thinking that our contemporaries ought to be lambasted for their continued refusal to incorporate even the most basic features of the housing market into their models?

While it is fine for us to pontificate about the merits of relaxing the all-or-nothing constraint, a *sine qua non* of market development is a validation of the proposal’s commercial durability. Undeniably, the most important question here is whether the investor community will be prepared to acquire equity claims at prices that are acceptable to Australian households. Part Two addresses this matter by simulating the institutional demand and individual supply curves and studying equilibrium in the market for equity finance (see Chapters 2.3 and 2.4). Despite using divergent techniques, our findings with respect to feasibility are very similar. On the demand side, we conclude that there

should be immense interest in securitized pools of enhanced home equity contracts—so much so that it is unlikely that there will be sufficient funds to sate institutional requirements. In fact, our tests indicate that this new asset-category could come to dominate the ‘optimal’ investor portfolio, with conservative participants dedicating at least 20 percent of all their capital to ‘augmented’ housing. At the same time, our modelling implies that a very large number of Australians would be willing to issue equity on terms that are attractive to both parties. We infer, therefore, that as a purely economic concern, these markets have the potential to sustain a large volume of trade. In the academic jargon, we have discovered ‘gains from trade’.

As with our evaluation of the innovation’s economic viability, the task of exploring its socio-economic implications is split into two sections. In Part One, we explain how equity finance could enhance the average family’s standard of living at every stage of the life-cycle. We find that it would accelerate the household’s transition from the rental to the home ownership market while significantly increasing its disposable income and expected wealth at retirement. It would also lower mortgage costs, and thereby alleviate financial pressures in the middle years. Finally, it could release a large new pool of liquid assets for those who wish to remain in the dwelling debt-free in later life. In practical terms, our analysis suggests that when a ‘representative’ younger family use a mixture of debt and equity, the upfront costs of home ownership, and the interest and principal payments required thereafter, decline by around 30 percent. There is also a dramatic reduction in the household’s risk of default, and a 70 percent rise in their liquid assets once they leave the workforce (see Chapter 1.5).

Here we speculate that there may be transformations on an even larger scale than that which can be envisaged at this stage of the project. For example, empirical studies suggest that the rate of child-birth is influenced by the type of housing arrangement. In particular, an increase in the number of years spent in the parental home and higher levels of mortgage debt are associated with a reduction in family fecundity. Might these new markets impact positively on (organic) population growth? Would the increased rate of home ownership boost the quality of schools and local public amenities as a result of the residents’ heightened commitment to their neighbourhoods? Could the advent of equity finance attenuate the severe cyclical fluctuations in the housing market? Finally, might a liquid secondary market enable other forms of risk sharing and spawn the development of derivative and futures contracts on residential real estate?

In all of the above cases, it should not be forgotten that the policy environment plays a central role. How well these new instruments function depends on the extent to which the key issues are carefully thought-through, and whether or not one can design them for broad public interest purposes. This in turn depends on the participation of

policymakers, and their ability to rise above what can be a highly partisan process.

Part Two of the socio-economic exposition recognizes that markets play a valuable role if and only if they help us achieve goals that are salient in a social sense. Of course, the most powerful expression of this is to be found in the context of human satisfaction, not via theoretical estimates of utility and the like. We therefore went to the source itself and asked Australians who do not yet own a home for their views on the appeal of equity finance. And their message was loud and clear. In the opinion of these households, the ability to draw on both debt and equity when purchasing a property would be of great help in their struggle to get a foothold in the home ownership market. But what exactly did our results reveal? In a survey of a broad spectrum of consumers, we find that roughly one in two would be interested in supplying equity claims, even when subject to harsh financial terms (see Chapter 2.5). By making some cautious assumptions about the rental segment alone, we calculate that the market opportunity would, at the very least, be in the order of \$130 billion. The supply-side of the equation is wrapped up via two focus groups, where we discover that nine out of ten liquidity-constrained dwellers (i.e., those on Centrelink payments) think that the introduction of this innovation would boost the likelihood of them acquiring a home to call their own. Throughout all of this it is worthwhile remembering that these products do not exist—anywhere. Hence, the enthusiasm so discerned has prevailed against the inherent unfamiliarity of the contracts in question.

Yet our work was not finished there. Oh no. With supply sewn up, we took a step back and asked ourselves: aside from the obvious candidates (i.e., institutions), are there any other members of the community who would be eager to obtain exposures to the securitised pools? And there certainly were. Roughly half of all non-owning households responded that they would prefer to invest exclusively in a portfolio consisting of residential real estate than in cash or a diversified fund. Perhaps most remarkably though, this was in spite of an explicit warning that such an investment could lose money in real terms. When we relaxed the restriction and allowed them to apportion their capital across cash, housing and a balanced fund, most of their wealth (about 40 percent) ended up in home equity. Thus, we feel confident that we also have the demand side of this market under control.

Having satisfied the economic and social criteria, Part Three of the report offers an assessment of the proposal's institutional viability. As before, we find much room for optimism. It would appear that the prevailing legal and regulatory framework can flex to accommodate the introduction of equity finance. Most exciting though is the revelation that we can fashion these arrangements as either equity or hybrid debt instruments (see Chapters 3.3 and 3.4). The latter is an especially attractive alternative since it enables one to circumvent all of the legal

and psychological complications implicit in ‘co-ownership’. In particular, under the debt option, occupiers always own 100 percent of the home in which they live. Furthermore, the costs borne by the institution are noticeably reduced (to take but one example, stamp duty is no longer relevant). In this sense, we can have our economic cake, and eat it too!

So where are the much mooted impediments to progress? In the immortal words of George Harrison, “Let me tell you how it will be, there’s one for you, nineteen for me.” Our study of the proposal’s institutional feasibility suggests that over-zealous regulatory authorities have the capacity to tax away the gains from trade. Here it is not so much the imposition of new levies, but rather the rigid interpretation of existing ones.<sup>13</sup> This was certainly the case with several small-scale efforts to launch equity-based products overseas. Yet what would make these actions especially perverse is that markets of this type present the Federal Government with unprecedented revenue raising possibilities. That is to say, the advent of equity finance would permit the Commonwealth to tax owner-occupied housing for the very first time. Naturally, these charges would only apply to the investor’s holding. In this vein, we would submit that even the most bloody-minded of bureaucrats should be incentivized to encourage the promulgation of these products.

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<sup>13</sup> Note that we do not advocate any exemptions whatsoever.

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Overall, we are optimistic that while our ideas may seem radical to some, the logic underpinning them is compelling. One hundred and fifty years ago, mortgage finance did not, for all intents and purposes, exist. In fact, the notion that seven out of ten Australians would own the home in which they live would have been far more outlandish than the initiatives we canvass herein. However, at the turn of the twentieth century, a variety of economic and social forces coalesced to stimulate public action. Stakeholders at the time recognized that the availability of debt finance would open the ownership door to many dwellers who were shackled by the landlords' yoke.

But much like a portrait in which only half the subject's face has been painted, Australia's system of housing finance remains very much a work in progress. Here it is our view that the nation once again stands at a historic set of crossroads. Absent substantive reform, the sustenance of our 'home owner society' is far from assured. Two key challenges confront policymakers. In the first instance, vigilant moves must be made to cut the cost of housing on the demand-side of the financing equation. The most powerful way to do this would be through relaxing the all-or-nothing constraint. Readers will become familiar with our argument that it makes no sense whatsoever for the average Australian family to have to tie up over two-thirds of all their wealth in the world in one highly illiquid and very risky asset: viz., the owner-occupied residence. Indeed, in Chapter 2.2 of the report we find that one in four families lose money (in real terms) when they come to sell the roof over their heads. For roughly one in ten dwellers, the situation is even more dire—these poor souls are subject to real price declines in excess of 13.4 percent! In this context, it is high time that we brought capitalism to the home front and provided all Australians with the option of issuing both debt and equity capital when purchasing their properties.

Yet just as important as eliminating distortions on demand is our desire to elastify the supply-side of this complex theatre. The analysis of Part Four indicates that there is a growing disjunction between the price of Australian homes and their underlying costs of production (see Chapter 4.2). Significantly, this does not appear to be a manifestation of natural

limitations on the availability of land, but rather a product of regulatory restrictions that artificially inflate the cost of housing. Viewed differently, these constraints on the construction of new dwellings and the release of greenfield and brownfield sites act as a burdensome tax on building, which in turn leads to a mismatch between the accommodation needs of Australian households and the stock of available homes. This brings us to a more general point, which is that many local and State Governments have failed to come to the affordable housing party. To a certain extent, this is an upshot of their deep-seated aversion to instituting changes that are likely to be perceived as disruptive to incumbent residents. While we believe that our solution goes a long way to addressing these concerns, it may not secure adequate political support. In the event that it does not succeed, councils still have an arsenal of other strategies on hand. As a minimum, they should strive to adopt clearer and more objective review standards, and expeditiously render land use decisions in an attempt to improve the ownership opportunities available to current and prospective home owners. The States, on the other hand, must make a much greater commitment to providing the vital physical infrastructure (or at least its funding) that is a precursor to new land being useful for housing purposes.

In conclusion, let there be no doubt that the reforms we propose in this report are as critical to the welfare of Australian families today as was the emergence of the mortgage market at the turn of the last century. Notwithstanding this, policymakers as a breed are not known for their risk appetites. How many will be willing to put their reputations on the line to facilitate the changes we advocate? If history is of any guide, the portents do not look especially promising. Bold political leadership is a rare commodity, particularly in the sphere of financial innovation. Nonetheless, we have strong grounds to believe that such vision and foresight may already be in place, right here in Australia. In this regard, we have unambiguously put our money (or at least our time and effort) where our mouths are. Absent such faith in the current Australian leadership, there is no way that we would have poured so much time and energy into producing this report.

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# 1 Part One: Background

In this section, we establish the conceptual underpinnings of our core proposal, and also review the original primer. While reflecting on the earlier manuscript, we provide explicit responses to many of our critics. The energetic reaction to the initial idea in certain parts of the community suggests that Machiavelli was right in almost all particulars:

“There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new system. For the initiator has the enmity of all who would profit by the preservation of the old institutions and merely lukewarm defenders in those who would gain by the new ones. The hesitation of the latter arises in part from the fear of their adversaries who have the laws on their side, and in part from the general scepticism of mankind, which does not really believe in an innovation until experience proves its value. So it happens that whenever his enemies have occasion to attack the innovator they do so with the passion of partisans while the others defend him sluggishly, so that the innovator and his party are alike vulnerable.” Niccolo Machiavelli, “The Prince”, 1513

In light of the daunting challenge that lies in wait, should we, the idealistic system builders, simply give up on our ambitious quest? That is, should we just accept that this vision is doomed in the face of the vicious assaults launched by those with vested interests? Unsurprisingly, we have decided not to pursue this particular path, since such a course of action would betray our true characters. As we believe that attack is, in many respects, the best form of defence, we consider ourselves fortunate to have to contend with the calibre of criticism that has been levied thus far. Perhaps in the next round our opponents will offer less tempting targets!

Prior to addressing the detractors, we open this part by setting the primary demand-side proposal in context. Yes, we know that the idea of allowing households to use equity in addition to debt to assist with the property purchase might sound a little ‘weird’ to some. But as we note in Chapter 1.1, there was a period not so long ago when the prospect of a mortgage market would have seemed equally unusual. In fact, if one takes a step back through history a mere 100 to 150 years, the notion that lay consumers could draw on debt when buying a home of their own would have been laughable. Even in those distant days it was easy for reputable companies to borrow money, but ordinary Australians—heaven forbid, who could trust them to pay the money back!

Hence, we discover that radical change can and does happen. And despite our ostensible disapproval, the current system of housing finance is a dynamic creature, which has evolved significantly over time. Yet if most proposals for reform are greeted with scepticism, how exactly did the modern mortgage market come about? In Chapter 1.2 we find that it was spawned by the conjunction of three vital factors: commercial logic, political forces and overwhelming social needs. The economic arguments were always incontrovertible. Provided contracts could be legally enforced, there was no reason why households should not be able to borrow against future income. The social requirements were pressing in view of abuses associated with the imbalance of power between landlord and tenant. Finally, the politics fell into place as a result of growing discontent apropos the quality of accommodation (related in part to the preceding point) and concerns regarding the budding communist movement. By the mid 1930s, these pressures were sufficient to convince the State and Federal Governments to introduce the debt markets necessary to foster home ownership as the preferred tenure choice.

Along similar lines, we believe that equity finance will only develop if there is an underlying commercial rationale, if it fulfils key community requirements, and if it can attract support from within the political apparatus. This report is written from the perspective that such an alignment of interests is occurring in Australia today. While Chapters 1.1 through 1.3 speak in favour of the first two factors, only the passage of time will determine whether this work can galvanize the necessary traction in the (unpredictable) policymaking domain.

What then of the polemicists who have so enthusiastically condemned our vision? Chapter 2.4 responds to charges that were aired during the post-publication period. In short, the typical academic reaction to innovations such as this will tend to exploit one of the following trifecta: “it’s trivial; it’s wrong; or I have thought of it already!” In the case of critics cut from a more practical cloth, a slight adjustment is called for: “no one will want it; too many people will want it; or it has failed already.” Sadly, allegations like these add a great deal of heat, but shed very little light. In the end, we are able to rebut virtually all of the accusations levied throughout this time.<sup>14</sup>

After delineating the economic and social principles that motivate the advent of equity finance, we turn in Chapter 1.5 to explore the consequences of such for the broader community. Here our investigation capitalises on several techniques developed in Part Two of the report. Using only the simplest of insights from this much more extensive body of work, we seek to quantify the implications of the innovation for households of all ages. Undeniably, our most important finding is that

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<sup>14</sup> On a more general note though, we would advise that people should, where possible, avoid criticising creativity.

this proposal could extend the great Australian dream to many families who cannot at present afford a home of their own.

So without further ado, let us begin.

## 1.1 The Origins of the Home Owner Society

It is often said that home is where the heart is; and that conveys a crucial message. Housing is a multifaceted conception that fulfils a diverse set of functions. To many it is much more than just a roof over our heads—it is a basic human right that helps to foster community harmony. Indeed, insofar as housing has the ability to imbue status and influence social capital, some believe that it can alter the nature of human relationships. Residential real estate is also the asset-category to which most of us will make the largest economic investment during our lifetimes; the typical dwelling accounts for 60 percent of the average Australian family's total wealth (see Appendix 8.1). For these and other reasons, some sociologists argue that there are grounds for publicly funded housing strategies that strive to eliminate homelessness and assist low-income families secure affordable shelter. In contrast, economists often caution against unbridled interventions into the market on the basis that they can adversely impact on the pricing of properties, and thereby cause major distortions. Furthermore, there are serious questions as to how one goes about defining 'affordability'; rising house prices do not of necessity mean that real estate is excessively expensive relative to its fundamental costs of production.

In this context, there has been a heated ideological debate as to the origins of owner-occupation. On the one hand, the values and ideas surrounding home ownership, coupled with the stabilizing effect it is thought to have on civil society, have been acclaimed as the epitome of the conservative conception and described as a 'bulwark against Bolshevism' (see Forrest (1983) and Gurney (1999a,b)). On the other, individuals such as Kemeny (1981, 1992), Marcuse (1987), and Ronald (2002), purport that the normalization of this tenure preference in many English-speaking civilizations is not an expression of genuine choice, but rather an artefact of right-wing housing policies that conspire to materially and ideologically coerce individuals into a particular housing aspiration. Along these lines, Marcuse claims that, "the typical suburban middle class home often represents more a commercial, artificial and profit induced, exclusionary picture of conspicuous housing consumption sold to its occupants as the ultimate 'dream', than what those occupants would really want if they had a choice." (1987: p. 232). Like-minded theorists have ostensibly classified enthusiasm for this form of tenure, manifest in a marked rise in the rate of home ownership

throughout the post-war period, as a ‘false consciousness’, and evidence of the community’s enslavement to an oppressive capitalist system.<sup>15</sup> One additional corollary here is that home ownership’s insidious ‘essentialisation’ has contributed to the marginalisation of public housing in the policy discourse, and undermined the appeal of rental tenure (Ronald (2002): p. 3).

It is therefore useful to take a step back, and briefly consider the genesis of the so-called ‘home owner society’. Up until the late 19<sup>th</sup> century, rental housing was the most widespread category of accommodation in Britain and most other Western societies. Nevertheless, by the turn of the twentieth century, the rental market had begun to experience something of a quagmire, with concomitant declines in the quality of housing conditions and the returns realized by landlords (see Pooley (1993) and Murie (1998)). The advent of rent controls in 1915 only served to exacerbate this situation.<sup>16</sup> Ronald (2002) maintains that these events contributed to the growing perception that rental accommodation was an inferior type of tenure; the community was fed up with the deprivation associated with private landlordism and home ownership began to emerge as an attractive alternative.

Interestingly, the relative demise of the rental market precipitated different reactions in Western countries. In Sweden, the government’s response was to expand the supply of public housing so as to compete with the services offered in the private market. Kemeny (1986) surmises that this decision was grounded in the political predispositions of the prevailing Social Democratic power at the time, which thought that owner-occupation compromised its ideal of an egalitarian distribution of wealth outcomes. Conversely, policymakers in Australia and Britain sought to advocate home ownership as a superior tenure preference, which promoted prosperity, citizenship, and enhanced individual liberties. In part, this was achieved by improving their systems of housing finance so as to increase the ownership opportunities available to aspiring families.

The important lesson to be learnt here is simply that our conception of tenure choice has evolved significantly over time, and even today it varies vividly according to the region in which one lives. Households in Beijing, London, New York and Sydney have very different expectations with respect to the category of accommodation they hope to obtain. In the future, our understanding of tenure preference will continue to

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<sup>15</sup> See Ronald (2002) for an excellent review of the ideological significance of home ownership, and specifically, the relationship between tenure, discourse and power. Ronald asserts, somewhat radically, that the recent dominance of owner-occupation is a politically engineered outcome rather than a naturally evolving phenomenon

<sup>16</sup> The emergence of the Labour Party in Britain is said to have been in part motivated by the need to improve on the inadequate services offered by the private housing market.

evolve as population and city growth conflicts with constraints posed by anachronistic transport systems, a finite amount of exploitable land, and regulatory restrictions that hinder the elasticity of supply. However, the flexibility alluded to by history suggests that the prospects for change may be more promising than one might otherwise suppose.

## 1.2 The Emergence of the Home Owner Society in Australia

While priorities regarding the provision of housing assistance have certainly altered over the last fifty years (with an initial focus on increasing supply during the post-war reconstruction period), the current Government remains dedicated to ensuring that all Australians have access to affordable, appropriate and secure housing, especially those on lower incomes or with unusual needs.<sup>17</sup> The Prime Minister himself has stated that he is, “committed to preserving and expanding the levels of home ownership, which are essential to social cohesion and stability.”<sup>18</sup>

It is easy to see therefore that owner-occupation retains an iconic role in our society, which reflects a strong psychological attachment to the post-war ideal of “the great Australian dream”—a red brick house to call one’s own, a backyard in which to kick the football, and a small veranda from which to view the day-to-day passings of sunny suburbia. Fortunately, an approximation of this dream is now a reality for seven out of ten Australian households, which represents one of the highest rates of home ownership in the developed world. But such was not always the case, and it pays to briefly contemplate the history of tenure choice in this country.<sup>19</sup>

### 1.2.1 Pre 1945

The early home owner society first began to emerge in the latter half of the nineteenth century. This was encouraged by a belief system that designated low-density owner occupation as a dominant civic virtue (and hence the preferred form of tenure), in combination with rising real wages, declining construction costs, flourishing sources of private finance, and an increasing supply of inexpensive dwellings (see Davison

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<sup>17</sup> Housing Assistance Act, 1999-2000 Annual Report.

<sup>18</sup> The Prime Minister, the Hon. John Howard, MP, was addressing the Housing Industry Association’s annual Home and Building Expo in Brisbane on 17 May 2002.

<sup>19</sup> Here we draw heavily on two outstanding reviews of housing policy in Australia by Professor David Hayward (1996) and Professor Tony Dalton (2002). The interested reader is referred to their work for a much more thorough exposition.

(1981), Frost (1991), and Dalton (2002)).<sup>20</sup> In contrast, that eternal curmudgeon, the private landlord, was the recurring object of much derision and, on a political level, working class protest (see Connell and Irving (1980), Williams (1981), and Hayward (1996)). The community's resentment signalled discontent with the poor quality of rental accommodation, and critical perceptions vis-à-vis the considerable powers and harsh practices of the property-owners themselves.<sup>21</sup> Here it is instructive to note that at the turn of the century there was still no public housing to speak of—the nation's tenure choice was split equally between the rental and owner-occupied segments.

Notwithstanding the dire economic malaise of the 1890s, circumstances began to gradually improve through to the outbreak of war in 1914. At the cessation of conflict, the housing market picked up where it had left off, and continued to experience rapid growth, which culminated in the home ownership rate breaching the 50 percent barrier for the first time. This was however to be but a short-lived reprieve. Before too long, the nation was enveloped in the devastating depression of the 1930s, with new dwelling construction coming to an abrupt halt, unemployment exceeding 30 percent, and repossession rates matching those recorded during the dire days of the late nineteenth century. As a result, a large proportion of the population was disenfranchised and forced into abject poverty. The inner city slums of Sydney, consisting of huts, tents and humpies, became an all too common sight, while the home ownership rate slumped (see Hayward (1996)).

This unfortunate state of affairs demanded a public policy response, and some were eventually forthcoming. Interestingly, Australian reformers were, like their counterparts in the UK, deeply disturbed by the prospect of a nascent communist movement, which they felt was the wayward child of the adverse economic conditions. The policymakers' reaction was to indelibly mark the home ownership aspiration onto the hearts and minds of even the most humble of households. Practically speaking, it is certainly no exaggeration to suggest that the changes instituted in the first half of the twentieth century irreversibly altered the housing landscape in Australia.

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<sup>20</sup> The economy was gripped by severe recession in the late 1890s, with 13 of the lending institutions collapsing as a result of a run on deposits (see Cannon (1966) and Love (1984)).

<sup>21</sup> In the early twentieth century, unpleasant conditions prevailed in the rental market, which contributed to social discord, and more specific problems such as outbreaks of contagious disease (e.g., there were bouts of bubonic plague and cholera in the Rocks region of Sydney). In the public's eye, landlords were to blame. They charged exorbitant rents, delivered dilapidated accommodation, and yet occupied a privileged position within the legal system: in NSW, their debts took precedence over those owed to other creditors, while they could withhold property to cover unpaid rent without having to seek the consent of the authorities to enforce this right (see Hayward (1996)).

In the beginning, the desire to address the aforementioned ills was expressed in a series of Parliamentary reports published in New South Wales (NSW) and Victoria (see Harris (1988) and Troy (1992)).<sup>22</sup> While all concluded that the housing circumstances were appalling, their prescriptions differed along not unexpected lines. In Victoria, there was a preference for the classically austere approach, which involved pithy fine-tuning of existing government regulations. Researchers in NSW, on the other hand, recommended direct public involvement in the provision of housing services (see Harris (2002)).

The first substantive action took place when State governments and the Commonwealth decided to furnish low-income earners (particularly workers) with access to cheap finance so that they could afford to acquire homes of their own (see Hill (1959)).<sup>23</sup> As one politician remarked at the time, “Why should we not provide that a man, whether he is a clerk or an agricultural labourer, or a miner, or a bricklayer or a bootmaker, can borrow from the State if he has a fair amount of security?” (see Hannah (1910) and Dalton (2002)). And so, by 1919 all State governments offered just such a service.

At around the same time, banks in NSW, South Australia, Tasmania, and Victoria, were permitted to purvey mortgage finance on commercially attractive terms. This was facilitated by the enactment of new laws in the decades preceding World War Two, which helped to institutionalise the use of debt as a means by which low to middle income households could purchase their own homes.<sup>24</sup> This was, without doubt, one of the earliest forebears of the modern mortgage market (see Hayward (1996)).<sup>25</sup>

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<sup>22</sup> In 1913, a Joint Select Committee of the Victorian Parliament investigated housing conditions in Melbourne. In 1920, a NSW Legislative Assembly Select Committee reported on slums in NSW. Finally, between 1914 and 1918 a Victorian Royal Commission delivered a three-volume report on the status of living conditions in Victoria (see Hayward (1996)).

<sup>23</sup> Queensland and Western Australia were at the vanguard of this initiative, introducing the Workers Dwellings Act in 1909 and the Workers’ Homes Act in 1912, respectively. The former provided cheap loans up to the value of 70 percent of the purchase price, while the latter offered land and properties for sale on a leasehold and freehold basis (Hill (1959) and Hayward (1996)).

<sup>24</sup> Relevant changes included the South Australian Advances for Homes Act in 1910 (Marsden (1986)); Victoria’s Housing Reclamation Bill of 1919 (Harris (1998)); Tasmania’s 1919 Homes Act (Martin (1919)); and, an amendment to the NSW Government Savings Bank Act in 1913 (Troy (1992)).

<sup>25</sup> One of the more startling developments to emerge during this era was the State banks’ willingness to build and finance housing estates. (Drawing on the garden city principles espoused by the town planning movement in Britain, policymakers in Australia were convinced that the urban environment shaped social behaviour, and hence that government should play a role in the planning process (see Sandercock (1977)). Savings banks acquired large amounts of land on which housing schemes were erected (e.g., the Colonel Light Gardens scheme, which was enabled via the Garden Suburbs Act of 1919; the Victorian State Bank’s Garden City development in Port

The Commonwealth's contribution to the expansion of housing finance in Australia was essentially two pronged. Its principal effort involved the establishment of the War Service Homes Commission in 1919. This was a generous arrangement that offered returned servicemen access to long-term loans with low deposits and concessional rates of interest. The finance was to be used for the purposes of buying existing homes or building new ones. It was inspired by the political fusion of the vision of the tireless worker with the brave and valiant digger who had fought with the Australian Imperial Force in defence of the British Empire (see Millen (1918), Wheeler (1989): p. 180, and Dalton (2002): p. 6). According to Hill (1959), 37,000 dwellings were financed by the Commission between 1919 and 1930. Subsequently, the economic difficulties precipitated by the depression resulted in the initiative's suspension in 1931 (Hayward (1996)). A subsidiary development entailed the formation of the Commonwealth Savings Bank, which was empowered to lend to households for the first time. It, however, suffered a similar fate to the Commission, with the onset of the depression triggering its demise.

By the end of the 1930s, the housing market in Australia was still in a parlous state. A new round of reports was commissioned to study the crisis, and, sadly, their conclusions were no better than those arrived at a decade earlier—conditions in the inner city slums had actually deteriorated, while the intervening period had resulted in an estimated shortage of 120,000 dwellings (see Hayward (1996)).<sup>26</sup> This was further compounded by a dearth of adequate building materials and labour. There was an evolving view amongst constituents at the time that the private market could not cater for those members of the community who were destitute or otherwise hard done by. Consequently, government action was seen to be justified. This gave rise to what Professor David Hayward (1996) has described as our 'reluctant landlords'—State-based public housing was about to emerge in Australia. The introduction of publicly subsidised accommodation was crystallized through the creation of administrative entities in the various states; specifically, South Australia's Housing Trust in 1937, Victoria's Housing Commission in 1938, and the NSW Government's Housing Commission in 1942.<sup>27</sup>

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Melbourne, which was facilitated by the Housing Reclamation Act of 1920; and the Thousand Homes Scheme (ultimately a financial disaster), underwritten by the South Australian State Bank in 1924; see Sandercock (1977), Marsden, (1986), Harris (1988), and, particularly, Hayward (1996)). Nonetheless, these early antecedents to public housing often suffered from serious shortcomings.

<sup>26</sup> These included the NSW Parliament's Housing Slums Investigations Committee (1936), the South Australian Government's Building Act Inquiry Committee (1937), and the Victorian Government's Housing Investigation and Slum Abolition Board (1936).

<sup>27</sup> In 1935, Tasmania's Agricultural Bank was also empowered to supply affordable shelter to low-income households on a rent-purchase basis (see Hayward (1996)).

### 1.2.2 Post 1945

In the years following the Second World War, there was a striking increase in the quantum of finance available to aspirational owners. To begin with, this was a reflection of the nascent peacetime environment, and the need to look after the thousands of returning veterans. Unsurprisingly, the much loved war service home loan scheme was massively reinvigorated—between 1945 and 1956, 103,000 new loans were issued (see Hill (1959)).<sup>28</sup> Subsequently, the Commonwealth Bank began offering mortgage finance alongside its State-based counterparts, while in 1963 the Government established the Housing Loans Insurance Corporation, which provided mortgage insurance to building societies for the first time (see Schedvin (1992) and Lee (1995)). This was a key initiative that reduced the risks to which building societies were otherwise subject, and greatly contributed to their ensuing revival (see Dalton (2002)).<sup>29</sup>

In addition to its efforts above, the Commonwealth also introduced a direct subsidy, known as the ‘Home Savings Grant’ (which, in an analogous fashion to its present day cousin, was used to overcome the deposit gap), and embarked on a program of privatising significant parts of the burgeoning public housing stock. In this latter exercise, equity was offered to occupants on concessional terms (see Dalton (2002): p. 6).

There was a prevailing opinion at the time that the housing system had been severely stretched for several decades, with a distinct shortage of available stock. At this point, it was also fashionable to burden the private sector with the blame for the problems so encountered. In the words of the Commonwealth Housing Commission, established in 1943 to evaluate the magnitude of these difficulties, “it has been apparent, for many years, that private enterprise the world over has not adequately and hygienically been housing the low income group” (quoted in Martin (1988): p. 5). An implication of this conclusion was that government had a mandate to actively participate in the provision of housing services, particularly for those citizens who were subject to financial duress.

In 1944, the Commonwealth Housing Commission released a report in which it recommended the creation of a national housing policy framework, the centrepiece of which was to be a vast public works program to produce 80,000 new dwellings each year (see Berry (1988)). While the Federal Government was expected to underwrite the cost of this initiative, the States would be obliged to manage service delivery and other practical minutiae through their respective administrative

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<sup>28</sup> Dalton (2002: p. 6) comments, “For the very large number of returned service personnel, the “War service homes’ benefit ranked as the highest priority amongst all repatriation benefits (Kristianson (1966): p. 243).”

<sup>29</sup> Building societies had suffered since the economic malaise of the 1890s.

authorities. Thus, we have here the structural underpinnings of what would in 1945 evolve into the first Commonwealth-State Housing Agreement (CSHA). The implications of this event should not be underestimated. The crafting of the CSHA represented the dawn of a new era in economic policy, one that would, for a period of time, recognize public housing as a viable tenure preference. Indeed, by 1956, more than 96,000 new dwellings had been added to the nation's housing stock. Alas, the quality of these homes left a lot to be desired (see Hayward (1996)).

The emphasis placed on public service provision would, however, prove to be rather short lived. In the two decades prior to the stagflation of the early 1970s, the domestic economy grew at a furious clip. As a consequence, the private housing market picked itself up off the ground and began to assume an ever-more important role in the supply of shelter. The arrival of Robert Menzies' Liberal-Country Party coalition in 1949 was to entrench the ownership objective as a political priority. For example, in 1956 the Commonwealth redirected 30 percent of the CSHA funding that had previously been designated for public housing into schemes engineered to assist tenants purchase the government subsidised properties in which they lived. The momentum was such that even the Communist Party of Australia lent its (hesitant) support to this goal (see Hayward (1996)): "ownership of property, for the purpose of extracting a profit out of others causes injustice, but not the ownership of property for one's own use" (Communist Party of Australia (1957): 16).<sup>30</sup>

Looking back on the years after the Second World War, one might confidently surmise that home ownership's place as the leading tenure preference in Australian society had been secured once and for all. Mass migration and the baby boom were defining characteristics of the day. Young, vibrant and comparatively unscathed, the 'sun burnt country' was promoted as a land of opportunity—ostensibly free of prejudice, and welcoming of the innovative and industrious. This was a place where vast fortunes and bright futures were to be made. Yes, that great Australian dream of owning a detached home on a quarter acre block had well and truly arrived (see also Nicholas Nedelkopoulos' illuminating etching below).

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<sup>30</sup> Kemeny (1981) suggests that the renegotiation of the 1961 and 1966 CSHA's precipitated the emasculation of public housing in Australia in favour of the owner-occupied alternative.

## Etching 1

### “That Great Australian Dream”

National Gallery of Australia, Canberra



**Nicholas Nedelkopoulos (1987)**

*“For many ‘new Australians’, and for those already here, living in suburbs beyond the city provided benefits that included new housing and the luxury of space. Nicholas Nedelkopoulos, the son of Greek immigrants, discerns another life behind the tidy facade—a world of anxiety and anarchy. Nedelkopoulos is challenging Australians to observe their habitat from without and within, through the fences and backyards that contain us and our neighbours.”*

The desirable financial and life-style attributes ascribed to outright ownership served to further diminish the appeal of lesser tenure alternatives such as renting. And while economists might shudder at the thought of consumers tying up all their wealth in one risky and indivisible holding, there were, to be frank, few opportunities to engage in ‘multi-asset class’ diversification. The first index fund was, after all, only introduced in 1976, and it took at least another ten years before

Markowitz's revolutionary principles were well understood by practitioners (see Section 2.1.2 and Joye (2000a,b,c)).

The 1980s and 1990s coincided with structural changes and a new set of socio-economic imperatives. The financial system was deregulated and many of the public institutions were privatised. More generally, there was a systemic shift away from blunt interventionist policies in an attempt to capitalize on the efficiency gains associated with market-based outcomes. Despite a decline in support for public housing, microeconomic reform, deregulation and sound economic management were to afford householders a new universe of ownership possibilities. In the mid 1980s, however, cyclical changes combined with severe structural reforms to invoke transitional difficulties in the near term. The underlying rate of inflation averaged around eight percent, while the current account deficit blew out to what were believed to be unsustainable levels.<sup>31</sup> Collectively, these factors contributed to extremely tight monetary policy settings, with interest rates peaking at about 19 percent.<sup>32</sup> In retrospect, the recession that, in Paul Keating's words, "we had to have", should have come as no surprise.<sup>33</sup>

Thankfully, the mid to late 1990s heralded a new era of unprecedented prosperity (in spite of obstacles posed by the Asian economic crisis): Australia's growth, inflation and productivity performance was superior to most, if not all, of our OECD competitors. At the same time, the development of the secondary mortgage market facilitated the emergence of alternative lenders such as Aussie, RAMS and Wizard, which enlarged the supply, continuity and flexibility of housing finance. In turn, this reduced the consumers' cost of capital, and improved their ownership and affordability prospects (see Section 3.2.2). The Government also

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<sup>31</sup> See also Pitchford (1989) for an alternative take.

<sup>32</sup> In 1992, the Deputy Governor of the Reserve Bank of Australia, Mr Ian Macfarlane, commented, "It was clear by the late eighties that policy, including monetary policy, had to be tightened to bring a substantial slowing in the economy. The economy was growing too fast, we were living beyond our means and there was an unsustainable amount of debt financed asset speculation occurring. The dynamics of a modern capitalist economy are such that it is hard to believe that this excess could be followed by a gentle slowing; it was far more likely that it would be followed by an absolute contraction." Sydney Institute, 21 May 1992. Interestingly, Treasurer Keating appears to have differed in his initial viewpoint, since he had predicted a 'soft landing'. Of course, the First Gulf War may have exacerbated subsequent conditions.

<sup>33</sup> Deputy Governor Ian Macfarlane continues, "There is a strong feeling in many quarters that more should have been done to avert the recession. Perhaps it would have been possible to have a somewhat smaller recession, if all the policy guns had been quickly trained towards maximum expansionary impact. But if we had followed this course, how could people credibly have believed we were serious about reducing inflation? We claimed at the time that 1990/91 was a once-in-a-decade opportunity to return to low inflation; everyone would have concluded that we were not serious about taking the opportunity. We could not have expected the community to reduce their wage and price claims, if all our actions indicated a pre-occupation with minimising the recession at any cost in output." Sydney Institute, 21 May 1992.

managed to pull off wide-ranging tax reform and a significant reduction in debt. Perhaps most importantly in the context of the present discussion, housing mortgage rates fell to their lowest level in thirty years while average weekly earnings continued to increase strongly. In the twenty first century, Australia's stellar economic accomplishments have continued unabated, culminating in *The Economist's* recent moniker, 'The Wonder Down Under'. Our peers, on the other hand, have frequently fallen by the wayside.

On the housing front though, the news has not been universally positive.<sup>34</sup> With the inexorable rise in property prices over the last decade (see Chapter 4.2), a growing number of social and economic commentators have arrived at the conclusion that there is an affordable housing 'crisis' in this country (however that may be defined).<sup>35</sup> Their concerns tend to revolve around a perceived deterioration in the accessibility of home ownership opportunities for low to moderate income families coupled with a reduction in the affordability and supply of private rental and public housing, respectively. It is also thought that these factors have conspired to produce a situation whereby an ever-growing proportion of Australians suffer from nontrivial degrees of housing 'stress' (see, for example, Chamberlain (1999), Yates (2000), and Dalton (2002)).<sup>36</sup> Such sentiments have been especially prominent of late, with home ownership emerging as a topic of immense interest. Collectively, these developments have led to a chorus of cries for the Federal Government to increase public funding to combat the alleged problems. Indeed, the Australian Housing National Research Consortium (AHNRC) believes that \$27 billion needs to be spent on increasing the supply of cheap dwellings.<sup>37</sup>

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<sup>34</sup> A statistical summary of the Australian housing market may be found in Appendix 8.1.

<sup>35</sup> Interestingly, the majority of Australian owners realised significant wealth gains as a consequence of the rise in the value of housing during this time. In fact, household net worth has increased by nearly ten percent per annum in nominal terms since 1996. According to the Treasury (2003), this means that the wealth of Australian families has risen by around \$1.4 trillion during the period.

<sup>36</sup> Despite escalating property prices, there is little evidence that occupiers overall are having problems servicing their debt. Household interest payments in the December quarter of 2002 were 5.7 percent of disposable income, well below their peak of 10.7 percent in 1990. At around 6.5 percent, mortgage interest rates remain at extremely low levels, particularly compared with those experienced during the late 1980s and mid 1990s. On the 13<sup>th</sup> of February 2003, the Deputy Governor of the Reserve Bank of Australia, Mr Glen Stevens, commented, "we have not rushed to ring alarm bells about excessive debt. The exception is, of course, the rapid growth in debt to finance investment in rental properties, where we felt during 2002 that people were being drawn into a position of high leverage by unrealistic expectations of returns." 2003 CEDA Economic and Political Overview.

<sup>37</sup> See the Task Force's companion piece, authored by Professor Joshua Gans and Professor Stephen King for a critique of the AHNRC proposal.

In Part Four of this report we find that while there is an affordability problem, it has nothing to do with the distribution of income, as many of the combatants seem to suggest. Rather, it appears to be the result of oppressive government regulations that severely constrict the stock of low-cost properties. When combined with burgeoning demand, these artificial constraints on supply propagate price rises. In this context, we would recommend expanding the affordability debate to encompass local and State government reform, in favour of simply confining ourselves to that perennial panacea—public housing.

Notwithstanding these supply-side insights, a large part of our effort to improve the ownership prospects of Australian families focuses on distortions wrought on demand. In short, the essence of this problem is as follows. While there are obvious disincentives to consigning a vast proportion of one's capital to the dwelling (see Section 2.2.1.1), present institutional arrangements do not afford households the flexibility inherent in fractional interests. Indeed, the inescapable all-or-nothing constraint on owner-occupation forces individuals to make the stark choice between the disadvantages of rental accommodation and the harsh financial realities of complete home ownership. In classical economic terms, the current housing market has a major 'indivisibility', since one cannot maintain a reduced stake in the residence. This unfortunate attribute requires owners to bind together their housing consumption and asset accumulation decisions. Yet a great many Australians may wish to own a home without risking most of their wealth on the fate of a single property and, to a lesser extent, the surrounding housing market. It is to this issue that we now turn.

## 1.3 Indivisibility

In our original manuscript, we argued that one obvious way to cut the costs of home ownership on the demand side of the financing equation is through eliminating the indivisibility of the underlying asset. In the next chapter, we strive to eradicate the idea that instruments engineered to accomplish this outcome are somehow ‘unnatural’. It will in fact be our contention that the prevailing market structures are the strange ones!

### 1.3.1 How Natural is the Zero-One Constraint?

Imagine that you are a young doctor who flies frequently, and just happens to be extremely bullish on the global airline industry. As a result, you wish to do two seemingly straightforward things: first, consume standard flight services; and, second, allocate some fraction of your wealth to a collection of related companies. You also consider yourself to be a fairly canny customer, and prefer not to put all your eggs in one basket. Accordingly, you decide against committing too much of your hard earned money to this specific segment of the economy (i.e., the airline industry). Who knows, there could be another travel crisis! So let’s assume that you only invest, say, ten percent of all your savings in this particular initiative. The crucial point to note here is that in the current environment we tend to take for granted that these two activities are entirely independent. Why, you can just pull together a diversified portfolio of airline stocks and then purchase a plane ticket each and every time the need arises. Nothing could be simpler. Yet suppose for a moment that you lived in a world in which the two decisions were inextricably tied. Suppose that there were no airline services, and anyone who wished to travel overseas on a regular basis had to purchase their own plane. (This might be roughly analogous to the situation that existed sixty or so years ago, wherein the majority of the populace pursued the user-pays path and travelled by boat.) In this alternative reality, you would be implicitly forced to immediately acquire all the tickets that you ever desired, and invest an exceedingly large proportion, if not all, of your wealth in the airline industry. Well, strictly speaking that’s not quite right. You would not be investing in a diversified portfolio that was ‘representative’ of the market itself, but rather in one plane, with all its manifest peculiarities. Moreover, it is highly unlikely that you could actually afford to acquire an aircraft of your own in the first place. No, on the balance of probabilities, you would be compelled to draw on large amounts of debt; perhaps something in the order of 90 percent of the value of the plane that you hoped to purchase. In fact, it is likely that most individuals would have been priced out of the market completely, especially those of a younger vintage.

Now does this sound vaguely familiar? It should, because you live in that world; it is, after all, precisely what transpires in today's housing market. Those of us who cannot afford to buy the dwelling of our dreams are required to rent—modern day analogues of our seafaring forebears. And when we finally purchase a property, we find ourselves investing more than 60 percent of all our wealth in one highly illiquid and very volatile asset: the owner-occupied residence, with all its idiosyncrasies (see also Appendix 8.1).

### 1.3.2 A Professional Blind Spot

Despite being an age-old conundrum, the impact of residential real estate on the household's portfolio problem has largely been ignored by academic economists.<sup>38</sup> Indeed, the profession persists with a 'divisible' definition of the housing commodity—which in effect means that we all rent—manifest in the form of the amorphous notion of homogenous 'housing services' (see Muth (1960) and Olsen (1969)).<sup>39</sup> In part, this is a legacy of the purist neoclassical tradition, which historically avoided conflation of the consumption and portfolio decisions, and, until more recently, ignored the household's inability to borrow against future earnings.<sup>40</sup> One implication of this oversight is that there has been very little discussion of the rate and timing of returns realised on the home owner's real estate investment, or the liquidity of wealth held in the form of housing—the single largest element of consumer portfolios (see

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<sup>38</sup> Brueckner (1997) comments, "The literature has left mostly unexplored an important issue relating to housing's dual role: the effect of housing consumption and investment motives on the structure of consumer portfolios. It is sometimes alleged that consumers 'overinvest' in housing, which leaves most portfolios inadequately diversified. Remarkably, however, there has been no formal analysis of the overinvestment issue" (1997: p. 159).

<sup>39</sup> Of course, the heterogeneity of the housing stock prevents the emergence of an organized exchange for trade in standardised housing units. A corollary of this is that the granularity of the consumer's information set with respect to pricing is poor, and prospective buyers must subject themselves to nontrivial search costs. These features also shed light on the structure of the real estate industry, and the role of brokerage agents. Simply stated, costless recontracting is not possible.

<sup>40</sup> In fact, the discipline frequently ignores the dwelling's other special characteristics—such as its durability, heterogeneity, and spatial fixity—altogether (see Smith, Rosen and Fallis (1988)). The durability of home ownership is typically disregarded by assuming that one homogenous unit of the housing stock yields one unit of housing service per unit of time, and that capital markets are perfect, taxes nonexistent, and asset markets in equilibrium (see Deaton and Muellbauer (1980)). Intertemporal and spatial considerations are also overlooked. In the standard neoclassical model, the expressions 'housing stock' and 'housing services' are used synonymously, and one is forced to abstract away from tenure choice. Accordingly, occupiers are indifferent vis-à-vis rights in the ownership or rental markets.

Appendix 8.1). Nevertheless, as we shall see, the home ownership constraint is an issue of immense import.<sup>41</sup>

Technically speaking, the indivisibility of the dwelling asset precludes occupiers from divorcing their consumption and investment decisions and, as a consequence, greatly impedes life-cycle optimisation. Parenthetically, the household's demand for residential real estate is frequently 'over-determined', resulting in a disjunction between the desired holdings of the asset from the consumption and portfolio perspectives. In turn, this may propagate life-cycle patterns in the occupier's appetite for risk and return, and attendant mean-variance disequilibria. Simply put, while a vast proportion of the average household's wealth is dedicated to one highly illiquid and extremely volatile asset—viz., the owner-occupied home, it is nigh on impossible to access for other purposes.

In this vein, it is sobering to note that residential real estate accounts for around half of all the tangible capital assets in the developed countries of the world. At well in excess of US\$40 trillion it is, in fact, the most valuable asset category on earth. House prices also tend to be uncorrelated with other investment classes, and could, therefore, furnish institutional participants with significant diversification gains. Nonetheless, it is not possible for most dwellers to capitalise on such gains from trade by issuing equity to external parties.

Our work is motivated by an exceedingly complex question, which the academic and practitioner communities have failed thus far to address. In a nutshell, it might be broadly described as follows:

- Why can't households ameliorate the grave life-cycle risks to which they are subject by relaxing the all-or-nothing constraint on home ownership, and cost-effectively trading claims on real estate?

At least from Samuelson's (1969) model of portfolio selection onwards, the importance of accommodating life-cycle needs through capital market instruments has been appreciated. Notwithstanding this, our current system of housing finance prevents the complete equitisation of risks, and, hence, an efficient allocation of scarce economic resources. In particular, it prohibits the sale (purchase) of claims to future income (consumption) streams and the wealth interactions associated with such. Significantly, incomplete equitisation is precisely what causes trade and motivates the allocational role of securities for noninformational reasons (see Grossman (1995)). Put differently, home ownership, as at present organised in most OECD countries, involves Pareto-inefficiency because

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<sup>41</sup> Along similar lines, most economists have chosen not to study our marginal propensity to consume out of housing equity, presumably because of its illiquidity.

there are unrealised gains from trade. This problem is profound for at least three reasons. First, as stated above, the equity and debt held in the home represent the largest components of household wealth. Second, the sub-optimal disequilibrium character of the housing asset over most of the life-cycle may amplify macro-economic fluctuations and complicate monetary management (see, for example, Aoki, Proudman, and Vlieghe (2002)). Third, the result is gross inefficiency in the market for an enormous share of household wealth. It is true that home equity is not the only asset that cannot be appropriately equitized to match the requirements of life-cycle optimisation: human capital faces exactly the same problem.<sup>42</sup> The difference with housing, however, is that it is possible to conceive of equitization, even though such opportunities are not currently available.

### 1.3.3 Technical Literature Review

The indivisibility of the dwelling asset imposes a constraint on the household's portfolio problem since it prevents occupiers from divorcing their consumption and investment decisions and, as a consequence, greatly impedes life-cycle optimisation (see Ando and Modigliani (1963)).<sup>43</sup> Put differently, the 'all-or-nothing' nature of the ownership experience results in the household's demand for residential real estate being 'over-determined', particularly insofar as there is a disjunction between the optimal holdings of the asset from the consumption and portfolio perspectives.<sup>44</sup> In turn, this may propagate life-cycle patterns in

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<sup>42</sup> In spite of the gallant efforts of Shiller (1993), consumers are not able to borrow against their human capital, and insurance markets for labour income risk have not been established. One exception is David Bowie's success in securitising the future stream of earnings associated with both his current royalties and future unwritten works.

<sup>43</sup> A young family's consumption demand for housing often forces them to dedicate a very large proportion of their wealth to real estate, which may result in a marked departure from the asset's 'optimal' weight under a mean-variance framework. The home ownership constraint can also introduce a life-cycle pattern into the portfolio's exposure to other asset categories, since the share of housing to net worth typically declines as the occupiers accumulate wealth. If the household's portfolio consisted only of financial assets, no such pattern would be observed, since the weights of the individual constituents could be expected to remain constant over time. By way of example, most young dwellers are highly leveraged to real estate and exposed, therefore, to significant portfolio risk. As a result, they are also motivated to engage in capital allocation strategies that reduce this risk (e.g., by increasing their holdings of fixed income instruments over and above, say, listed securities). The converse is often true of elderly households who generally have lower exposures to owner-occupied property, and concomitantly, a larger appetite for more volatile investments. Flavin and Yamashita (2002) report that changes in the household portfolio composition over the life-cycle are frequently quite striking. For instance, they find that a coefficient of relative risk aversion of three yields a ratio of stocks to net worth of 0.09 for the youngest households (18 to 30) and 0.60 for the oldest (70 and over).

<sup>44</sup> The conflicting consumption and investment motives have been previously recognized in the literature by the likes of Ranney (1981), Schwab (1982), Henderson and Ioannides (1983, 1986, 1987), Poterba (1984), Wheaton (1985), Bosch, Morris, and

the household's appetite for risk and return, and attendant mean-variance disequilibria (see, for example, Brueckner (1997) and Flavin and Yamashita (2002)).<sup>45</sup> In a dynamic, general equilibrium world, it is also conceivable that the home ownership constraint has much more far-reaching effects, such as invoking relationships between seemingly unrelated events like demographic change and asset prices (see Manchester (1989) and Mankiw and Weil (1989)).<sup>46</sup>

Naturally, in the absence of taxes, transactions costs, agency problems, and other distortions, rental markets for housing would enable individuals to disentangle their consumption-allocation decisions and optimise over the course of the life-cycle.<sup>47</sup> But this is clearly not the typical case. The inherent illiquidity of housing wealth appears to have persuaded many economists to ignore it altogether when evaluating life-cycle behaviour. Indeed, until recently the influence of wealth held in the form of housing on consumption had not been thoroughly explored, and most of the evidence that did exist related to the so-called 'savings puzzle' (see Elliot (1980), Peek (1983), Bhatia (1987), Skinner (1989), Case (1992), Sheiner (1995), Engelhardt (1996), Hoynes and McFadden (1997), Levin (1998), and Gale and Sabelhaus, (1999)). Thankfully, Case, Quigley and Shiller (2001) have begun to recompense for this oversight.

Taking into account the practical realities of home ownership, it is curious that most economists persist with a 'divisible' definition of the housing commodity, manifest in the form of the amorphous notion of homogenous 'housing services' (see Muth (1960) and Olsen (1969)). Ellickson (1981) argues that this is more a reflection of intellectual inertia than insoluble technical difficulties, since advances in mathematical economics have demonstrated that divisibility is not essential to a theory of perfect competition. Nevertheless, history has placed divisibility at the heart of contemporary economic analysis, especially insofar as it is thought to be a "sine qua non for the osculation of the smoothly bending curves with separating hyperplanes that drives the engine of

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Wyatt (1986), Berkovec (1989), Fu (1991), Ioannides and Rosenthal (1994), and Lin and Lin (1999).

<sup>45</sup> Adopting somewhat different approaches, Brueckner (1997) and Flavin and Yamashita (2002) illustrate that where the quantity of housing held for consumption does not equate with that desired for investment purposes, the occupier's overall portfolio will be mean-variance inefficient and deliver suboptimal wealth outcomes. If, on the other hand, the household was able to relax the ownership constraint, it could increase its expected return without a commensurate rise in risk.

<sup>46</sup> Flavin and Yamashita (2002) speculate that the changing risk preferences of ageing baby boomers could present one explanation for the asset price inflation experienced in the stock market of late.

<sup>47</sup> Note that the optimal rental relationship would be a complex contingent contract, in which the rent would be smoothed throughout the agent's tenure in any specific house. In fact, the length of tenure would itself be dependent on the evolution of economic and demographic outcomes.

competition” (1981: p. 2). Of course, the alternative evokes images of corner solutions, market failure and scale economics.<sup>48</sup>

The all-or-nothing constraint on the dwelling asset means that agents are not able to efficiently allocate scarce economic resources—or, more precisely, cost-effectively trade claims on residential real estate—and, as a result, exposes them to grave life-cycle risks.<sup>49</sup> Accordingly, our current housing system prevents the complete ‘equitisation’ of risks, because it prohibits the sale (purchase) of claims to future income (consumption) streams and the wealth interactions associated with such. Crucially, incomplete equitisation is what causes trade and motivates the allocational role of securities for noninformational reasons (e.g., cross-sectional changes in wealth, risk preferences, liquidity needs, unanticipated investment opportunities, and all factors unrelated to the payoffs implicit in the securities being traded). In the unlikely event of complete equitisation, agents would not need to engage in allocational trade to finance consumption or investment since all claims would have been acquired in the first instance (see Grossman (1995)).<sup>50</sup> And unlike many other examples littered throughout financial market history, participants in the real estate industry have yet to devise ways in which they can effectively ‘synthesise’ such claims as a substitute for direct purchase. Of course, human capital, another large component of personal wealth, experiences the same problem.

In spirit, this work embraces the concerns raised by Shiller (1993), among others, that there are few practical proposals for establishing markets to diversify away the principal risks to our standard of living. It is, for instance, far more likely that a property will decline in value owing to adverse economic conditions than it will burn down. And yet whereas there is a substantial industry devoted to insuring the home against

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<sup>48</sup> It is indeed an arduous task for one to find a theory of housing markets based on a model of competitive equilibrium with indivisible commodities and a non-atomic measure space of consumers (see Mas-Colell (1975, 1977) for the abstract mathematical contribution).

<sup>49</sup> The impact of the investment constraint on tenure choice has been formally modelled by Henderson and Ioannides (1983), while Brueckner (1997) has considered its influence on the structure of household portfolios by introducing a mean-variance framework (see Fama and Miller (1972)). In a nutshell, Henderson and Ioannides constrain the quantity of housing owned,  $b$ , such that it is as least as large as  $b_c$ , the quantity of housing consumed. Contravention of this constraint implies that the occupier owns only a fraction of the housing it consumes, indicating that a portion of the equity is held by a second party. This latter eventuality is, of course, consistent with a shared equity arrangement. In the standard case, an increase in housing consumption can only be realised by an equiproportionate rise in investment. Thus, the constraint results in a situation whereby the occupier’s propensities to consume and invest are inextricably intertwined. In contrast, enabling fractional equity interests allows the home owner to separate these two motives (see Brueckner (1997): 159).

<sup>50</sup> Note, however, that this should not be confused with a complete contingent claims market.

physical damage, there remains virtually no way for households to hedge the risk of declines in the value of their real estate holdings (secondary, derivative and futures markets for residential property simply do not exist).<sup>51</sup> To be sure, the potential size of an industry that safeguards a family's home equity would be several orders of magnitude larger than the current-day home contents insurance market.<sup>52</sup> Along the same lines, an individual is much more likely to suffer negative shocks to their income as a consequence of changes in the market for their labour services than as a result of, say, physical disability (see Shiller (1993)).<sup>53</sup>

Inspired by the seminal contributions of Arrow (1974) and Debreu (1959), Shiller proposes the development of markets in claims on large aggregate incomes, and components thereof, traded in the form of perpetual securities, futures, options, swaps and forwards, which would enable consumers to eliminate some of the most significant economic risks to their standard of living. He points out that these 'macro-markets' could present a panacea of sorts to the problems of incomplete equitisation, and notes that the risks traded in modern financial markets represent but a tiny fraction—roughly three percent—of the real causes of fluctuations in household welfare. (And since it would be impossible for any individual to single-handedly exert an influence over these aggregates, there would be no moral hazard introduced from insuring them.) Curiously though, Shiller does not consider the case for creating primary and secondary markets in home equity.

So is it possible to conceive of an alternative reality, in which individuals and institutions are able to cost-effectively exchange claims on residential real estate? Are we able to envision a world endowed with a more sophisticated market system that seeks to facilitate seamless risk-sharing, and which assists in further reducing the inequality of incomes? It is indeed surprising that in spite of the vast empirical and theoretical literature dedicated to studying 'optimal portfolio diversification', economists have yet to seriously commit themselves to designing ways in which to attenuate the most serious economic threats to our existence.

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<sup>51</sup> Truth be known, we do identify several nascent examples in Part Four of this report (see also Caplin et al (2003)).

<sup>52</sup> It is true that our system of taxes and transfers affords some protection against income fluctuations. As an individual's earnings decline, tax payments fall and the universe of available welfare receipts rises. However, these government programs do not address the problem of 'moral-hazard'—namely, the propensity of people to expend less effort as a result of such forms of insurance. Stated differently, the style of risk sharing imposed by taxes and transfers is not considered to be optimal (see Sala-i-Martin and Sachs (1992) and Shiller (1993)).

<sup>53</sup> One of the obvious hurdles to insuring living standards is moral hazard. If incomes are guaranteed irrespective of the effort expended, the incentive to work might dramatically dissipate. This was in fact one of the primary problems that plagued the communitarian conception introduced in the Soviet Union and elsewhere.

Over and above the efforts of Shiller (1993), one is hard pressed to find many other iconoclasts. In fact, the literature is stunningly sparse. A generous list might include Miller, Sklarz, and Stedman (1988), Gemmill (1990), Case, Shiller, and Weiss (1993), Geltner, Miller, and Snavely (1995), Caplin, Chan, Freeman, and Tracy (1997), and Caplin and Joye (2002b). These authors can be segregated into two distinct silos: those that propose to relax the all-or-nothing constraint on home ownership and create a new capital market (Geltner, Miller, and Snavely (1995), Caplin, Chan, Freeman, and Tracy (1997), and Caplin and Joye (2002b)); and those that focus on developing methods to hedge the long-term risks associated with real estate service flows (namely, Miller, Sklarz, and Stedman (1988), Miller (1989), Gemmill (1990), Case, Shiller, and Weiss (1993), and Englund, Hwang, and Quigley (2000)). Naturally, we intend to focus on the former.

## 1.4 The Primer and its Critics

In July of 2002, Andrew Caplin and Christopher Joye published a primer on a proposal for global housing finance reform under the auspices of The Menzies Research Centre, a leading Australian think-tank. As the name suggests, this was, by construction, just a general introduction to a series of sophisticated ideas. In what follows, we briefly reiterate the essential elements of the original plan.

To begin this review, we start off by reflecting on the life-cycle problems that arise from our antiquated system of housing finance. When young, families scramble to scrape together funds for a down payment so that they can graduate from the difficulties of rental accommodation to the (supposed) nirvana of owner-occupation. This period of intense saving often induces a considerable consumption squeeze and may severely constrain lifestyle choices (see Section 1.5.1). In fact, the bulk of young Australian households are obliged to commit around 60 percent of all their wealth to one highly illiquid and very volatile asset: residential real estate (see Appendix 8.1). There are then the costs associated with servicing the mortgage and maintaining the home. The weight of such commitments frequently forces families to endure Spartan like conditions in the early to middle years—the so-called ‘house poor’. In later life, most manage to pay off all their debts and live in the home clear and free. Unfortunately, by this time retirement beckons and the majority of dwellers have precious little income other than their pension. They are now ‘asset rich, but cash poor’. Indeed, 80 percent of all elderly populate the lowest two income groupings.

It is our belief that the underlying cause of poorly diversified asset portfolios, affordability problems for the young, and low non-housing consumption for the elderly, is the basic buy-or-rent decision itself, which is so familiar that we fail to see just how crude it really is. (To

reiterate, it is this dichotomy that compels families to make the tough choice between the disadvantages of rental accommodation and the harsh financial realities of complete home ownership.) In an attempt to rectify the asymmetry between corporate and household capital markets, we recommend replacing these arrangements with a much more flexible system that would furnish Australian families with the option of using both ‘debt’ and ‘equity’ finance when purchasing their property.

Under our plan, housing would be financed with both a mortgage and a passive institutional partner who contributes equity capital to the dwelling in exchange for a share of the ultimate sale proceeds, with no other monetary payments made between the parties. Importantly, the household retains most of the decision-making rights free and unencumbered, just as in traditional markets. Primary choices delegated to the occupier include the timing of sale, what additions to make to the property and when, and how much maintenance to perform. In return, they have several obligations such as keeping the residence in reasonable condition, and paying all operating expenses. Families would not, however, be required to acquire 100 percent of the equity in their home, nor single-handedly bear the burden of the vast financial responsibilities inherent in owner-occupation.

If adopted, our proposal would accelerate the average household’s transition from the rental to the home ownership market while at the same time increasing its disposable income and expected wealth at retirement. It would also lower mortgage costs, and thereby alleviate financial pressures in the middle years. Finally, it would release a large new pool of liquid assets for those who wish to remain in the dwelling debt-free in later life (see Chapter 1.5).

The case for institutions is more complex, albeit equally attractive. As we shall see shortly, our simulations indicate that there is a sizeable wedge between the prices placed by occupiers and investors on a residual stake in the residence (see Section 2.3.3). Such ‘gains from trade’ present home owners and financiers alike with attractive wealth-creation opportunities. And this is to say nothing of the demand for a new and highly uncorrelated, two to three trillion dollar asset-class (see Section 2.1.1).

It should not be forgotten that the political environment plays a vital role. How well these new markets function depends on the extent to which the key issues are carefully thought-through, and whether or not one can design them for broad public interest purposes. This in turn depends on the participation of policymakers, and their ability to rise above what can be a highly partisan process.

#### **1.4.1 Those with Ideas Advocate, those without Denigrate**

Since the primer’s publication in July 2002, the Caplin-Joye proposal has been the subject of much lively debate, which is of course always a very

good thing. We have, however, been disappointed by the quality of the dialogue, and the enthusiasm with which some have obviously conspired to twist the truth. And with no real experience of the Machiavellian nature of political machinations we were, to say the least, shocked by the compromises individuals were willing to make in order to advance their own agendas. Yet perhaps the most irritating cohort of commentators were the self-proclaimed ‘authorities’ posturing in the op-ed columns and elsewhere.<sup>54</sup> These individuals had obviously not familiarised themselves with our work, but still felt the need to spout a gut full of gratuitous hyperbole. In this section, we address the main criticisms that were raised in the post-publication period.<sup>55,56</sup>

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<sup>54</sup> In an opinion piece published on the 13<sup>th</sup> of August 2002, an editorialist confused our proposal with the public sector shared-equity schemes that have existed for many years in both Australia and the UK. Among other things, one obvious difference between the two ideas is the end-game objective: while we try to introduce divisibility, and thereby reduce the home owner’s exposure to their risky real estate holding, publicly subsidised shared-ownership schemes aspire to deliver the opposite outcome. Here the ultimate aim is outright ownership, with the dweller increasing their equity stake over time (which is, to be frank, rather perverse in our minds). This individual proceeded to criticise our recommendations on the basis of failures associated with reverse mortgages, a debt instrument that has been unsuccessfully deployed in several overseas markets. We were somewhat surprised that he did not distinguish between these two contracts—that is, debt and equity, and the principal families of securities associated with such. Simply speaking, debt is senior to equity, invokes a contractual and typically tax-deductible payment, and grants superior control rights in the event of default. In contrast, equity is subordinate to debt, and involves more uncertainty vis-à-vis the residual stream of cash flows. Naturally, there is a Byzantine world of hybrid securities in between (e.g., convertible bonds), which we had not, at the point, publicly canvassed. Although corporations can avail themselves of both, it is nigh on impossible for home owners to capitalise on analogous opportunities. That is, while there are exceedingly sophisticated capital markets for corporate debt, equity, and exotic derivatives therein, the same cannot be said for what is, in fact, a much larger asset category: owner-occupied housing. If this person had read the 15 page Q&A attached to our primer, he would have realised that we had supplied a detailed history of the reverse mortgage market (this material is reprinted in Appendix 8.1 for the reader’s benefit).

<sup>55</sup> On the 28<sup>th</sup> of September 2002, a journalist authored an article in which he claimed that our work had “been around for more than a decade” (wrong), and that the idea itself was “ignorant of Bank of International Settlements guidelines for banks, including the capital adequacy standards administered by the Reserve Bank of Australia.” Indeed, he maintained that under our plan, “Banks would increasingly become land banks, with an increasing amount of assets in non-liquid real estate.” Yet anyone who has studied Finance 101 can you tell you that the process of securitisation (which motivates the development of our secondary market) removes these assets from the originating institution’s balance sheet. Accordingly, there is no reason to believe that purveyors of equity finance will fall foul of capital adequacy requirements. This person’s most disturbing allegation was, however, that our work “presumes housing prices always go up.” Nothing could be further from the truth. In the primer we clearly state that residential property’s advantages “derive from its historically weak correlation with other asset classes...[which] means that real estate is an effective hedge against fluctuations in financial markets. Thus, even if real estate returns were expected to be relatively low, and the standard deviation high (as the journalist implies), it would still occupy a significant percentage of the optimal investor portfolio” (Caplin and Joye (2002)). This really is very simple stuff, and a basic tenet of modern portfolio theory. As

First, our plan is not in any way predicated on property price rises (see also Section 2.1.2). A cursory perusal of the primer illustrates that this innovation is ‘cycle independent’. That is, present market conditions bear no relevance whatsoever, and these issues will be just as important in twenty years time as they are today. We firmly believe that this market exists by accident and not design. Consequently, we intend to address what are structural flaws inherent in our current system of housing finance. In fact, the case becomes even more compelling as the probability of a marked property malaise (i.e., price declines) rises. We are, after all, furnishing Australian households with a form of ‘insurance’—they no longer need burden the vast financial responsibilities inherent in owner-occupation, or assume all of the risks implicit in their real estate investment. Under our arrangement, families have the option of ‘sharing’ prospective price appreciation and depreciation with a passive institutional partner. They would have, therefore, an opportunity to eliminate a significant proportion of what is one of the largest risks to their standard of living. Moreover, insofar as occupiers have an improved ability to communicate their views on the economy by way of, say, divesting a fractional equity stake when conditions overheat, a secondary market in claims on residential real estate could help to prevent bubbles from ever emerging.

Second, it is anticipated that our proposal will be introduced on an incremental and experimental basis, targeting particular cohorts of home owners in the early days (see Chapter 2.5). While flattering, it is entirely unrealistic to suggest that the majority of all Australian households will enter into these arrangements in the very near future. Put differently, this product will appeal to specific segments; e.g., aspirational home owners and the elderly. In the unlikely event that equity finance does place

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a commentator on financial markets, the individual in question should know that institutions care not about raw returns, but rather the contribution of an investment to their portfolio’s total risk-return profile (see Section 2.1.2). Of course, Harry Markowitz received his Nobel Prize for exactly this insight—that combinations of uncorrelated assets give rise to so-called diversification gains. In fact, the capital asset pricing models that institutional investors employ are explicitly predicated on these assumptions. We therefore find fault with the journalist’s conclusion that “Australia’s housing can be made affordable...But it won’t come from ill-thought-out, incomplete notions, trotted out just before by-elections.”

<sup>56</sup> There were, however, some notable exceptions to this overtly unimpressive performance. One of Australia’s leading academic economists, Professor John Quiggin (a.k.a. “Krugman of the Antipodes”), authored an excellent op-ed in the Australian Financial Review in support of the initiative. In this piece, entitled, “A Case for Equity Partners”, Professor Quiggin avers, “Along with a number of Australian and international economists, representing a broad spectrum of opinion on economic policy issues, I was a signatory of a statement arguing that further investigation of this proposal was desirable. Nothing I have seen in the ensuing debate has led me to change my mind.” Undeniably, the most impressive article to have been published by a journalist on the subject was Gina McColl’s thoughtful feature, which appeared in Business Review Weekly on the 6<sup>th</sup> of November 2002.

sustained short-term pressure on prices, this should be precisely the impetus that serves to stimulate supply. In aggregate, one would expect to see a combination of conversions from rental to owned property and a rise in construction, which collectively should contribute to satiating the excess demand. In Chapter 4.6, we also advocate a proposal that could improve the elasticity of supply. This would in turn help to reduce the likelihood of any production lags between the two sides of the market.

Third, at the end of the day all we hope to do is enhance consumer choice and expand the average Australian's universe of available opportunities. Households are not obliged to enter into these relationships—equity finance is, therefore, nothing more than a 'free option' exercisable at the home owner's discretion. It is surely an arduous task to argue against what would be a significant increase in the supply, flexibility and continuity of housing finance, a reduction in the occupier's cost of capital, and improved affordability and home ownership opportunities. By way of illustration, the same criticisms could be levied against the introduction of mortgage finance and securitisation in general. In this context, the cynics would, for instance, have lobbied against the advent of a secondary mortgage market (there are some who still seem oblivious to its existence) and the emergence of non-bank lenders like Aussie, Rams and Wizard. According to this most perverse line of reasoning, we should abolish all forms of housing finance simply because they have the potential to exert upward pressure on prices! Or, to take a more extreme example, the polemicists would have vehemently criticised the introduction of mortgage contracts in the mid nineteenth century!

Fourth, we believe this to be an exceptionally attractive economic opportunity. Residential real estate is the largest asset-class on earth. Since 1984, it has outperformed Australian equities on a risk-adjusted basis. It is also a highly 'uncorrelated' asset category, which affords prospective participants with extraordinary diversification gains (see Section 2.1.1). The last few years are a classic case in point: while global equities have been hammered, owner-occupied real estate in Australia, Europe and North America has delivered tremendous price appreciation. And so, if institutions could spread their 'eggs' among a greater number of 'baskets', they would, a fortiori, be able to appreciably increase (decrease) portfolio returns (risk) while holding risk (returns) constant. As a matter of fact, our analysis indicates that the average conservative investor should dedicate around 20 percent of all their capital to this new asset category (see Section 2.1.2). Of course, it is currently impossible to access real estate's risk-return profile in a well-diversified fashion or to trade home equity. Here it is also worthwhile noting that we have engineered a rich portfolio of financial instruments that massively amplify the natural returns to housing, and hence elevate its relative appeal in a multi-asset class world (see Section 2.4.6).

Finally, we have tried to make clear that the process of ‘securitisation’ ensures that the underlying assets would be removed from the originating institution’s balance sheet, with ownership transferred to the wider investment community. Breach of capital adequacy requirements should not, as a result, be a cause for concern. This really is elementary finance theory, and reflects the rationale underpinning the motivation for establishing a secondary market. And why the fixation with the banks in the first place—we have never encouraged such and, for the record, this opportunity is open to all financial market constituents!

On reflection, the bright spotlight shone on our work has been both fortuitous and frustrating. While on occasion the allegations have defied belief, they have also forced us into action in an effort to diffuse the propaganda. Let there be no doubt however about one forecast of which we are certain: our critics will be poorly judged by history!

## 1.5 Socio-Economic Implications

In the chapter above, we took time out to review the primer and address some of the misconceptions that materialised during the intervening period. We now investigate the expected impact of the innovation on the household’s standard of living. We conclude that equity finance could have tremendous implications for the behaviour of occupiers in their early, middle and later years. In particular, it has the potential to radically alter the relationship between their consumption and investment decisions over time, and the satisfaction they derive from the home ownership experience itself. The relative mix of assets and liabilities held by dwellers would also differ, with a considerable improvement in their life-cycle wealth outcomes. Finally, our simulations suggest that the application of composite capital structures could give rise to a one third reduction in both the cost of purchasing a property and the interest and principal payments made thereafter; a dramatic decline in the risk of default; and, a huge increase in the average household’s liquid wealth at retirement.

### 1.5.1 Aspirational Home Owners

The overriding objective of most younger families that aspire to graduate from the rental market to the more popular conception of outright owner-occupation is typically twofold: first, they need to save up enough money to fund the deposit required for the initial property purchase; and second, they must generate sufficient free cash flow to service the interest and principal payments on what is often a very large mortgage. In the analysis that follows we demonstrate how the use of equity finance would both accelerate this gruelling process and significantly reduce the costs of home ownership. For the purposes of the discussion, we make a

number of assumptions with respect to what might be described as a 'representative' younger household.

Take a couple aged under 35 who are currently saving to buy the dwelling of their dreams: they have no assets and no liabilities; they hope to acquire a first home in, say, Victoria worth \$250,000;<sup>57</sup> their combined ordinary after-tax earnings are \$967 per week;<sup>58</sup> they raise mortgage finance equivalent to 85 percent of the appraised value of the property (i.e., \$212,500); and their final consumption expenditures average \$649 per week.<sup>59</sup> In general, the couple's total purchase costs could be expected to amount to:

**Table 1**

<b>Total Purchase Costs on a \$250,000 Victorian Home with an 85% Loan-to-Value Ratio<sup>60</sup></b>	
<b>Category</b>	<b>Estimated Cost</b>
Title Transfer Fee	\$705
Stamp Duty on Loan	\$816
Stamp Duty on Property	\$10,660
Mortgage Insurance	\$1,757
Other <sup>61</sup>	\$1,859
<b>Total</b>	<b>\$15,797</b>

Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors' estimates

Based on the information above, this young couple will have to save up for the initial down payment of \$37,500 (the value of their property less the amount raised via mortgage finance), in addition to funding the

<sup>57</sup> According to the CBA/HIA price series, the median established new dwelling in Melbourne was valued at \$326,200 at December 2002. As such, our example is a conservative one.

<sup>58</sup> Australian Bureau of Statistics Income Distribution Survey Report No. 6523. Assumes a couple only income-unit in which the reference person is under the age of 35. When adjusted to current prices, this gives rise to gross mean weekly income of about \$1,408. According to the Australian Tax Office, approximately \$441 of the couple's average weekly earnings would be paid away in tax.

<sup>59</sup> Australian Bureau of Statistics Household Expenditure Survey No. 6530. Based on the 1998-1999 survey estimate of total weekly goods and services expenditure of \$785 for the average renter household with 2.42 persons. This figure has been adjusted to reflect the expenses associated with a (smaller) two-person family living in the present day.

<sup>60</sup> Estimates sourced from the Commonwealth Bank of Australia (2003).

<sup>61</sup> The 'other' category includes mortgage registration fee of \$59, loan application fee of \$600, settlement attendance fee of \$100, valuation fee of \$500, and a conveyancing fee of \$600 (Commonwealth Bank of Australia (2003)).

transaction's total closing costs of \$15,797. At this point, they will most probably ask themselves: how long will it take us to save the \$53,297 necessary to purchase our new home? As noted earlier, the couple's disposable income and consumption expenditure average around \$967 and \$649 per week, respectively. Accordingly, their maximum annual savings will be \$16,534. On the balance of probabilities, it should therefore take them at least three and a quarter years of vigilant saving before they can even think about buying this \$250,000 property.

Yet what happens once our couple actually move into their new abode? Or, put differently, what will life be like trying to start a family, pay down the mortgage, and sustain a home of their own? Sadly, the financial duress to which they are subject is unrelenting. If we make the conservative assumption that they have a 30-year loan term with a fixed 6.0 percent interest rate, total monthly interest and principal payments will amount to around \$1,275.<sup>62</sup> ABS survey data covering owners with a mortgage suggests that the couple's final consumption expenditures (before housing costs) will have also risen from \$649 to \$714 per week.<sup>63</sup> Yes, our representative, run-of-the-mill family are now fully-fledged members of the house poor, with negative annual disposable income of \$2,288 (once they account for all housing and consumption related outlays). This is hardly the misty-eyed dream that so many like to impute to the home ownership experience! And yet it is precisely the situation that many Australian occupiers confront. Oh, and forget about starting a family—it is simply too expensive an undertaking. With the inexorable rise in real property prices (see Chapter 4.2), it is little wonder that household fecundity has declined so dramatically over the last forty years. (Actually, that might be an interesting topic for future research: a study of the relationship between the cost of housing and organic population growth.)

The example above can be easily generalised. Consider several couples that are identical in every respect to the one above except for their incomes. Figure 1 below depicts the relationship between the dweller's average after-tax weekly earnings and the time it takes for them to save up enough money to purchase a \$250,000 Victorian home. Unsurprisingly, the speed with which they are able to migrate from the rental to the owner-occupied markets is positively related to their income (all else being equal). With combined after-tax average weekly earnings of \$1,300, the savings period falls to just two years. Observe, however, that our example probably paints an unduly optimistic picture, since it is likely that a household's consumption and rental expenditures rise in conjunction with its income.

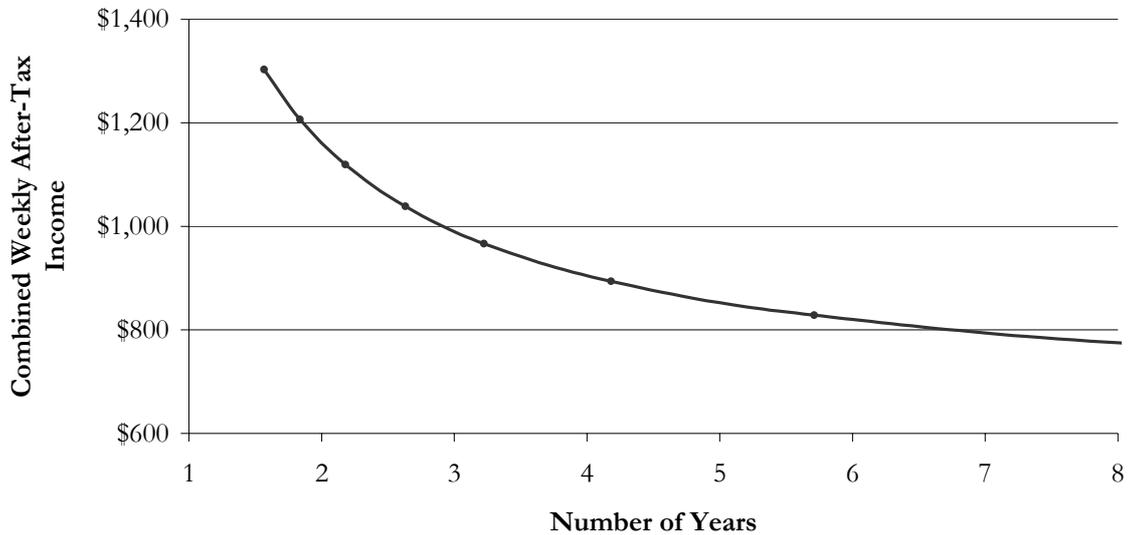
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<sup>62</sup> Total loan repayments during the period should sum to \$458,041 (Commonwealth Bank of Australia (2003)).

<sup>63</sup> Australian Bureau of Statistics Household Expenditure Survey No. 6530.

Figure 1

**Time it Takes for a Representative Couple to Save up for a \$250,000  
Victorian Home Using Only Debt Finance**



Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors' estimates

Furthermore, many affluent couples would doubtless seek to acquire more expensive homes relative to their less prosperous peers, which would only serve to elongate the pre-purchase savings period. If this is indeed true, it will not necessarily be the case that wealthier families make the transition to owner-occupation more rapidly than their lower-income counterparts.

Now let us imagine a different state of nature—one in which our couple are able to draw on equity finance. Specifically, we suppose that an institutional partner contributes 30 percent of the appraised value of the house up front in exchange for its original investment plus 60 percent of the price appreciation and 30 percent of the depreciation. A word of warning here. In subsequent work we canvass a range of structures that offer advantages over the basic contract that is used in this and other hypotheticals. Nonetheless, the state-dependent class of instruments (of which this is but one illustration) does sit prominently within our preferred portfolio of products. Consequently, we feel comfortable that this arrangement will be representative of the practical relationship between the two parties, give or take a permutation here and there.

So just how much less would it cost to acquire a \$250,000 home were one willing to issue equity capital to an institutional investor? Table 2 shows that by employing a mixture of both forms of finance, households are able to assuage a significant proportion of the economic pressures to which they would have been exposed in the contemporary scenario. The size of their home loan and the required deposit falls by nearly one third.

Concomitantly, there is a 30 percent decline in the couple’s ongoing interest and principal payments to \$829 per month.

Table 2

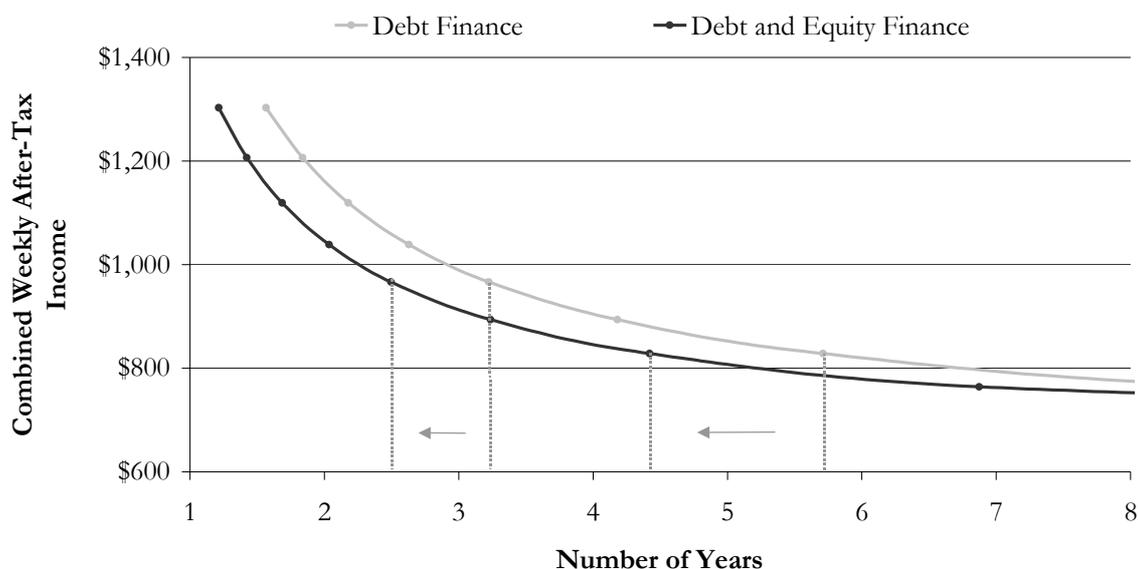
Estimated Cost Savings on a \$250,000 Victorian Home When Using Both Debt and Equity Finance			
Category	Debt Finance	Debt and Equity Finance	Saving
Home Loan	\$212,500	\$148,750	30.0%
Deposit	\$37,500	\$26,250	30.0%
Annual Interest & Principal	\$15,300	\$10,704	30.0%
Upfront Purchase Costs	\$53,297	\$41,260	22.6%
Savings Period	3.2yrs	2.5yrs	21.9%
Annual Disposable Income	\$(2,288)	\$2,340	\$4,628

Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors’ estimates

Total purchase costs also plunge from \$53,297 to \$41,260. This in turn cuts the amount of time it takes them to save up to purchase a property in the first place. Indeed, it is now feasible for the couple to buy their Victorian property within two and a half years (see Figure 2 below).

Figure 2

Time it Takes for a Couple to Save up for a \$250,000 Home Using Both Debt and Equity Finance



Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors’ estimates

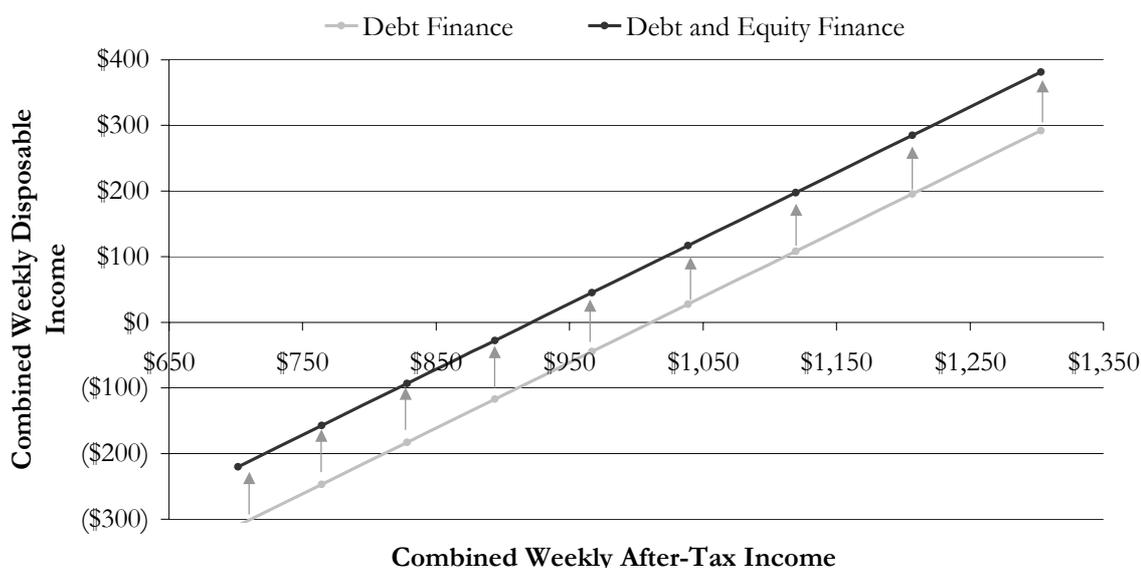
Visual inspection of the figure reveals that the opportunity cost of relying solely on debt finance is even greater for those dwellers that are

financially challenged. Consider a couple with a combined after-tax income of \$828 per week. In the current environment, it takes them approximately 5.7 years to save up enough money to buy a \$250,000 home. If, on the other hand, this low-income household were to issue equity capital to an institutional partner, their total waiting period would shrink by 22 percent to a much more palatable 4.4 years.

But wait, there's more—by relaxing the all-or-nothing constraint on home ownership, and using debt and equity finance, young Australian families would be able to access a new realm of consumption and investment possibilities (see Figure 3). In contrast to the awful circumstances outlined earlier (wherein net disposable income was significantly negative), free cash flow is now positive at \$2,340 per annum! As such, our newly empowered couple can no longer be classified as part of the house poor.<sup>64</sup> On the contrary, they might even be able to afford to think about establishing a family!

**Figure 3**

**Combined Weekly Disposable Income after Covering Consumption Costs and Debt Servicing Requirements, as a Function of After-Tax Income**



Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors' estimates

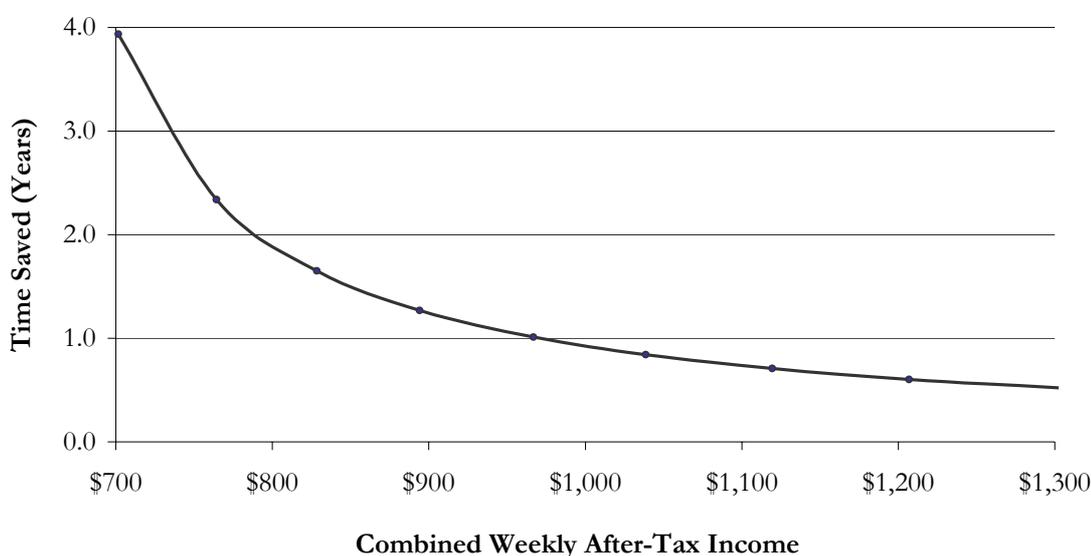
To recap, the simple examples above show that by increasing the efficiency of their balance sheets, aspirational individuals can reduce their mortgage debt burden, the required deposit, the up-front purchase costs,

<sup>64</sup> Weekly interest and principal payments now amount to 22 percent of after-tax income. Previously, they were required to sacrifice 31 percent of their disposable earnings.

and truncate that onerous period preceding the transaction during which they are forced to defer consumption in order to save to fund the acquisition. Post purchase, the use of equity finance contributes to a substantial decline in recurring interest and principal payments, and significantly boosts the home owner's disposable income. Finally, it would seem that lower income dwellers reap the greatest rewards in terms of minimising the time spent in the rental market and expediting their transition to owner-occupation (see Figure 4 below).<sup>65</sup>

**Figure 4**

**Accelerating the Household's Transition from the Rental to the Owner-Occupied Markets: The Impact of Equity Finance**



Source: Australian Bureau of Statistics, Australian Tax Office, Commonwealth Bank of Australia, and authors' estimates

### 1.5.2 Incumbent Dwellers

Households situated in the middle years of their life have frequently addressed the aforesaid obstacles and successfully assimilated into home ownership. They must now contend with the costs of paying down the mortgage, raising a family, and saving for a long retirement. In this section, we study a family that has just decided to trade-up to their second home. Our goal is to conduct a simple evaluation of the economic risks to which they are exposed in the contemporary market,

<sup>65</sup> Oh and one aside. Observe that by using a state-dependent contract (i.e., one in which the investor contributes 30 percent of the capital upfront in exchange for 60 percent (30 percent) of the appreciation (depreciation)), we avoid problems associated with the fixed structure's (i.e., where the investor provides, say, 30 percent today in return for a 50 percent share of the future sale proceeds) enlarged deposit gap.

and to then compare these with the alternative outcomes that are available to them when issuing equity to outside parties. More specifically, we investigate the proportion of dwellers that will at one point or another find themselves in a situation with a level of debt that exceeds their total asset holdings.

In the experiment that follows we assume that the household purchases a \$400,000 property, 85 percent of which is funded by way of a standard mortgage. The transaction's required \$60,000 deposit represents 75 percent of their total wealth. Taking into account the idiosyncratic uncertainty inherent in the individual housing investment, we assume that the family allocates their remaining capital in a manner that optimises the portfolio's total return subject to their risk preferences. Finally, to ensure that our inferences do not rely excessively on one set of characteristics, we employ a variety of initial loan-to-value ratios (LVRs) ranging from 80 percent through to 95 percent.

The analysis begins by simulating the household's returns over a thirty-year horizon. At the end of each year, we compute the value of the equity held in the family's home (less outstanding mortgage debt) plus all their other non-housing holdings. The sum of these two factors gives the total portfolio position. If for one reason or another their simulated wealth trajectory enters into negative equity territory, we halt the run. Using a bootstrap resampling technique, the procedure is repeated 4,000 times.<sup>66</sup>

Our objective here is to assess the extent to which the household's risk-return profile varies according to its capital structure. Consequently, we also examine the alternative state of nature in which equity finance is available. As before, our family starts with \$80,000 in initial wealth, and wishes to acquire a \$400,000 property. In the current market, they only have \$20,000 post-purchase with which to allocate to non-housing holdings. Under the second scenario, the family divests of a \$120,000 equity stake. In return, the institutional partner receives 60 percent (30 percent) of the dwelling's prospective appreciation (depreciation). Assuming an 85 percent loan-to-value ratio, total mortgage debt falls from \$340,000 to \$238,000. The down payment is also cut by one third to \$42,000. With the fresh infusion of capital, our household now has \$38,000 in liquid assets with which to invest in cash, stocks and bonds. Self-evidently, the use of debt and equity finance has enabled them to liberate a significant swathe of money that was previously locked up in their house.

Tables 3 through 6 below present the results of our simulations. Observe that we have had to make some assumptions about the occupier's attitude towards risk and return, and the volatility of the idiosyncratic

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<sup>66</sup> Refer to Chapter 2.2 for a more thorough explanation of this methodology.

price series.<sup>67</sup> Further details on these matters and the methodology itself are provided in Section 2.2.3. For now, it is probably best to take as given that a risk-aversion parameter between 0.5 and 4.0 is representative of consumer preferences.<sup>68</sup> The two variance amplification factors are motivated by empirical evidence in the wider literature and afford a range that we believe to be a reasonably good approximation of reality. The output is divided according to the number of times the household's liabilities exceed its assets.

Irrespective of the assumptions we make, the household is always better off by drawing on a mixture of both forms of finance.<sup>69</sup> Note also that the difference between the two states of nature is not trivial. Indeed, the probability of experiencing a negative portfolio position falls by 75 percent when dwellers issue a combination of debt and equity capital. Under contemporary arrangements, the proportion of home owners that enter into negative equity territory increases from a low of about 8.1 percent to a high of 11.5 percent as the LVR drops to 80 percent. Of course, by reducing the relative debt burden, the required deposit also rises. In turn, this amplifies the household's exposure to the risky dwelling asset. Holding all other variables constant, high LVR occupiers need not contribute such hefty amounts up front, and therefore have a superior ability to allocate their capital to safer investment categories. The most interesting aspect of the simulations is however the marked improvement in the household's average wealth outcome when we introduce equity finance into the equation. With a mixed capital structure, the fraction of dwellers who find themselves with an excess of liabilities over assets falls to between 1.8 percent to 3.1 percent, depending on the assumptions one makes about risk-aversion and price volatility.

While we would not expect every household with negative equity to default, it does nonetheless indicate that they have encountered calamitous financial circumstances. If the dweller's income prospects remain positive, they may be able to ride out the downturn in the

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<sup>67</sup> First, a constant relative risk aversion utility function is used. Second, the volatility of a broad real estate return series is likely to materially underestimate the true level of risk at the individual home owner level. Accordingly, we multiply the market variance by a factor of either four or six to create a new variable that proxies for the home owner's risk-return experience (see Chapter 2.2 for a more detailed exposition).

<sup>68</sup> Risk aversion is a measure of an individual's response to the uncertainty associated with changes in their wealth. Generally speaking, a risk-averse individual is one who unambiguously prefers a certain outcome compared with a risky prospect that has an equivalent expectation. Thus, a risk-averse investor will always reject a fair gamble (i.e., one in which the expected value of the gamble is exactly equal to its cost) because the disutility of a loss is greater than the utility derived from the prospective gain. Functions that exhibit this property have a negative second derivative.

<sup>69</sup> A boffin might note that this requires an objective function that minimizes the probability of realising a negative net asset position.

property market. This does not, however, refute two facts: first, they have lost all of their housing and non-housing equity, which is clearly a considerable economic setback; and second, in trying to overcome these difficulties, the home owner is effectively locked into their current residence. And so, their negative portfolio position may prevent them from moving to other labour markets with superior income opportunities. This of course compounds the complications they face when trying to rebuild their wealth prospects.

Table 3

<b>Comparison of Assets and Liabilities</b>		
State-Dependent Contract (LTV=30%; Gain=60%; Loss=30%)		
Risk-aversion Parameter = 0.5, Variance Factor = 4.0		
<b>Initial LVR</b>	<b>Debt Finance</b>	<b>Debt and Equity Finance</b>
	<b>Negative Total Equity</b>	<b>Negative Total Equity</b>
<b>80%</b>	11.5%	3.1%
<b>85%</b>	10.3%	2.7%
<b>90%</b>	9.5%	2.4%
<b>95%</b>	8.8%	2.2%

Source: Authors' estimates

Table 4

<b>Comparison of Assets and Liabilities</b>		
State-Dependent Contract (LTV=30%; Gain=60%; Loss=30%)		
Risk-aversion Parameter = 4.0, Variance Factor = 4.0		
<b>Initial LVR</b>	<b>Debt Finance</b>	<b>Debt and Equity Finance</b>
	<b>Negative Total Equity</b>	<b>Negative Total Equity</b>
<b>80%</b>	11.5%	2.9%
<b>85%</b>	10.1%	2.4%
<b>90%</b>	9.1%	2.0%
<b>95%</b>	8.1%	1.8%

Source: Authors' estimates

Table 5

<b>Comparison of Assets and Liabilities</b>		
State-Dependent Contract (LTV=30%; Gain=60%; Loss=30%)		
Risk-aversion Parameter = 0.5, Variance Factor = 6.0		
<b>Initial LVR</b>	<b>Debt Finance</b>	<b>Debt and Equity Finance</b>
	<b>Negative Total Equity</b>	<b>Negative Total Equity</b>
<b>80%</b>	11.5%	3.1%
<b>85%</b>	10.3%	2.7%
<b>90%</b>	9.5%	2.4%
<b>95%</b>	8.8%	2.2%

Source: Authors' estimates

Table 6

<b>Comparison of Assets and Liabilities<sup>70</sup></b>		
State-Dependent Contract (LTV=30%; Gain=60%; Loss=30%)		
Risk-aversion Parameter = 4.0, Variance Factor = 6.0		
<b>Initial LVR</b>	<b>Debt Finance</b>	<b>Debt and Equity Finance</b>
	<b>Negative Total Equity</b>	<b>Negative Total Equity</b>
<b>80%</b>	11.5%	2.9%
<b>85%</b>	10.1%	2.4%
<b>90%</b>	9.1%	2.0%
<b>95%</b>	8.1%	1.8%

Source: Authors' estimates

### 1.5.3 The Elderly

Much of a working Australian's lifetime is devoted to satisfying three ineluctable objectives: chipping away at the mortgage, subsidising the insatiable financial appetites of their family, and, on the rare occasion, trying to set aside some cash here and there so that they have a nest egg on which to draw throughout retirement. Indeed, the quality of life in the later years is very much dependent on the saving and investment decisions they make during their working days. Yet it is an unfortunate fact that most Australians struggle to secure their financial futures. This means that having finally made their way to life's departure lounge, they find themselves asset-rich but cash-poor; a vast proportion of all their wealth in the world is tied up in one highly inaccessible holding—yes, you guessed it, the family home (see Appendix 8.1).

<sup>70</sup> Additional assumptions include a 30-year mortgage term, 6 percent interest rate, and a 30 percent rate of tax levied on all assets except residential real estate.

And so, the illiquidity of housing equity obliges many aged individuals to make a tough choice between two starkly different paths: do they continue to teeter on the precipice of poverty, while retaining the right to occupy the home that they have cherished for so long; or, do they instead alleviate these monetary woes by selling their current abode, moving to a smaller one, and potentially jeopardising relationships that have been defined by the area in which they live? The advantage implied by the latter option is of course an improvement in the household's otherwise dim consumption prospects.

The hardships that current housing finance arrangements invoke have not gone unnoticed by members of the financial community. In fact, there have been several valiant attempts to provide home owners with a vehicle through which they can release wealth held in the form of housing. These include products such as reverse mortgages, second mortgages, and home-reversion schemes. However, none has met with much success (see also Appendix 8.2). A lot of older dwellers spent their formative years constrained by the creditor's leash, and they are understandably reluctant to burden themselves with any additional debt. At the same time, many choose not to trade down, since this usually requires them to move to an entirely different suburb, which raises the spectre of sacrificing social ties that are predicated on the geographic proximity of the two parties. For scores of elderly Australians, home ownership extends beyond the physical boundaries of their property to encapsulate the essential characteristics of their immediate environs.

Now this is not to say that a move would not present a refreshing change in lifestyle for some households. It is just that there are many others who are hesitant to embrace such dramatic departures from their normal modes of behaviour. This strong psychological bond to the current property therefore creates a substantial roadblock to higher levels of consumption—so much so that most financial planners ignore the owner-occupied home completely when assessing the resources available for use in later life.

There is little doubt that by eliminating the indivisibility of the dwelling asset could open up a new universe of lifestyle possibilities for elderly occupiers. Think of a couple who yearn to increase their disposable income so that they can enhance a less than satisfactory standard of living. By relaxing the all-or-nothing constraint, they would be able to issue equity to an institutional investor in exchange for a sizeable cash sum. This might then be spent on a long-term investment annuity to supplement their income; higher quality medical care; new furnishings for the residence; and perhaps even a trip overseas. Indeed, it could be the case that the couple decide to immediately bequeath some of their wealth to their children such that they have the pleasure of observing the impact it has on their lives.

In contrast to the existing alternatives, equity finance offers elderly owners two particularly attractive attributes: first, it prevents them from having to move from their current homes and incur all of the associated emotional stress; and, second, they do not have to assume any additional debt. Notwithstanding these advantages, the greatest rewards will most probably accrue to those who issue equity capital during the early to middle years. By diversifying their asset-allocation strategies ahead of time, the household's savings position at retirement will be far superior to the current scenario in which most of their wealth remains tied up in the home.

In the exercise that follows, we provide some simple portfolio calculations to illustrate the value of equity finance in improving the average consumer's expected wealth at retirement. Consider a family in which the reference person is aged 55, with net worth of \$500,000, initially held as cash (we assume here that they have just sold their home). Suppose also that the household hopes to acquire a new residence that costs \$400,000, and that they wish to retire at age 65. Our goal is to contrast the optimal portfolio of liquid assets held in the current environment, in which dwellers buy the home outright, with the portfolio they would have if they issued equity capital to an institutional partner. In the latter scenario, we assume that the investor contributes 30 percent of the up-front cost of the home in return for rights to 60 percent (30 percent) of the appreciation (depreciation). Recall that this arrangement is identical to the state-dependent contract that we used in the previous examples. In all of our simulations, the household creates its retirement portfolio by optimally allocating its wealth across domestic equities, long-term government bonds, and cash. That is to say, they aspire to position themselves on what economists like to call the 'mean-variance efficient frontier' (a more formal definition of which is supplied in Section 2.1.2).

The main difference between the two states of nature lies in the relative proportion of liquid assets held by the home owner. In the contemporary market, the family has a total of \$100,000 (\$500,000 less \$400,000) to divide among the non-housing assets. Yet if they decide to draw on equity finance, liquid wealth rises to \$220,000 (\$500,000 less \$280,000). Observe that this divergence in initial investment endowments, effected by way of releasing capital that was previously dedicated to the dwelling, should give rise to a nontrivial difference in their retirement portfolios.

In order to complete our computations, we need to estimate the past pattern of real joint returns to domestic equities, long-term government bonds, cash, and residential real estate. (Remember that our goal is to determine the portfolio weights an individual aged 55 would select so as to maximize the expected utility of wealth at retirement in ten years

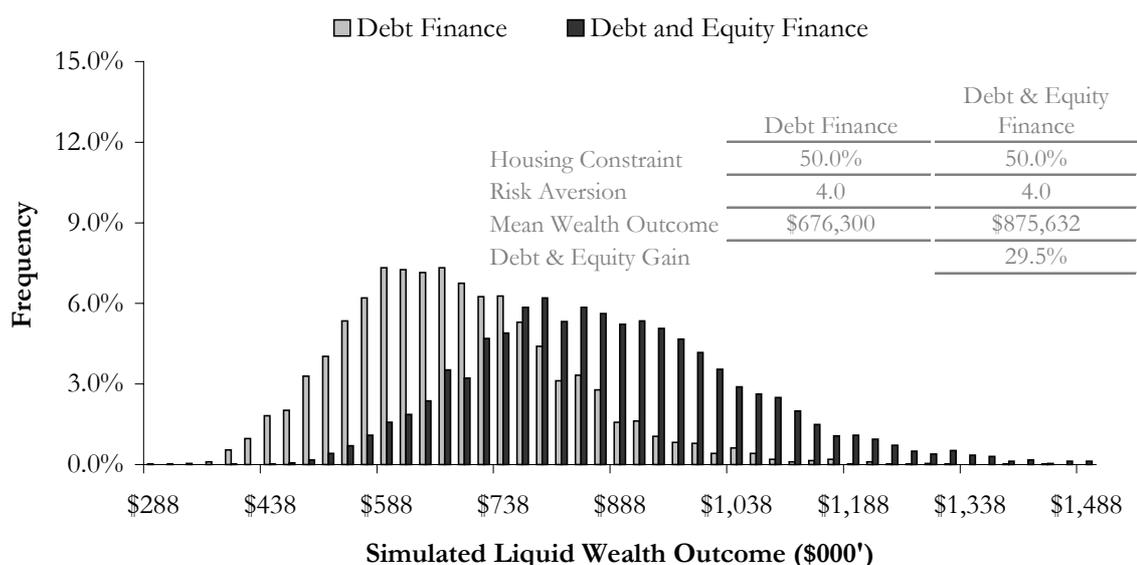
time.)<sup>71</sup> The parameters for the distribution are calculated over the period March 1984 to March 2002, inclusive. Using a bootstrap technique, we then take a sequence of random draws and compound up to get the future ten-year pattern of asset returns.<sup>72</sup> The sampling procedure is repeated 1,000 times to generate the distribution of joint returns. With this in place, we determine the household's optimal choice among all possible asset portfolios, assuming no subsequent adjustments, and thence the final wealth outcomes.

Figures 5 through 8 below depict the simulated distribution of liquid wealth for households in both markets assuming a risk aversion parameter of 4.0.<sup>73</sup> For the purposes of comparison, we also vary the amount of capital raised such that between 50 percent and 80 percent of the occupier's initial wealth is invested in the home (refer to the 'housing constraint').

**Figure 5**

**Simulated Distributions of Liquid Wealth after Ten Years**

State-Dependent Contract (LTV=30%; Gain=60%; Loss=30%),  
where Housing Constraint = 50%, and Risk Aversion Parameter = 4.0



Source: Authors' estimates

<sup>71</sup> Once again, a constant relative risk aversion utility function is assumed. Interested readers are referred to Chapter 2.2 for a more detailed introduction to the minutiae of this method.

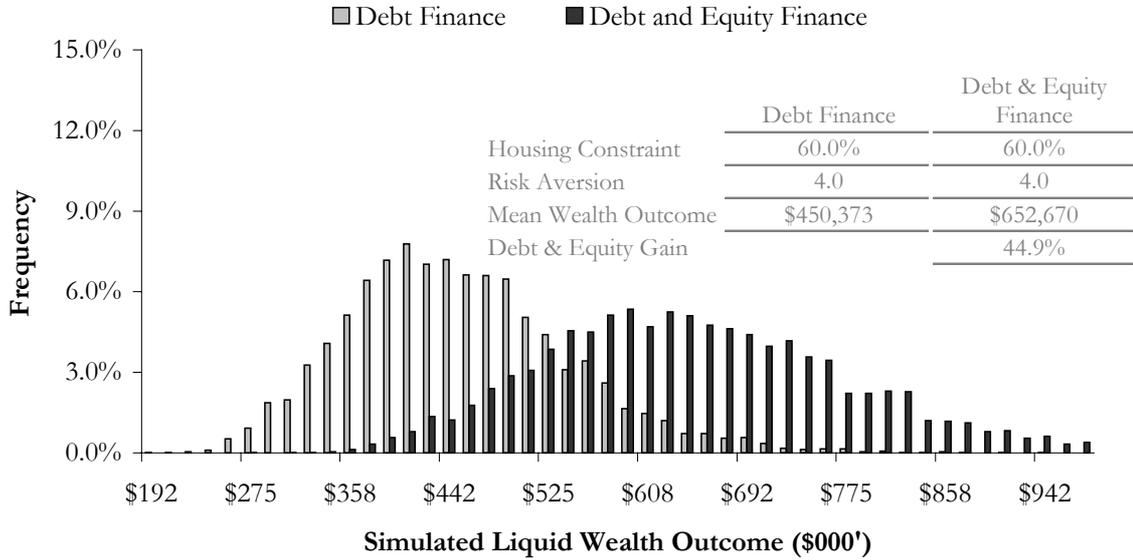
<sup>72</sup> This may be a conservative holding period in light of the fact that average tenure times in Australia can be much shorter (see, for instance, Section 2.2.1).

<sup>73</sup> We also levy tax at a rate of 30 percent on all asset classes except real estate.

**Figure 6**

**Simulated Distributions of Liquid Wealth after Ten Years**

State-Dependent Contract (LTV=30%; Gain=60%; Loss=30%),  
 where Housing Constraint = 60%, and Risk Aversion Parameter = 4.0

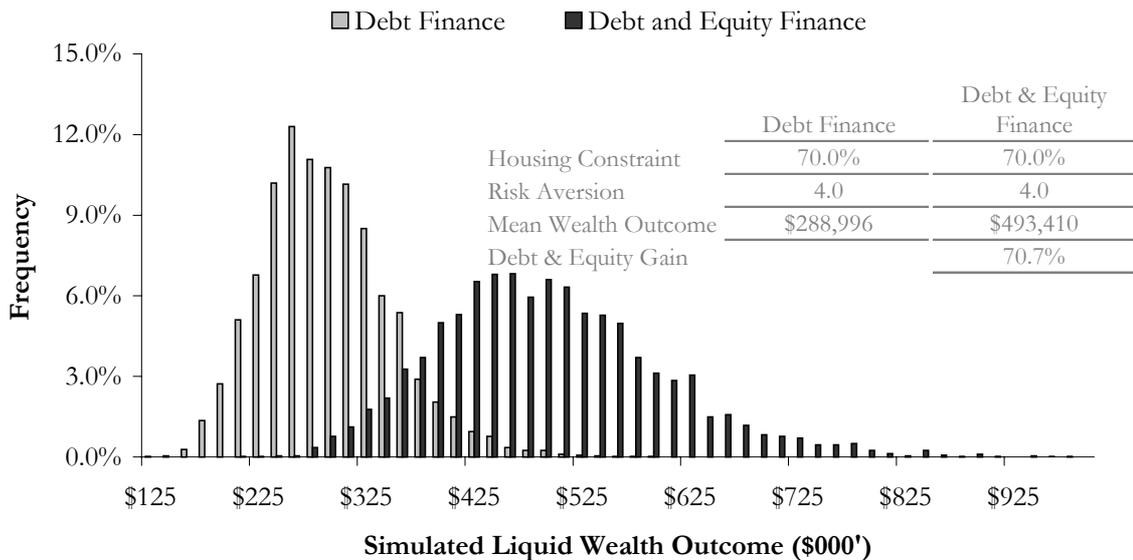


Source: Authors' estimates

**Figure 7**

**Simulated Distributions of Liquid Wealth after Ten Years**

State-Dependent Contract (LTV=30%; Gain=60%; Loss=30%),  
 where Housing Constraint = 70%, and Risk Aversion Parameter = 4.0

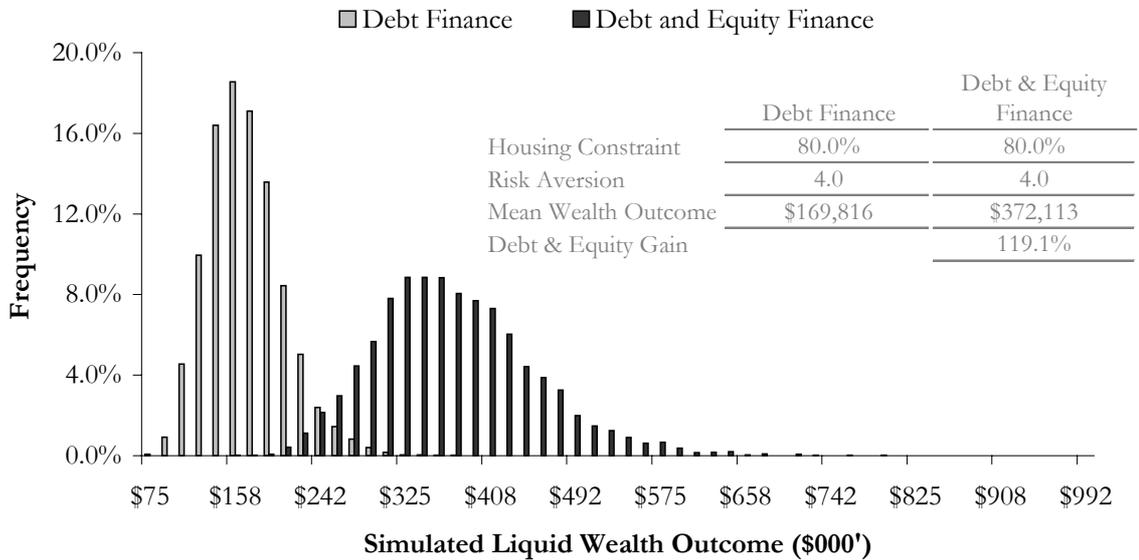


Source: Authors' estimates

**Figure 8**

**Simulated Distributions of Liquid Wealth after Ten Years**

State-Dependent Contract (LTV=30%; Gain=60%; Loss=30%),  
 where Housing Constraint = 80%, and Risk Aversion Parameter = 4.0



Source: Authors' estimates

The charts show that there is a striking rightward shift in the retirement portfolio of dwellers when they draw on equity finance. Evidently, this is because they were able to release capital that would otherwise have been locked up in their home, and subsequently invest it in a well-diversified portfolio consisting of stocks, bonds and cash.

In Table 7, we produce summary statistics on both scenarios for a broader range of risk aversion parameters and housing constraints. It demonstrates that the composite capital structure precipitates a significant increase in the average's home owner's liquid wealth at retirement. Although these examples condition on several hypotheses, the basic point is powerful: individuals who are willing to issue equity should retire with a much higher level of liquid wealth than those who decide to restrict themselves exclusively to the use of debt. Furthermore, the assumed contractual relationship is hardly an unrealistic one. It is not, for instance, as if we have simply supposed that the investor contributes a certain fixed percentage of the dwelling's appraised value up front in return for equiproportionate rights to the future sale proceeds. On the contrary, the cost of equity capital gives rise to a 100 percent increase in the institution's claim on all prospective price appreciation. And yet despite these sacrifices, this new form of finance remains a compelling alternative for many consumers. Why? Well, it comes down to the gains from trade, which we address in Part Two. In the interim, it is sufficient to state that one would be hard pressed to find an economist worth her salt who could, using orthodox arguments, justify the arrangements that

characterise the current system of housing finance. It simply does not make any sense to own all of the equity in your home—period.

Table 7

<b>Comparison of Simulated Liquid Wealth Outcomes</b> State-Dependent Contract (LTV=30%; Gain=60%; Loss=30%)						
<b>Housing Constraint</b>	<b>Risk-aversion Parameter</b>	<b>Mean Debt Wealth Outcome</b>	<b>Standard Deviation</b>	<b>Mean Composite Wealth Outcome</b>	<b>Standard Deviation</b>	<b>Net Liquid Wealth Gain</b>
50%	0.5	\$723,732	\$285,993	\$940,851	\$371,790	30.0%
50%	1.5	\$714,838	\$254,809	\$914,171	\$280,540	27.9%
50%	2.0	\$697,051	\$196,331	\$899,348	\$234,853	29.0%
50%	3.0	\$682,229	\$155,059	\$884,526	\$195,987	29.7%
50%	4.0	\$676,300	\$141,939	\$875,632	\$177,845	29.5%
50%	5.0	\$670,371	\$131,675	\$872,668	\$172,952	30.2%
60%	0.5	\$482,488	\$190,662	\$699,607	\$276,459	45.0%
60%	1.5	\$482,488	\$190,662	\$682,314	\$216,932	41.4%
60%	2.0	\$470,136	\$148,207	\$669,962	\$178,183	42.5%
60%	3.0	\$457,784	\$110,915	\$657,610	\$145,472	43.7%
60%	4.0	\$450,373	\$93,657	\$652,670	\$135,093	44.9%
60%	5.0	\$447,902	\$89,290	\$650,199	\$130,680	45.2%
70%	0.5	\$310,171	\$122,568	\$527,290	\$208,366	70.0%
70%	1.5	\$310,171	\$122,568	\$518,820	\$178,818	67.3%
70%	2.0	\$305,936	\$107,746	\$508,233	\$144,217	66.1%
70%	3.0	\$295,348	\$74,187	\$497,645	\$114,418	68.5%
70%	4.0	\$288,996	\$59,214	\$493,410	\$104,787	70.7%
70%	5.0	\$286,878	\$55,840	\$489,175	\$97,080	70.5%
80%	0.5	\$180,933	\$71,498	\$398,052	\$157,296	120.0%
80%	1.5	\$180,933	\$71,498	\$394,347	\$144,254	118.0%
80%	2.0	\$180,933	\$71,498	\$385,083	\$113,303	112.8%
80%	3.0	\$173,522	\$46,838	\$375,819	\$86,734	116.6%
80%	4.0	\$169,816	\$37,046	\$372,113	\$78,363	119.1%
80%	5.0	\$166,110	\$31,243	\$370,260	\$74,895	122.9%
90%	0.5	\$80,415	\$31,777	\$297,534	\$117,575	270.0%
90%	1.5	\$80,415	\$31,777	\$297,534	\$117,575	270.0%
90%	2.0	\$80,415	\$31,777	\$289,299	\$89,376	259.8%
90%	3.0	\$78,768	\$26,069	\$282,712	\$69,505	258.9%
90%	4.0	\$73,827	\$13,886	\$279,418	\$61,288	278.5%
90%	5.0	\$72,180	\$14,090	\$276,124	\$54,931	282.5%

Source: Authors' estimates

#### 1.5.4 Summary

In the chapter above we discovered that the advent of equity finance would, among other things, significantly reduce the costs of home ownership, moderate household debt-to-equity ratios, increase the average family's disposable income and liquid wealth at retirement, and present a solution of sorts to the problems of a rapidly ageing population.

It is thus our belief that the use of composite capital structures could create many new options for occupiers over the course of the life-cycle. When young, households care most about expediting their transition from the rental to the home ownership market, and freeing up more resources for consumption. For those in their middle years, risk reduction may be more important as they look for a portfolio that is less dominated by the dwelling. Lastly, for older Australians, equity finance provides them with the ability to consume a great deal more without giving up their home, and without incurring additional debt.

Yet there may be transformations on an even more profound scale than that which we can envisage at this stage of the project. For example, empirical studies indicate that the rate of child-birth is influenced by the type of housing arrangement. Specifically, an increase in the number of years spent in the parental home and higher levels of mortgage debt are associated with a reduction in family fecundity. Might these new markets impact positively on (organic) population growth? Would the increased rate of home ownership enhance the quality of schools and local public amenities as a result of the residents' heightened commitment to their neighbourhoods? Could equity finance reduce the risk of default and attenuate the severe cyclical fluctuations in the housing market? Finally, might a liquid secondary market enable other forms of risk sharing and spawn the development of derivative and futures contracts on owner-occupied housing?

In all of the above cases, it should not be forgotten that the innovation's 'economic viability' is of first order importance. If individuals and institutions are not willing to trade equity claims, then none of these opportunities will arise.

## 2 Part Two: Economic Viability

In Part One we learnt that the indivisibility of the housing asset obliges dwellers to tie together their consumption and portfolio accumulation decisions, leaving them with the difficult choice between the disadvantages of rental accommodation and the harsh financial realities of complete home ownership. But we also identified an alternative reality, one in which occupiers would be able to draw on both debt and equity finance when purchasing their properties.

To many of you out there, this might seem like a rather obvious point. After all, in every other financial market, participants issue debt and equity—so why not extend capitalism to the home front? In fact, this begs the question as to the absence of equity finance in the first instance. One answer instantly offers itself: securitisation (see Section 3.2.2). In the past, it was not economically feasible for a single unsponsored entity to go around gobbling up interests in individual properties in the vain hope that they could bundle these contracts into something that would look like a regulated holding. Fortunately, there has been spectacular progress of late in terms of the ability of private sector participants to package otherwise illiquid instruments into marketable securities. Of course, as we have noted before, this should be viewed as just another step along our evolutionary housing finance path. It is certainly sobering to think that the mortgage market did not exist 150 years ago. And yet today we take for granted that it is an absolutely indispensable element of the home ownership experience. Well, at least most of us do. (There appears to be a minority out there who believe that expanding the pool of housing finance is a bad thing—“why, its just going to increase property prices”; ergo, let’s abolish mortgage debt!)

The best way to understand the forces motivating the need for this new form of finance is to focus on the ‘gains from trade’. Simply stated, consumers have a profound desire to diversify wealth away from the individual housing asset. The investment defined by the second half of the home is not worth much to the current owner, since it is perfectly correlated with the first half and provides no diversification benefit. In contrast, a single dwelling is but a minute proportion of the financial community’s total portfolio.

Apart from the benefits of portfolio diversification, there are other mutually advantageous opportunities to exploit. The institutions (e.g., superannuation funds) that would acquire equity interests generally have long horizons; they are investing on behalf of households that wish to defer spending today in order to maximise their consumption possibilities in the future. On the other hand, many home owners have

an urgent need for cash in the short-term. The difference in value that these two groups (i.e., dwellers that want to spend and those that wish to save) place on the asset represented by the second half of the home provides the basis for gains from trade that benefit both.

While it is fine for us to pontificate about the merits of relaxing the all-or-nothing constraint, a necessary condition for market development is an assurance of the innovation's economic viability. Somebody has to contend with the humdrum commercial realities! The critical question at this point is whether the investor community will be willing to purchase ownership interests at prices that are acceptable to Australian households. Phrased somewhat differently, can one align the demand and supply sides of the equity finance equation? In the next few chapters, we confirm that one can indeed.

## 2.1 The Demand for Equity Capital

We begin our study of the practical viability of markets in home equity by quantifying the investor appetite for real estate returns in a multi-asset-class world. This will be a fundamental determinant of their propensity to purchase such claims. Once again, we want to make clear that the relationship between the two parties can be structured in all manner of creative ways. Indeed, use of the term 'equity' may prove to be somewhat misleading, since we have also devised a suite of hybrid debt instruments that synthetically mimic real estate's risk-return profile whilst avoiding all of the problems implicit in co-ownership. Thus, it could be the case that households issue 'artificial' equity via a product that ostensibly resembles the standard mortgage contract. But to make life simple in the near term, let us kick off the analysis with what might be described as a 'plain-vanilla' equity instrument.

The level of institutional demand will depend on the price that householders accept in exchange for sacrificing rights to a given share of the property's final sale proceeds (however that right may be defined). It is this relationship—between price and quantity—that we attempt to numerically estimate. In particular, our experiment is framed around the following puzzle:

- How does the investor's demand for equity finance depend on the price that households accept in return for divesting of a fraction of the final sale proceeds?

We tackle this question using two very different techniques. The first employs orthodox 'mean-variance' analysis (see Markowitz (1952)), which allows us to systematically account for the diversification benefits attributable to this multi-trillion dollar asset class. The second more sophisticated approach involves an explicit simulation of the institution's

demand for equity finance. Here we maximize a class of ‘constant relative risk-aversion’ utility functions, which ensure that the agent’s asset-allocation strategy remains independent of its wealth and the assumed holding period.<sup>74</sup> One advantage of the latter method is that it allows us to engage in a more thorough evaluation of the aforementioned diversification gains, and the subtle interface between an investor’s attitude towards risk and his or her appetite for claims on home equity. The second technique also fits more comfortably with the experiments of the next part, in which we investigate the value households impute to a residual stake in the residence.

Despite these differences, our answers to the question of demand are very similar irrespective of whether we utilize mean-variance optimisation or the more complex simulations based on the assumption of constant relative risk-aversion. In both instances, we find that there should be tremendous interest in securitized pools of enhanced home equity—so much so that it is unlikely there will be a sufficient volume of funds to sate institutional requirements. In fact, our tests indicate that this new asset-category could come to dominate the ‘optimal’ investor portfolio, with conservative participants dedicating at least 20 percent of all their capital to ‘augmented’ housing. Of course, the appeal of the commercial proposition conditions on the nature of the contractual relationship between the two parties, and the extent to which this enhances the innate returns to residential real estate.<sup>75</sup>

### 2.1.1 Owner-Occupied Property’s Risk-Return Profile

So how does the performance of run-of-the-mill housing stack up relative to other classes of investment? Well, one’s opinion ultimately depends on whether one makes it a level playing field or not. For example, when thinking about residential real estate, do we include the rental yield? And what is the proper horizon over which to measure price movements? Finally, having made judgments on these (admittedly arbitrary) subjects, one must still deal with the prickly question of which particular proxy to use—data can be collected from a wide variety sources, including the Australian Bureau of Statistics (ABS), the Housing Industry Association (HIA), and the Real Estate Institute of Australia (REIA), to name just a few. At this juncture, it is also important to appreciate that we are not, by any stretch of the imagination, engaged in a petty undertaking. Quite the opposite in fact: the accurate evaluation of real estate returns is of paramount importance to our practical and

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<sup>74</sup> Utility is assumed to derive from consumption (of goods, services, and the like), which in turn arises from wealth.

<sup>75</sup> The latter also helps to explain our use of the word ‘augmented’, which highlights the fact that we are not dealing with unencumbered earnings; on the contrary, we are able to double the returns institutions realise via their real estate investment.

theoretical understanding of the functioning of the housing and mortgage markets.<sup>76</sup> Home equity does, after all, represent the largest component of household wealth (excluding human capital). And yet, in the scheme of things, it seems that much more time is invested in studying the performance of comparatively less important concerns, such as stocks and bonds. In part, this is probably because developing a defensible surrogate for real estate's return generating process is a rather challenging task.

Houses are characterised by two features that greatly complicate the computation of temporal market-wide returns: heterogeneity and nonsynchronicity. Think of an index that is used to estimate the performance of domestic equities (e.g., the S&P/ASX 200). A fresh transaction price for each constituent element can be easily garnered at any point in time. Moreover, a company's ordinary shares are perfectly homogenous units; that is, it does not matter which particular ones trade since they all offer claims on exactly the same thing. In contrast, houses are heterogeneous assets that trade infrequently.<sup>77</sup> As a result, transaction prices are observed only episodically, and when we do aggregate them, the quality and type of the dwellings vary markedly over time—standard real estate indices are in effect pricing apples one period and oranges the next (see also Shiller (1993)). Movements in the average observed price are therefore unlikely to provide one with a dependable approximation of real changes in the value of housing over time.

In the academic literature, hedonic and repeat sales models have been the two most popular techniques for overcoming these obstacles and estimating the time-path of property prices (see Court (1931), Griliches (1961), Bailey, Muth and Nourse (1963), and Kain and Quigley (1970)). The hedonic or quality-adjusted approach compartmentalises dwellings according to their physical and locational characteristics, while repeat sales indices measure the price of the same property at several points in time.<sup>78</sup> Whereas the former is limited in terms of the generality of the procedure when applied across markets or through time,<sup>79</sup> the latter constrains the size of the sample and typically suffers from selection bias

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<sup>76</sup> By way of example, inferences regarding the price efficiency of owner-occupied property and the determinants of speculative bubbles rely on robust indices to measure the returns to arbitrage (see, for instance, Case and Shiller (1989) and Abraham and Hendershott (1996)). Assessments of mortgage investment risk also condition on the reliability of the house price proxy.

<sup>77</sup> Other assets hindered by these difficulties include private companies, and some corporate, municipal and international bonds.

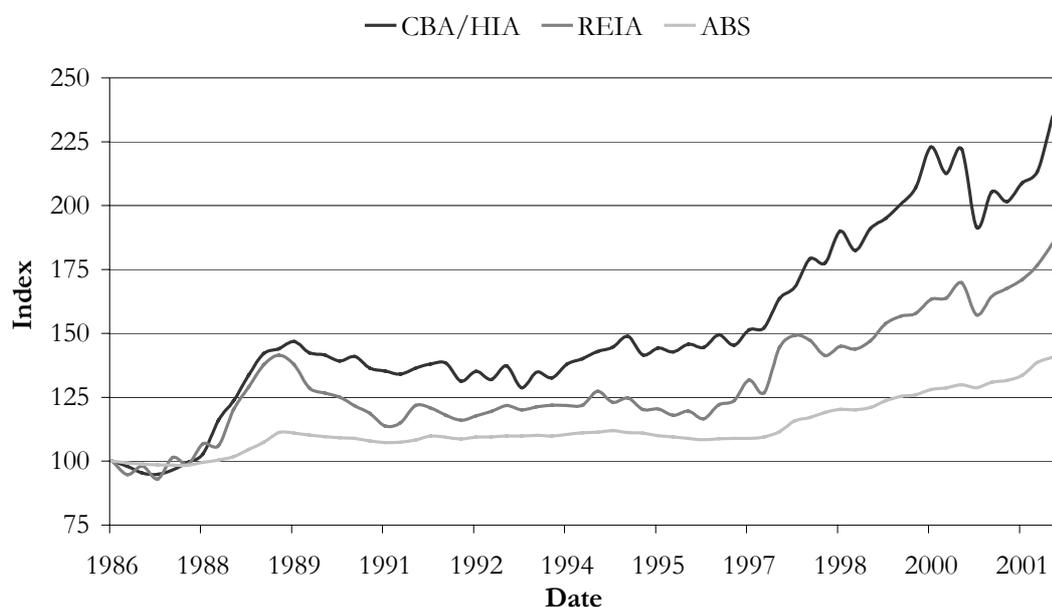
<sup>78</sup> As far as we are aware, the only Australian company to produce repeat sales indices is Residex Pty Ltd. This data is, however, restricted to the major metropolitan regions. As such, Residex does not publish a national proxy.

<sup>79</sup> The precision of hedonic indices conditions, somewhat precariously, on the selection of the dwelling characteristics, the functional form of the hedonic relationship, and the econometric techniques used to estimate the parameters.

(see Clapp and Giaccotto (1992), Quigley (1995), and Case, Pollakowski, and Wachter (1997)).

Unfortunately, the indices produced by Australian statistical agencies do not really control for the biases outlined above.<sup>80</sup> Rather, they simply supply us with median prices based on dwelling units that happened to trade during that specific period. In the figure below, we depict the real historical price performance of the ABS, CBA/HIA and REIA indices.<sup>81</sup>

**Figure 9**  
**Comparison of Real House Price Indices in Australia**



Source: Australian Bureau of Statistics, Housing Industry Association, and the Real Estate Institute of Australia

The CBA/HIA is our preferred proxy, since it includes all dwellings, not just detached houses, and covers non-metropolitan regions.<sup>82</sup> It also has

<sup>80</sup> The ABS does calculate a constant quality index for 'project homes' (which exclude the value of land), by measuring movements on a matched sample basis. Established homes, on the other hand, are stratified by geographic area.

<sup>81</sup> Real in the sense that they have been deflated by the appropriate consumer price index.

<sup>82</sup> The CBA/HIA collects median prices from each capital city and surrounding non-metropolitan region for home loans financed by the Commonwealth Bank of Australia (which has a 22 percent market share). The price series does not though account for changes in the size, location and quality of dwellings financed. Consequently, month-to-month variations mirror movements in both the composition of housing financed and adjustments to the given size, location and quality of the sample. The prices reflect the relative contribution of houses and dwelling units to the Commonwealth Bank's loan approval figures for each region. Capital city and rest of state price levels are obtained by weighting each region by the number of loans made by all lenders in the state (the

the advantage of being a price series, whereas the ABS data is restricted to purely numerical estimates of change. Notwithstanding this choice, it is comforting to note that our inferences remain qualitatively similar irrespective of whether we use the CBA/HIA or REIA index.<sup>83,84</sup>

While all three indices in Figure 9 are based on measures of central tendency applied to large geographic areas, the disjunctions manifest reflects the fact that they survey disparate samples of dwellings. In addition, the ABS removes properties with unusually high or low price movements, which explains the (significantly) dampened volatility evident in the series.

Now we should not allow this exegesis on the minutiae of house price proxies to distract us from our primary aim: that is, an appraisal of the relative performance of residential property in a multi asset-class world. But what other investment categories should one include? If we were devious souls, we would probably just stick to stocks and bonds. This would almost certainly paint a very positive picture of the diversification qualities of owner-occupied housing. We are not, though, that conspiratorial (although the same cannot be said for some of our colleagues)!<sup>85</sup> Accordingly, we create a four asset-class universe, consisting of stocks, long-term government bonds, cash and real estate (proxied by the S&P/ASX 200 Accumulation Index, the 10-year Commonwealth Government Bond Accumulation Index, the 90 day Bank Bill Accumulation Index, and the CBA/HIA price series, respectively).<sup>86</sup>

Finally, there are two other subjects that must still be decided upon: (1) our treatment of the rental yield; and, (2) from whose perspective we view the housing investment (i.e., the individual or the institution). On the first issue, we resolve to exclude the implicit rental stream, since our discussion in the chapters that follow always assumes that there are no ongoing monetary payments made between the two parties (at least in a physical sense). Furthermore, we do not now contemplate, nor ever will, a market in which investors acquire occupancy rights, which always reside exclusively with the home owner. That is to say, the only object being

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latter of which is altered to reflect the allocation of Commonwealth Bank approvals). Information regarding the mechanics of the CBA/HIA series was kindly supplied to us by the HIA's Chief Economist, Mr Simon Tennant.

<sup>83</sup> Sensitivities are available from the authors upon request.

<sup>84</sup> Two senior economists at the Reserve Bank of Australia recently arrived at the same conclusion vis-à-vis their favoured proxy (see Ellis and Andrews (2001)).

<sup>85</sup> For one reason or another, many researchers avoid including cash as a fourth asset-class, which invariably leads to an unduly sympathetic interpretation of property's performance.

<sup>86</sup> In the future, we expect to extend this analysis to include commercial real estate and inflation-indexed bonds.

traded is real estate as purely a financial asset.<sup>87</sup> With regard to the second matter, it is important to appreciate that the volatility of a broad house price series is likely to materially understate the true level of risk borne at the individual home owner level. The prices used to estimate ‘representative’ returns are averages, which one would expect to realize only when holding a well-diversified portfolio of property. In reality, most families own a single residence, which is subject to much greater idiosyncratic price variability (see Section 2.2.1.1).

Curiously, there is a paucity of academic evidence pertaining to the magnitude of price risk at the individual home owner level. Case and Shiller (1987) conduct an econometric investigation of the matter, and find that multiplying city-wide variance by a factor of five gives a reasonable approximation of the household’s risk-return experience (see also Goetzmann and Ibbotson (1990) and Goetzmann (1993)). Presumably, a wider pricing proxy, representative of, say, national returns, would require further amplification. We nevertheless take the conservative position that the variance of the market should only be boosted by a factor of either four or six, consistent with the academic evidence. Since this is a highly equivocal area with few clear-cut answers, the use of two volatility factors seems to be sensible and affords a band of indicative outcomes.

The table below summarises the cross-asset-class data for the period March 1984 to March 2002, inclusive. In addition to presenting basic statistics on mean returns (adjusted for inflation) over the last one and a half decades, the table produces information relating to the distribution and variability of returns, and the correlations amongst pairs of assets. Observe that while the performance of the three other investment categories is derived from accumulation indices, owner-occupied housing competes on a capital growth basis only. And so, one could hardly accuse us of biasing the results in favour of property—on the contrary, the bar has been raised to rather daunting heights.

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<sup>87</sup> As such, when we discuss the gains from trade, we mean trade strictly in this sense.

Table 8

<b>Summary Statistics</b> March 1984 to March 2002				
	<b>Domestic Equities</b>	<b>10-year CGS</b>	<b>Cash</b>	<b>Real Estate</b>
<b>Real Return</b>	8.3%	8.3%	4.8%	4.7%
<b>Std Deviation</b>	19.4%	8.6%	1.5%	8.2%
<b>Sharpe Ratio<sup>88</sup></b>	0.4	1.0	3.1	0.6
<b>Kurtosis<sup>89</sup></b>	7.3	0.3	3.6	1.9
<b>Skewness<sup>90</sup></b>	(1.4)	0.1	(0.6)	(0.3)
<b>Correlation:</b>				
<b>Domestic Equities</b>	1.00	0.15	0.05	0.07
<b>10-year CGS</b>	0.15	1.00	0.12	(0.02)
<b>Cash</b>	0.05	0.12	1.00	0.13
<b>Real Estate</b>	0.07	(0.02)	0.13	1.00

Source: Housing Industry Association, Global Financial Data, and authors' analysis

There are several other noteworthy features of the sample that are deserving of discussion. The most conspicuous of these is that this was a period defined by unusually tight monetary policy, which precipitated a severe recession in the early 1990s, and a stunning decline in inflation during the latter half of the decade. Significantly, the economic malaise was also associated with a large fall (and subsequent stagnation) in real property prices, as can be seen in Figure 9 above. To a certain extent, these events are borne out in the performance of the two fixed income instruments, which delivered superior raw and risk-adjusted returns relative to housing. If, however, one were to trace the trajectories of these three assets back to, say, 1950 (once again excluding residential property's rental yield), the real price growth of the latter would probably

<sup>88</sup> The Nobel laureate, William Sharpe, developed the Sharpe Ratio. It offers a crude estimate of an investment's risk-adjusted performance. While many variants exist, the simplest approach is to divide the total portfolio return by its standard deviation.

<sup>89</sup> Kurtosis, or, in the lexicon of statisticians, the fourth-order cumulant, is a measure of the extent to which observed data fall near the centre of a distribution or in the tails; that is, whether they are flat or peaked relative to the standard. It is commonly used as a test of nongaussianity. A kurtosis value less than that of the normal indicates a distribution with a fat midrange on either side of the mean and a low peak—a 'platykurtotic' distribution. A kurtosis value greater than that of the normal indicates a high peak, a thin midrange, and fat tails, which in the jargon is known as a 'leptokurtotic' distribution (see IFCI Risk Institute (2003)).

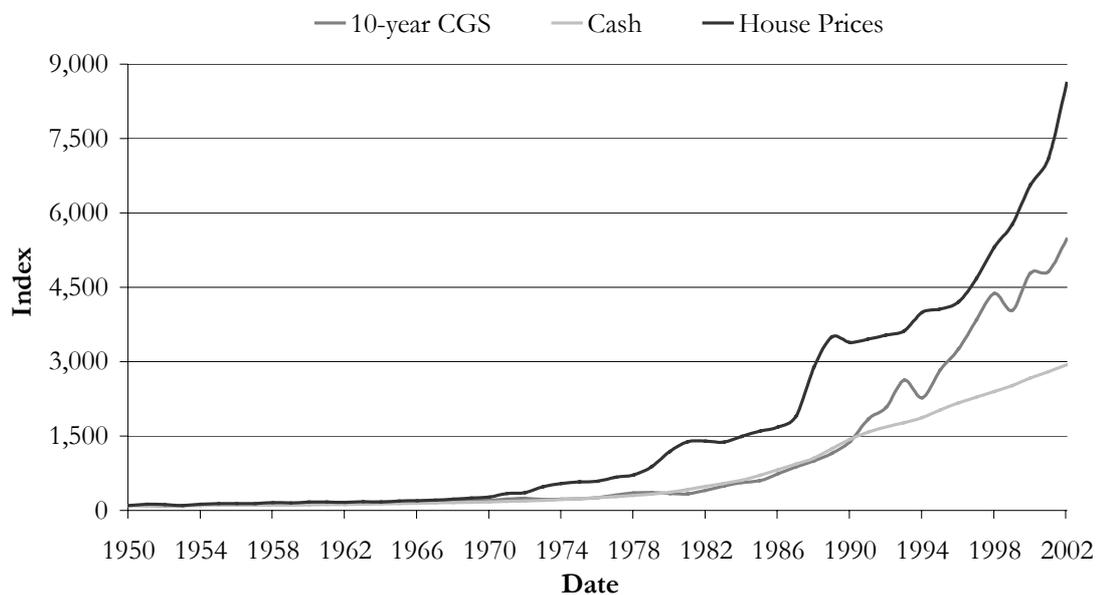
<sup>90</sup> Skewness, or the third-order cumulant, characterizes the degree of symmetry, or more precisely, asymmetry, of a distribution around its mean. Positive skewness indicates a distribution with an asymmetric tail extending toward more positive values. Negative skewness implies a distribution with an asymmetric tail tending toward negative values (see IFCI Risk Institute (2003)).

dominate the former. Certainly, in the US, residential real estate has, in the long-run, outperformed bills, and roughly tracked the returns to bonds (see Goetzmann and Ibbotson (1990) and Goetzmann (1993)).<sup>91</sup>

As a brief aside, we decide to improvise in precisely this manner and contrast the real growth in Sydney house prices, long-term government bonds and cash over the last fifty years (see Figure 10 below and Appendix 8.3 for a logarithmic alternative).

**Figure 10**

**Comparison of Real Growth in Sydney House Prices, Long Term Government Bonds, and Cash**



Source: Residex Pty Ltd and Global Financial Data

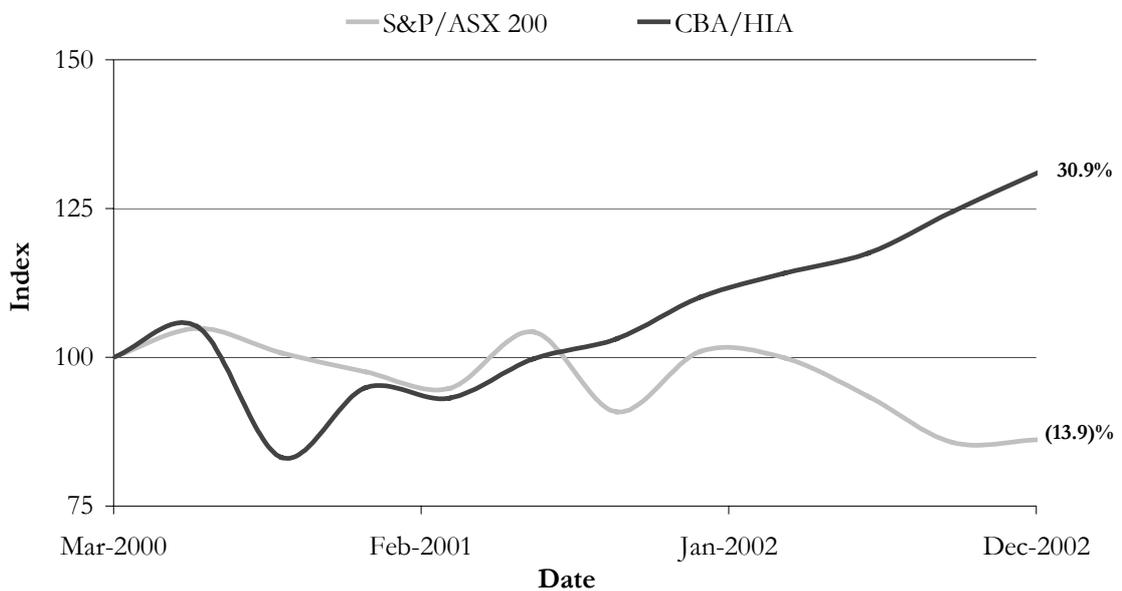
The results above accord with our priors, at least during this specific sample period. Naturally, it is entirely possible that the use of Sydney prices—the longest available time-series—has upwardly biased the performance of property. In spite of this shortcoming, our experiment does seem to lend further credence to the claim that the 1984 to 2002 horizon is not an especially aggressive one.

Returning to Table 8, it is interesting to note that the volatility patterns are more in line with classical trends; stocks display by far the highest price variability, followed by bonds, residential property and then cash. (It is in the context of a well-diversified portfolio such as this that we simulate the value institutional agents would impute to claims on real

<sup>91</sup> Interestingly, Englund, Hwang and Quigley (2002) document similar idiosyncrasies regarding the performance of fixed income instruments and owner-occupied housing in Swedish data over the same horizon.

estate equity.) Yet perhaps the most crucial statistics are the correlation coefficients. The low point estimates suggest that real estate moves in a very different fashion to all other investment categories. Accordingly, by opening up a fourth asset-class—viz., enhanced home equity—investors could augment their returns whilst holding risk levels constant. In the economics jargon, such ‘diversification gains’ are the upshot of combining uncorrelated assets. The simple chart below suffices to demonstrate.

**Figure 11**  
**Comparison of Real Returns to Domestic Equities and Residential Real Estate**



Source: Housing Industry Association and Global Financial Data

In the past two years, domestic equities have, as we all know, experienced a dramatic decline. Concurrently, owner-occupied property has realised tremendous price appreciation. Hence, if institutions could spread their ‘eggs’ among a greater number of ‘baskets’, they would be able to appreciably increase (decrease) returns (risk) while holding risk (returns) stable. Looked at differently, owner-occupied housing appears to be a good hedge against fluctuations in financial markets. Thus, even if real estate returns were expected to be low, and their standard deviation high, it would, we suspect, still occupy a significant percentage of the optimal investor portfolio. Of course, it is currently impossible to access owner-occupied housing’s risk-return profile in a well-diversified fashion or to trade home equity.<sup>92</sup> The closest substitutes available to portfolio investors are property trusts. But almost all property trusts are based on

<sup>92</sup> Home equity also offers unique risk-return characteristics relative to investment grade commercial real estate. That is, the two asset classes do not move closely together.

commercial real estate and those with residential exposures focus on rental properties in large apartment groupings. The financial community would therefore view these fresh possibilities in a very positive light.<sup>93</sup> Institutions are constantly searching for new categories of investments, particularly those with return patterns that differ from stocks and bonds. In the past, this led to a wave of allocations to emerging markets, despite the potentially high risks that these strategies involved. Owner-occupied housing seems like a natural place to look for an immense new set of (uncorrelated) asset returns and some extremely attractive diversification opportunities.

In spite of the evidence supplied by Figure 10 above, we would have preferred to study joint asset returns over longer periods than the current 18 year horizon so as to obtain more durable insights apropos relative performance. A deeper historical analysis was, however, thwarted by the absence of reliable pricing data prior to the 1980s. Hence, our overriding concern is whether this particular horizon will in any way prejudice our inferences in favour of home equity. As discussed previously, we think not. This was an atypical period during which the returns realised by cash and long-term government bonds exceeded those of housing. Setting aside issues relating to the covariance matrix, real estate's higher variance makes it an unpalatable proposition on a risk-adjusted basis. It is, nevertheless, our belief that in more normal times, residential property would have outperformed its less volatile fixed income peers. This in turn implies that our simulations in the next sections may have underestimated the asset's *ex ante* appeal. Furthermore, adopting a longer period perspective, we would suggest that rising demand for housing coupled with the likely maintenance of artificial constraints on supply, should ensure that poor performance in the major metropolises is an improbable prospect—at least at the aggregate level (see Part Four).

Ok, so you've heard the hype, but just how big an asset-class is home equity? According to the 2001 Census, there are 7,072,202 private occupied dwellings in Australia. To get a feel for the order of magnitude involved, we multiply this number by the CBA/HIA all capital median established dwelling price at December 2002, which gives—wait for it—an almost incomprehensible \$2,478,099,580,800 (yes, that's a couple

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<sup>93</sup> Survey evidence of Australian institutions indicates that while participants would (enthusiastically) entertain opportunities in this domain, a dearth of reliable data on the performance of residential real estate coupled with the institutions' own ignorance contributes to some degree of ambivalence (see Berry and Hall (2001)). Naturally, this is exacerbated by the absence of suitable investment vehicles and the issues one normally associates with the asset class (i.e., low liquidity and high transaction costs). In this regard, it is critical that we develop accurate methods for estimating real estate's risk-return profile. The latter is of particular importance insofar as the successful creation of derivative and futures markets would rely on the existence of a 'tradable' proxy for the underlying return generating process.

of trillion dollars).<sup>94</sup> We can therefore say with some confidence that the total value of residential property in Australia is in excess of \$2 trillion. In fact, add another \$500 billion into the mix and you will probably get somewhat closer to the mark. By way of comparison, that is nearly four times the size of the value of companies listed on the Australian Stock Exchange (ASX), and over seven times larger than the Commonwealth, State and corporate debt markets combined (see Table 9 below). Yes friends, welcome to what is the biggest asset-category on earth—a hulking 500-pound gorilla, which was valued by *The Economist* at in excess of \$70 trillion in developed nations alone:

“For all the newspaper space devoted to stock markets, households around the world have far more of their wealth tied up in property than in shares. American households’ shareholdings briefly surpassed the value of their houses in the late 1990s. Now they have about US\$11 trillion-worth of shares (held directly or in mutual funds), compared with almost US\$14 trillion in housing. In other countries, housing is even more important. In rich countries as a whole, individuals own US\$23 trillion in equities, but perhaps US\$40 trillion in property. Property is thus the world’s biggest asset class.” *The Economist*, 29 August 2002

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<sup>94</sup> With a right-skewed distribution the average dwelling price is likely to be higher than the median, which implies that the actual valuation may be even larger than that which we estimate here.

Table 9

<b>How Valuable is Owner-Occupied Housing?</b>		
As at December 2002		
	<b>Total Value (bn)</b>	<b>Proportion</b>
<b>Owner-Occupied Housing<sup>95</sup></b>	\$2,478.1	47.4%
<b>Assets of ADIs<sup>96</sup></b>	\$1,033.3	19.8%
<b>Domestic Equities<sup>97</sup></b>	\$672.8	12.9%
<b>Investment Funds<sup>98</sup></b>	\$634.4	12.1%
<b>Corporate Debt Securities<sup>99</sup></b>	\$218.3	4.2%
<b>Government Debt Securities</b>	\$126.6	2.4%
<b>Asset Backed Debt Securities</b>	\$66.3	1.3%
<b>Total</b>	<b>\$5,229.8</b>	<b>100.0%</b>

Source: 2001 Census, Reserve Bank of Australia and author estimates

To sum up the lessons learnt to date, we have discovered that even excluding the rental yield, home equity has some attractive risk-return properties that could furnish investors with considerable diversification gains. (The extent of the latter is of course an open question that we intend to address in the next part.) This is attributable to the fact that housing appears to move in a distinct fashion to other investment classes, with the last few years being an excellent example of this point (see Figure 11). At the same time, the selected sample period is not an especially generous one insofar as the performance of property has been inferior to both cash and bonds—an unexpected result in view of the former’s much higher risks. In turn, this implies that the conclusions we draw from subsequent sections may err on the side of conservatism. As a final point, we were able to corroborate the conjecture that residential real estate is no small cheese. In fact, at around \$2.5 trillion, it is four times larger than the total value of all companies listed on the ASX.

In the ensuing experiments, we draw on the data above to simulate the behaviour of individuals and institutions. Specifically, we use the flexible ‘bootstrap’ resampling technique to generate the distribution of possible

<sup>95</sup> This is a simple proxy arrived at by multiplying the 2001 Census estimate of 7,072,202 private occupied dwellings by the CBA/HIA all capital median established dwelling price of \$350,400, as at December 2002.

<sup>96</sup> ADIs refer to authorised deposit-taking institutions, which include banks, permanent building societies, and credit co-operatives, as at December 2002.

<sup>97</sup> As at December 2002.

<sup>98</sup> Managed funds consist of life offices, superannuation funds, cash management trusts, common funds, and public unit trusts, as at December 2002.

<sup>99</sup> Includes short and long term debt securities outstanding with banks and other financial corporations, as at December 2002.

price paths. This method has several advantages over plain-vanilla Monte Carlo, which is burdened by problems relating to the simplifying assumptions made in its algorithm. In particular, the Monte Carlo approach presupposes that all asset returns are independent of one another, and that their corresponding distributions are normal in form. Monte Carlo also ignores other important statistical artefacts that may be present in the data. In contrast, a large-iteration bootstrap preserves all of the cross-asset correlations, skewed distributions and most of the statistical idiosyncrasies that characterize the actual population. This issue is of special significance in the current analysis since the use of total return averages and standard deviations when generating log-normal random returns (rather than the historical data itself) is liable to result in an over-estimation of the true diversification gains implicit in multi asset-class investment. Why? Because orthodox Monte Carlo assumes zero cross-correlations, which is simply not true in the real world. The bootstrap technique helps one avoid these methodological pitfalls.<sup>100</sup>

Table 10

<b>Summary Bootstrap Statistics</b>				
March 1984 to March 2002				
	<b>Domestic Equities</b>	<b>10-year CGS</b>	<b>Cash</b>	<b>Real Estate</b>
<b>Real Return</b>	8.4%	8.3%	4.9%	4.7%
<b>Std Dev</b>	19.0%	8.6%	1.5%	8.1%
<b>Sharpe Ratio</b>	0.4	1.0	3.2	0.6
<b>Kurtosis</b>	7.3	0.3	3.6	1.9
<b>Skewness</b>	(1.4)	0.1	(0.6)	(0.3)
<b>Correlation:</b>				
<b>Domestic Equities</b>	1.00	0.16	0.04	0.07
<b>10-year CGS</b>	0.16	1.00	0.12	(0.02)
<b>Cash</b>	0.04	0.12	1.00	0.12
<b>Real Estate</b>	0.07	(0.02)	0.12	1.00

Source: Housing Industry Association, Global Financial Data, and authors' analysis

Table 10 above presents the summary bootstrap statistics. Given that we take a sequence of 1,000 random draws with replacement from the population distribution to obtain the ten-year pattern of real asset returns, it is no surprise that the simulated means, standard deviations, and cross-correlations accord almost exactly with those found in Table 8.

<sup>100</sup> In future research we will endeavour to control for time-dependencies by using a block-bootstrap model.

### 2.1.2 The Mean-Variance Approach

In 1927, grocery store owners Mildred and Morris Markowitz were greeted by the birth of a baby boy, whom they came to call Harry. After completing his Bachelor's degree at the University of Chicago, Harry took up a place as a student at the Cowles Commission for Research in Economics. While sitting in the library one day perusing the pages of John Burr Williams's "Theory of Investment Value", it occurred to young Harry that if investors only cared about the expected value of securities (as was assumed at the time), they could maximize the value of their portfolios by investing in just one company. This, he knew, was not in fact the way in which agents behaved—they invested in a variety of securities because they were concerned about both risk and return. And so, variance came to him as a measure of the uncertainty associated with future dividend streams. In addition, it seemed reasonable to think that a portfolio's variance was itself a function of the individual company covariances, which he thought explained why agents cobbled together collections of otherwise distinct assets.<sup>101</sup> Given these two criteria—viz., risk and return—Markowitz hypothesised that investors should select from a set of Pareto optimal possibilities.

Markowitz's theory went on to become a cornerstone of modern financial economics and has exerted a remarkable influence over contemporary investment practice.<sup>102</sup> In a nutshell, he posited that participants confront an important trade-off: risk versus expected return. Following this logic, investors should be concerned about both which stocks they own, and how best to distribute their wealth amongst them. This is the problem of 'portfolio selection', which was the title of Markowitz's seminal article on the subject, published in the March 1952 edition of the *Journal of Finance*. Today, Markowitz's legacy involves an extension of standard linear programming techniques to create the so-called 'critical line algorithm' (see also Markowitz (1959) and Markowitz (1987)).<sup>103</sup> This identifies all practicable combinations of assets that minimize risk for a given level of expected return. When depicted in expected return versus standard deviation space, these groupings give rise to the 'efficient frontier', which visually portrays the trade-off

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<sup>101</sup> The total return of a portfolio with  $N$  assets is a linear function of the investment weights (i.e., a weighted average of the individual expected returns),  $r_p = \sum_{n=1}^N w_n r_n$ . The portfolio's total variance will be a non-linear function of the weights,  $VAR_p = \sum_{i=1}^N \sum_{j=1}^N w_i w_j COV_{ij}$ , where  $\sum_{i=1}^N w_i = 1$  and  $COV_{ij}$  is the covariance between assets  $i$  and  $j$ .

<sup>102</sup> The notion of optimal portfolio diversification had previously occurred to Keynes, Hicks and Kaldor in their theories of money, and was subsequently fine-tuned by Tobin (1958).

<sup>103</sup> For a more comprehensive account of Markowitz's contributions, see Bernstein (1992) and Kaplan (1998).

between risk and return that the portfolio selection problem encapsulates. Looked at differently, Markowitz's Nobel Prize winning work imposed a precise mathematical overlay on Miguel de Cervantes' age-old aphorism "don't put all of your eggs in one basket". In more recent times, his techniques have been used for the purposes of calibrating institutional asset-allocation strategies, wherein large investment categories are substituted for individual companies. And it is in exactly this latter context that we shall strive to capitalise on Markowitz's pioneering contributions.

In technical terms, mean-variance analysis is predicated on a single period model of the agent's consumption-allocation problem. To begin with, participants distribute their wealth among a variety of different asset-classes. Subsequently, each investment realises a random rate of return such that total wealth is altered by the weighted average of the individual returns.<sup>104</sup> Maximizing the expected utility of end-period wealth is, however, a fairly sophisticated stochastic non-linear programming problem. Thankfully, Markowitz discovered that if the agent's utility function can be 'approximated' by a second-order Taylor expansion over a broad spectrum of returns, then expected utility should be equal to a combination of the expected value and the variance of returns (we revisit this matter later). This enables one to restate the investor's capital-allocation conundrum as a mean-variance optimisation problem that is a quadratic function of the asset weights (see Kaplan (1998)).

Having briefly introduced Markowitz's revolutionary methods, we now employ them to study the investor's demand for equity finance at various price levels. But before doing so, let us reiterate the point that in order to overcome complications associated with adverse selection and moral hazard (artefacts of the optimal contracting problem), we have designed a suite of sophisticated state- and time-dependent contracts, which more effectively align the interests of the individual and the institution. In the near term however, a much simpler fixed payoff function is assumed, even though this is not our preferred model. It does, nevertheless, serve as a useful conduit through which one can begin to communicate the essential ideas.

The first step in our mean-variance procedure requires a more explicit definition of the cost of equity capital. At initiation, the institution acquires rights to a fraction of the property's future sale proceeds. Yet instead of paying full market value, let us imagine that they contribute a smaller proportion,  $\bar{\pi}$ , of the actual price, where  $\bar{\pi} \in (0,1]$ . This is intuitively satisfying insofar as the investor foregoes virtually all of the

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<sup>104</sup> When deciding on how much money to allocate to the individual investments, agents are subject to a set of linear constraints, the most vital of which is that the weights must sum to one.

day-to-day decision making rights—equity capital cannot be a costless form of finance, and institutions must be compensated for supplying this liquidity service.

There is, therefore, a straightforward relationship between our pricing parameter,  $\bar{\pi}$ , and the cost of issuing claims on owner-occupied housing. When  $\bar{\pi} = 1$ , the dweller's equity is sold at the market rate, with no transaction costs incurred. If, on the other hand,  $\bar{\pi} = 0.75$ , the institution acquires their interest at a 'discount to par'. In this case, the cost of equity finance is simply  $1 - \bar{\pi}$ . Practically speaking, the investor might decide to contribute 40 percent of the house's current appraised value in exchange for a 50 percent claim on the proceeds at point of sale.

Here the link between the value of the pricing parameter and the rate of return realised by the institution is mechanical. The cost of capital acts like a 'kicker', artificially amplifying the performance of property. Suppose, for example, that  $\bar{\pi} = 0.75$  and the price of the residence in question increases over some arbitrary period of time from \$200,000 to \$300,000. In this event, the investor receives a total return of 100 percent, which is twice the size of the actual capital gain of 50 percent.<sup>105</sup> While doubtlessly a simple example, it suffices to illustrate that supplements of this magnitude could radically improve the investment appeal of home equity, and help to encourage a large cohort of institutions to participate on the demand-side of the financing equation.

With a better handle on the economic relationship between the two parties, and the use of the mean-variance method, the crucial question is now: what portfolio weight would an institution attach to holdings of residential real estate at any given price  $\bar{\pi} \in (0,1]$ , assuming away market frictions and the like? This is patently most uncontroversial when  $\pi = 1$ , since the asset's risk-return profile remains identical to that which one finds in the contemporary state of nature (i.e., there are no synthetic enhancements). And so, the investor's share of the ultimate sale proceeds is exactly equal to the rights invoked by their original contribution, and Table 8 illustrates the anticipated return on equity. Thereafter, it is a trivial matter to compute the set of optimal investments amongst which agents may choose. In particular, we can maximize a parametric objective function (using a generalized reduced gradient non-linear optimiser) and solve for the mean-variance frontier, the positively sloped portion of which will be the dominant set of portfolios (i.e., where the representative investor aspires to be positioned). For any level of risk, this 'efficient frontier' identifies the point that delivers the highest return in its class. By the same token, for any given return, the frontier provides the portfolio that yields the lowest level of risk. Accordingly,

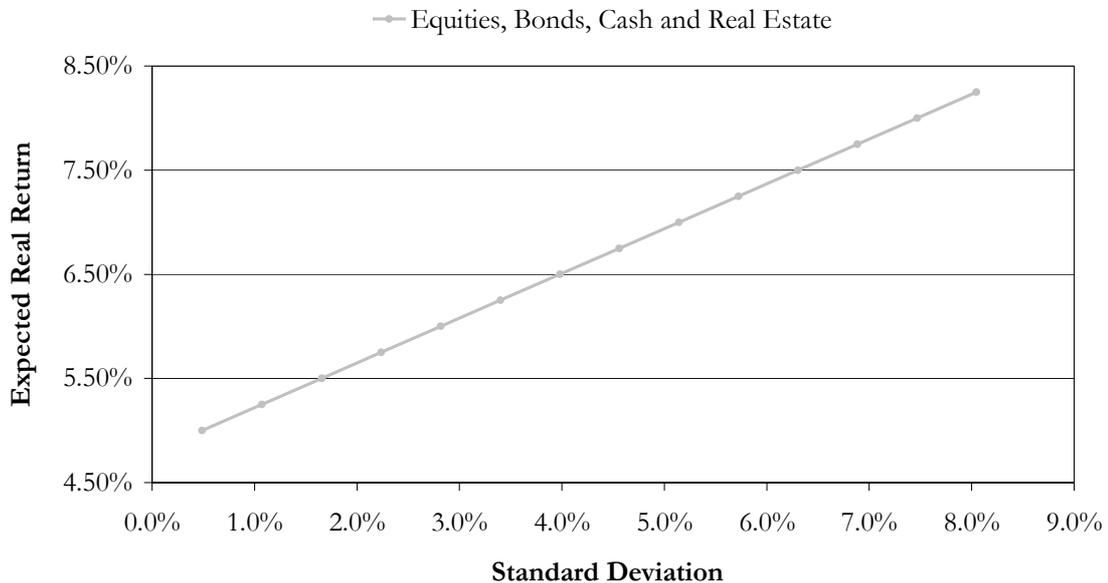
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<sup>105</sup> Hence for any value of the pricing parameter,  $\pi$ , we can compute a new table of risk-return characteristics.

combinations of assets along this locus are ‘mean-variance efficient’, maximizing expected return for any specified level of risk. Observe in Figure 12 how the efficient frontier extends from the maximum return to the minimum variance portfolio; it supplies an investment option for everyone. When viewed completely, there are an infinite number of points in the set, corresponding to the infinite variation in individual preferences regarding risk. Of course, the optimal portfolio will be determined by a point of tangency between the investor’s indifference curve and the efficient frontier.

**Figure 12**

**Multi Asset-Class Efficient Frontier Using the Mean-Variance Approach**  
 Fixed Contract (Par Price), March 1984 to March 2002



Source: Housing Industry Association, Global Financial Data, and authors’ analysis

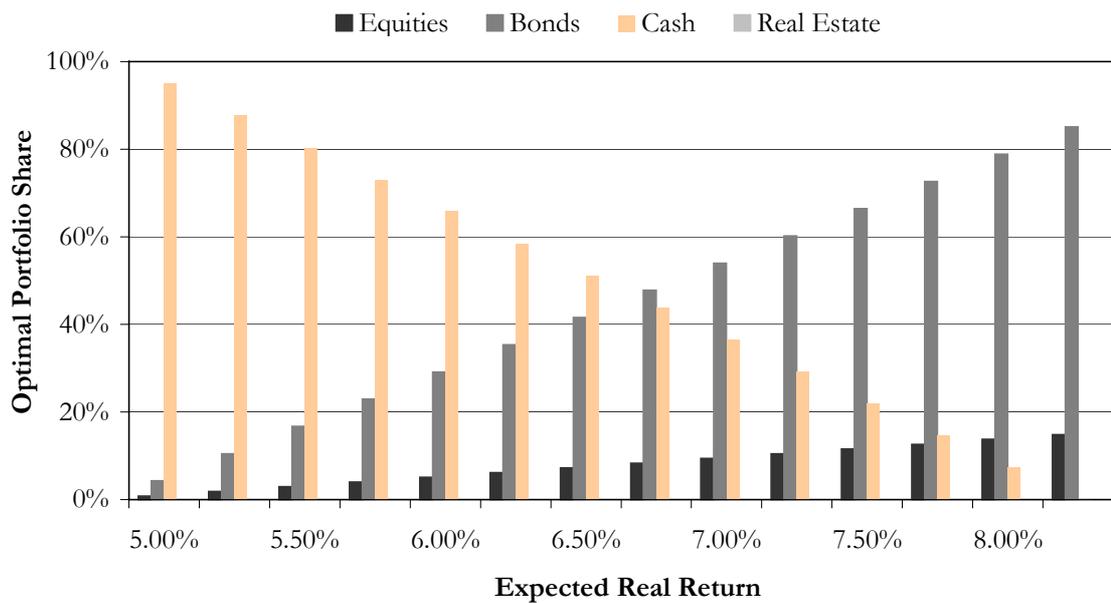
Figure 13 below depicts the composition of the multi asset-class frontier for a range of expected returns. It shows that the ideal portfolio structure varies according to the participants’ attitude towards risk. The most conservative investment strategy entails holding a large amount of cash: in fact, a 90 percent weight for individuals looking for a real return in the order of five percent per annum. At the other end of the spectrum are the more aggressive combatants, who plunge almost entirely into stocks and bonds. Naturally, the actual selection they make will depend on their risk preferences. Individuals who are averse to the prospect of introducing additional uncertainty into their lives will opt for a low expected return portfolio so as to reduce the variance of future outcomes. Conversely, those who aspire to achieve superior performance will be willing to endure commensurate increases in their risk exposures. Perhaps most significantly though, the chart reveals that the demand for (unaffected) owner-occupied housing is pretty much nonexistent when we use this specific sample period. Indeed, irrespective of the investor’s

target return (and thus their predilection for risk), home equity is not assigned any weight whatsoever in the optimal portfolio.<sup>106</sup> This reflects the fact that it is completely overshadowed by cash, which on a risk-adjusted basis is easily the most alluring investment opportunity (see Table 8).

**Figure 13**

**Optimal Portfolio Shares Using the Mean Variance Approach**

Fixed Contract (Par Price), March 1984 to March 2002

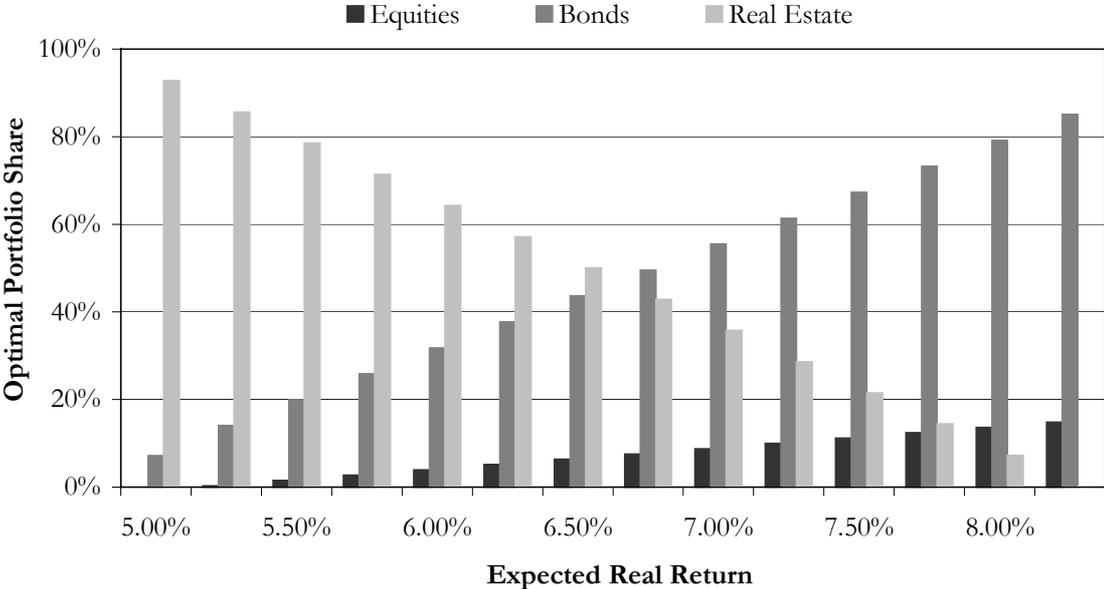


Source: Housing Industry Association, Global Financial Data, and authors' analysis

To get a feel for the magnitude of this effect, we optimise a three-asset-class universe that excludes bills. The results, which are portrayed in Figure 14 below, paint a very different picture with real estate dominating the idealised portfolio through to high levels of expected return. In this constrained world, the demand for housing arises because of its unique covariance characteristics, which make it a very good hedge against fluctuations in financial markets (see also Figure 11). For the risk-averse, a portfolio tilt towards owner-occupied property enables them to reduce their reliance on other investment categories without compromising performance. The same logic also holds for those who seek higher returns, but wish to diversify away their exposures from stocks and bonds.

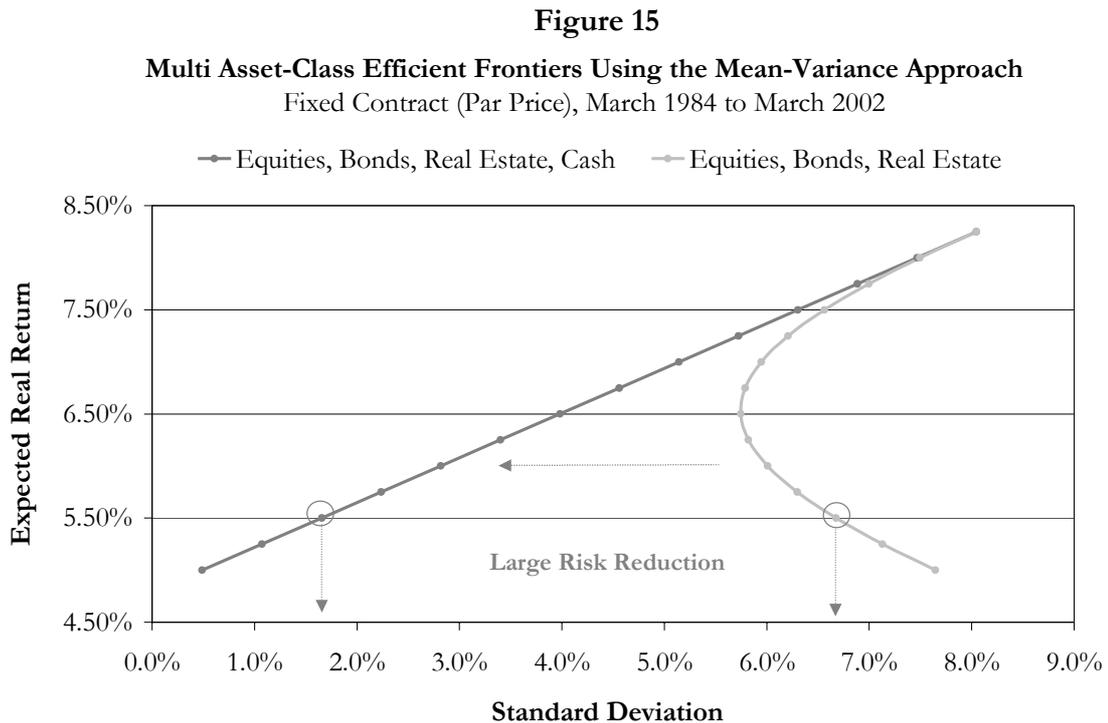
<sup>106</sup> These estimates contrast with the findings of Goetzmann (1993), Flavin and Yamashita (2002), and Gatzlaff (2000), who compute a weight for real estate in the minimum variance portfolio of around 50 percent. The difference may be explained by the use of after-tax rates of return, which from the householder's perspective would of course improve property's position in the optimal portfolio. Our results do however agree with their conclusion that the returns to housing are uncorrelated with other assets.

**Figure 14**  
**Optimal Portfolio Shares Using the Mean Variance Approach**  
Fixed Contract (Par Price), March 1984 to March 2002



Source: Housing Industry Association, Global Financial Data, and authors' analysis

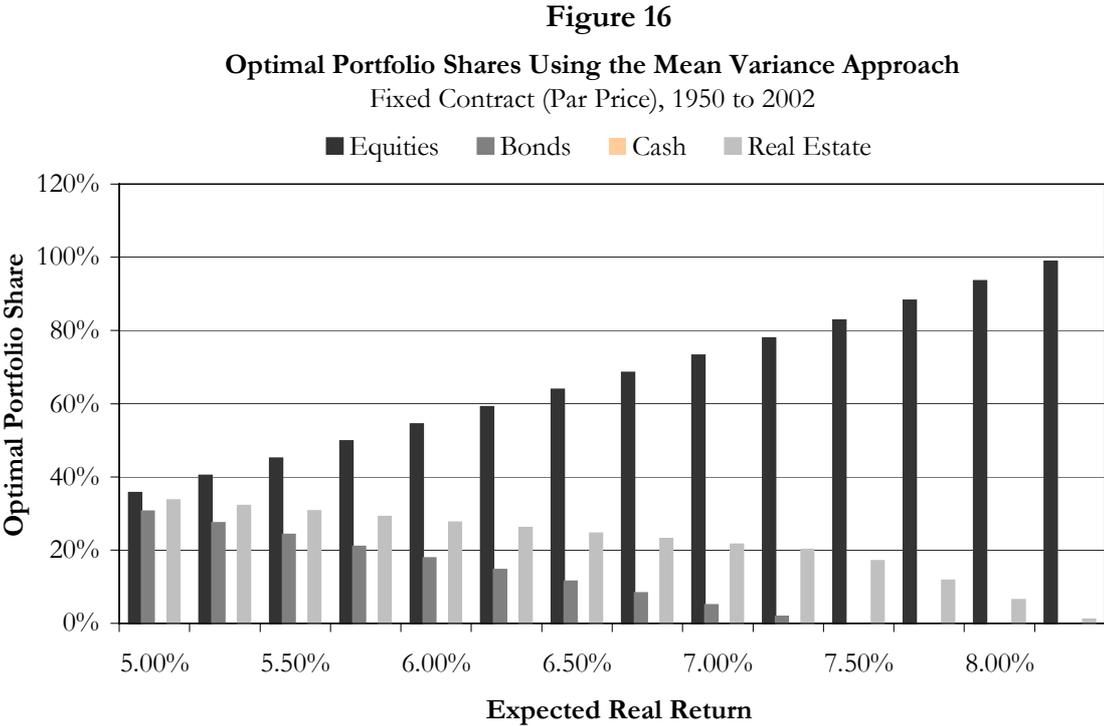
Figure 15 tells the same story through the prism of distinct risk-return loci that condition on the existence of three and four asset-class universes, respectively. The rationale underpinning this exercise is simply to provide the reader with an appreciation for the effect of expanding the investment opportunity set to encompass new categories of assets. The first frontier is restricted to stocks, bonds and unaffected property. In the second, we add cash and thus enlarge the mean-variance space to include all four classes of investment. The impact is striking, to say the least. Note how for any given level of return, there is a large reduction in risk when we move from one universe to the other. The difference between these two lines offers yet another illustration of the importance of portfolio diversification.



Source: Housing Industry Association, Global Financial Data, and authors' analysis

The evidence above indicates that in a multi asset-class world, real estate does not feature very prominently (if at all) in the optimal investor holding. But what happens if we adopt a longer period perspective? As stated previously, we believe this to be a rather unusual era, and housing could, in more typical times, be expected to perform better on a relative basis. In order to examine whether this is indeed the case, we once again stretch out the historical time-series by drawing on the Sydney repeat-sales index. Taking data on stocks, bonds, cash and home equity over the period 1950 to 2002, we then maximize our parametric objective function and solve for the mean-variance frontier.

Figure 16 presents the distribution of the optimised portfolio weights. The contrast with that which was documented previously is nothing short of stunning. First, as would be anticipated over longer horizons, stocks dominate the idealised holding at pretty much all levels of expected return. Most intriguing though is the astonishing shift in the weight assigned to housing. Whereas property did not feature at all in the analysis above, it is now the second most valuable component in the optimal portfolio. By way of example, if institutions were to target a real return of, say, six percent per annum, the model tells us that around 28 percent of all their capital should be invested in owner-occupied housing! Cash, on the other hand, has been eliminated altogether, which is the converse of that which we noted earlier.



Source: Housing Industry Association, Global Financial Data, and authors' analysis

This analysis therefore lends credibility to our original assertion that the sample period in question is a conservative one, which, on the balance of probabilities, will lead us to underestimate the allure of the asset-class. Even so, we must work with what we have, and 1984 to 2002 it is. Given this, our key challenge is to explore what can be done to elevate the appeal of the opportunity. The latter obviously depends on the price paid for the underlying equity interest, and the extent to which the institution is compensated for supplying its liquidity service.

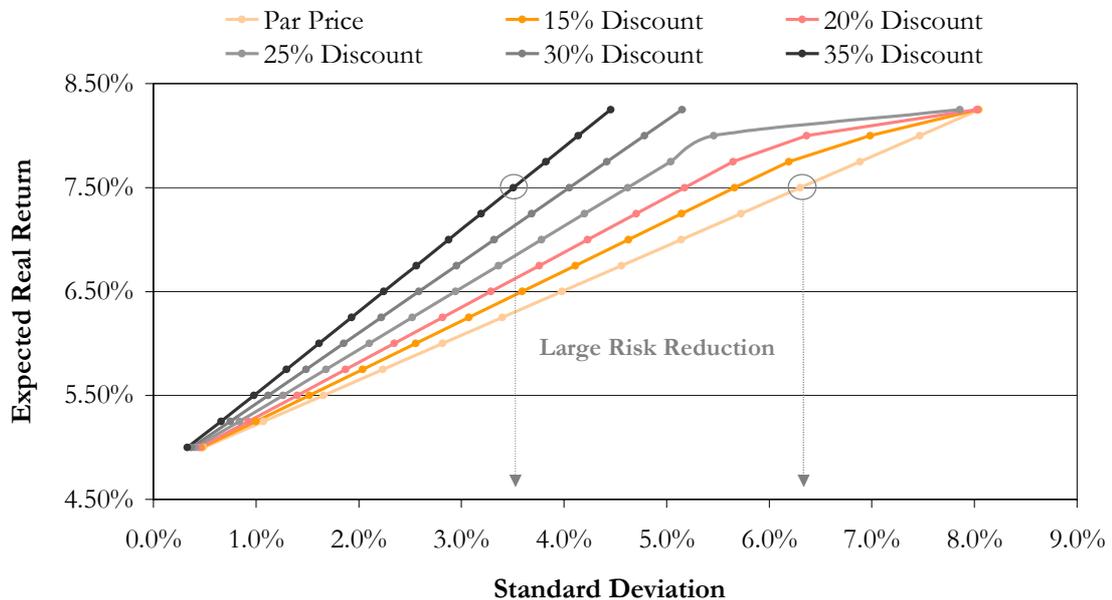
In the next section, we try to determine how high the cost of capital needs to be to convince participants to purchase claims on home equity. In the language of Harry Markowitz, this translates into a statistically significant weight in the optimal investor portfolio. Here the stipulated time-horizon also assumes some importance. While a 15 percent discount to market might seem appetising if the unit is traded within 12 months, the investor's payoff would be somewhat less desirable if the date of divestiture were to be delayed for, say, a decade. At this point, it is almost impossible for us to predict whether the emergence of equity finance will have an influence on the average length of tenure (or indeed the variability of such). We can, however, state with some certainty that the more advanced structures discussed in the ensuing chapters should

not (adversely) perturb the occupier’s incentives vis-à-vis the timing of sale.<sup>107</sup>

For the sake of simplicity, we assume that the house in which the institution invests is sold after a period of ten years.<sup>108</sup> With this supposition in place, we must now establish how alterations to the cost of equity capital affect the Pareto optimal set of portfolios. Using a mechanical technique, we inflate the mean bootstrap return to the house price index by an amount that reflects the discount and the assumed holding period. Figure 17 depicts the effects of this change.

**Figure 17**

**Multi Asset-Class Efficient Frontier Using the Mean-Variance Approach**  
 Fixed Contract (Various Prices), March 1984 to March 2002



Source: Housing Industry Association, Global Financial Data, and authors’ analysis

Observe how the mean-variance efficient frontier shifts in a north-westerly direction as one increases the cost of finance from zero percent to 35 percent. Thus, for any given level of risk (return), participants can achieve higher (lower) returns (risk). Note though that adjustments to the

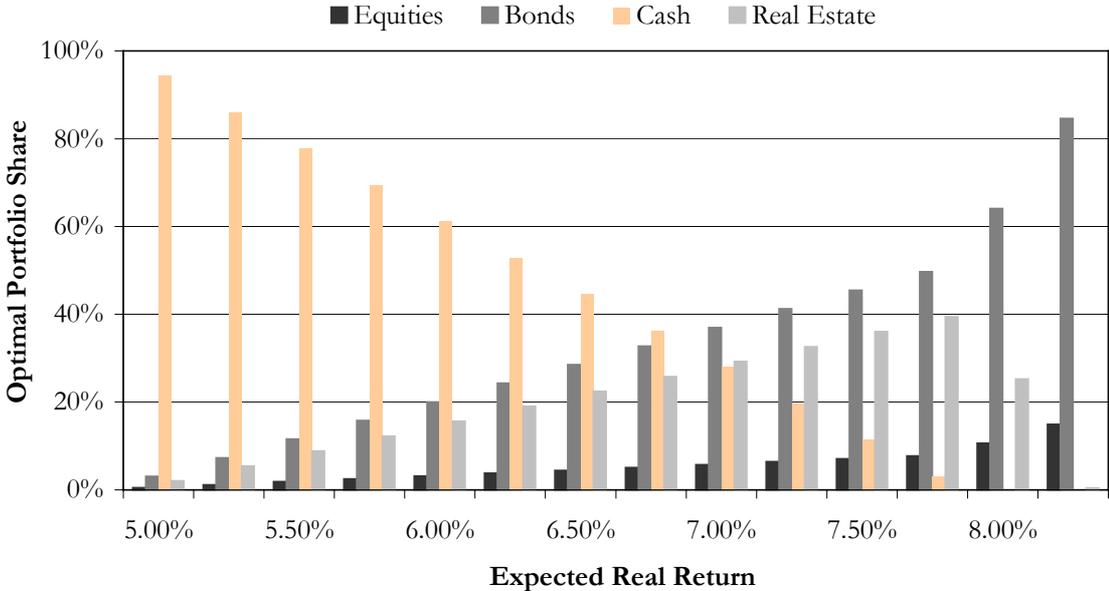
<sup>107</sup> One colleague recently claimed that “the owner or the occupier has a huge incentive to hang on just as would a tenant in a rent-controlled building” (SBS, 7 March 2003). While there are clearly a multiplicity of factors that impact on the dweller’s consideration set apropos the sale date, the state-dependent contracts we advocate have no real impact on this matter. In fact, insofar as home owners’ have a reduced exposure to real estate, their ties to the asset class should be relaxed somewhat. This in turn implies a greater degree of flexibility with respect to residential mobility, which can only be viewed as a very good thing.

<sup>108</sup> This is a rough approximation of the average tenure time. Examples with uncertain horizons will be evaluated in the future.

discount have little bearing on the minimum variance portfolio, which concentrates overwhelmingly in cash (at least when using this specific sample period). But for higher planes of expected return, residential property’s presence in the idealised holding has a vivid effect on the risk-return loci. Hence, once one factors in the cost of purveying equity capital, there should be appreciable demand for securitised claims on owner-occupied housing for all but the most risk-averse of individuals.

Exactly how much capital will institutions allocate to enhanced home equity? While this is but an abstract theoretical exercise, Figure 18 provides the precise asset breakdowns that underpin the set of dominant portfolios when a 20 percent discount to par prevails (we will shortly determine that to be a plausible assumption).

**Figure 18**  
**Optimal Portfolio Shares Using the Mean Variance Approach**  
 Fixed Contract (20% Discount), March 1984 to March 2002



Source: Housing Industry Association, Global Financial Data, and authors’ analysis

Conservative agents will typically select a long run return target that places them in the middle of the x-axis, a corollary of which is that around 20 percent of their mean-variance efficient holding will be invested in residential property. Although the preferred portfolio is clearly a function of the institution’s risk appetite, real estate does account for a nontrivial share of the efficient selection across much of the return spectrum. Note also that the essence of the asset’s investment value is attributable to its low correlation with stocks and bonds, and not

especially high return<sup>109</sup> or low volatility assumptions. That is to say, it is housing's low covariance risk that exerts the greatest influence on the overall return generating process.

So what can we draw from the Markowitz approach to estimating the demand for claims on home equity? First, the selected sample period can have a tremendous impact on one's results. In our case, the findings are likely to be conservative in light of the abnormal performance of cash and bonds over the last eighteen years. When we do step further back in time, unencumbered (i.e., excluding any artificial sweeteners) property's weight is very high indeed right across the return spectrum. Second, assuming that our current lot is representative, we conclude that a discount in the order of 20 percent would give rise to large institutional allocations to this asset class (manifest in the form of a high weight in the efficient holding). Finally, we learnt that committing to just a single category of assets and discounting the benefits of diversification restricts institutions to realizing inferior risk-return alternatives. And while permitting pair-wise combinations between, say, stocks and bonds, improves the feasible set, only diversification amongst all four categories precipitates the fully efficient frontier. Of particular consequence here is the dramatic difference in the portfolio weights when we include new investments in the opportunity set—prima facie, committing capital to just one or a subset of assets is highly undesirable.

### 2.1.3 A More Sophisticated Method

One of the primary weaknesses of mean-variance analysis is that it is but a crude approximation of consumer behaviour.<sup>110</sup> Indeed, it is well known that consistency between Markowitz's framework and expected utility theory conditions on the salience of one of either two rather tenuous suppositions: (1) a quadratic utility function, or (2) jointly normally distributed portfolio returns.<sup>111</sup> It is as a consequence important

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<sup>109</sup> Except for discounts in excess of 30 percent, the performance of property is always inferior to that of stocks and bonds when using this sample period.

<sup>110</sup> Under the auspices of classical economic theory, agents maximize the expected value of a utility function defined over a set of outcomes. In contrast, the mean-variance approach requires individuals to maximize the value of some function defined over the first two moments of portfolio returns.

<sup>111</sup> The viability of the first hypothesis is undermined by its implication that an investor's absolute risk aversion is increasing in wealth, whereas the converse could be reasonably expected. The second falls foul of the mass of empirical evidence that rejects the normality assumption—stock returns in particular are compromised by serial dependencies, time-varying volatility and fat-tails (see, for example, Akgiray and Booth (1988), Jansen and de Vries (1991), Buckle (1995), Mantegna and Stanley (1995), McCulloch (1997), and also the kurtosis and skewness statistics contained in Tables 8 and 10). For a thorough review of this subject, the reader is referred to Lo and MacKinlay (1999).

for us to try and develop a more robust methodology for capturing risk preferences.<sup>112</sup> Necessarily, this requires one to specify an actual class of utility functions. The most popular workhorse for describing decision making under uncertainty is the isoelastic set of ‘constant relative risk-aversion’ (CRRA) utility functions (see Pratt (1964), Arrow (1965), Blume and Friend (1975), and Mehra and Prescott (1985)).<sup>113</sup> In layperson’s terms, these imply that an investor’s (proportional) allocations to risky assets remain unchanged as their wealth fluctuates.<sup>114</sup> More technically, the CRRA family of formulations stipulate that agents maximize the expected value of the following utility of wealth function:<sup>115</sup>

$$U(W) = \frac{W^{1-\gamma}}{1-\gamma},$$

where wealth and risk-aversion are respectively denoted by  $W$  and  $\gamma \geq 0$ .<sup>116</sup> The second parameter is known as the ‘coefficient of relative risk-aversion’, with larger values indicating increasing conservatism (e.g., individuals who decide to concentrate more of their portfolios in comparatively safe assets). While most empirical estimates of this variable lie in the neighbourhood of one to five, we employ the somewhat broader range of 0.5 to 10.0.<sup>117</sup>

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<sup>112</sup> Nonetheless, Levy and Markowitz (1979), Pulley (1981), Kroll, Levy, and Markowitz (1984), and Hlawitschka (1994) show that for a variety of other utility functions and empirical return distributions, the ordering of rank returns via mean-variance approximation is almost identical to that which is prescribed by expected utility theory. Conflicting opinions are provided by Choi (2001).

<sup>113</sup> Isoelastic in the sense that the elasticity of substitution between consumption at any two points in time is constant. That is to say, the CRRA utility function is scale invariant—with constant return distributions, risk premia do not change over time as aggregate wealth and the scale of the economy rise (see Campbell (1996)).

<sup>114</sup> While estimates abound as to the size of the coefficient of relative risk aversion, it is probably safe to suppose that it lies somewhere between 0.5 and 10.0 (see, for instance, Weber (1970), Friedman (1973), Friend and Blume (1975), Weber (1975), Farber (1978), Hansen and Singleton (1982), and Szpiro (1986)). Higher values have been posited by other authors, such as Kandel and Stambaugh (1991).

<sup>115</sup> The expected utility hypothesis can be traced back to Daniel Bernoulli’s (1738) solution to the famous St. Petersburg Paradox, which itself was originally posed by his cousin, Nicholas Bernoulli, in 1713. Regrettably, this work was not picked up again until the arrival of von Neumann and Morgenstern’s (1944) seminal axiomatization of agent preferences.

<sup>116</sup> If  $\gamma = 0$ , then the household is risk-neutral, whereas as  $\gamma \rightarrow \infty$ , the household becomes increasingly risk-averse.

<sup>117</sup> It is pertinent to note that Mehra and Prescott’s (1985) ‘equity premium puzzle’ implies coefficients of relative risk aversion many times larger than ten. Even when one sets the correlation of stock returns and consumption growth equal to one prior to calculating risk aversion, most country estimates still exceed ten (see Campbell (1996)).

Given a specific level of risk-aversion, it is now a trivial task to compute the institutional investor's demand for equity finance at a par price. As before, we begin with the same four asset-class universe: stocks, long-term government bonds, cash and residential real estate. The parameters for the distribution are estimated from data covering the entire population period, March 1984 to March 2002, inclusive. Using the aforementioned bootstrap technique, a sequence of  $K$  random draws is taken with replacement. Each subsample is 40 quarters in length. The procedure is repeated 1,000 times to generate the ten-year pattern of joint asset returns. Subsequently, a risk-aversion parameter is fixed in the standard CRRA utility function. Setting the initial portfolio weights, we can then calculate each sequence's final-period wealth,  $W_k$ .<sup>118</sup> To find the expected utility associated with the assumed portfolio shares, we take the simple expected value of the corresponding utility levels. This process is repeated until the set of all feasible portfolio weights has been completely covered. The optimal shares for a given risk-aversion parameter are then those that maximize the average value of utility. Naturally, we assume here that the contract design and market structure eliminate concerns relating to adverse selection, moral hazard, taxes and holding period risk (see Appendix 8.7 for a more detailed exposition).

In light of the results of the mean-variance analysis, one would expect the institution's interest in claims on home equity to be subdued at a par price; that is, in the absence of any supplements whatsoever. The figure and table below confirm this intuition. While the basic insights regarding the muted demand for unaffected property remain unperturbed, Table 11 is illuminating in at least two dimensions. First, it shows that by employing a more accurate mathematical characterisation of the agent's attitude towards risk and return, the amount of capital allocated to real estate rises compared with that found under the Markowitzian approach. Observe how as one slides down the risk-aversion scale, investors increase their holdings of owner-occupied housing so as to capitalise on its unique covariance properties and reduce their exposures to stocks and bonds.

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<sup>118</sup> The wealth outcome in any sequence,  $k$ , is given by:

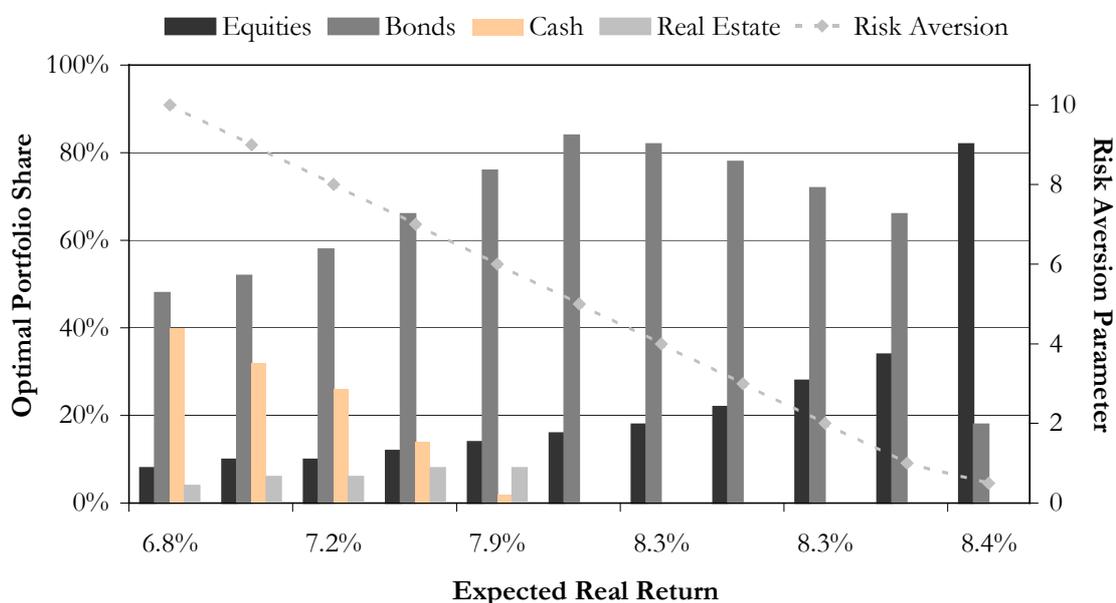
$W_k = w_i \sum_{i=1}^3 x_i r_{i,k} + w_4 x_4 f(r_{4,k})$ , where  $w_i$  denotes the amount of capital assigned to the individual asset weight  $x_i$  and  $f$  is some function describing the structure of the contract between the two parties. The expected wealth outcome is therefore

$$E(W_k) = \frac{w_i}{1000} \sum_{k=1}^{1000} \left( w_i \sum_{i=1}^3 x_i r_{i,k} + w_4 x_4 f(r_{4,k}) \right).$$

Figure 19

Optimal Portfolio Shares Using the CRRA Approach

Fixed Contract (Par Price), March 1984 to March 2002



Source: Housing Industry Association, Global Financial Data, and authors' analysis

Table 11

Institutional Investor Demand for Equity Finance Using the CRRA Approach

Fixed Contract ( $\bar{\pi} = 1$ )

Risk-Aversion	Expected Return	Std Deviation	Optimal Portfolio Weights			
			Domestic Equities	10-year CGS	Cash	Real Estate
0.5	8.4%	17.1%	82.0%	18.0%	0.0%	0.0%
1.5	8.3%	12.1%	34.0%	66.0%	0.0%	0.0%
2	8.3%	11.5%	28.0%	72.0%	0.0%	0.0%
3	8.3%	10.9%	22.0%	78.0%	0.0%	0.0%
4	8.3%	10.5%	18.0%	82.0%	0.0%	0.0%
5	8.3%	10.9%	16.0%	84.0%	0.0%	0.0%
6	7.9%	9.9%	14.0%	76.0%	2.0%	8.0%
7	7.5%	8.6%	12.0%	66.0%	14.0%	8.0%
8	7.2%	7.8%	10.0%	58.0%	26.0%	6.0%
9	7.0%	7.2%	10.0%	52.0%	32.0%	6.0%
10	6.8%	6.3%	8.0%	48.0%	40.0%	4.0%

Source: Housing Industry Association, Global Financial Data, and authors' analysis

Notwithstanding this, at very high levels of conservatism, participants decrease property's portfolio weight and shift into the safest possible asset: cash. Second, the CRRA analysis demonstrates that the most relevant segments of the risk-return locus are those combinations that

deliver real expected payoffs in excess of seven percent; it takes an extraordinary degree of risk-aversion to drive the total portfolio return below this point.

But what of the more realistic situation in which the institution is compensated for relinquishing decision-making rights such as the timing of sale and what changes to make to the dwelling and when? Once again, we draw on the same fixed, unconditional payoff function defined by the pricing parameter,  $\bar{\pi} \in (0,1]$ , which represents the (discounted) fraction of the dwelling's current appraised value that investors contribute up front in exchange for a claim on the proceeds at point of sale. With the cost of equity finance so described, we utilize the bootstrap procedure outlined earlier to simulate the value private sector participants would impute to the introduction of a new and—in this case—augmented asset category: owner-occupied housing.<sup>119</sup>

The four charts below present a selection of the results of this experiment. Specifically, they depict the institution's optimal portfolio allocations to stocks, bonds, cash and (enhanced) real estate as a function of: (1) their risk appetite, and (2) the discounted price,  $\bar{\pi}$ , that they are willing to pay as a proportion of the dwelling's appraised value. Figure 20 reveals that for prices less than 71 cents in the dollar, home equity is patently a preferred investment for even the most risk-tolerant of participants (i.e., those with risk-aversion parameters of around 0.5).

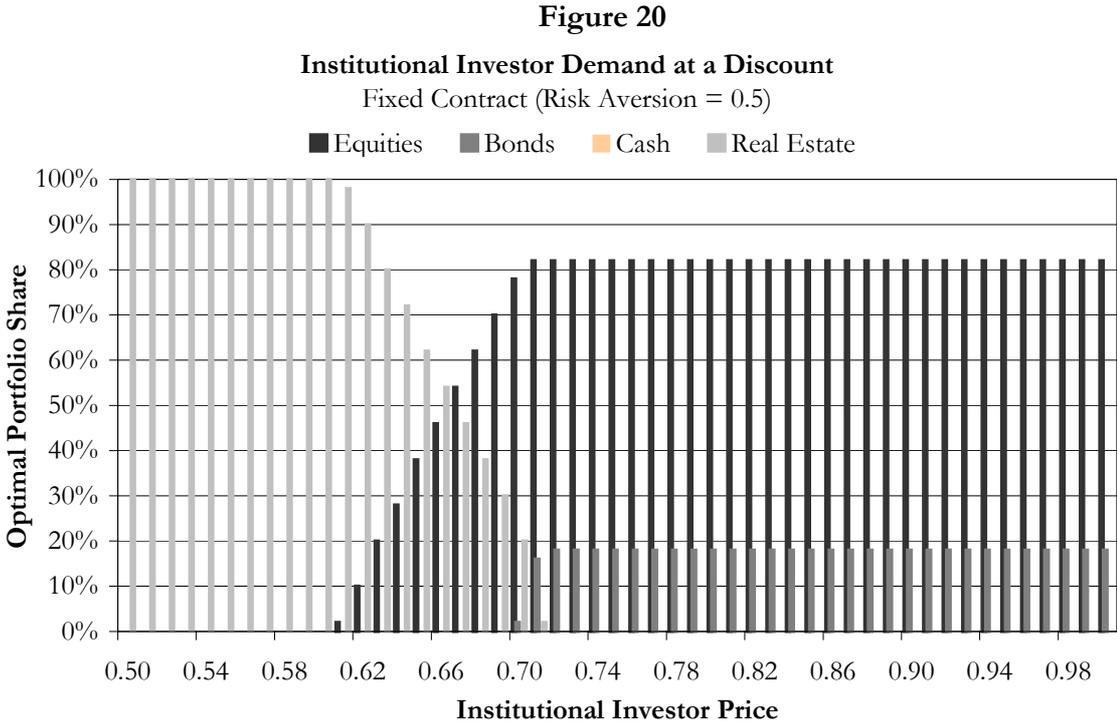
<sup>119</sup> In Appendix 8.6, we provide the taxed versions of these results. In this case, it is assumed that a tax rate of 30 percent is levied on all institutional investments. The levies are paid on a dynamic basis at the fully securitised portfolio level, with losses written off against future profits. Specifically, we take our sample of five indices (the fifth being a proxy for the individual dweller's risk-return experience), measured over  $n$  quarterly intervals, as a time-series of five-tuples:

$$\{(C(t), V_1(t), V_2(t), V_3(t), V_4(t)) : t = 1..n\}$$

Real quarterly returns,  $Q_i$ , for each index can then be calculated as follows:

$$\begin{aligned} \text{Inflation}(t) &= \frac{CPI(t+1)}{CPI(t)}, \\ Q_i^{\text{untaxed}}(t) &= \frac{V_i(t+1)}{V_i(t)} / I(t), \\ Q_i^{\text{taxed}}(t) &= \left( \left( \frac{V_i(t+1)}{V_i(t)} - 1 \right) (1 - \text{tax rate}) + 1 \right) / I(t) \\ &\text{for } i = 1, 2, 3, 4; t = 1..(n-1) \end{aligned}$$

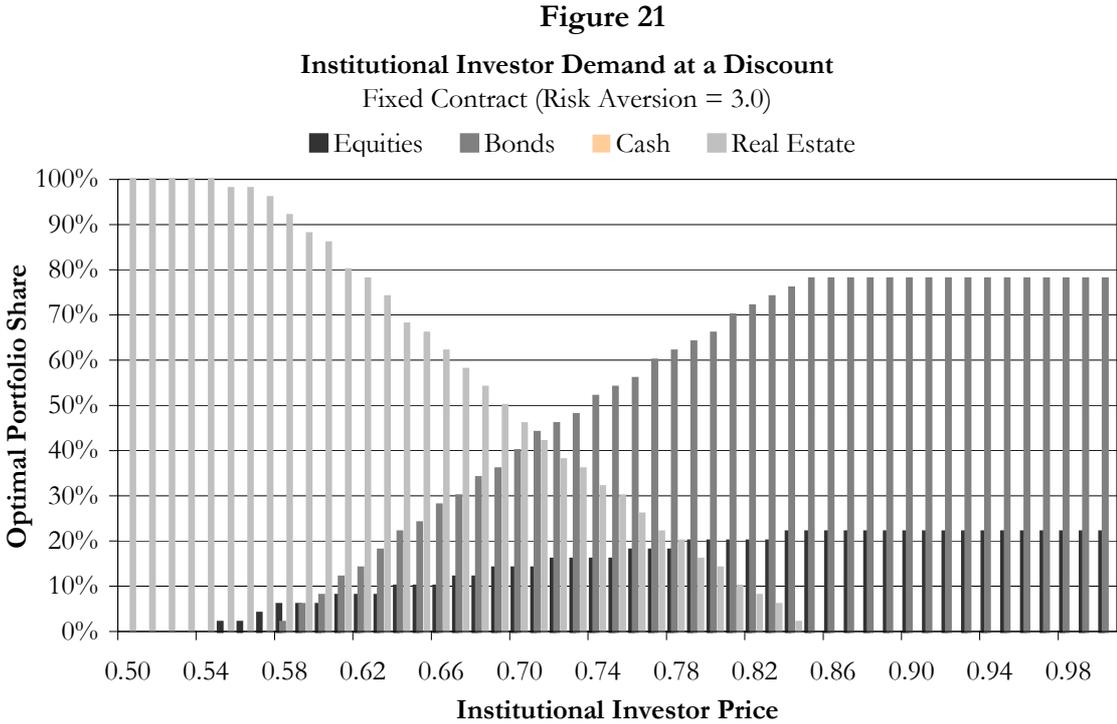
Hence, tax is paid on a nominal basis. Of course, this equation reduces to an untaxed equivalent when the tax rate is equal to zero.



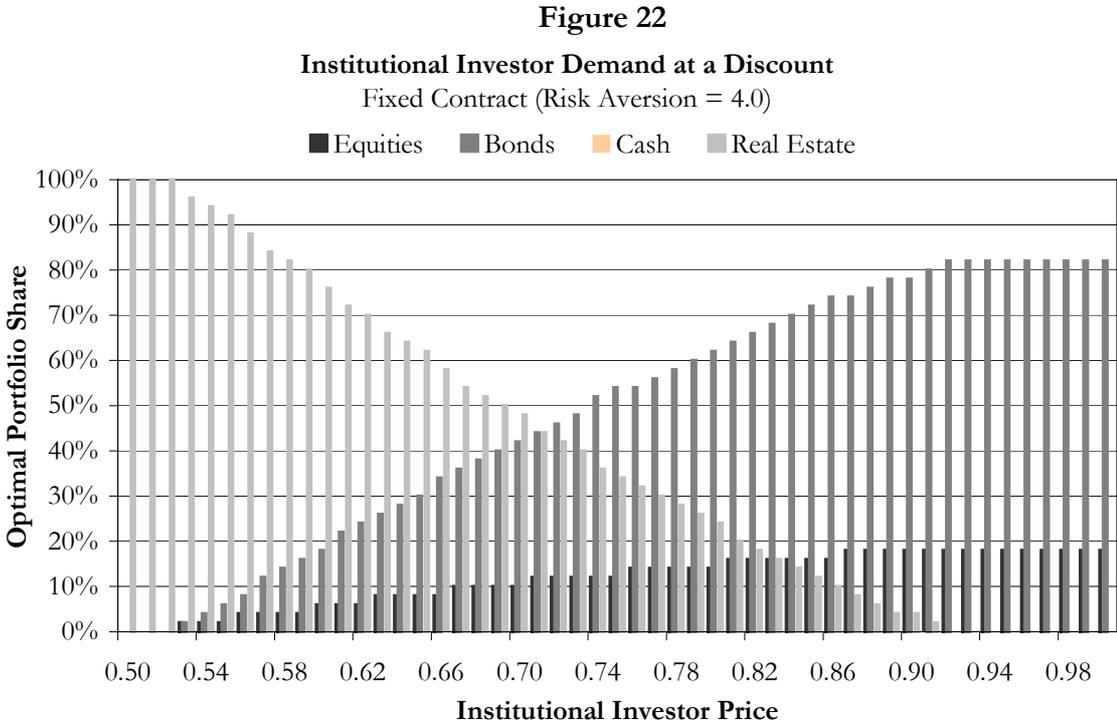
Source: Housing Industry Association, Global Financial Data, and authors’ analysis

Over and above this price, there is a noticeable bias towards stocks and bonds (particularly the former), which consume the entirety of the mean-variance efficient holding. Thus, our simulations suggest that extremely aggressive agents will insist on a discount of at least 29 percent in order to make real estate returns competitive with the likes of listed equities. In the event that market forces dictate that the cost of finance does gravitate to levels of 29 percent or more, we would expect to see appreciable demand for this asset category.

A more typical investor, with a risk-aversion parameter of, say, three or four, is less exacting in absolute terms, and seems to place greater emphasis on real estate’s diversification qualities (see Figures 21 and 22 below). That is, compared with their braver counterparts above, these individuals concentrate on housing’s ability to mitigate portfolio risk through its distinctive covariance characteristics, rather than dwelling excessively on its contribution to raw performance.



Source: Housing Industry Association, Global Financial Data, and authors' analysis



Source: Housing Industry Association, Global Financial Data, and authors' analysis

And so, when considering the preferences of what might be described as an ‘archetypal’ institution, our experiments imply that the required cost

of capital should be around 15 percent (i.e., 85 cents in the dollar), depending on the agent's idiosyncratic attitudes regarding uncertainty. Predictably, long-term government bonds play a more prominent part in the portfolios of conservative participants relative to the risk-insensitive. Indeed, for virtually all prices, the allocation to bonds exceeds that which is attached to equities.<sup>120</sup>

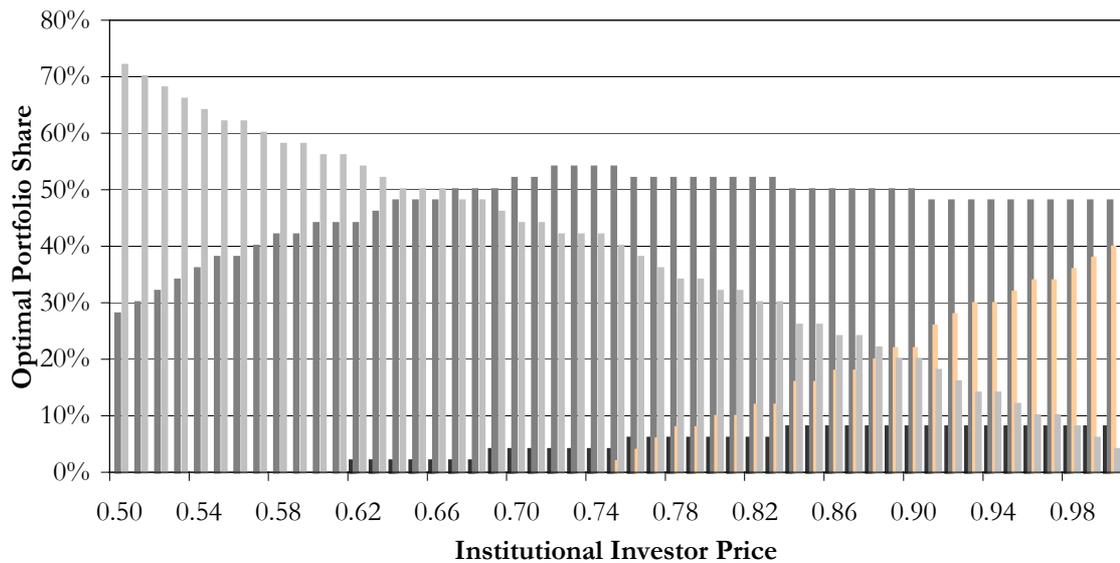
As a final exercise, Figure 23 examines the case of an investor characterised by the maximum degree of conservatism considered plausible by Mehra and Prescott (1985). Unsurprisingly, owner-occupied housing features prominently in the optimal portfolio at all prices. Even if we factor in only a small discount of, say, ten percent, home equity's weight rises monotonically to 20 percent as one moves leftwards along the x-axis.

**Figure 23**

**Institutional Investor Demand at a Discount**

Fixed Contract (Risk Aversion = 10.0)

■ Equities ■ Bonds ■ Cash ■ Real Estate



Source: Housing Industry Association, Global Financial Data, and authors' analysis

This relationship continues to a price of around 66 cents in the dollar, wherein real estate consumes more than 50 percent of the institution's ideal holding. Interestingly, there is a large literature which finds that actual measures of risk-aversion could in fact be many times higher than ten (see Campbell (1996) for cross-country comparisons). While such conclusions have yet to gain serious currency in the academic community, our last set of results may be more representative than one might instinctively think. It is also worthwhile noting that at very high

<sup>120</sup> This finding undoubtedly reflects the unique nature of the sample period.

levels of risk-aversion, cash comes into play in a big way. Indeed, at a par price, it is assigned a 40 percent weight. This clearly contrasts with the distributions documented for the more aggressive participants above.

#### 2.1.4 Summary

Despite drawing on two different methodologies, the data presented to date leads us to believe that there will be a great deal of demand for real estate equity. The critical caveat here is that investors must be compensated for sacrificing their control rights. In practical terms, our estimates of the cost of equity capital indicate that a sizeable proportion of institutions would be comfortable paying around 75 to 80 cents in the dollar in exchange for an equity claim on the final sale proceeds.<sup>121</sup> Although this fixed contract structure is obviously rudimentary, the empirical results do strike us as being intuitively reasonable. Of course, what households themselves ultimately think is very much an open question. Fortunately, we study precisely this subject in a comprehensive survey of consumer sentiment, the conclusions of which are discussed in more detail in Chapter 2.5. In short, they portend promising prospects. Over 50 percent of all renters (which when extrapolated out to the actual population translates to roughly three to four million people) consider a discount of this magnitude to be ‘fair’. Moreover, around 50 percent agreed or strongly agreed that the availability of equity finance would increase the probability of them purchasing a new home. Taking into account that this product does not exist (anywhere), we are encouraged by the survey findings, to say the least. In our minds, this is unambiguously a massive market in the making; think about it—three to four million people. If we cautiously suppose that only 30 percent of the entire renter population would be prepared to think about issuing claims to external parties (at these attractive prices), and that the equity finance-to-value ratio is 30 percent, then we are talking about a \$130 billion market opportunity. And in our humble estimation, this is a worst-case scenario.<sup>122</sup> (By way of comparison, that equates to one and a half times the total value of securitised mortgages.)

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<sup>121</sup> However, given the limited generality of these calculations, it is no surprise that we are unable to provide point estimates. The data underlying our valuation exercises derive from recent Australian history, a period that is unique in many ways.

<sup>122</sup> According to the ABS, there are about 2.6 persons per dwelling unit and 1,858,324 rented properties. We conservatively suppose that there are only two paying occupiers per rented house. This gives a total opportunity set of 3,716,648 persons. Let us now assume that one third of all renters (less than our survey estimate) would be willing to ‘entertain’ the idea of using a combination of both debt and equity. Taking the median CBA/HIA house price at December 2002 of \$350,400, we suppose that the average total finance to value ratio is 80 percent, 37.5 percent of which could be raised by way of equity claims. This then implies a universe of \$128,929,032,461.

Before we move on to consider the household's willingness to supply equity capital, it is instructive to point out that while our estimates of demand err on the side of caution, there are several factors that could necessitate a higher cost of capital:

- First, the contract does not, as presently described, condition on the date of divestiture. While the process of securitisation would enable institutions to diversify away most of the idiosyncratic risks implicit in the timing of individual tenure, there is a chance that this type of structure could incentivize occupiers to remain in the residence for longer than would otherwise have been anticipated. Why? Well, the cost of capital is a decreasing function of time; hence, the longer one stays in the home, the less expensive equity finance becomes. There would seem therefore to be a need for the introduction of more nuanced pricing schemes. Ideally, one would develop a mechanism that conditions the investor's rate of return on the occupancy period. As fate would have it, we present just such a suite of instruments in Chapter 2.4.
- Second, in the early days, there will doubtless be transaction costs that are currently difficult to predict. For instance, a premium may be required to compensate investors for the illiquidity of the asset-class. Further, uncertainty associated with the product's risk-return properties could evoke a desire for additional economic insulation. In this context, practitioners have become increasingly cognizant of the inverse relation between illiquidity, volatility, the costs of executing trade, and the market pricing of securities (see, for example, Amihud and Mendelson (1986)). The emergence of a liquid secondary market coupled with standardised contractual structures would go a long way to addressing these problems (see Chapter 3.2).
- Finally, it is almost impossible to estimate the influence of equity finance on the equilibrium pattern of asset prices, occupier incentives, and the wider macroeconomy. Participants might as a result demand a buffer to insure themselves against any unexpected outcomes.

In wrapping up this chapter, our basic conclusion is straightforward: using a variety of analytical techniques, we find that investors would be prepared to execute a substantial volume of trade in the primary market at prices that appear to be sensible. Furthermore, the peculiarities of our sample are such that we may have significantly underestimated the ostensible appeal of the asset class (notwithstanding the caveats imposed above). Thus, in terms of the institutional demand for claims on enhanced home equity, we are sanguine. This, of course, begs the

question: will Australian households seek to capitalise on these financing opportunities?<sup>123</sup> It is to this issue that we now turn.

## 2.2 The Supply of Equity Capital

In the next chapter, we evaluate the transaction from the home owner's perspective. Specifically, we ask:

- How will the dweller's issuance of equity capital depend on the price institutions offer for rights to a certain fraction of the proceeds at point of sale?

Our study of consumer behaviour draws on the two numerical methods canvassed earlier: namely, mean-variance analysis and the more sophisticated CRRA approach. Fortunately, the assumptions required to compute the household's propensity to supply are strongly analogous to those articulated in our calculations of demand, with three major points of departure:

1. The price risk borne by the individual occupier is much greater than that which one would attribute to an investor holding a well-diversified portfolio of property.
2. The all-or-nothing nature of this type of tenure forces families to tie up a vast proportion of their wealth in one highly illiquid and indivisible asset. Our models should endeavour to account for this constraint on portfolio choice.
3. Finally, heterogeneity in the preferences of households is likely to be larger than that found on the demand-side of the financing equation. The price that a dweller accepts will be a function of a set of idiosyncratic characteristics peculiar to their specific circumstances. In contrast, investors do not have to contend with complications inherent in the optimisation of consumption and investment over the course of the life-cycle.

The reader will recall that we were previously at pains to point out that our conclusions with respect to demand are only preliminary. These observations apply with even greater force to our estimates of supply. Regrettably, economists do not yet have a good grip on the wealth risks associated with home ownership. This situation is compounded by the

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<sup>123</sup> In order to verify the robustness of our conclusions we undertake a series of supplementary tests using Australian, US and UK data over longer time horizons. While the results validate the integrity of our analysis, they do not resolve the issues surrounding the general equilibrium effects alluded to in the third point above. Only the passage of time can truthfully answer these questions.

uncertainty that burdens individual decision-making—simply stated, different households will be willing to accept radically different prices for claims on their properties. Consequently, any efforts to explore the supply-side should seek to control for the cross-sectional variation in consumer behaviour.

While acknowledging these threats to the integrity of our experiments, we do wish to emphasise one finding of which we are certain. As a purely economic concern, primary markets in home equity have the potential to sustain a large volume of trade.

### 2.2.1 Methodology

Our preferred technique for assessing the supply of equity claims draws on many of the ingredients found in the computations of the chapter above. We retain the same ten-year simulation horizon, and consider a four asset-class universe consisting of stocks, bonds, cash and residential real estate. As noted above, the method that follows does, however, differ in several ways. In the first instance, we prevent households from allocating additional money to real estate over and above that which they already have invested in their home. This seems like a reasonable assumption to make, since it is not possible for most families to cost-effectively diversify away their property holdings. Moreover, the prospect of doing so would be made undesirable by the robust correlation between the two categories (i.e., the individual dwelling unit and other housing investments). Consumers who wish to broaden their asset base would be better served by acquiring exposures to unrelated opportunities. Second, we alter the owner-occupied residence's return generating process so as to approximate the idiosyncrasies implicit in the individual dweller's experience. As a final adjustment, we constrain the home owner's ability to make allocations to other asset categories to account for the very low levels of non-housing wealth held by most Australian families (see Appendix 8.1). These modifications are now discussed in more detail.

#### 2.2.1.1 The Dynamics of Individual Property Prices

Although it is beyond the scope of this report to provide a comprehensive review of the related literature, it is commonly accepted that house price risk is not at all well understood by academics. The small number of studies that do exist tend to conclude that fluctuations in the real value of real estate constitutes a serious economic threat to the average household's standard of living. Furthermore, this hazard is exacerbated by three intertwined factors:

- The indivisibility of the dwelling asset, which compels home owner's to bind together their consumption and investment decisions;

- The high proportion of wealth that is, as a direct result, held in the form of housing; and,
- The absence of instruments that would enable occupiers to hedge the financial risks associated with this investment.

There is also some econometric evidence which indicates that these issues may have more far-reaching repercussions. For example, both Rosen et al. (1984) and Turner (2000) find that the variability of dwelling specific returns acts as a disincentive to purchasing a new home in the first place. Yet measurement difficulties make inferences such as these nebulous at best. As we noted in Section 2.1.1, the two most popular approaches to quantifying time-series changes in the value of owner-occupied housing draw on either ‘repeat-sales’ or ‘hedonic’ techniques, which model individual price innovations as a function of demographic, geographic, or house specific variables. There are, however, few examples in which this kind of decomposition has been applied with any degree of success.

The estimates of real estate risk that have emerged imply that the idiosyncratic component is very large indeed. Case and Shiller (1987) find that the standard deviation of quarterly house price changes is five times larger than that which is attributable to a city-wide index. They allege that this difference is analogous to a comparison of the risks of a stock market proxy with those that characterise a single company. Goetzmann’s (1993) subsequent appraisal of the same sample lends further credence to Case and Shiller’s claims. Using Swedish data, Englund, Hwang and Quigley (2002) conclude that multiplying the variance of a regional index by a factor of six gives a rough approximation of the home owner’s risk exposures over short horizons. Significantly, the magnitude of these deviations can be expected to rise as one migrates from the city or regional level to the use of national proxies, as in the present case. In future research we expect to study the dynamics of house prices in much greater detail. For the time being however, we are left to make assumptions that are noteworthy more for their arbitrariness than their accuracy. More precisely, we adopt what we believe to be a conservative position, elevating the standard deviation of the CBA/HIA series by the square root of either four or six to provide an indicative band of results, which should be reasonably close to the mark.<sup>124</sup>

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<sup>124</sup> Formally, individual house price realisations were simulated by increasing the variance of the log CBA/HIA series by a factor,  $\alpha$ , which corresponds to a value of either four or six. Specifically, let

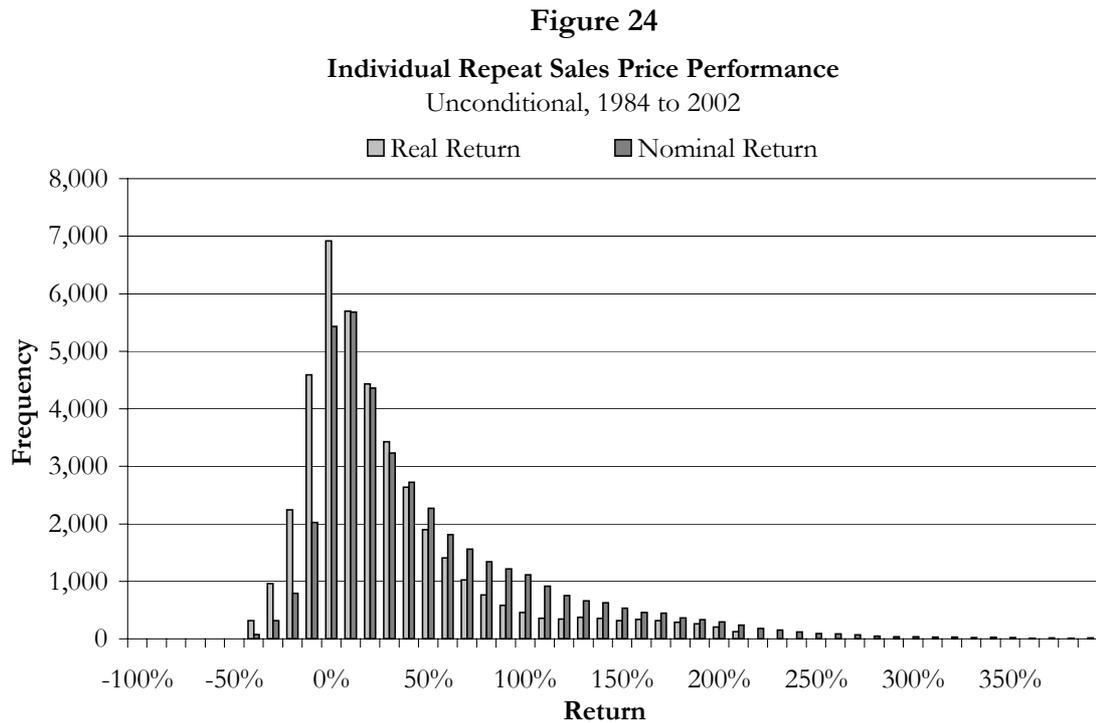
Prior to considering the influence of the home ownership constraint on the household's portfolio problem, it is instructive to reflect a little longer on the magnitude of property price risk in the domestic domain. Here we pose a simple question: is residential real estate the sure bet that most people believe it to be? As a preliminary exercise, we examine the distribution of repeat sales to homes in a selection of representative suburbs in NSW, Queensland and Victoria.<sup>125</sup> Since the performance of property in these States was superior to all others during the sample horizon (see Chapter 4.2), it is likely that we will have understated the extent to which Australian households in aggregate perform poorly. In total, there were 40,650 trade pairs over the period 1984 to 2002. Here it is worthwhile noting that we want to progress from the imprecise point estimates pertaining to median prices (which are typically calculated for different dwelling types over time), towards a more robust appreciation of the actual distribution of payoffs. That is, we are trying to cut through the posturing that characterises evaluations of housing in this country to obtain a richer understanding of the full spectrum of economic experiences that home owners encounter.<sup>126</sup>

Figure 24 below depicts the distribution of unconditional trade pair returns in both real and nominal terms. On the surface, it would appear to be both leptokurtotic and positively skewed. Intriguingly, this contrasts with the statistics computed for the CBA/HIA price series (see Section 2.1.1).

$$\begin{aligned}
 q_{CBA/HIA}(t) &= \log(V_4(t+1)/V_4(t)) \\
 \bar{q}_{CBA/HIA} &= \frac{1}{n-1} \sum_{\tau=1}^{n-1} q_{CBA/HIA}(\tau) \\
 q_{individual} &= \sqrt{\alpha}(q_{CBA/HIA}(t) - \bar{q}_{CBA/HIA}) + \bar{q}_{CBA/HIA} \\
 Q_5^{taxed} &= ((\exp(q_{individual}) - 1)(1 - \text{tax rate}) + 1) / I(t) \\
 t &= 1..(n-1)
 \end{aligned}$$

<sup>125</sup> This data was kindly supplied to us by John Edwards, CEO of Residex Pty Ltd.

<sup>126</sup> The reader is referred to Appendix 8.5 for a much more detailed explanation of our methodology.



Source: Residex Pty Ltd and authors' analysis

Table 12 contains median returns dissected according to the trade percentiles. While the results reveal that occupiers in the top quartile earn exceptional profits, they also show that a significant proportion realise extremely poor performance. Setting aside concerns related to time dependence for the minute, we find that the median real return to the first quartile of dwellers is (10.9) percent. Put differently, 12.5 percent of all households saw the value of their homes decline by more than 10.9 percent in real terms. If we increase the resolution of the partitions and inspect the bottom decile, the median real return falls to (20.5) percent. In effect, the data is telling us that more than one in four Australian home owners lose money (in real terms) when they come to sell their residence.<sup>127</sup> For roughly one in ten dwellers, the situation is even more dire—these poor souls are subject to real price declines in excess of (13.4) percent. Clearly, our results do not rest comfortably with claims that residential real estate is an extraordinarily safe investment, or indeed, in the words of one US think-tank, a ‘new kind of gold’ (see Montoya and Trimboth (2002)). To avoid sounding like doomsayers, we should also point out that there are a large number of dwellers whose homes appreciate in value by a considerable amount (see the 75<sup>th</sup> and 90<sup>th</sup> percentiles).

<sup>127</sup> This is based on the intersection between the first and second quartiles, which equates to a real return of (1.7) percent.

Table 12

<b>Individual Repeat Sales Price Performance</b>					
Unconditional, 1984 to 2002					
<b>Median Trade Pair Returns</b>					
<b>Percentile</b>	<b>10%</b>	<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
<b>Nominal Return</b>	(9.5)%	0.0%	30.0%	124.6%	182.6%
<b>Real Return</b>	(20.5)%	(10.9)%	14.2%	75.2%	140.6%
<b>Tenure Time<sup>128</sup></b>	4.8yrs	4.0yrs	3.7yrs	4.5yrs	3.8yrs

Source: Residex Pty Ltd and authors' analysis

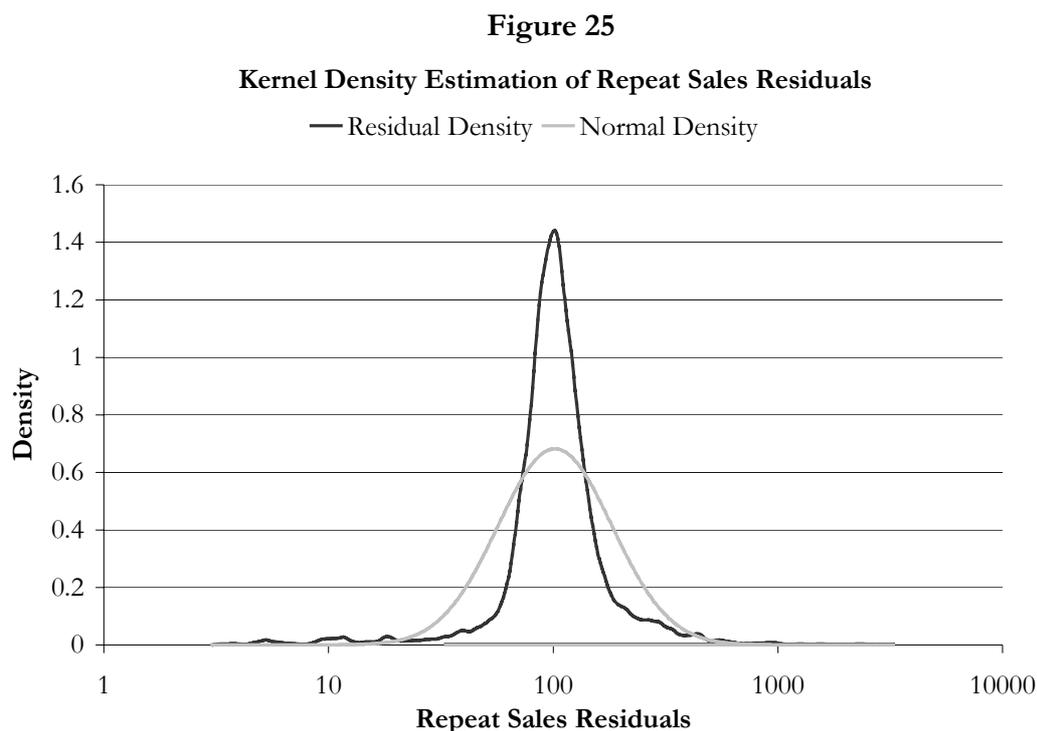
In an effort to further investigate the properties of the sample, we create our own global repeat-sales proxy and model deviations of trade pairs from the concomitant index.<sup>129</sup> We plot the log of the residuals against a log normal distribution with the same standard deviation (see Figure 25 below). The abovementioned leptokurtosis is manifest in the high peak, thin midrange and fat tails of the distribution. This in turn signals that non-Gaussian processes may be driving deviations from the index.<sup>130</sup> More generally, it looks like the repeat-sales proxy has reasonably high explanatory power with respect to time-series variation in the individual trade pair returns—the median residual is statistically indistinguishable from zero. The thin midrange suggests that while most Australian households realise returns that do not deviate markedly from that of their peers, there is a substantial minority in the left and right tails of the distribution that experience dramatically different (i.e., negative or positive) payoffs.<sup>131</sup>

<sup>128</sup> The median tenure times are calculated according to the real return percentiles.

<sup>129</sup> Use of an index based on sales of the same units over time eliminates some of the performance measurement problems that we referred to in Section 2.1.1. We employ the least-squares estimation procedure first enunciated in Bailey, Muth and Nourse (1963). Interested readers are referred to Appendix 8.5 for more details.

<sup>130</sup> In an attempt to explain the leptokurtosis evident in asset returns, Mandelbrot (1973) and others have proposed alternative probability density functions, which have fat-tails that account for the increased likelihood of extreme events. Previous studies of the US housing market have documented serial dependencies (see Case and Shiller, (1989), Abraham and Hendershott, (1996), and Capozza, Hendershott, Mack and Mayer (2002)) and mean reversion (see Abraham and Hendershott (1996), Capozza and Seguin (1996), Malpezzi (1999), and Capozza, Hendershott, Mack and Mayer (2002)).

<sup>131</sup> See Appendix 8.4 for a description of the kernel density estimation.



Source: Residex Pty Ltd and authors' analysis (refer also to Appendix 8.4)

Having quickly scrutinised some of the attributes of the data, let us return to studying the performance of the individual trade pairs. One of the problems with Figure 24 is that it does not condition on the timing of tenure. To improve the granularity of our insights we therefore partition the sample according to the trade time. Figures 26 through 30 present the results. Curiously, we detect a strong u-shaped pattern in the real price performance of the top and bottom fractiles, which we have plotted in Figures 31 and 32 for ease of inspection. Dwellers who hold onto their homes for less than three years or longer than twelve years earn superior profits to those who occupy their properties for periods within these two bounds. The worst possible tenure time seems to be six to nine years, wherein 25 percent of all households experience a 5.7 percent or more decline in the real value of their residence.<sup>132</sup>

With a large proportion of the nation's wealth invested in housing (see Appendix 8.1), this evidence only serves to reinforce our argument that there is a desperate need for instruments that would enable home owners to eliminate some of the most serious economic risks to which they are presently exposed (see Caplin and Joye (2002d)). On this front, too many of our colleagues make the mistake of imputing the risk-return experience of a broad pricing proxy to that of the individual occupier. For example, in a critique of the notion of house price insurance,

<sup>132</sup> Based on the intersection between the second and third quartiles.

Geltner, Miller and Snavely comment, “there would be relatively little demand for this type of [product]...Most people in most cities are not worried about the future value of their home equity because they perceive, and rightly so...that home values do not carry much risk” (1995: 75). Yet contrary to what these authors suggest, all of the available academic evidence implies that the single-family home is subject to immense asset-specific risk. And so, Geltner, Miller and Snavely appear to have confused the risk implicit in a diversified portfolio of real estate with that attributable to one house, situated on one street, with all its peculiarities. It is also possible that they have fallen foul of money illusion. Standard property price indices tend not to excise the influence of inflation and can, as a result, paint an unduly optimistic picture of real estate’s risk-return profile. This in part explains why many pundits would have us believe that house prices never fall. Of course, the events of the late 1980s indicate otherwise (see Chapter 4.2). The point here is simply that measuring property prices in real, rather than nominal, terms casts a very different light on the magnitude of their past declines, and the amplitude of fluctuations around the mean. This is especially relevant in the current environment, in which deflation is seen as a far more ominous threat its less sinister sister, inflation.

Figure 26

Individual Repeat Sales Price Performance  
Zero to Three Years, 1984 to 2002

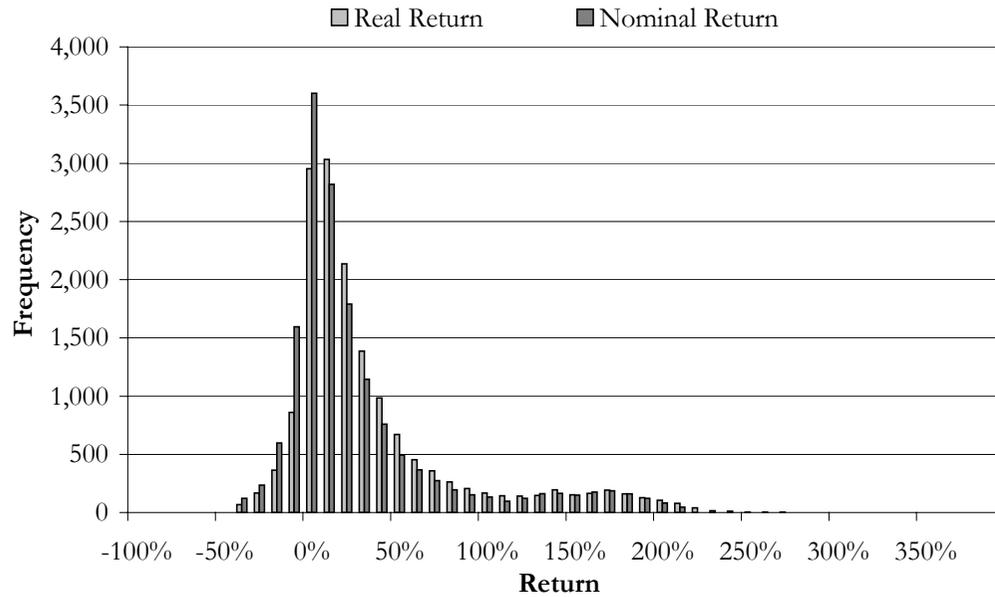


Table 13

Individual Repeat Sales Price Performance  
Zero to Three Years, 1984 to 2002

Median Trade Pair Returns					
Percentile	10%	25%	50%	75%	90%
Nominal Return	(11.7)%	(1.8)%	16.9%	88.7%	162.1%
Real Return	(17.0)%	(7.6)%	10.7%	74.1%	154.0%
Tenure Time	1.8yrs	1.7yrs	1.6yrs	1.4yrs	1.0yrs

Source: Residex Pty Ltd and authors' analysis (refer also to Appendix 8.5)

Figure 27

Individual Repeat Sales Price Performance  
Three to Six Years, 1984 to 2002

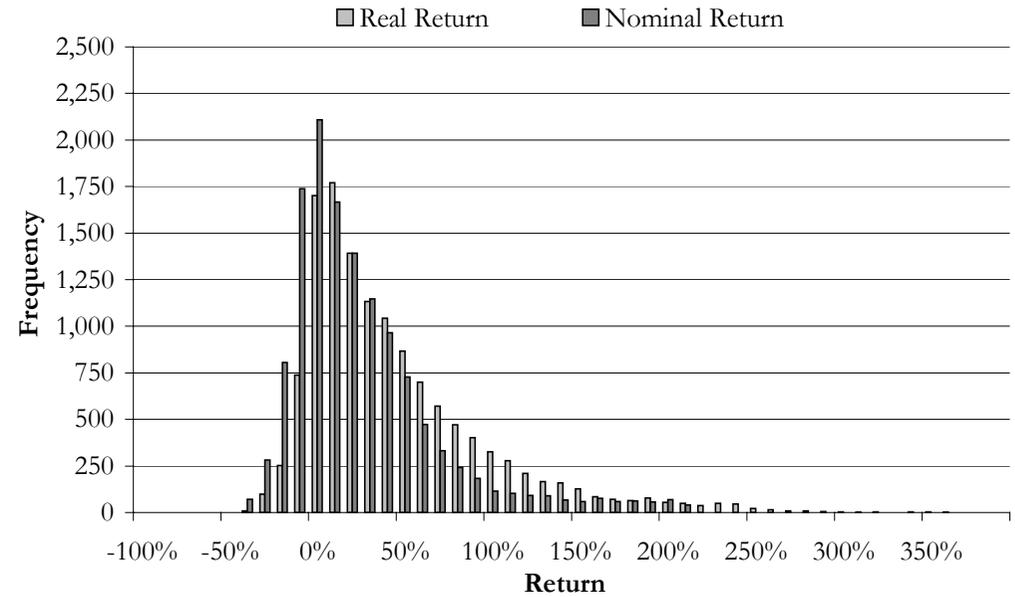


Table 14

Individual Repeat Sales Price Performance  
Three to Six Years, 1984 to 2002

Median Trade Pair Returns					
Percentile	10%	25%	50%	75%	90%
Nominal Return	(9.6)%	(1.1)%	30.0%	102.6%	151.6%
Real Return	(19.7)%	(11.7)%	13.9%	65.6%	116.9%
Tenure Time	4.5yrs	4.3yrs	4.3yrs	4.4yrs	4.4yrs

Source: Residex Pty Ltd and authors' analysis (refer also to Appendix 8.5)

Figure 28

Individual Repeat Sales Price Performance  
Six to Nine Years, 1984 to 2002

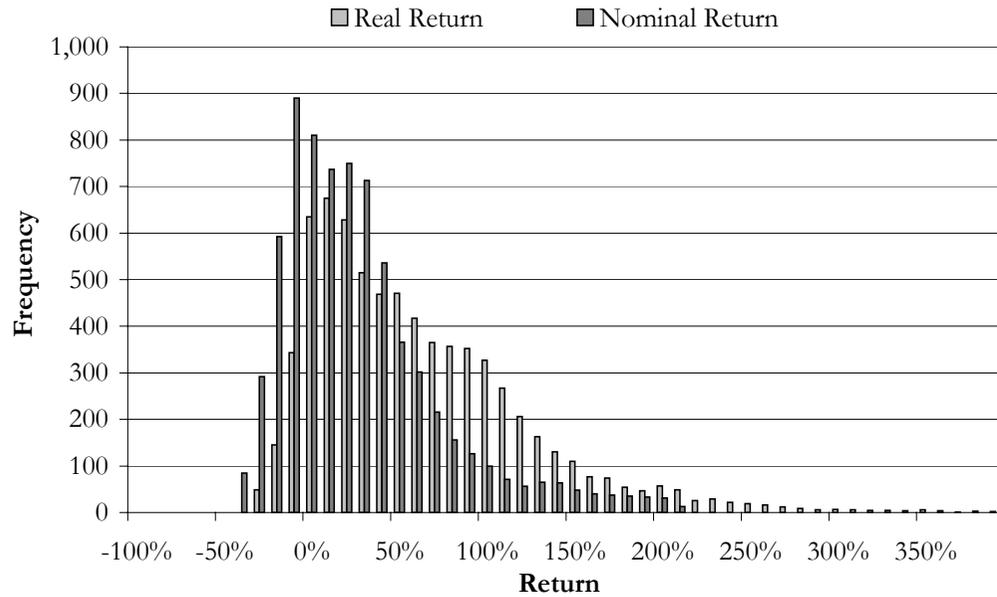


Table 15

Individual Repeat Sales Price Performance  
Six to Nine Years, 1984 to 2002

Median Trade Pair Returns					
Percentile	10%	25%	50%	75%	90%
Nominal Return	(9.4)%	1.1%	47.5%	127.9%	180.0%
Real Return	(25.2)%	(16.0)%	17.5%	73.9%	125.8%
Tenure Time	7.2yrs	7.3yrs	7.3yrs	7.3yrs	7.3yrs

Source: Residex Pty Ltd and authors' analysis (refer also to Appendix 8.5)

Figure 29

Individual Repeat Sales Price Performance  
Nine to Twelve Years, 1984 to 2002

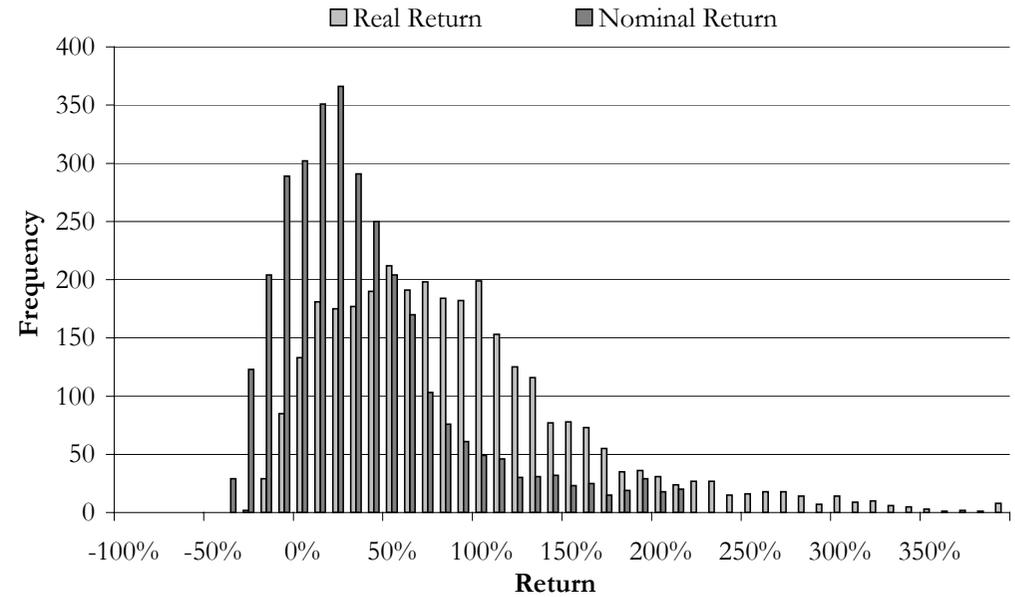


Table 16

Individual Repeat Sales Price Performance  
Nine to Twelve Years, 1984 to 2002

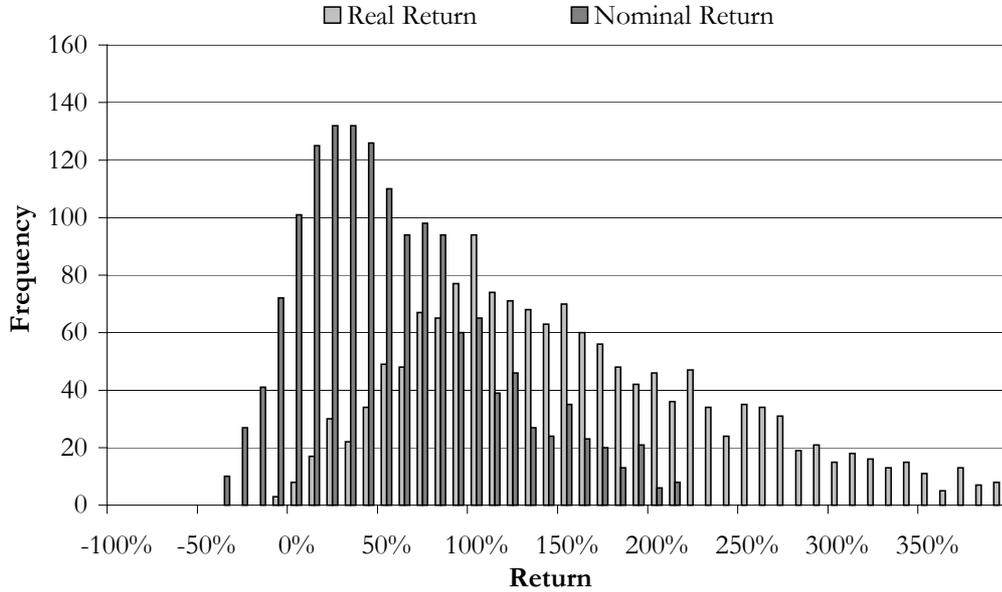
Median Trade Pair Returns					
Percentile	10%	25%	50%	75%	90%
Nominal Return	(1.3)%	13.4%	75.5%	165.4%	236.0%
Real Return	(24.5)%	(13.5)%	22.5%	85.5%	143.5%
Tenure Time	10.0yrs	10.0yrs	10.1yrs	10.3yrs	10.3yrs

Source: Residex Pty Ltd and authors' analysis (refer also to Appendix 8.5)

**Figure 30**

**Individual Repeat Sales Price Performance**

Twelve or More Years, 1984 to 2002



**Table 17**

**Individual Repeat Sales Price Performance**

Twelve or more Years, 1984 to 2002

<b>Median Trade Pair Returns</b>					
<b>Percentile</b>	<b>10%</b>	<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>90%</b>
<b>Nominal Return</b>	34.2%	61.4%	142.7%	276.9%	346.6%
<b>Real Return</b>	(14.9)%	(0.9)%	45.6%	120.7%	159.7%
<b>Tenure Time</b>	12.9yrs	13.1yrs	13.4yrs	14.1yrs	14.0yrs

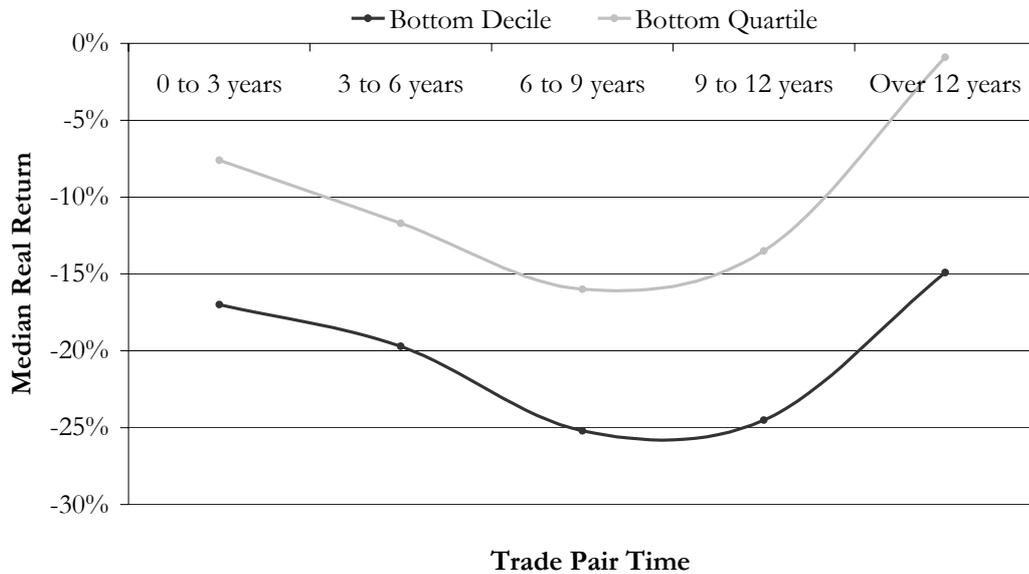
Source: Residex Pty Ltd and authors' analysis (refer also to Appendix 8.5)

What then accounts for the u-shaped patterns in time-dependent performance? There are several candidate explanations, the respective validity of which is beyond the scope of this study. It is, for instance, possible that sales in the short term are characterised by a higher degree of volatility for reasons owing to the idiosyncratic circumstances of occupants (e.g., speculative investment activities). With a positively skewed distribution, the heightened price variance could have contributed to the larger median returns experienced by individuals who trade within this truncated horizon. In a similar vein, there may be greater uncertainty associated with the valuation of properties that have not traded for a very long time. The absence of a

fresh transaction price will likely introduce increased noise into the pricing process.<sup>133</sup> As before, the coincidence of a positively skewed sample with the elevated price volatility may have precipitated higher payoffs. Interestingly enough, this resonates with the information cost theory of house price dynamics (see, for example, Quan and Quigley (1991) and Capozza, Hendershott, Mack and Mayer (2002)). In short, the latter posits that because real estate is highly heterogeneous, participants have difficulty assessing the ‘true’ value of any given dwelling. Optimal appraisals therefore weight current and past transaction prices of similar homes. As a result, the frequency of trades can affect the rate of information dissemination. Markets with a larger number of transactions invoke lower search costs. Prices in these regions should therefore converge more quickly with fundamental value. In contrast, areas in which there is a paucity of trade related information will suffer from a comparatively noisy valuation process. Of course, the same logic could be applied to our time-dependent samples.

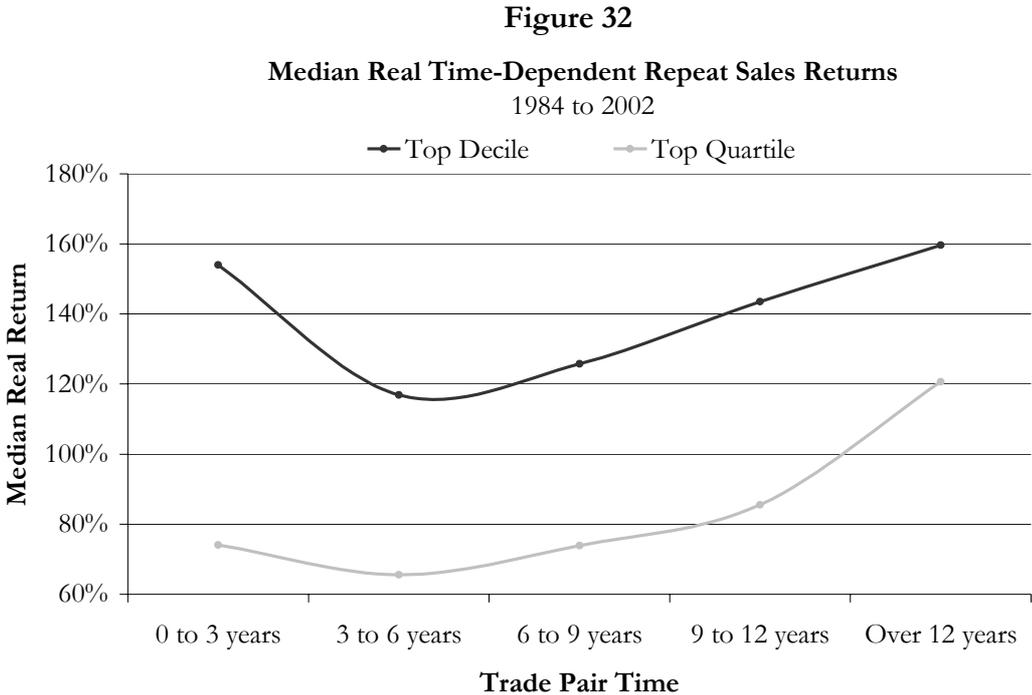
**Figure 31**

**Median Real Time-Dependent Repeat Sales Returns  
1984 to 2002**



Source: Residex Pty Ltd and authors’ analysis

<sup>133</sup> Intriguingly, analogous u-shaped volatility patterns have also been observed in the intra-day trading of listed securities.



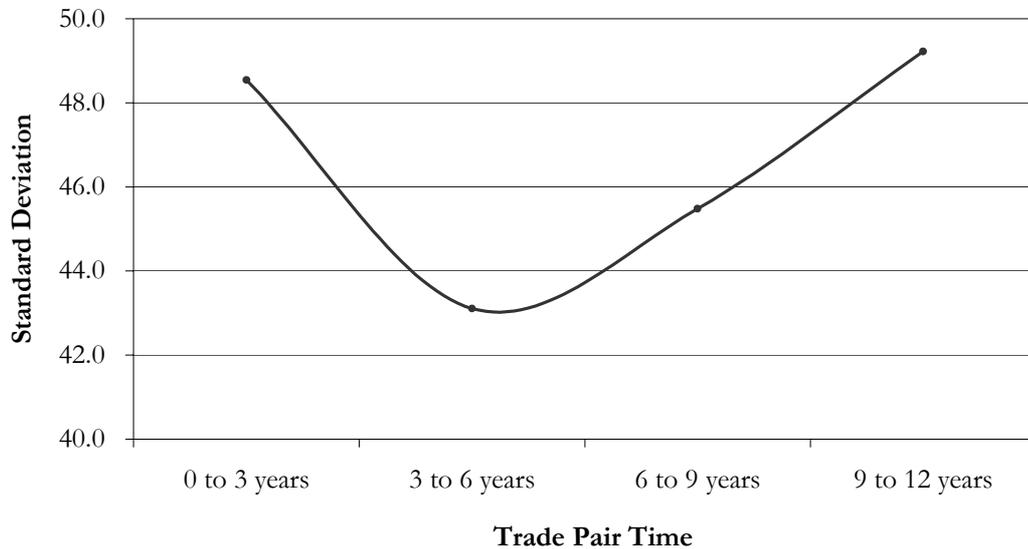
Source: Residex Pty Ltd and authors' analysis

In an attempt to further explore this thesis, we looked at the relationship between cross-sectional variations in median real returns and the length of tenure. Figure 33 below illustrates the results. As predicted, the variability of prices over the shorter and longer horizons is noticeably higher than that which manifests for more normal tenure times. While these findings are fascinating, and have not, as far as we are aware, been recorded before, they should be interpreted with some degree of circumspection; this subject requires much more analysis before one can confidently corroborate the musings above.

In conclusion, the large proportion of wealth tied up in owner-occupied housing combined with nontrivial fluctuations in real estate prices makes the risks involved in the current market structure clear. When prices do fall, the impaired collateral may prevent some households from refinancing the mortgage on their home. In extreme cases, families may be forced to default on their debt and seek bankruptcy protection.

Figure 33

**Standard Deviation of Real Repeat Sales Returns**  
1984 to 2002



Source: Residex Pty Ltd and authors' analysis

Further, the loss of equity can lead to 'lock-in' effects that impede residential mobility (e.g., where the household can no longer obtain the down payment on a new dwelling and is excluded from alternative labour markets with superior income prospects) and 'lock-out' effects wherein the family is denied access to the refinance market (e.g., when declining property values prevent home owners paying off their current fixed-rate mortgage and capitalizing on falling interest rates through refinancing).

Given these findings, it is remarkable that residential real estate's risk properties receive so little attention. Whilst recognizing that home ownership is a costly undertaking, prospective purchasers place too much emphasis on the benefits of owning one's place of residence and the potential rewards associated with price appreciation. Nonetheless, two key facts regarding the variability of house prices are worthy of comment. First is its scale: by any reasonable measure real estate risk is of immense importance to the typical owner. Secondly, this hazard is multifaceted: there is no single statistic that adequately summarizes it. Instead, to appreciate the many dimensions of property price risk one must tell a complex story. In short:

- House values are volatile and positively related to labour market income;

- Most families are highly leveraged to real estate; and
- As noted previously, the dwelling is the dominant asset in the occupier's portfolio.

It should therefore come as no surprise that we have invested so much time and energy towards thinking about ways in which home owners can mitigate some of the most severe financial risks to which they are subject. Success in this endeavour could have significant implications for the welfare of many Australian households.

### 2.2.1.2 Ownership as a Constraint on Portfolio Choice

In Chapter 1.3 we learnt that the home ownership constraint precludes occupiers from divorcing their consumption and investment decisions and, as a consequence, greatly impedes life-cycle optimisation. We also noted that home equity is far and away the most valuable asset held by Australian families (excluding human capital). To reiterate, this is not because tying up the majority of one's money in housing is wonderful from an economic perspective, but rather because owner-occupation in the contemporary market is an all-or-nothing affair.

When simulating consumer behaviour, our models should strive to capture these stylised facts. That is, we need to account for a portfolio that is more representative of that held by the typical family. In the exercises that follow we therefore specify a fixed minimum proportion,  $\bar{m} \in (0,1]$ , of wealth that is locked up in the dweller's home. This restriction is derived supposing no change in the financing opportunity set, and parameterised using a range of values that anchor on the actual Australian environment. Obviously, the impact of the portfolio constraint will vary throughout the course of the life-cycle. It is, for instance, probable that younger and less affluent households will have few liquid assets outside of their residence. In contrast, wealthier cohorts will not be as troubled by these limitations on choice behaviour. Such heterogeneity in the financial circumstances of occupiers is crucial when it comes to estimating supply. Those who find home ownership an especially burdensome undertaking will presumably accept a higher cost of capital relative to those who are not as laden by liquidity constraints. Importantly, the supply of equity claims will depend on the distribution of these preferences rather than their average level.

## 2.2.2 The Mean-Variance Approach

Before we launch into the more complex CRRA analysis, it is useful to repeat some of the preliminary steps that we carried out when investigating the demand-side of the housing finance equation. In the context of consumer supply, we amend the mean-variance method of Section 2.1.2 and pose the question:

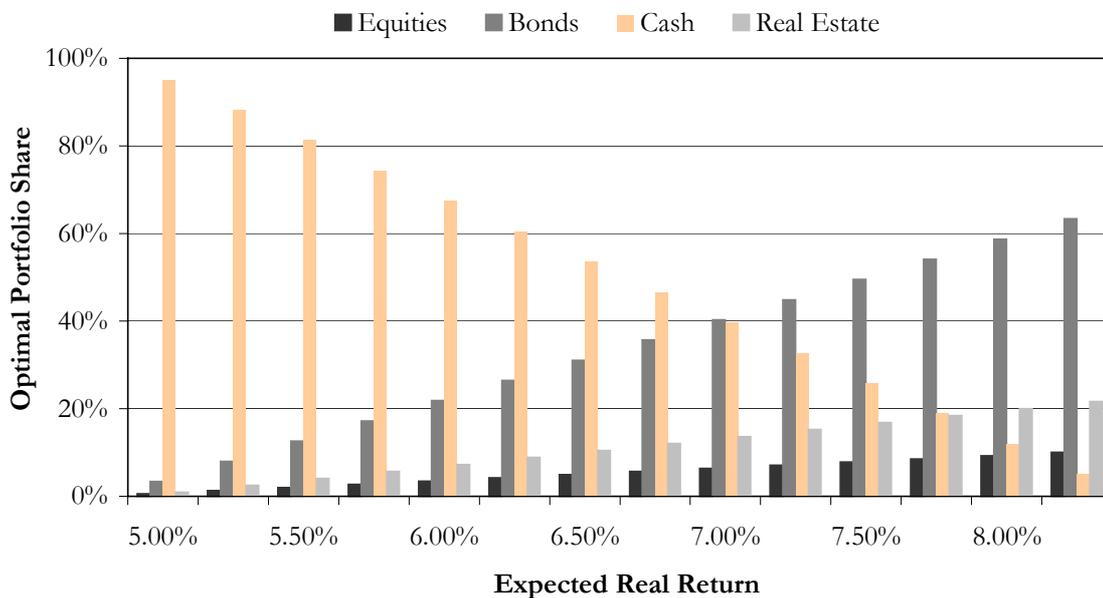
- You’ve heard us wax lyrical about how most people have too much money invested in their homes; but what is residential real estate’s ‘ideal’ portfolio weight in a financial sense?

Once again, we increase the variance of the national house price proxy by a factor of either four or six to approximate the individual occupier’s idiosyncratic exposure. We also inflate the dwelling’s rate of return to account for the exemption on capital gains tax (the latter of which is frequently used to justify the large amount of wealth invested in housing).

**Figure 34**

### Household's Optimal Portfolio Shares Using the Mean Variance Approach

Variance Factor Four, March 1984 to March 2002

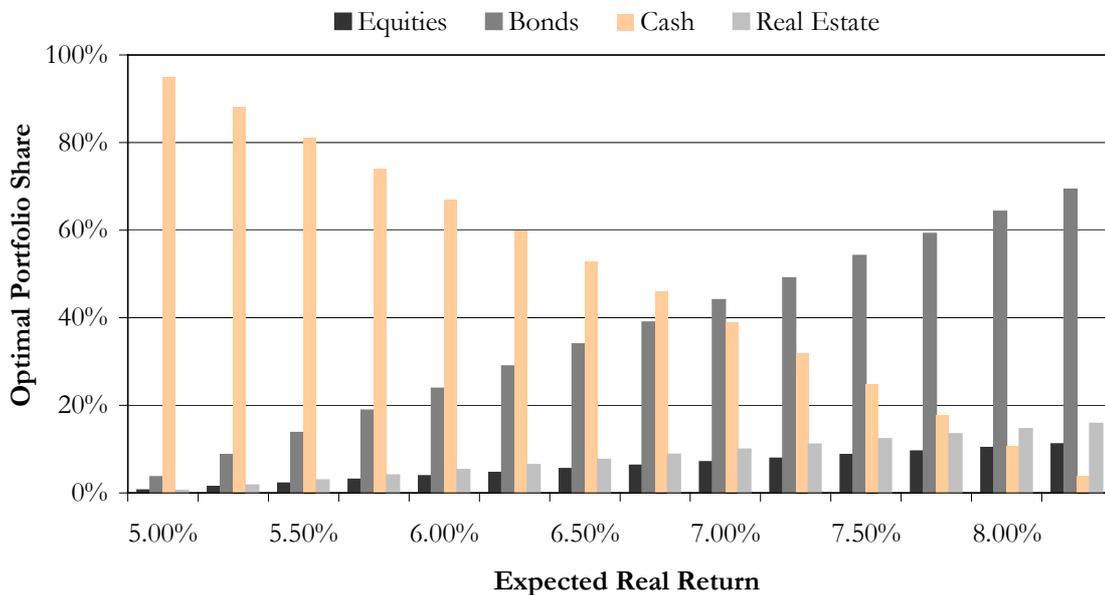


Source: Housing Industry Association, Global Financial Data, and authors’ analysis

Thereafter, it is a trivial matter to solve for the ‘optimal’ portfolio shares. Figures 34 and 35 (above and below) present the distribution of efficient asset weights according to the risk transformation used and the household’s expected return. The results are certainly revealing. Taking the mid-point of the return spectrum, our analysis

indicates that in an optimised multi-asset class world, the average household should only dedicate around 10 percent of its wealth to their home.<sup>134</sup> Of course, our sample period is not an especially favourable one, and it could therefore be the case that this is an excessively pessimistic interpretation. Yet irrespective of which way you slice and dice the data, it is almost impossible to rationalise—in the absence of indivisibility—the 60 percent portfolio weight that the vast majority of Australians impute to their property.

**Figure 35**  
**Household's Optimal Portfolio Shares Using the Mean Variance Approach**  
 Variance Factor Six March 1984 to March 2002



Source: Housing Industry Association, Global Financial Data, and authors' analysis

In light of this evidence, one might reasonably infer that consumers would enthusiastically entertain any opportunities to relax the all-or-nothing constraint and reduce their exposures to the risky housing asset. That is, there should be a strong desire to unlock the large chunks of wealth invested in the owner-occupied home, so as to improve their consumption and investment possibilities over the course of the life-cycle.

<sup>134</sup> Naturally this estimate would be somewhat higher were we to include the implicit rental stream, but certainly nothing like that which prevails in the current environment. Self-evidently, in the valuation exercises that follow the household does not trade the occupancy rights.

### 2.2.3 More Sophisticated Simulations

Having dealt with Markowitz's method, it is now time to get down to the serious business of developing the CRRA approach to evaluating the supply-side. In Section 2.1.3 we noted that the mean-variance technique is but a rudimentary approximation of consumer behaviour. It is therefore vital to the veracity of our insights that we use a more intricate representation of risk preferences. As before, we defer to the family of CRRA utility functions, which remain the profession's preferred description of decision-making under uncertainty.

In the ensuing experiments we compute the price,  $\bar{\pi} \in (0,1]$ , at which any given home owner would be willing to divest of rights to a fraction (viz., 50 percent) of their property's future sale proceeds. A specific household can be described by both their level of risk-aversion, and the minimum proportion of total wealth,  $\bar{m}$ , that they have invested in their home. As in the institutional analysis, the cost of equity finance is simply  $1 - \bar{\pi}$ .

Our simulations of the price at which occupiers will comfortably issue equity are broken down into three stages. In the first, we compute the consumer's welfare in the contemporary market. Subsequently, we estimate their utility in the alternative state of nature in which they are able to purvey home equity to external parties. In the final phase, we identify the unique price at which they feel indifferent between the opportunities available to them in the two markets. These calculations are described in turn.

#### 2.2.3.1 Consumer Welfare in the Current Market

To begin with, we assume that there is a universe consisting of the previously defined asset-classes, with the addition of individual house price realisations.<sup>135</sup> The parameters for the distribution are estimated from data covering the entire population period, March 1984 to March 2002, inclusive. Using a bootstrap technique, a sequence of  $K$  random draws is taken with replacement. This sampling procedure is repeated 1,000 times to generate the distribution of joint asset returns. A new restriction is, however, added to the set of possible portfolio shares. This is based on the need to occupy the whole of the home. We parameterise the constraint by specifying a fixed minimum

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<sup>135</sup> Note that we once again exclude the implicit rental stream because the household does trade the right to live in their home. Rather, the asset being exchanged is exclusively a financial concern.

proportion of the portfolio in housing,  $\bar{m} \in (0,1]$ , and characterize the set of feasible asset weights. Given this limit, we then iterate through all possible holdings in each of the  $K$  draws of multi-year returns described above. After completing this process, we will have computed the full distribution of plausible wealth outcomes for the individual in question at the end of the ten-year period.

In order to calculate the household's current welfare, we begin by specifying a level of risk-aversion,  $\bar{\gamma} \geq 0$ . With this in hand, it is a mechanical matter to search through the set of feasible wealth portfolios for the combination of assets that maximizes utility. Welfare in the contemporary environment is proxied by the level of expected utility associated with this optimal holding.<sup>136</sup>

### 2.2.3.2 Consumer Welfare in the Alternative Market as a Function of the Price Paid

In the section above, we determined the dweller's preferred exposure to non-housing assets subject to the portfolio constraint,  $\bar{m}$ . Multiplying these weights by their initial wealth gave the amount of capital that was optimally held in investments other than residential real estate. By construction, all of the consumer's remaining wealth was dedicated to the dwelling. In the next stage of the analysis, we suppose that the home owner decides to draw on equity finance. Specifically, they issue rights to a half share of the property's final sale proceeds to an institutional partner. The infusion of resources the household receives as a result of this exchange (which may be freely allocated among the other asset categories), depends exclusively on the price,  $\bar{\pi}$ , offered to them by the investor.

In technical terms, we pick a parameter  $\bar{\pi} \in (0,1]$ , and define the proportion of wealth,  $NR$ , that is available for investment in non-real estate holdings,

$$NR(\bar{m}, \bar{\pi}) = 1 - \bar{m} + \bar{\pi} \cdot (\bar{m}/2) = 1 - \bar{m} \cdot (1 - \bar{\pi} / 2).$$

This amount is then added to the liquid capital that was used in the portfolio selection problem of Section 2.2.3.1 above. We are now in a position to estimate the dweller's end-period wealth given any simulated price path, bearing in mind their reduced exposure to housing and the new capital that has been assigned to other investments. As before, we iterate through the grid of feasible asset weights and select the portfolio that optimises the expected utility of the wealth distribution. The home owner's welfare for any price,  $\bar{\pi}$ ,

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<sup>136</sup> Refer to Appendix 8.8 for a more thorough methodological explication.

is then the level of expected utility that arises from this idealised holding.<sup>137</sup>

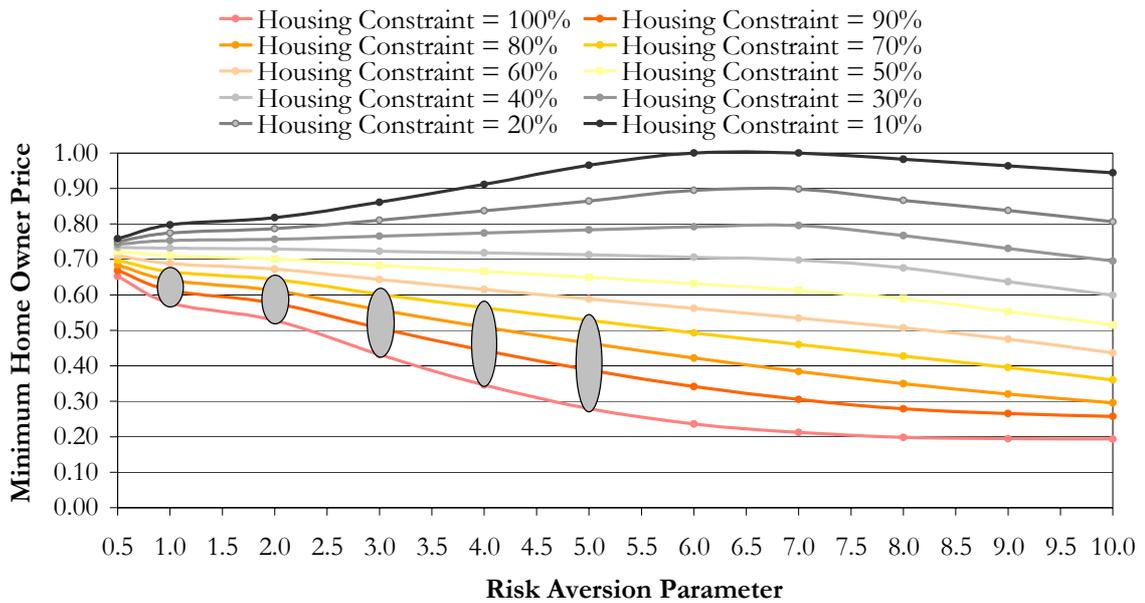
### 2.2.3.3 The Minimum Acceptable Price

The method above allows us to evaluate the consumer’s well-being in the two states of nature for any specified price. Note that household welfare in the market in which equity finance is available is strictly increasing in the price obtained for the second half of the home. Our objective is to compare the maximized utility in this situation with that which holds in the current environment. In fact, the minimum price acceptable to the occupier will be the unique value of the parameter,  $\bar{\pi}$ , that exactly equates their satisfaction in the two scenarios. This equilibrium value is graphed in the figure below as a function of both the dweller’s risk-aversion, and the amount of money they have invested in their home.

Figure 36

#### Home Owner’s Valuation of a Residual Stake in the Residence

Variance Factor Four, No Taxes



Source: Housing Industry Association, Global Financial Data, and authors’ analysis

The results demonstrate that home equity’s value in the consumer portfolio depends crucially on the magnitude of the liquidity constraints and the individual’s particular risk preferences. Assuming away taxes, it is apparent that for the average household (e.g., those

<sup>137</sup> Ibid.

with around 60 percent of all their wealth invested in the dwelling), a residual stake in the residence is not worth very much at all. If, for instance, we consider this constrained cohort of consumers, and use a (realistic) risk-aversion parameter of, say, four, we find that they only attach a value of 51 cents in the dollar to the second half of their property. If we increase the magnitude of the wealth restriction to 90 percent (100 percent), the occupier's valuation falls to just 44 (35) cents in the dollar. Furthermore, as their risk acuity (i.e., conservatism) rises, the price they are willing to accept continues to plummet.<sup>138</sup> On the other hand, the more affluent individuals clearly impute higher valuations to real estate exposures, since these represent a much smaller fraction of their total portfolio. Yet even if we consider a comparatively wealthy family, with, say, only 40 percent of their capital committed to the residence, pre-tax valuations are still way below market. Again, taking a risk-aversion parameter of four, these households would be prepared to issue equity to an outside party at a price of 72 cents in the dollar. Now does that sound like an attractive commercial opportunity? We think so. Intriguingly, the valuation that such well-to-do individuals place on the second half of their home is positively related to risk-aversion (up to a threshold point). Thus, as their conservatism rises the asset's diversification properties come to be more highly prized. This reflects the fact that they did not have significant exposures to real estate in the first instance. At more extreme degrees of risk-aversion however, the equilibrium price falls as the variability of returns becomes too much for them to take. In contrast, consumers who already have most of their wealth invested in their dwelling perceive it to be a liability even after accounting for its attractive covariance qualities (hence valuations always decline as a function of conservatism).

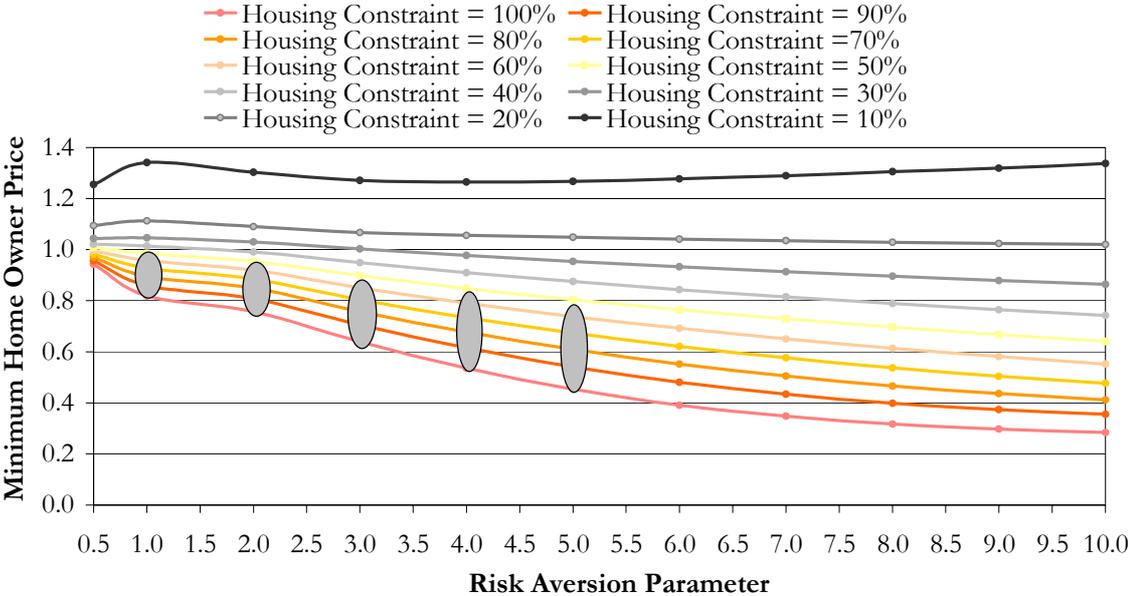
But what of the more realistic case in which the owner-occupied property is not subject to capital gains tax? Figure 37 below recomputes the analysis assuming that a 30 percent charge is levied on all assets except residential property. The tax advantages afforded to housing obviously elevate its appeal relative to other investment categories, with a marked upward shift in the distribution of minimum prices. Yet in spite of this effect, most Australian home owners would still accept a discount in the order of 25 percent when accessing equity finance (assuming a risk aversion parameter of four and a housing constraint between 60 percent and 70 percent). These

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<sup>138</sup> This is because the household's willingness to tolerate the uncertainty associated with future price paths diminishes as we move along the x-axis. Interestingly, the converse is also true: households with very low levels of risk aversion (equal to say 0.5) are not as bothered by the price variability implicit in the individual home, and so place a relatively large value on real estate realisations.

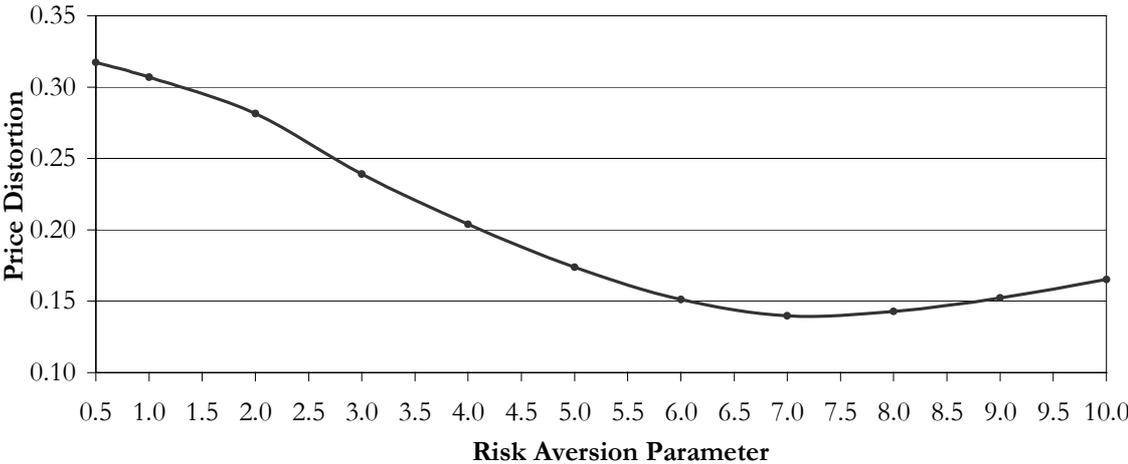
findings are encouraging, since they allude to nontrivial gains from trade.

**Figure 37**  
**Home Owner's Valuation of a Residual Stake in the Residence**  
 Variance Factor Four, Taxes



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 38**  
**Price Distortion Induced by Capital Gains Tax Exemption**  
 Variance Factor Four, Average Across Housing Constraints



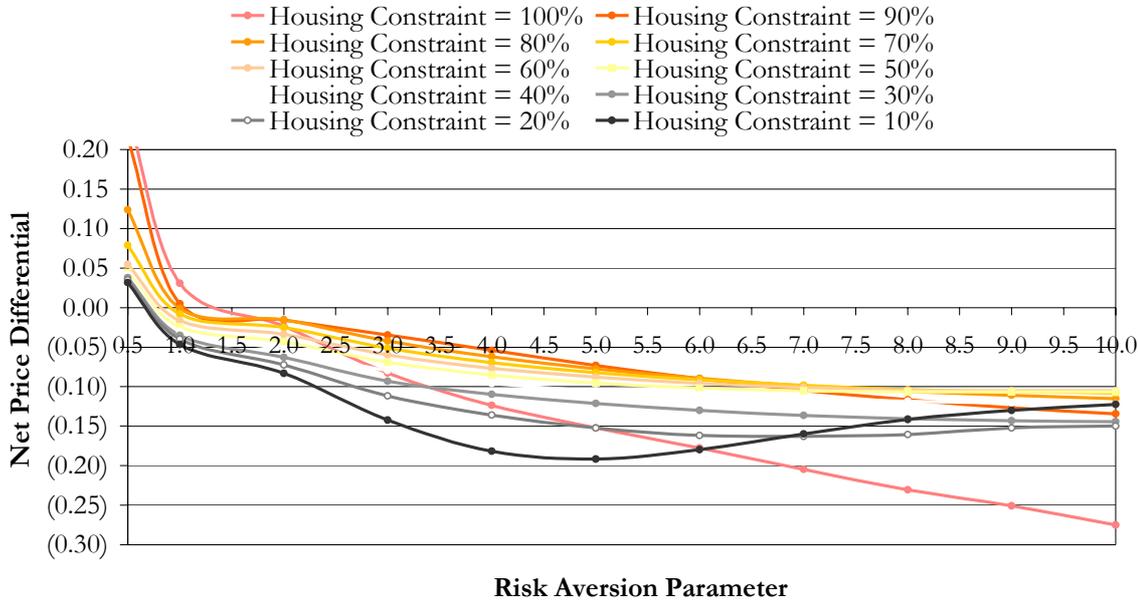
Source: Housing Industry Association, Global Financial Data, and authors' analysis

In Figure 38 above, we quantify the impact of this distortion, which decreases as a curvilinear function of risk-aversion. Accordingly, it would seem that residential real estate’s tax exemption has less of an influence on the more cautious members of the community. That is to say, these individuals remain unperturbed by changes in raw performance—they are much more concerned with the second moment; that is, the standard deviation of expected outcomes.

The experiments above also beg the question as to what influence changes in idiosyncratic risk have on consumer perceptions of the value of their property. In the next chart, we endeavour to shed some light on this matter by contrasting the price paths that result when amplifying the index variance by a factor of four (as in the preceding analysis) and six. Specifically, we subtract the former from the latter to calculate the net difference. It is fascinating to observe that as we increase price variability, risk-indifferent individuals respond by placing an even higher value on a fractional equity interest in their residence. This is analogous to the way in which the price of a call option is positively related to volatility. As uncertainty grows, so too does the probability that there will be an increase (or decrease) in the value of the occupier’s property. In view of such, owners are less willing to part with claims to the future sale proceeds.

Figure 39

**Comparison of Variance Transformation Factors Four and Six**  
 Net Differential (Factor Four less Factor Six), Taxes



Source: Housing Industry Association, Global Financial Data, and authors’ analysis

Here there is also a subtle interaction with the housing constraint. Note that for any given level of risk-aversion, there may be an asymmetric response to a rise in price variability, depending on how much wealth one has invested in the home (as we alluded to earlier). Nevertheless, for the majority of Australian families, an increase in volatility is a palpably undesirable outcome, and they react by reducing the minimum price that is acceptable to them. For a household with 60 percent of all their wealth invested in the dwelling, and with a risk-aversion parameter equal to, say, four, there is a 13 percent decline in the equilibrium value as we move from one variance transformation to the other.

#### 2.2.4 Summary

Our investigation of the individual's willingness to issue equity claims revealed that critical assumptions with respect to the extent of the investment restrictions, price volatility, risk-aversion, and taxes exert a striking influence on the occupier's estimate of the value of the second half of their home. More generally though, our simulations showed that there would be a great many individuals who would happily accept a cost of equity capital of around 30 percent to 40 percent. Significantly, this is less than the contemporaneous price that institutions would be prepared to offer, as documented in Section 2.1.3. Notwithstanding these insights, our conclusions do condition on the accuracy of the aforesaid methodology. In this regard, we believe that additional information could be secured through a somewhat more tailored approach. Future research should seek to expand the sample horizon; relax the holding period assumptions; develop a richer model of price and labour income risk; introduce time-dependent contractual structures; and, more comprehensively control for liquidity constraints.

We believe that once these modifications have been made, the gains from trade (which we touch on shortly) are likely to grow even further. In particular, it is our opinion that we have materially underestimated the risks to which home owners are subject, while the present techniques do not in any way account for the complexities that characterise the household's consumption-allocation problem. With respect to the latter, our simulations impose the onerous restriction that all funds liberated must be immediately reinvested in a diversified portfolio that has to be held for the same period of the time as the property. From the dweller's perspective, this may be regarded as an exceedingly objectionable limitation in numerous instances of great practical importance.

For example, cash-constrained incumbents would doubtless prefer to spend any surplus capital on current consumption rather than having

to wait until the end of a fixed ten-year term. They would therefore attach considerable value to the introduction of a more flexible pricing scheme, and in this context accept an even higher cost of capital. In the same vein, the asset rich yet cash poor elderly would presumably impute great value to an expanded universe of consumption possibilities, since they derive little benefit from payoffs in the future. The absence of outlets through which older owners can ameliorate the economic hardships to which they are exposed would only serve to increase the appeal of these opportunities. While on the one hand aged individuals display a distinct aversion to the idea of selling their dwelling, it is, on the other, virtually impossible for them to convert their home equity into current income.<sup>139</sup> The instruments that do exist, such as reverse mortgages and the like, have met with scant success (see Appendix 8.2). Importantly, any economist worth her salt will tell you that these facts run contrary to the predictions of the prevailing life-cycle model (wherein households are meant to be spending accumulated assets as they grow older). That is to say, they should, in the professional lexicon, be reducing housing consumption, not increasing it!<sup>140</sup>

Even in the middle years of the life-cycle, the extent of occupiers' use of home equity for consumption purposes is not known. In fact, the inherent illiquidity of housing wealth appears to have persuaded many economists to ignore it altogether when evaluating agent behaviour. This is reflected in econometric models of the household's optimisation problem, wherein there is a long tradition of excluding real estate from estimates of the assets that are available for consumption and investment. The financial advisory community also seems to have toed this line. In his first rate book on wealth management, Harold Evensky makes practically no mention of the role of the owner-occupied residence, treating it as off limits as a resource when planning future expenditures (see Evensky (1996)).

Perhaps the most liquidity constrained cohort are however young, low-income aspirants. Members of this ilk confront a tsunami of obstacles—such as their creditworthiness, their ability to service loan

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<sup>139</sup> Venti and Wise ((2000) and (2001)) find that aged dwellers prefer not to sell their homes and thus accumulate equity almost until the point of death.

<sup>140</sup> Of course, life is somewhat more complex than these comments would seem to suggest. First, academics have documented a deep-seated sentimental attachment to one's own residence and the surrounding neighbourhood (see Curry et al. (2001)). Second, home ownership is an important hedge against both future changes in the value of real estate and rental prices (see Sinai and Souleles (2001)). Finally, the owner-occupied property often receives favourable treatment under asset-based means tested pension programs. As such, there may be some sound psychological and economic reasons as to why elderly dwellers demonstrate a reluctance to sell their homes (see also Skinner (1993)).

repayments, and the supply of sufficient collateral—when trying to purchase a property. Use of equity finance may be the only way in which they will be able to afford to acquire a home of their own in the near to medium term. First-time buyers might as a consequence be prepared to accept prices that are lower than that which we previously calculated.

Substantive cross-sectional variation in dweller preferences could also have implications for the functioning of the primary market. It is, for instance, easy to envisage different types of products being offered to individuals at various stages of the life-cycle (see also Chapter 2.4). New home owners might opt for a structure in which there is no up front discount to par (thereby circumventing concerns about the deposit gap), but rather an attribution of a larger proportion of the property's price appreciation. Conversely, many senior citizens may decide that they prefer a fixed cost of finance, in which their obligations to the institutional partner are somewhat better defined.

The key takeaway here is simply that there is massive heterogeneity on the consumer side of the housing finance market. And given that there are grounds to believe the cost of capital will be less than that which we have estimated to date, the safest approach may be to draw a cloud of uncertainty around the valuation lines presented in Figures 36 and 37 above.

In spite of these idiosyncrasies, our simulations suggest that there will be issuance of equity capital at even very large discounts. When combined with the results of Section 2.1.3, this points to a wide range of prices at which significant levels of demand and supply could materialize. How this all plays out in equilibrium is the question to which we now turn.

## 2.3 Equilibrium Analysis

In what follows, we take the obvious next step by matching the institutional demand and household supply curves in an effort to study equilibrium in the market for equity finance. Specifically, we try to determine the price that dwellers will in all probability collect when divesting of a stake in their residence. That is to say:

- In equilibrium, how much will the household receive in exchange for each percentage point of the sales proceeds that they offer to the investor?

All other things being equal, we find that a price in the order of 75 percent of the property's appraised value would be acceptable to both parties, and should give rise to a large volume of trade in the primary market.

Technically speaking, our answer to the question above employs 'partial equilibrium analysis', which is the study of a market for a commodity in isolation. Although we explore the intersection of the supply and demand curves, we exclude all other consumption and production accounts and assume no change in the real estate return generating process. Indirect feedback effects invoked via the introduction of equity finance have not therefore been considered. The latter would require a system of 'general equilibrium analysis', which is clearly beyond the scope of our current responsibilities.<sup>141</sup> The fact that we do not attempt to capture feedback effects between the emergence of equity finance and equilibrium returns may imply that our analysis is 'too simple'. But far from finding our methods straightforward, we fear that many will think that we are engaging in over-kill. Most investment analysts worth their weight in gold could price these instruments based on an appraisal of the discounted stream of future cash flows. We describe just such an approach in Section 2.3.1, since it affords our first guess as to the ultimate pattern of trade. According to this admittedly 'rough and ready' technique, financial market participants would value the securitised pools at between 90 and 120 cents on the dollar.

Section 2.3.2 offers a more formal economic analysis in which we bring together the demand and supply curves to obtain a picture of the market's (partial) equilibrium. As an intermediary step, we have to translate the estimates of demand in Section 2.1.3 into terms relevant to the householder experiments. In particular, we ask what proportion of claims against future sales of the entire housing stock would institutions be willing to own at a range of different prices. Having completed this procedure, we are then able to assess the two sides of the market on a like-for-like basis, comparing the number of dwellers who wish to issue equity with the quantum of housing in which institutions would comfortably invest.

Our evaluation of the relationship between demand and supply at various financing levels enables us to provide a more precise quantification of the gains from trade. The results once again lend

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<sup>141</sup> Alfred Marshall and Léon Walras are respectively credited with having founded these two techniques. It is also worthwhile stating here that economists have only a very naïve understanding of how best to model the interaction between the housing and housing finance markets.

credibility to the claim that investors would be prepared to pay prices that are acceptable to many consumers.

### 2.3.1 The Investment Analyst's Approach

In this section we take off our academic hats and step into the shoes of your average investment research analyst (doubtless some of you out there will think that we are not capable of this metamorphosis). The objective here is to use standard valuation techniques to arrive at a ballpark estimate of the market pricing of these instruments. To begin with, we assume that:

- At the fully securitized portfolio level, one diversifies away all of the idiosyncratic risks associated with the timing of individual tenure;
- Large pools of home equity contracts would be characterized by very steady streams of future cash flows, the incidence of which one could easily predict; and,
- The real uncertainty lies in the forecast size of those flows, which would depend to a significant degree on systemic factors of a demographic and macroeconomic nature.<sup>142</sup>

While Chapter 3.2 sketches out a much more detailed vision of the architecture of the primary and secondary markets, it is helpful to briefly outline a few of the characteristics here. At origination, the institutional partner would own an investment with attractive return properties but an uncertain maturity. It would also be subject to considerable liquidity constraints while at the same time eager to initiate a new round of financing. Accordingly, one of the originator's immediate concerns would be to dispose of these contracts at a reasonable price so that it can obtain fresh capital with which to purvey equity finance. This is, of course, analogous to the situation faced by many non-bank lenders in Australia.

To facilitate the recycling of funds between home owners, originators, and investors, we would recommend the establishment of an over-the-counter (OTC) trading platform, with the secondary market for mortgage-backed securities used as a model. In short, we envision a market-making entity acquiring individual contracts, bundling them into a 'special purpose vehicle', which we refer to here as an

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<sup>142</sup> These might include, among others, labour market demand, interest rates, consumer sentiment, changing population structures, and the accessibility of regional amenities.

‘Enhanced Real Estate Fund’ (EREF), and issuing shares on the underlying baskets.<sup>143</sup> The specialist might then choose to split up the EREFs into geographic pools (such as by region, state or post code) or along a variety of other dimensions. The composition of the portfolios would depend on the desires of the institutional holders of the fund shares and on any pertinent guidelines provided by policymakers.<sup>144</sup>

To place the valuation implications of this opportunity in perspective, consider the following example. A large, vertically integrated originator (i.e., one that purveys, packages and administrates the assets), acquires, say, 2,500 home equity contracts in Central North Sydney. This is based on the assumption that only 2.5 percent of the 101,398 privately owned households in the area demonstrate a discernable interest in the product. We also suppose that the average total finance to value ratio is 80 percent, and for simplicity’s sake assume that dwellers settle on a 70:30 debt-equity split. Since the median established house price in Sydney is around \$550,000, the individual stakes can be valued at \$132,000.<sup>145</sup> In turn, this suggests that our securitized Central North Sydney EREF would be worth approximately \$330 million in fair market value terms.

Now we know that the incidence of the future cash flows depends on the turnover of the underlying assets, and hence average tenure times. Here it is instructive to note that the influence of equity finance on residential mobility is very much an open question. In reality, the rudimentary structure described to date has been used for indicative purposes only, and we feel it is unlikely to be deployed in a practical sense. A more salient suite of state- and time-dependent contracts is described in Chapter 2.4. In the event that these products were to be used, it is not immediately obvious to us that they would distort preferences with respect to the date of divestiture. It could, for instance, be the case that equity finance truncates tenure times by relaxing the dweller’s debt-servicing obligations and reducing their exposures to the risky housing asset.<sup>146</sup> On the other hand, the cost of

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<sup>143</sup> This would be similar to a ‘pass-through security’ in which a securitized vehicle sells shares in a portfolio of pooled assets to outside investors. Ownership of the underlying is then transferred to the new parties.

<sup>144</sup> Throughout this process, the owner-occupier would remain oblivious to the equitisation of the originator’s interest, and moreover, the ultimate change in the beneficial owner.

<sup>145</sup> This figure was sourced from the Housing Industry Association as at December 2002.

<sup>146</sup> Professor Ian Harper, Dean of Melbourne Business School, comments, “[Equity finance] arrangements will loosen the current connection between labour income

capital is, under this particular arrangement, inversely related to the occupation time, and it might therefore motivate home owners to remain in the residence for longer than would have been anticipated. In the broader scheme of things though, such arguments are academic, since the state-dependent contracts we ultimately advocate have little impact on sale date behaviour. Consequently, our valuation exercise assumes that tenure times remain at contemporary levels, with a mean and standard deviation of ten and three years, respectively.<sup>147</sup>

Our final task is to decide on a credible estimate of future capital growth. We once again defer to the CBA/HIA price series, which tells us that the nominal value of the average established dwelling in Sydney has risen by 11.1 percent per annum since March 1984. Although this is a conservative sample period, we nonetheless ‘hair-cut’ the base-case growth back to 10.0 percent to control for the inevitable uncertainty regarding the investment’s risk-return profile.<sup>148</sup> A discount rate of 9.5 percent is also used.<sup>149</sup>

There are three primary issues that one must address: (1) the cost of equity finance; (2) the price institutions would be willing to pay for a share in the securitized pool; and, (3) the gross bid-ask spread realised by the originating intermediary. With respect to the first, our simulated evidence indicates that a price of about 70 cents in the dollar would be sufficient to generate a large volume of trade in the primary market. But for those who doubt the veracity of this work, we have also surveyed consumers themselves (see Chapter 2.5). Around 30 percent of all renters responded that they would be interested in using equity finance when faced with a severe discount of 40 cents in the dollar. In spite of these findings, our valuation

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and the size, location and value of the house one owns and lives in. Suburbs will become less homogeneous. No longer will location connote income-earning power to the same extent. People who want to live in a particular location will have greater freedom to do so, since they will be less constrained by the need to service a large mortgage or accumulate substantial wealth before buying.” Submission to the Prime Minister’s Home Ownership Task Force, 21 January 2003 (one of the authors’ birthdays).

<sup>147</sup> While the distribution of trade times attributable to the repeat sales data used in Section 2.2.1 allude to a shorter 3.7 year horizon, this is almost certainly biased downwards by the presence of speculative investment holdings. Also, by definition these transactions occurred within an 18 year period, and hence longer tenure times have been excluded from the sample.

<sup>148</sup> Since there is not at present a secondary market for these contracts (although the managers of the issue may decide to make one), there might also be an illiquidity premium priced in.

<sup>149</sup> JB Were’s Property Investment Analyst, Nicholas Vrontas, kindly verified the integrity of these assumptions.

model supposes a mean cost of capital of 25 percent. The originating entity therefore outlays \$247.5 million for equity rights in 2,500 Central North Sydney homes, the ostensible worth of which is \$330 million.<sup>150</sup>

Now the critical question is: what value would savvy financial institutions impute to a fractional stake in the securitized EREF? Taking the assumptions articulated above, the table below provides a set of indicative prices that sensitise around the base-case parameters. The model implies a valuation range between \$301.1 million and \$396.2 million, with a mid-point of \$348.6 million (for a pure tax flow-through vehicle). These estimates are conservative insofar as they condition on a normally distributed sequence of cash flows, the apogee of which is not realised until the tenth year. It is, however, anticipated that innovative constituents will seek to smooth the portfolio's yield by way of an intertemporal redistribution of the earnings stream. (One solution here would be to use either an 'amortisation' or 'total return' swap.)

Table 18

		Indicative Valuation Range for a Securitized Central North Sydney Pool						
		Assumed Rate of Capital Growth						
Assumed Discount Rate		7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%
		8.0%	\$300.6m	\$329.8m	\$361.8m	\$396.8m	\$435.2m	\$477.3m
8.5%	\$287.1m	\$314.9m	\$345.3m	\$378.6m	\$415.2m	\$455.1m	\$498.9m	
9.0%	\$274.4m	\$300.8m	\$329.8m	\$361.5m	\$396.2m	\$434.1m	\$475.7m	
9.5%	\$262.3m	\$287.5m	\$315.0m	\$345.2m	\$378.2m	\$414.3m	\$453.8m	
10.0%	\$250.9m	\$274.9m	\$301.1m	\$329.8m	\$361.1m	\$395.5m	\$433.1m	
10.5%	\$240.1m	\$262.9m	\$287.8m	\$315.2m	\$345.0m	\$377.7m	\$413.4m	
11.0%	\$229.8m	\$251.5m	\$275.3m	\$301.3m	\$329.8m	\$360.9m	\$394.8m	

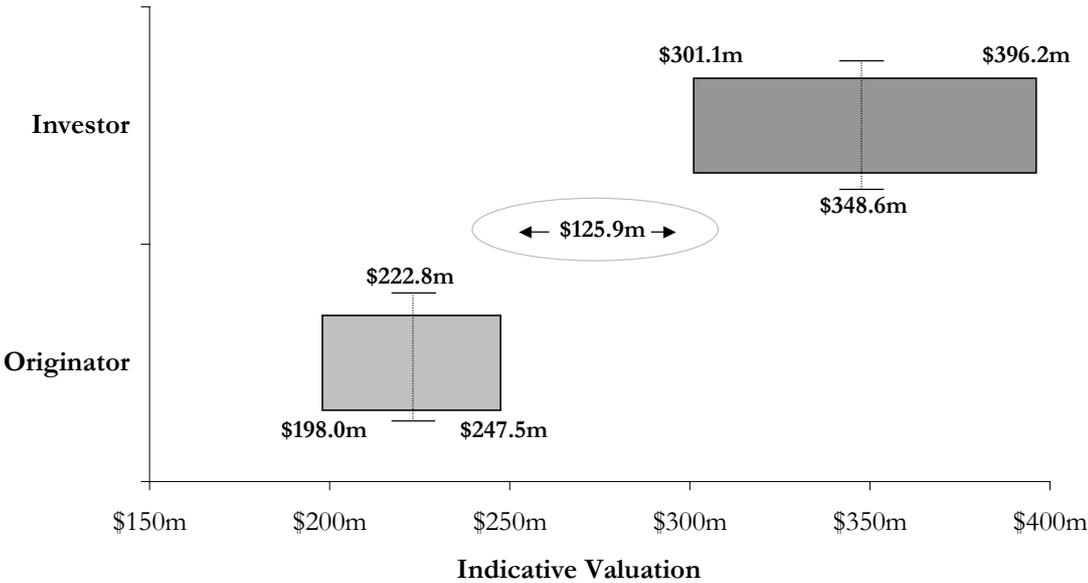
Source: Authors' analysis

What does this exercise tell us about the gains from trade? Well, at the very least it suggests that the advent of a secondary market in claims on home equity would present private sector participants with tremendous commercial opportunities. The following chart casts this latter point into stark relief. It shows that the originating intermediary's gross bid-ask spread (i.e., before all fees and expenses) is approximately \$125.9 million—a huge return by anyone's standards. This experience is akin to that of specialists in the US

<sup>150</sup> Recall that the equity component consists of 30 percent of the 80 percent total finance to value ratio.

secondary market (i.e., GNMA, FHLMC, and FNMA),<sup>151</sup> which rank among the most profitable entities on earth. To sum up then, the wider investor community would seem willing to pay a price of between 90 cents and 120 cents in the dollar in exchange for a share in the fully diversified EREF.

**Figure 40**  
**The Gains from Trade**  
 Securitized Central North Sydney Pool



Source: Authors' analysis

**2.3.2 But what about the Diversification Gains?**

Truth be known, the discounted cash flow approach is flawed because it ignores the gains that would normally accrue to

<sup>151</sup> The Government National Mortgage Association (GNMA or 'Ginnie Mae') is a wholly owned public corporation within the Department of Housing and Urban Development (HUD) that strives to expand opportunities for home ownership and affordable rental housing. In this context, it has a mandate to enhance the secondary market for Federal Housing Administration (FHA) insured and Department of Veterans Affairs (VA) guaranteed mortgages. GNMA securities are backed by the full faith and credit of the US government. The Federal Home Loan Mortgage Corporation (FHLMC or 'Freddie Mac') and the Federal National Mortgage Association (FNMA or 'Fannie Mae') are government-sponsored entities that complement GNMA by performing a similar function in the conventional mortgage market. Both are privately owned corporations listed on the New York Stock Exchange (NYSE). The US government 'explicitly' backs neither Freddie Mac nor Fannie Mae.

investments in home equity—that is, it does not account for the contribution of the asset category to the portfolio’s total risk and return. The most accurate way in which to compute residential real estate’s discount rate is to specify a family of utility functions, such as the constant relative risk-aversion formulation used in Sections 2.1.3 and 2.2.3 above. Accordingly, it should be of no surprise that we once again revisit this methodology in the analysis that follows.

In Section 2.2.3, we sought to identify the price that would be sufficient to compensate households for divesting of rights to 50 percent of their property’s future sale proceeds. Aggregating appropriately, we then derived the supply curve for equity finance. In this manner we were able to pin down the amount of capital that occupiers would willingly issue at any given price. Our estimates of institutional demand were however calculated in entirely different terms, and the immediate challenge is to translate these into a form that is more readily comparable to the supply-side experiments.

With this goal in mind, we ask what price would investors be prepared to pay in order to obtain some fixed proportion,  $\bar{q} \in [0, 0.5]$ , of the future returns to owner-occupied housing, treating as exogenous the actual distribution on all assets? (In this particular context, the upper bound is defined by the home owner’s desire to retain a 50 percent equity claim.)

Now the question remains as to how best to relate the value of  $q$  to the estimate of investor demand found in Section 2.1.3. In short, there are several parts to this process. To begin with, we consider a specific institution with a given risk-aversion parameter,  $\bar{\gamma} \geq 0$ , and calculate the weight it assigns to residential property at a par price,  $\bar{\pi} = 1$ . We denote this proportion  $R(\bar{\gamma}, 1) \in [0, 1]$ , where the second argument in the function corresponds to the assumption that there is no discount. Next, we compute the current value of all domestic real estate,  $H$ , and other asset holdings,  $NR$ . For any given share,  $\bar{q}$ , we then determine the quantum of home equity demanded by institutions at a par price, expressed as a proportion of the total value of the investible opportunity set (as before, the second argument reflects the fact that this is a costless form of finance),

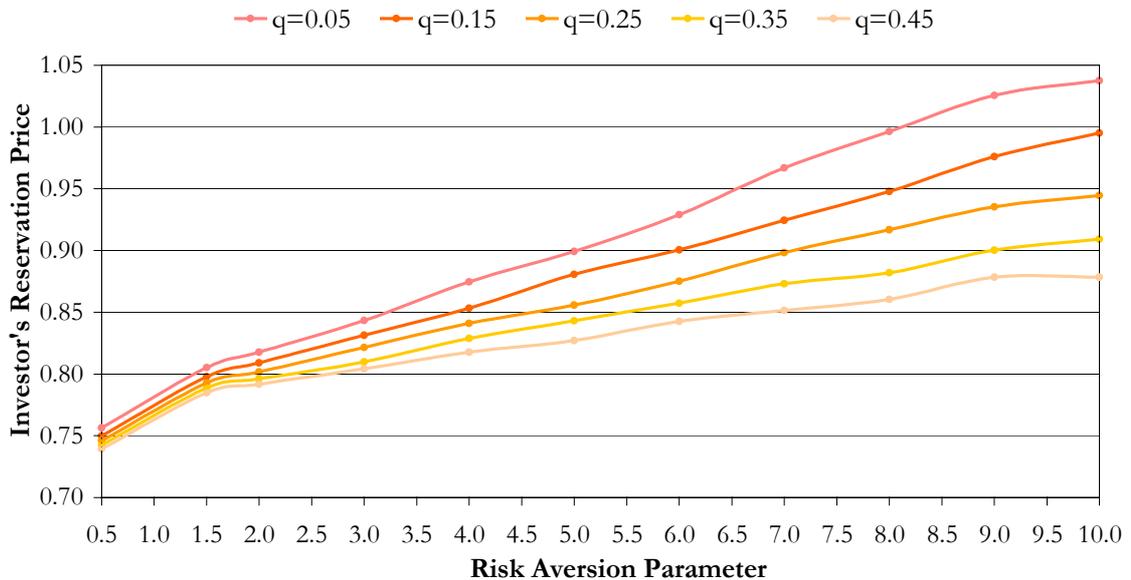
$$h(\bar{q}, 1) = \frac{\bar{q}H}{NR \boxplus \bar{q}H}.$$

In the third stage, we compare  $R(\bar{\gamma}, 1) \in [0, 1]$  with  $h(\bar{q}, 1)$ , and where the latter is larger (which it surely will be), we repeat the earlier steps using a lower price  $\bar{\pi} < 1$ , calculating the corresponding quantities

$R(\bar{\gamma}, \bar{\pi})$  and  $h(\bar{\gamma}, \bar{\pi})$  in exactly the same fashion. This procedure is iterated until the unique price,  $\hat{\pi}(\bar{\gamma}, \bar{q})$ , is found at which there is the equality,  $R(\bar{\gamma}, \hat{\pi}(\bar{\gamma}, \bar{q})) = h(\bar{q}, \hat{\pi}(\bar{\gamma}, \bar{q}))$ .

Figure 41 presents the results. More precisely, it illustrates the institution's reservation price for a wide range of risk-aversion parameters, and for a quantum of taxed assets that are at both the low and high end of the feasible spectrum.<sup>152</sup> To enhance the accuracy of the analysis, we have also assumed that owner-occupied housing represents 50 percent of the total investible universe, which is consistent with the findings of Table 9.

**Figure 41**  
**Institutional Investor's Valuation of a Residual Stake in the Residence**  
 Fixed Contract, Taxes



Source: Housing Industry Association, Global Financial Data, and authors' analysis

Notwithstanding the simple techniques used to derive these estimates, the order of magnitude involved is worthy of comment. Specifically, it would appear that for a representative risk-aversion parameter of, say, four, investors are willing to purchase limitless amounts of real estate equity, provided the price they pay is no higher than 87 cents in the dollar. Viewed differently, home owners should be able to issue vast sums of equity capital at a value which they would perceive to be extremely attractive (see Section 2.2.3).

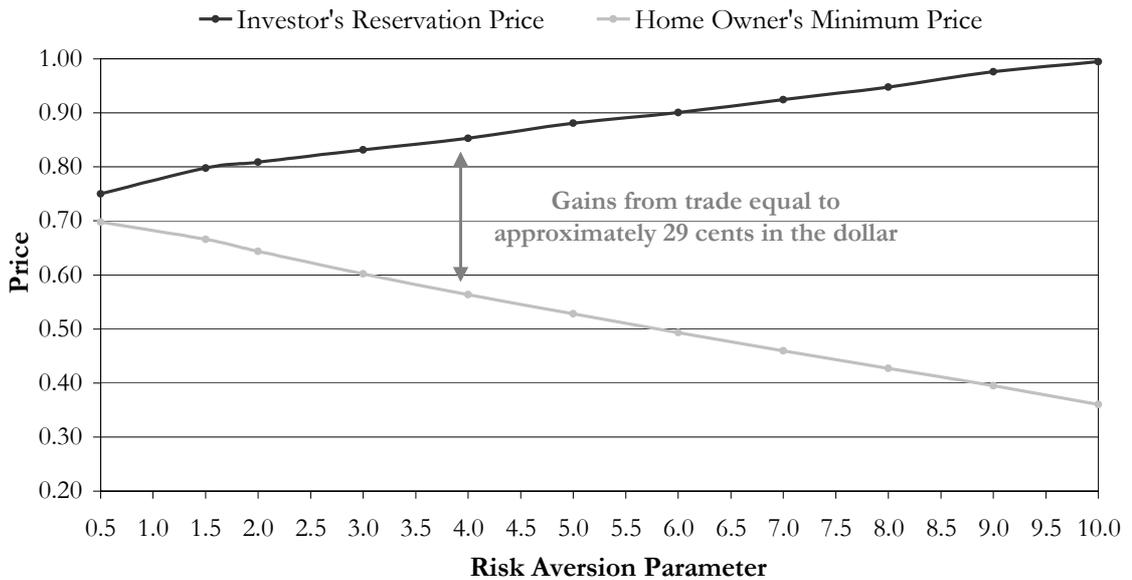
<sup>152</sup> A corporate tax of 30 percent has been levied on holdings of residential real estate.

While these results are encouraging, our experiments do not control for the more complex considerations associated with the general equilibrium effects of the innovation. It could, for instance, be the case that the introduction of equity finance alters the asset's overall risk-return profile. As such, our findings must be considered preliminary and are most relevant to a state in which the market is small (e.g., during the early days).

### 2.3.3 The Gains from Trade

Combining the conclusions of Section 2.2.3 on the household's propensity to supply with those immediately above on the investor's willingness to pay, demonstrates why there is a need for a market of this class. In general, the latter significantly exceeds the former, intimating towards tremendous gains from trade.

**Figure 42**  
**Comparison of Home Owner and Investor Valuations**  
 M=0.7, q=0.15, Variance Factor Six, No Taxes

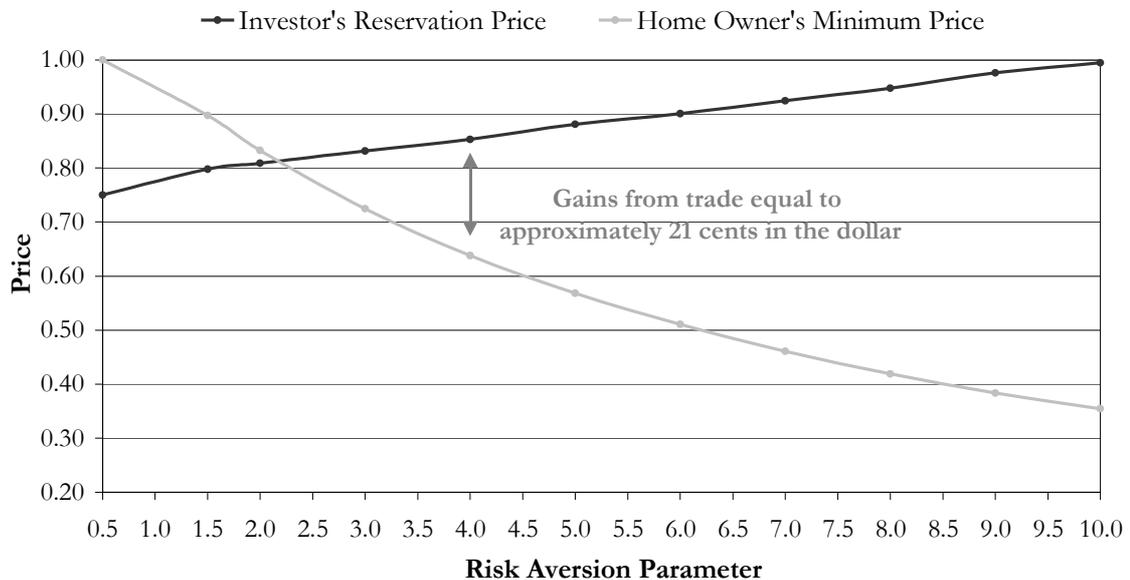


Source: Housing Industry Association, Global Financial Data, and authors' analysis

Figure 42 above depicts the implied wedge while abstracting away from taxes. On the consumer side, we plot the value of the second half of the home to a family constrained in the current market to hold 70 percent of its wealth in residential real estate. As we saw previously, risk-neutral occupiers' require a minimum price of  $\bar{\pi} = 0.70$ , while those more illustrative of the general populace would likely accept a much lower value of between 50 and 65 cents in the dollar. By way of contrast, we chart the price institutions' would be

prepared to pay for a 15 percent stake in all homes as a function of their risk-aversion. In comparison to the individual household, the investors' reservation price is positively related to risk-aversion. Indeed, it increases from a level of  $\bar{\pi} = 0.75$  for risk-indifferent entities through to  $\bar{\pi} = 1.00$  for those who are more cautious. On an untaxed basis, it is clear therefore that there exist profound gains from trade. When we focus on risk-aversion parameters in the 'normal' range, the valuation of this disjunction is between 15 and 30 cents in the dollar. Recall that these estimates are likely to be conservative, since we have not completely accounted for the heterogeneity in consumer preferences arising as a result of life-cycle liquidity constraints and the idiosyncratic price risk. Furthermore, the restrictions relating to the home owner's ex post capital allocation strategies make equity finance less attractive than one might otherwise suppose. In spite of these shortcomings, private sector participants still assign a price that is 53 percent higher than that which individuals impute when we employ a realistic risk-aversion parameter of four.

**Figure 43**  
**Comparison of Home Owner and Investor Valuations**  
 M=0.7, q=0.15, Variance Factor Six, Taxes



Source: Housing Industry Association, Global Financial Data, and authors' analysis

But what of the generous tax advantages afforded to owner-occupied housing?<sup>153</sup> Will these consume the gains from trade? Figure 43 above

<sup>153</sup> Professor Ian Harper, Dean of Melbourne Business School, comments, "Favourable tax and social security treatment of owner-occupied dwellings has directed too much investment capital into domestic real estate. This has two effects: (i) raising the cost of funds to business and/or increasing our reliance on foreign

shows that for those dwellers who are somewhat indifferent to the prospect of fluctuations in their wealth outcomes, the answer may be yes. On the other hand, for the more cautious amongst us, there is still a very attractive market to be made. While the capital gains tax exemption on residential real estate precipitates an upward shift in the household's minimum price, there remains a considerable valuation wedge of around 21 cents in the dollar for those individuals with an attitude towards uncertainty that is approximated by a risk aversion parameter of four. And so, the moral of this story is clear. If participants are willing to work together to develop primary markets in enhanced home equity, a considerable volume of trade should materialize at prices that are acceptable to many parties.

## 2.4 Contractual Refinements

The complexities that have the potential to encumber any relationship between two equity partners and, more precisely, the Byzantine concerns relating to optimal contracting (e.g., adverse selection and moral hazard), constitute one of the key intellectual conundrums that this project confronts. Can we effectively align the interests of the individual and the institution; or, put differently, does a natural Fisher separation theorem exist for shared-equity arrangements in private housing? Of course, this touches on the classic principal and agent problem (see Berle and Means (1932), Jensen and Meckling (1976), Leland and Pyle (1977), Harris and Raviv (1979), and Holmstrom (1979)).

As we have pointed out on several prior occasions, the simulations presented thus far conditioned on an unsophisticated structure in which a specific upfront investment gave rise to a fixed and somewhat larger slice of the property's ultimate sale price. Yet there are many other ways in which the cost of equity capital can be calibrated. In this chapter, we investigate a number of alternative

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capital inflow above the levels that would apply if investment in owner-occupied housing were less attractive; and (ii) inducing individuals to concentrate their investments too heavily in one asset class, raising the risk/return ratio above the efficient frontier. The Caplin/Joye scheme can help to redress the second of these two problems but the first will persist so long as housing is accorded favourable tax treatment. Non-neutral tax treatment of investment opportunities will continue to distort the efficient allocation of investable funds in Australia and lower the marginal efficiency of investment. Indeed, to the extent that the Caplin/Joye scheme increases the flow of funds to owner-occupied housing, the efficiency loss from distorted investment flows may actually increase. This would be offset to some extent by a more efficient risk/return trade-off to homeowners." Submission to the Prime Minister's Home Ownership Task Force, 21 January 2003.

approaches that directly deal with difficulties associated with adverse selection and moral hazard, and which enhance the commercial proposition from both parties' perspective. It will become apparent that the term 'equity finance' is but a euphemism for a rich portfolio of more refined product options, amongst which both sides of the market may select. Indeed, the moniker 'equity' may itself prove to be misplaced, with there being several different scythes that can be used to skin this cat. Perhaps the most compelling is a hybrid debt instrument that circumvents all of the complications inherent in co-ownership, while at the same time delivering an enormous boost to real estate's risk-return profile.

Before we begin, it is instructive to momentarily step to one side and reflect on the fact that the relationship between two equity partners may in many respects improve on the rather poor incentives that prevail between lender and borrower in the current mortgage market. Consider the following four examples:

- First, at point of purchase, buyers in the contemporary environment receive no real indications as to whether or not the price they are willing to pay is too high. In contrast, industry standards for valuation when using equity finance would be far superior, given the investor's interest in maximising the rate of return realised on the property.
- Second, in the present market, the preparation of one's home for sale, and the choice of agent with whom to list, are matters of profound uncertainty. There is literally no one that can be relied upon for objective guidance. To some extent, the investor would fill this void. Over time, we would expect them to develop a detailed understanding of the peculiarities of the sales process, and the ways in which one can elevate the appeal of a property. They would also gather together lists of preferred agents and contractors, whose performance would be vetted against competitors over time. At the end of the day, consumers should be supplied with important informational advantages as a result of their relationship with the institutional partner.<sup>154</sup>
- Third, when a household experiences mortgage payment difficulties, there is a period during which the lender may explore details of a 'work-out' designed to avoid the losses involved in bankruptcy and default. The investor would have

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<sup>154</sup> In extreme cases, in which the household is in a rush to sell the residence, the investor could step in and act as a market-maker, to ensure that the price realized at any 'fire sale' was not unacceptably low.

considerable knowledge of this process, and share an interest in preventing the residence from falling into disrepair. Their collaboration with the dweller could therefore help to attenuate the risk of a mortgagee sale.

- Fourth, under the terms of the agreement, the household must maintain its home in reasonable condition and not allow it to waste (see Chapter 3.3). They may be compensated for any improvements by way of an increase in their equity stake equal to the appraised impact of the change on the value of the property. This latter provision enhances the sophistication of the consumer's information set, and disciplines their decision-making process by dampening the incentive to overcapitalise—is that \$45,000 spa really a good idea? More generally, the act of entering into such an arrangement could immediately increase the value of the property on account of the market's perception of the occupier's enhanced duty of care.<sup>155</sup>

These advances in the relationship between the individual and the institution might be viewed as analogous to the changes brought about when a private company issues equity capital on a stock exchange. By virtue of dispersing the shareholder base, one ensures that a larger number of constituents are collectively working towards the same wealth maximisation objective. Now that should be a very good thing.

Having raised four general points about some of the less obvious implications of equity finance, let us now return to the desirable attributes of the contract design. In short, we can think of at least seven goals that should guide the engineering process, six of which are achievable via the use of more complex structures. Unfortunately, this brings us into conflict with the seventh objective, which is to maintain some semblance of simplicity. In order to illuminate the alternatives available to us—and the trade-offs implicit therein—we start by describing some of the most important product characteristics. Subsequently, we appraise the performance of two basic instruments against these criteria. This approach should enable us to highlight the key sensitivities that arise when trying to select

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<sup>155</sup> Of course, the standard Australian mortgage contract already imposes this style of constraint. In real property law, a principle known as the Doctrine of Waste stipulates that the mortgagor is obliged to maintain the residence and should not allow it to deteriorate. Upon ascertaining that the home is in a state of disrepair, the mortgagee can petition the courts to accelerate the debt and then make a motion to foreclose. The maintenance conditions of the equity finance agreement would not therefore be especially different to that which one encounters in the present market.

mechanisms that have a realistic chance of being accepted in the marketplace. Although we do have other ideas in mind that very much improve on these simple schemes, the further one progresses along the road to perfection, the more convoluted the contracts become. Where one chooses to stop on this path is a matter that will be decided not in the pages of this report, but rather in the years to come as our thoughts are refined over time.

### 2.4.1 Key Characteristics

It was evident in the analysis of Section 2.1.2 that the longer the property is occupied by the household, the less value there is to a fixed proportionate claim against its final sale price. This is because under a static structure, the cost of equity finance is a decreasing function of the home owner's habitation period. Accordingly, it makes sense to recompense the investor for this decay by way of some kind of growth in their claim against the property's value over time. A similar device is also needed to help ameliorate the potential for adverse selection. Unless the cost of capital is tied to tenure, those who intend to remain in the residence for more protracted horizons would naturally gravitate towards this form of finance. These long-period purchasers could come to dominate the market, making such opportunities economically unpalatable for private sector participants, or, in the event that the latter respond by raising the discount, intolerably expensive for those who wish to live in their homes for a shorter time. Just as high-risk candidates are more attracted to insurance at any given price, so too would these long-period purchasers be enamoured by the prospect of drawing on equity finance absent an adjustment to the pricing apparatus.

Prior to laying out the various models that would help one achieve the aforesaid aims, we present some vital economic criteria that should influence the shape any such scheme takes. These can be thought of as akin to the essential ingredients necessary to bake our new housing finance cake:

1. No Upfront Discount to Par

Are there any reasons why an institutional investor who contributes equity capital to the dwelling should not be immediately rewarded via rights to a larger claim on the property's future sale proceeds? We believe so. First, for the reasons articulated above, unconditional structures (i.e., ones which do not depend on time) have the potential to pervert the household's preferences with respect to the date of

divestiture—and to the detriment of their institutional partners. Second, it hardly seems fair to lump short-term occupiers with a cost of capital that is capitalised upfront. What happens if they decide to sell in, say, six month's time? The household is clearly in a worse position compared with their long horizon counterparts. Yet perhaps the most compelling explanation for avoiding an immediate discount relates to the likely impact of such on the workings of the mortgage market. Lenders would be acutely cognizant of the fact that dwellers who entered into these arrangements were about to suffer a nontrivial decline in the value of their collateral. Consequently, they may be motivated to impose more stringent credit restrictions on these households. And so, the advantages afforded by equity finance might be negated somewhat by the enlarged cost and reduced availability of mortgage debt.

## 2. No Mid-Stream Jumps

Even after the contract's inception date, any changes to the institution's claim should be gradual rather than abrupt and discrete. If for instance, the cost of equity finance were scheduled to experience a sudden jump at some future state, the outcome would be a severe and unnecessary distortion in the home owner's incentives regarding the date of divestiture. An intelligently designed scheme with a measured compensation structure would presumably go a long way to mitigating issues associated with adverse selection and the timing of tenure. Indeed, it should be possible to ensure that the dweller's incentives with respect to the sale date remain firmly intact—the cost of an elongated holding period being an implicit economic transfer to the institutional partner.

## 3. No Collateral Damage

The case against an increase in the investor's rights clearly hinges on our wish not to in any way impede the borrowing prospects of the occupier. This desire also has additional ramifications, and in particular highlights the importance of instruments that are engineered to avoid all forms of collateral damage. Even steady growth in the institution's share can impair the dweller's security if there is an appreciable decline in the value of their property.

- Consider a situation in which a financier contributes \$140,000 upfront in return for a 35 percent interest in a \$400,000 home. Suppose also that the household has taken out a \$208,000 fixed-rate mortgage to

finance 80 percent of the outstanding purchase costs. Now imagine that at some subsequent date the partner's share has expanded to 40 percent according to a predetermined pricing formula, while the property's value has weakened markedly to, say, \$300,000. At this stage, there is still \$195,000 of mortgage debt outstanding. And yet the occupier's claim on the equity is worth just \$192,000. They therefore find themselves with a loan-to-value ratio in excess of 100 percent.

Although the preceding example represents something of an extreme case, it is precisely the contingency that lenders worry about when contemplating the terms on which to purvey mortgage finance. One would expect them to be troubled by the notion that loan-to-value ratios could rise above agreed levels because of the household's decision to distribute equity to a third-party. In fact, this aversive future possibility might force originators to raise the minimum deposit required for home owners who enter into these arrangements. And so, the aspirational individual's access to housing finance could be hindered as a result.

#### 4. Insurance Features

The criterion above identified the need to design pricing schemes that avoid affecting the household's collateral in the face of a downturn in the market. One may, however, be able to do even better than this by developing a mechanism that actually protects dwellers against market-induced fluctuations in the value of their real estate holdings (see also Chapter 4.6). The provision of such 'insurance' would be of immense economic benefit to the occupier, and might also enable them to obtain credit on a relatively cheap basis. Lenders would almost certainly be willing to offer more attractive terms to households protected by equity finance with insurance-like attributes compared with acquirors in the present market (for whom no such risk-sharing opportunities exist). Indeed, the advent of instruments that eliminate a significant proportion of the downside price risk might obviate the need for classical insurance markets, along the lines of those proposed by Marcus and Taussig (1970), Miller, Sklarz, and Stedman (1988), Miller (1989), Gemmill (1990), Case, Shiller, and Weiss (1993), Englund, Hwang, and Quigley (2000), and Caplin and Joye (2002d)).

## 5. Strong Incentives

Any scheme that apportions capital gains between the two parties has the potential to weaken the home owner's maintenance incentives, and their willingness to time the date of divestiture so as to maximise the return realised on their real estate investment. As we note in Chapter 3.3, the proposed contract and property law provisions should be effective in overcoming most of these problems. It is also important to appreciate that consumers will continue to have a considerable proportion of all their wealth tied up in the dwelling asset. Nonetheless, the more closely one aligns the interests of the individual and the institution, the less need there will be for financial structures that compensate the latter for would-be neglect. In this respect, our objective is to ensure that the investor's marginal share of the value of the home does not increase above some threshold level of comfort at which the household's behaviour would start to change to the detriment of both stakeholders. Ideally, each marginal dollar that the occupier raises will be 'taxed' by the institution at a rate that is lower than the former's infra-marginal prices. Such a system has obvious advantages in terms of motivating the home owner to maintain and improve their property, and expend adequate effort on the sales process.

## 6. Inflation Neutrality

As we shall see shortly, a state-dependent pricing structure may have payoffs that are sensitive to the rate of inflation. To the extent that it is possible, any such nexus should be neutralized since it only serves to effect unfounded transfers (any price growth attributable to inflation bears no relation to the idiosyncratic performance of the property) and may adversely impact on consumer behaviour.

## 7. Simplicity

A final characteristic worthwhile advocating is simplicity. A more transparent and comprehensible contract would certainly help participants come to grips with their obligations under the terms of the agreement, and ensure that payments between the two parties remain beyond dispute. While some might argue that there is a trade-off between a product's palatability and its economic integrity, the converse may also be true; it is doubtlessly much easier to market and deploy simple structures than their more convoluted cousins!

So we now have in hand some tasty ingredients—but how best to bake our cake? After all, there is a veritable smorgasbord of possible permutations and combinations out there! In an effort to light the fires of your mind, we start off with two very straightforward time- and state-dependent dishes.

### 2.4.2 Time-Dependence

In a purely time-dependent world, the only factor influencing the investor's share of the final sale price is how long the dweller wishes to remain in his or her residence. Taking into account the first two criteria above, it would be preferable for the cost of finance to grow only slowly over time. And in light of the maintenance criterion, the institution's share of the appreciation should not exceed some upper bound (above which one is subject to moral hazard). The specific rate of change might be linear with time through to a cap, or proceed along a geometric path, starting gradually but increasing up until some maximum point. To take but one example:

- The institution supplies 30 percent of the capital up front. In return, their interest in the sale proceeds rises by 0.5 percent per annum for the first 10 years, 1.0 percent per annum for the next 25 years, and stays constant at 60 percent thereafter.

A time-dependent contract has the appealing feature of being neutral to inflation, since the investor receives the same rights regardless of how much general prices change. Furthermore, it addresses our reservations about the potential for adverse selection inherent in the static structure, whereby households are motivated to delay the time of sale in order to ease the cost of equity finance. On the other hand, the time-dependent mechanism has the displeasing property of doing damage to the lender's collateral. In a similar vein, it has no value as a means of insurance. Finally, the incentive characteristics are but 'middling'. It does not satisfy the ideal in which the investor realises a reduced fraction of the marginal, rather than the infra-marginal price appreciation, but neither does it suffer from the alternative case in which the institution's marginal sharing is higher than that of the average.<sup>156</sup>

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<sup>156</sup> More formally, this family of time-dependent instruments might be described by the assumptions:  $\pi(0) = 1$ , if sold immediately, there is no discount to par;  $\pi(t)$ , non-increasing in  $t$ , the longer the occupier remains in the residence, the larger the cost of finance; and,  $\pi(t) = \pi_{\min} > 0$ , the home owner's equity never falls below some threshold, sufficient to incentivize them to maintain their property in reasonable repair.

### 2.4.3 State-Dependence

The primary concern with the time-dependent structure sketched out above is that it has poor insurance qualities. It functions well if the real estate market booms, yet has the potential to exaggerate declines in collateral if prices fall. A superior solution in this context is to keep the average price the same, while introducing an insurance-like feature. This is exactly what we accomplish with a state-dependent contract, in which the cost of equity finance is low as property prices decline, but correspondingly higher when they rise. Mechanically, for each one percent of the initial purchase price the investor contributes, it might receive back this amount in addition to a disproportionately higher share of the appreciation and depreciation. Practically speaking, ‘shared appreciation’ arrangements of this kind could work as follows:

- The institution supplies 30 percent of the property’s current appraised value upfront in exchange for the original investment capital plus 60 percent of the future price appreciation or depreciation (unless the home falls in value by more than 50 percent, in which case they receive nothing).

This state-dependent contract performs very well according to the first four criteria enunciated above. There is never a discrete jump in the amount owed to the investor, and far from impairing the household’s collateral in poor market conditions, the shared appreciation mechanism engenders a valuable insurance service. A simple numerical example suffices to explain how these instruments mitigate the risks associated with price declines:

- Think of a dweller who enters into a state-dependent arrangement with an institutional partner. In particular, they purchase a \$400,000 property, \$120,000 of which is raised via equity finance. In return, the investor offers to assume 60 percent of the downside and upside price risk. Suppose also that the unit ultimately trades for just \$200,000. In this event, the value of the household’s collateral falls by a great deal less than the 50 percent collapse in the price of the property. Specifically, their home equity drops from \$280,000 to \$200,000, a net loss of under 30 percent. This is, to be sure, a much-improved position compared with that which the household would have encountered in the contemporary market.

These unique risk-sharing attributes could encourage lenders to offer better terms to those who capitalise on this form of finance, compared with others for whom no such opportunities are available.

Indeed, instead of placing further strain on the housing finance market when conditions deteriorate, this class of product is engineered to alleviate precisely these hazards. And so, the originators of debt capital should be in an even safer position relative to the current state of nature.

While state-dependent contracts are satisfying on many fronts, they do not perform as well as their time-dependent counterparts on criteria five and six. In particular, the instrument's incentive attributes are not especially impressive, since it consumes a larger proportion of the marginal (as opposed to the inframarginal) additions to price. Further, it is not insulated from the impact of inflation: if prices accelerate suddenly, the institutional partner may receive a nontrivial wealth transfer because the contract is couched in nominal, rather than real, terms.

#### 2.4.4 Richer Pricing Mechanisms

The simple time- and state-dependent cakes we baked above have complementary strengths and weaknesses: whereas the former has superior incentive properties, and is neutral with respect to inflation, the latter affords considerable advantages in relation to the preservation of the householder's collateral and risk-sharing in general. As such, even blind Freddy himself could whip up a portfolio of more exotic concoctions, perhaps embracing an amalgam of these two structures or the addition of some new features to further enhance product performance. In the next section, we outline a couple of alternatives (the reader should however note that this list is far from exhaustive).

Both of the contracts we describe below require that the ultimate payout to the occupier is structured in a somewhat more complex fashion. In particular, it becomes necessary to condition the dweller's return on the state of house prices in the area in which their specific property is located. Henceforth, we will assume that a high quality index of this sort is available.

##### 2.4.4.1 Amending the Time-Dependent Contract

The overriding concern with our time-contingent family of instruments is the absence of any interaction with changes in housing market conditions. The most acute illustration of this problem is where the growth in the implied debt to the investor threatens the value of the household's collateral. To safeguard against this eventuality, one can write down a simple pricing formula that relates the institution's rights over time to the dweller's home equity. The crudest such scheme would establish an upper bound by stipulating

that the growth in the investor's share cannot exceed the rate of change realised by the underlying price proxy. For instance:

- The financier offers 30 percent of the value of the house upfront. In exchange, its equity interest climbs by 0.5 percent per annum for the first 10 years, 1.0 percent per annum for the next 25, and remains at a constant 60 percent share thereafter. The caveat here is that these transfers must not precipitate any depreciation in the value of the home owner's collateral (based on the outstanding level of debt and changes in the relevant house price index) below its initial level on the date of the initiation of the first mortgage.

The example above clearly represents a vast improvement over the original instrument, particularly in relation to our third criterion; that is, the desire to ensure seamless interface with the mortgage market.

#### **2.4.4.2 Amending the State-Dependent Contract**

Recall that although our shared-appreciation product offered valuable insurance qualities, it also absorbed a significant slice of the property's future price changes, and thus diminished the household's incentive to engage in value maximising behaviour. The critical question here is therefore: how can one modify this arrangement so as to more closely align the interests of the two partners? One simple solution is to reduce the institution's share of any incremental appreciation over and above that delivered by a regional pricing proxy (e.g., a suburban house price index). This would reward the occupier for 'outperforming' his or her peers in a manner analogous to the way in which mutual fund managers are compensated when they deliver returns in excess of a benchmark like the All Ordinaries Index (see also Joye et al (2000d)). By way of illustration:

- The institution contributes 30 percent of the value of the property upfront in return for the original investment sum plus rights to twice the implied proportion of the future gains and losses. Their claim on any capital growth is, however, bounded by the performance of the local price proxy over the same period. For value increases above this level, the investor's (individual's) share of the appreciation falls (expands) to, say, 30 percent (70 percent).

These amendments to the state-dependent contract clearly engender a better system of governance insofar as the household now has a powerful incentive to manage their home in a manner that optimises the value of both parties' investment. In one sense, their institutional partner is saying: "listen buddy, if you dedicate a lot of time and effort

to looking after your home, and its performance at point of sale exceeds that of the average dwelling in your neighbourhood, then we will reward you richly (by way of a 100 percent increase in your rights to the capital gains over and above that realised by the relevant index).”

#### 2.4.5 Different Strokes

The contracts discussed above are but a sampling of the possibilities we have in mind, and we expect to see further refinements on both a pure research basis, and as the market practically develops. In addition, there is every reason to believe that different products will appeal to consumer segments at various phases of the life-cycle. Of course, the market’s appetite for such diversity will define the eventual range of opportunities that are offered to current and prospective home owners. This brings us back to an observation we made some time ago: at the end of the day, all we are trying to do is expand consumer choice and the universe of options available to Australian households. Equity finance is therefore just a free option exercisable at the discretion of occupiers. If for one reason or another you do not consider this to be an economically compelling product, then so be it. But do not deny your fellow folk the chance to make up their own minds. In fact, as you shall see shortly, a very significant proportion of aspirants believe that precisely this product would increase the likelihood of them owning a home (refer to Chapter 2.5). The key point here is that enhancing consumer choice is always a very good thing, and such an effort should not be denigrated in a quest to score cheap political points.<sup>157</sup>

One final point here. We have not explicitly detailed the legal form that these arrangements would likely take. In short, there are two conceivable trajectories: plain-vanilla equity or a more exotic debt hybrid. Chapters 3.3 and 3.4 examine both at some length. Here it suffices to say that while the first alternative invokes the spectre of formal co-ownership, and all of the thorny issues implicit therein, the second provides a simpler avenue through which one can achieve the same aims. Furthermore, there is a very important precedent for this latter alternative: the shared-appreciation mortgage, the history of which we reflect on in Part Three.

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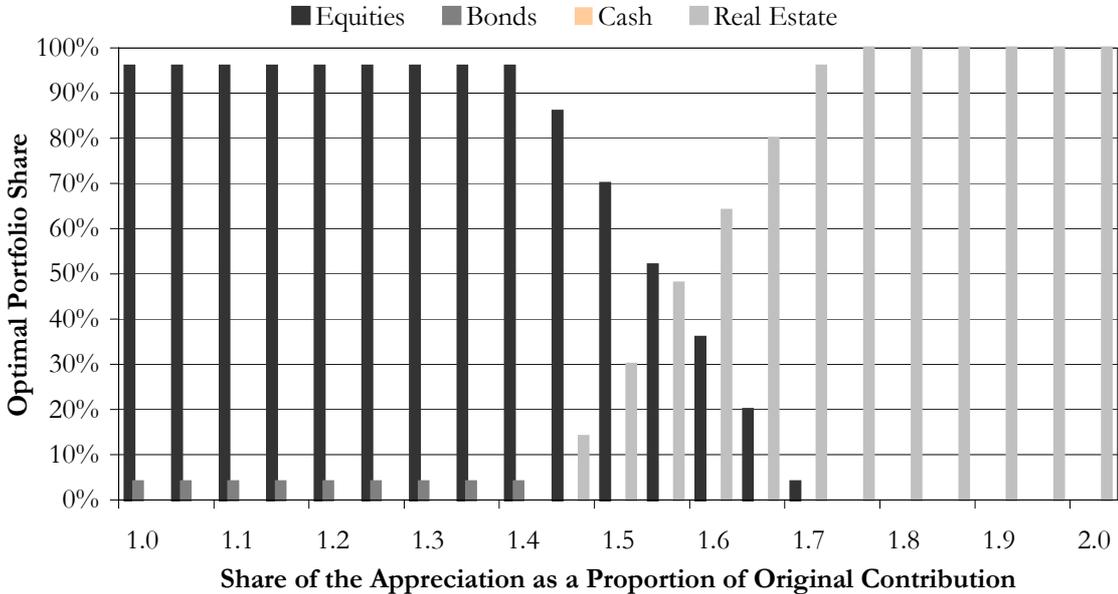
<sup>157</sup> One prominent journalist described this initiative as ‘loopy’, in spite of her knowledge of an open-letter authored by eleven of the world’s leading, and perhaps most importantly, independent, economists in support of our efforts (see also Appendix 8.12).

### 2.4.6 The State-Dependent Gains from Trade

In the next section, we explore how the contractual refinements discussed above would influence the gains from trade. Specifically, we suppose that a state-dependent structure is deployed in which institutions contribute some proportion of the value of the home up front in return for this original sum plus rights,  $S \geq 1$ , to the appreciation and the depreciation. The steps in Chapters 2.1, 2.2 and 2.3 are repeated with some minor amendments to reflect the instrument design. (Interested readers are referred to Appendices 8.7 through 8.12 for the detailed methodological exposition.) As before, we start by computing the estimates of investor demand, noting that our parameters have changed to reflect the state-dependent structure. In particular, we now plot the optimal portfolio shares as a function of the institution's rights to the appreciation,  $S_G$ , taking as given that it assumes an equiproportionate amount of the downside risk. Figures 44 through 47 illustrate the results using the same estimates of risk aversion that we presented earlier.

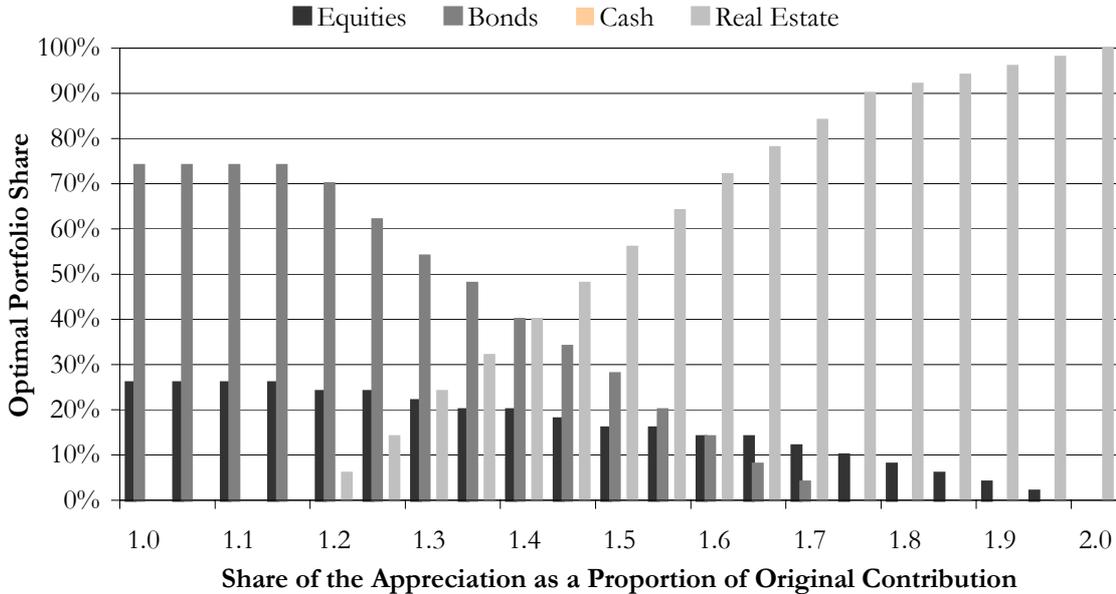
In short, the simulations suggest that any increase in the investor's claim to the capital gains over and above that to which it is ordinarily entitled (i.e.,  $S_G = 1$ ), gives rise to a tremendous portfolio bias towards home equity. For instance, if we take a risk-aversion parameter of 0.5 (4.0), and conservatively assume that  $S_G = 1.5$  (e.g., the institution contributes 30 percent of the value of the dwelling up front in exchange for rights to 45 percent of the price growth), then real estate's weight in the optimal holding is 39 percent (54 percent). If we assume that  $S_G = 2$ , which is more representative of the experience overseas (where  $S_G$  is typically equal to three times the original contribution), then the ideal weight increases to an extraordinary 100 percent (96 percent).

**Figure 44**  
**Institutional Investor Demand at a Proportion of the Price Appreciation**  
 State-Dependent Contract (Risk Aversion = 0.5), Untaxed



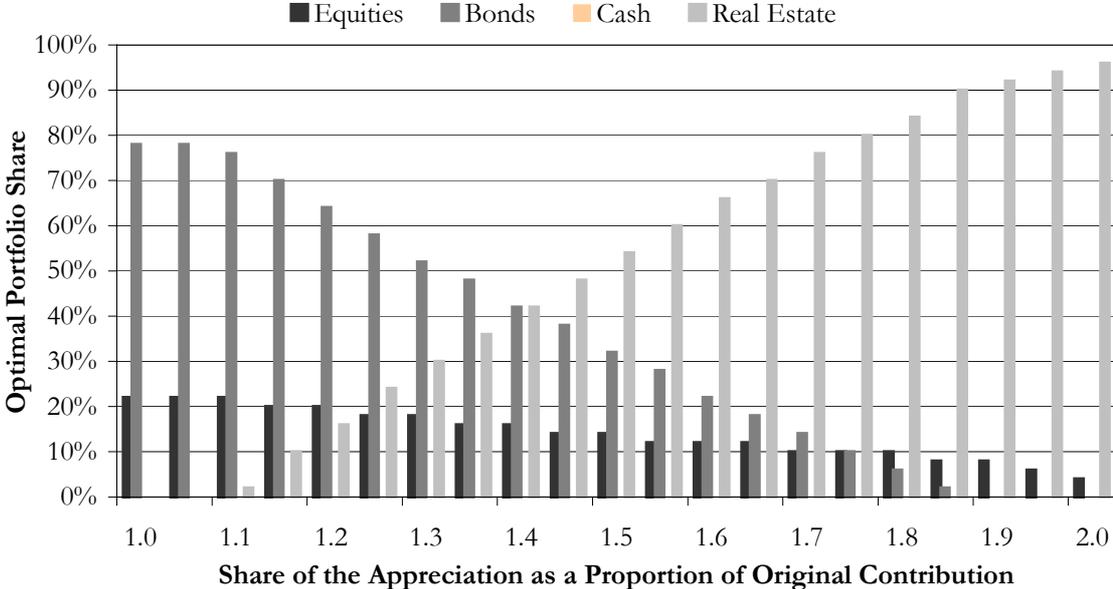
Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 45**  
**Institutional Investor Demand at a Proportion of the Price Appreciation**  
 State-Dependent Contract (Risk Aversion = 3.0), Untaxed



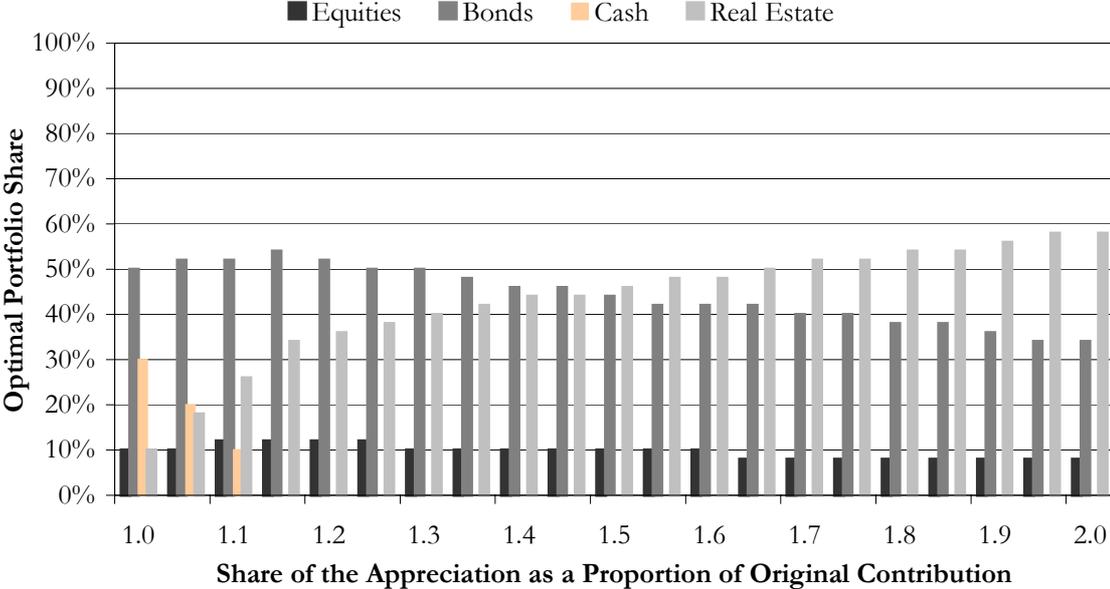
Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 46**  
**Institutional Investor Demand at a Proportion of the Price Appreciation**  
 State-Dependent Contract (Risk Aversion = 4.0), Untaxed



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 47**  
**Institutional Investor Demand at a Proportion of the Price Appreciation**  
 State-Dependent Contract (Risk Aversion = 10.0), Untaxed

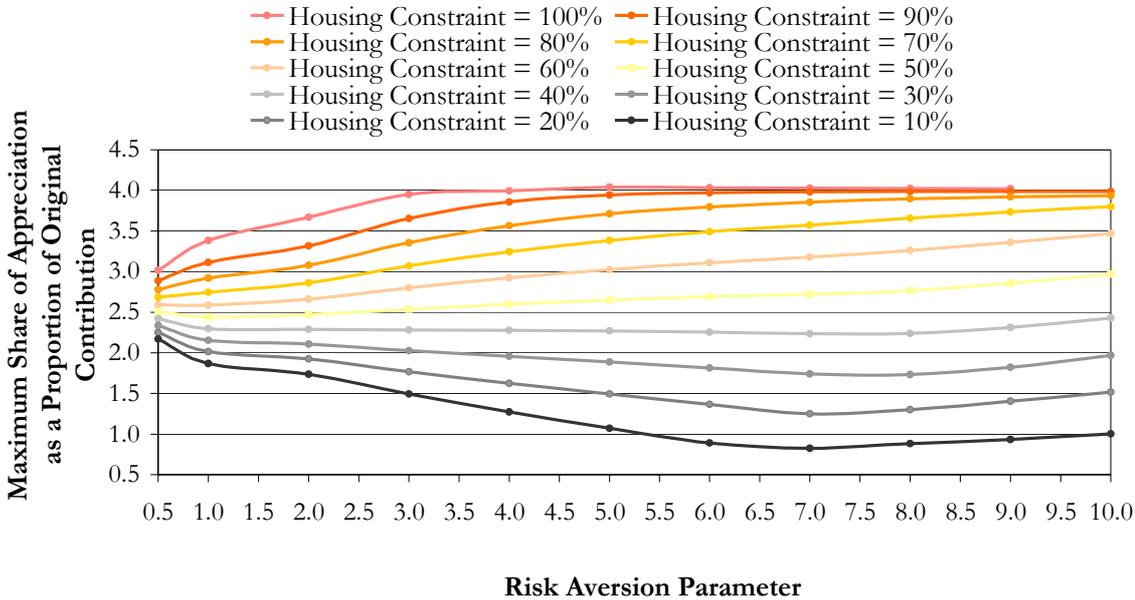


Source: Housing Industry Association, Global Financial Data, and authors' analysis

In line with our earlier experiments, we now turn to the supply-side of the equity finance equation and ask what proportion of the prospective price appreciation would consumers be willing to sacrifice in exchange for each percentage point of the value of the property? Adopting the same method as was applied in Section 2.2.3, Figure 48 plots the equilibrium share of the capital gains as a function of the individual’s risk aversion, abstracting away from taxes for the moment. The analysis indicates that occupiers with more than 50 percent of their wealth invested in the dwelling would be prepared to part with in excess of two and a half times the future capital gains in return for each dollar of equity finance raised. In contrast, those who do not have such a great stake in their homes place a higher relative value on real estate’s correlation properties. Accordingly, they are not willing to sacrifice a commensurate proportion of the price appreciation. Note though that for most levels of the constraint, the maximum share that households would happily forego lies far above that which institutions require. Hence, we are once again confronted with the prospect of compelling gains from trade.

Figure 48

**Home Owner’s Valuation of a Residual Stake in the Residence**  
 State-Dependent Contract, Variance Factor Four, No Taxes

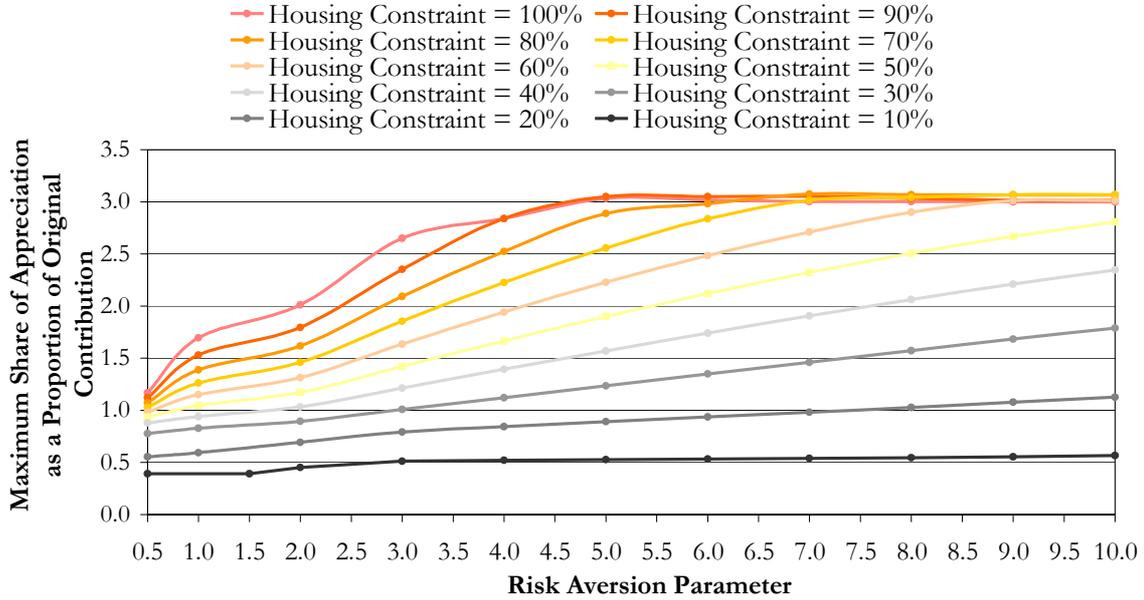


Source: Housing Industry Association, Global Financial Data, and authors’ analysis

Figure 49

Home Owner's Valuation of a Residual Stake in the Residence

State-Dependent Contract, Variance Factor Four, Taxes

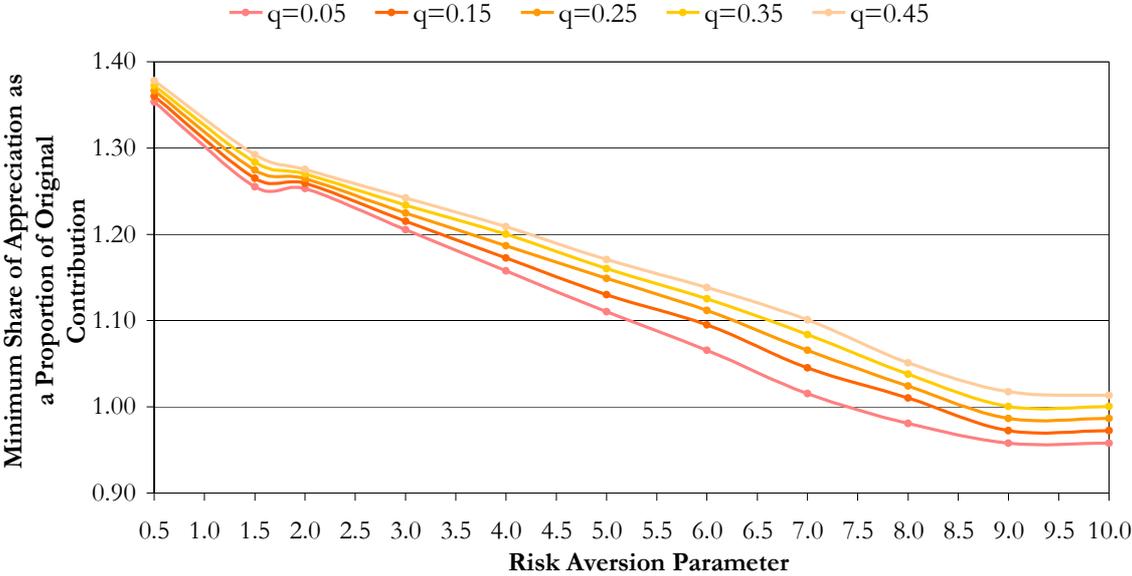


Source: Housing Industry Association, Global Financial Data, and authors' analysis

Figure 49 controls for the tax exemption on owner-occupied housing. Unsurprisingly, there is a downward shift in the dweller's equilibrium price for all levels of constraint. Nonetheless, the more conservative members of the community (with risk-aversion parameters of between 3.0 and 4.0) are still comfortable parting with between one and a half and three and a half times the future capital growth when accessing equity finance (depending on the assumed constraint).

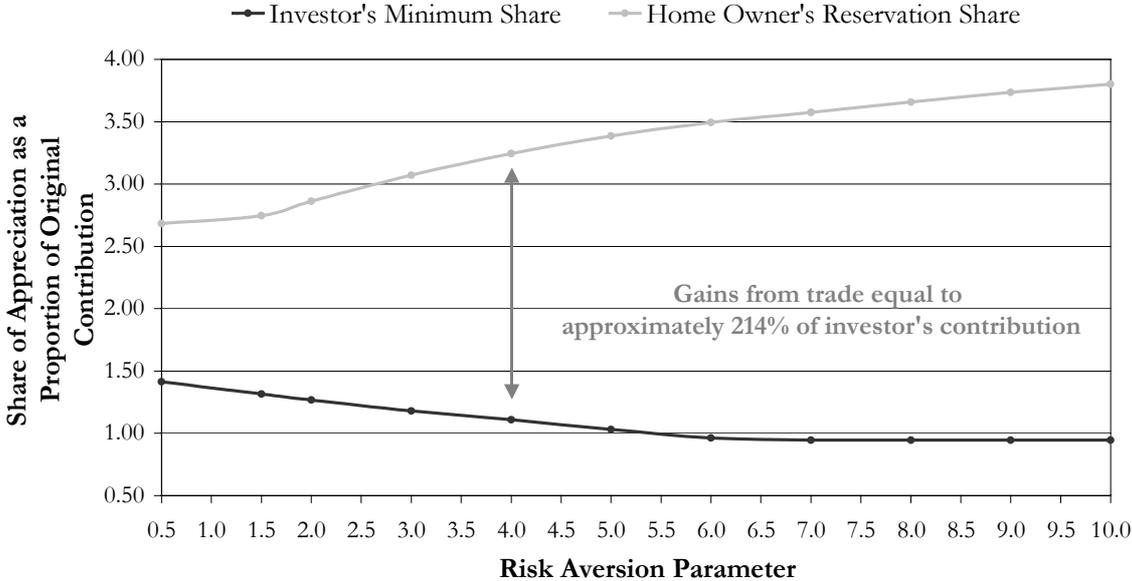
The exciting evidence above thus begs the question as to the magnitude of the gains from trade. However, before we can begin to think about such matters, we must first convert our estimates of investor demand into terms comprehensible to the housing market (see Section 2.3.3). Specifically, we simulate the proportion of claims against the entire dwelling stock that institutions would be prepared to acquire at a range of different prices (where the latter is defined under the auspices of a state-dependent contract). Figure 50 tells us that investors would be comfortable buying very large quantities of enhanced equity (a  $q = 0.45$ , is equivalent to 45 percent of the asset class) so long as they are compensated via rights to the appreciation of at least 1.15 to 1.20 times their initial contribution (taking a risk-aversion parameter of four).

**Figure 50**  
**Institutional Investor's Valuation of a Residual Stake in the Residence**  
 State-Dependent Contract, Taxes



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 51**  
**Comparison of Home Owner and Investor Valuations**  
 State-Dependent Contract,  $M=0.7$ ,  $q=0.15$ , Variance Factor Four, No Taxes



Source: Housing Industry Association, Global Financial Data, and authors' analysis

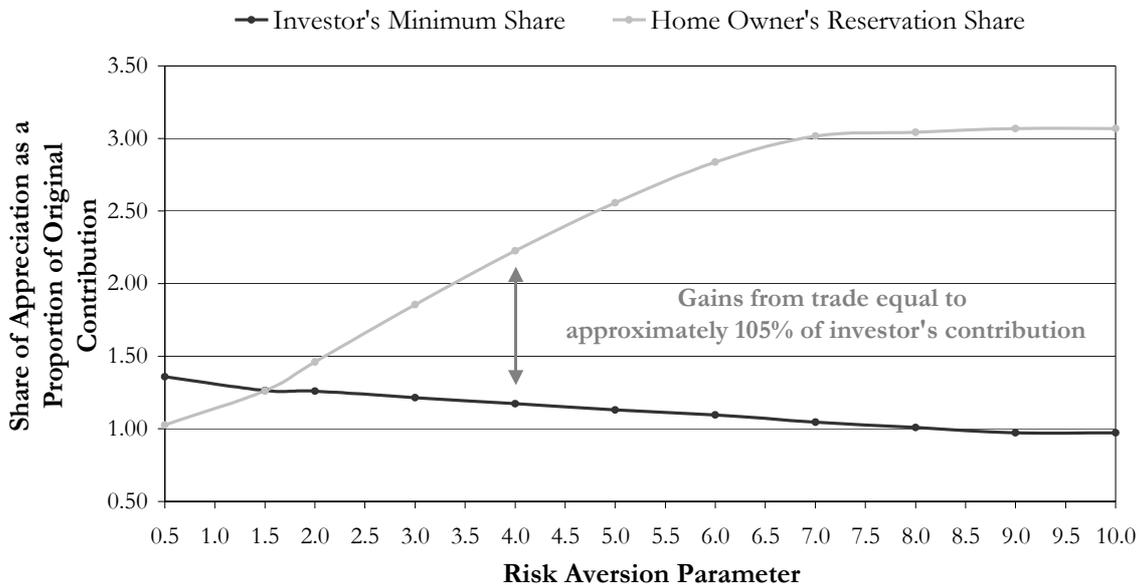
Even if we assume extremely low levels of conservatism (sliding leftwards along the x-axis), the institution's minimum price never extends beyond 1.40 times the amount of capital paid upfront. And so, yet again, we find that there are mutually advantageous opportunities for both parties to exploit.

In order to provide a first approximation of the gains from trade Figure 51 above formally compares the number of dwellers who wish to issue state-contingent claims with the amount of housing in which institutions would comfortably invest. Irrespective of the level of risk-aversion, there is always a huge gap between the valuations that individuals and investors place on a residual stake in the residence. Households are clearly comfortable sacrificing a far greater proportion of the prospective appreciation relative to the share institutions require to make the asset-class attractive. If, for instance, we suppose that both agents' attitudes towards risk and return are approximated by a parameter of 0.5 (4.0), the resultant valuation wedge is equal to 127 percent (214 percent) of the original finance. Put differently, whereas institutions demand at least 111 percent of the price growth for each dollar of capital they supply, home owners are prepared to sacrifice around 325 percent (assuming a risk-aversion parameter of four).

Figure 52

**Comparison of Home Owner and Investor Valuations**

State-Dependent Contract,  $M=0.7$ ,  $q=0.15$ , Variance Factor Four, Taxes



Source: Housing Industry Association, Global Financial Data, and authors' analysis

But what happens when we account for the tax subsidy on residential real estate? Figure 52 plots the valuation wedge when the dwelling is

afforded this advantaged status.<sup>158</sup> As we saw before, there is a marked downward shift in the household's equilibrium share. Nonetheless, for levels of risk-aversion of around four there is still a 105 percent difference between the two point estimates.

#### 2.4.7 Summary

In wrapping up our analysis of the state-dependent simulations, we conclude that not much more needs to be said about the merits of this proposal, at least on a theoretical level. The evidence above clearly demonstrates that equity finance would present individuals and institutions alike with extraordinary wealth creation possibilities. In fact, using a shared-appreciation product, the pricing disjunction increased even further relative to that which we found in our evaluation of the fixed class of contracts. Just as exciting though was the discovery that conservative assumptions regarding the claim on capital gains led to home equity dominating the optimal investor portfolio. But let us do away with this geek-speak: the real question is, what will households think?

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<sup>158</sup> Specifically, it is assumed that a 30 percent charge is levied on all other assets.

## 2.5 The Gains from Trade: A Human Assessment

*“Just how big a market are we talking about? Oh, around \$130 billion—amongst renters alone.”*

### 2.5.1 Introduction

In the chapters above, we calculated the gains from trade in rather ascetic analytical terms. Recall that the demand curve for housing equity lay above its supply equivalent, with the implied valuation wedge providing a first approximation of the mutually advantageous opportunities to be extracted from exchange. Yet the most powerful expression of a market’s potential can usually be found in the context of human satisfaction, not via abstract estimates of utility and the like. Put differently, markets play a valuable role if and only if they help us achieve goals that are salient in a social sense.

In what follows, we demonstrate that equity finance comfortably clears this high human hurdle. That is to say, there are fundamental requirements in the community that would be advanced by the successful introduction of these instruments. Just as sophisticated investors recognize that it is difficult to rationalise a capitalist system that restricts itself exclusively to the use of debt, so too prospective purchasers seem to acknowledge that the capacity to issue equity claims could unlock a new realm of lifestyle possibilities.

This begs the question as to which of the three demographics described to date are most in need of an affordable housing solution. In the view of many commentators, including our Prime Minister, the Hon. John Howard MP, it is aspirational households who deserve the greatest attention. Currently priced out of the market and with no real respite in sight, these poor souls appeal to the implacable Australian belief in equality of opportunity. In the words of the nation’s leader:

“[Equity finance] would be, I believe, particularly attractive to younger people wanting to enter the housing market in high-cost areas.” The Prime Minister, the Hon. John Howard MP, 20 September 2002

It is thus our hope that these new contracts will assist young Australian families make the arduous transition from rental to the owner-occupied markets. Here we would speculate that this is exactly what motivated the Prime Minister to establish the Task Force in the first place:

“I think you all know how hard it is for people in high-price housing areas of Australia to get their foot on the bottom rung of the ladder.” The Prime Minister, the Hon. John Howard MP, 20 September 2002

While we certainly share the Prime Minister’s sentiments, quirky academics such as ourselves are clearly not the intended recipients. No, if we want to ascertain the practical viability of this idea, we must look not into our own minds, but rather into the minds of those who really matter: that is, the ultimate beneficiaries.

In the next section, we discuss the findings of a survey designed to satisfy precisely this objective. We thought it best to go straight to the source itself and ask those Australians who do not yet own a home for their views on the merits of equity finance. And their message was loud and clear. In the opinion of many of these households, the ability to draw on both debt and equity when purchasing a property would be of great help in their struggle to get a foothold in the home ownership market. And so, it would seem that the Prime Minister was not alone in his belief that innovation has a role to play in improving the ownership prospects of the less fortunate members of the community. Indeed, we would venture to suggest that his bold vision resonated deeply with this crucial cohort, who have for too long now been pushed to the way side as their more affluent contemporaries profited from the never-ending boom in property prices. In this regard, it is indeed sad to think that there are a small number of ‘others’ out there, who would consciously deny their fellow countrymen access to new ownership possibilities; doubtless these individuals already own the roofs over their heads. Well, we certainly do not, and the Prime Minister was right to recognize that it is beyond time for the aspirants’ voices to be heard!

Although our results may seem simple, they remain remarkable nonetheless. Simply put, the people have spoken: large numbers are ready and willing to embrace the more advanced capital structures we advocate. What makes these findings so astonishing is that the products described in the survey do not, for all intents and purposes, exist—anywhere. Moreover, they affect one of the most psychologically sensitive nerves of them all: home ownership. Finally, a quick perusal through the related press coverage shows that it is not hard to conjure up negative connotations. Notwithstanding these challenges, consumers have a unique ability to communicate exactly what it is that they do and do not want; that is, of course, an essential element of the capitalist system in which we live. In this context, roughly one in two households stated that the advent of equity finance would increase the likelihood of them purchasing a property. Indeed, many of these intrepid individuals were so enthusiastic about

the opportunity that they declared they would be happy to issue equity claims at extraordinarily steep discounts to par.

All else being equal, our findings imply that these contracts could radically reduce the costs of home ownership without drawing on the public purse.<sup>159</sup> Perhaps just as exciting though, we were able to identify a huge new pool of occupiers that want to play a very big part on the demand side of the equity finance equation. Yes, that's right—the demand-side! Accordingly, even in the absence of explicit government assistance, many young battlers appear eager to help each other out along the road to ownership. Provided the opportunity itself is not taxed away by over zealous regulatory authorities, this is clearly a case of the gains from trade with a very human face.

As we noted above, one side of the market, the supply-side, was very easy to locate. The results of both our survey and the focus groups suggest that a large number of young dwellers would be willing to issue equity capital in order to cut their financing costs and expedite the transition to owner-occupation.<sup>160</sup> Easy as it may have been to identify households who would want to divest of a residual stake in the residence, there was no reason to believe that the same would be true on the demand side. To this point, we have always pictured demand deriving from institutional investors keen to capitalise on a rich new set of diversification possibilities. By construction, this ruled out the subjects of our survey and focus group analysis: that is, individuals who do not as yet even own a home. Searching for interest amongst this constrained cohort of consumers (with precious few assets other than their savings) seemed like a thankless task, to say the least. Why would financially challenged occupiers want to obtain exposures to a new and unfamiliar asset class anyway?

The answer we arrived at was shocking in its simplicity. As we have commented on other occasions, it is not currently feasible for aspirational households to hedge the risks associated with fluctuations in real estate prices. In fact, absent purchasing a property outright, it is basically impossible for renters to obtain any financial exposure whatsoever to owner-occupied housing. This subjects both future home buyers and their parents (i.e., ordinary Australian families) to considerable economic hazards. Here the critical question they confront is: what assets am I to invest in when saving up to purchase

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<sup>159</sup> It is sobering to note that not a single cent of taxpayer's money has been spent on the Task Force. In fact, none of the individuals who put their names to this paper will recover even their basic costs.

<sup>160</sup> This latent desire was so intense that respondents were prepared to accept a very high cost of finance—in some cases, even greater than our theoretical estimates originally indicated.

the dwelling of my dreams? We saw in Section 1.5.1 that the typical couple will spend at least three to four years trying to scrape together sufficient funds to finance their first acquisition. Yet if they put this money in the bank, there is little chance that it is going to track changes in property prices. If, on the other hand, they invest it in, say, equities—well, once again, there is no telling what might happen. Suffice to say that there is a significant probability that these first time buyers could ‘do’ a nontrivial proportion of their dough (especially if they decide against holding a well-diversified portfolio), with the recent past providing a chilling example of what can go wrong. Obviously, real estate itself would be the perfect hedge. It is not, however, presently possible for non-owners to access home equity’s risk-return profile. And so, when offered the opportunity to invest in a product that matched the performance of housing in a capital city of their choosing, the majority expressed a strong preference for this option over and above alternatives such as cash and a managed fund consisting of stocks, bonds and cash.

In light of these results, we would appear to have successfully aligned the demand and supply sides of the equity finance equation—without the need to rely on financial institutions. That is, we have been able to establish solid foundations on which these new markets could grow. Those who wish to cut purchase costs and propel themselves towards the ownership objective can issue equity claims to an organizing intermediary. These market-makers would then package the contracts into liquid bundles which—at the fully securitised portfolio level—would yield returns that approximate changes in the value of residential real estate in the relevant geographic region (see also Chapter 3.2). What’s more, the contract structure is such that the institutions could comfortably guarantee to deliver considerable ‘outperformance’ while still extracting sizeable rents from the transaction itself. On the demand-side, the prospective purchasers would be households who wish to buy a home for either themselves or their children. A primary anxiety in the present market is the risk of being locked out of home ownership as a result of future price movements (think of someone trying to save up to acquire a Sydney property via a cash account in 1995). Once they are ready to make the move to owner-occupation, they simply switch from the demand to the supply side of the market. That is, they would divest of their real estate holdings and use the funds so raised to assist with the acquisition, drawing on equity finance thereafter in order to reduce costs and maximize the consumption opportunities available to them for the remainder of their lifetimes. In this fashion, young aspirants would be able to gradually increase their portfolio exposures to the housing asset and in the process remove the large basis risks implicit in the protracted savings period. And when they ultimately occupy the residence, consumers need not burden themselves with the vast

financial responsibilities inherent in outright ownership; on the contrary, they now have the option of sharing these risks with an institutional partner. We believe therefore that investment vehicles of this type could make the transition to home ownership much less taxing relative to the severe discontinuities that characterise contemporary arrangements.

It should be evident to you that there is a very visible human dimension to the gains from trade in the market for housing equity. Most significant though, this fresh realm of possibilities has the potential to revolutionize one of the most crucial settings of them all: the distribution of social capital. In particular, equity finance would offer dwellers who currently have little or no hope of becoming owners in the present environment a realistic chance of buying a home. In the event that these constituents still feel incapable of graduating to the next tenure level, they will have the chance to help future generations—that is, their children—move one step closer to achieving this ambition. As a consequence, these products promise to resolve many issues of great social import, most prominent of which is the intergenerational transmission of misfortune. Equity finance would enable less fortunate Australians to help each other on the bumpy road towards home ownership. Once the regulatory infrastructure is finally in place, the mind boggles at the number of disenfranchised consumers who (for the first time) would be able to unlock this difficult door and make a completely new start. Of course, if institutional barriers are allowed to hamper the development of these opportunities, the fault, as was noted by one commentator of enduring wisdom (that old toad, William Shakespeare), lies not with our stars—but in ourselves.<sup>161</sup>

So without further ado, let us begin the discussion. In Section 2.5.2 we review the survey results, subsequent to which we evaluate the findings of the focus groups. In designing these experiments, we were fortunate enough to draw on the experience and expertise of Ramin Marzbani and Scott Taylor of ACNielsen.consult, one of the world's leading market research firms. They furnished wonderful advice on the structure of the questionnaires, and for this we are deeply indebted.<sup>162</sup>

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<sup>161</sup> For example, large banks may perceive these instruments to be a threat to their mortgage books. But we would submit that equity finance could dramatically expand the commercial possibilities available to them.

<sup>162</sup> Various incarnations of the survey also benefited from the advice of Rob Adams (First State Investments), Stephen Brown (New York University), Margaret Doman (Cambridge Consulting), Xavier Gabaix (MIT), Joshua Gans (University of Melbourne), Elvis Jarnecic (University of Sydney), Adrian Pagan (Australian National University), Eloise Scotford (High Court of Australia), Malcolm Turnbull

## 2.5.2 The Survey and the Sample

In the month of February 2003, a panel of approximately 80,000 Internet users was identified on national basis, with 4,600 potential respondents extracted through stratified random sampling based on the age distribution of the Australian population. Each potential participant was sent an electronic invitation to contribute to the survey. From this universe, we ended up with a final sample of around 600 completed responses representative of the full spectrum of demographic characteristics.<sup>163</sup> The individuals of most interest to the current exercise were, of course, those who did not own the home in which they live. This particular segment represented exactly one-third of the survey population and will, henceforth, be known as the 'sample'. It is heartening to note that this bifurcation is consistent with the actual distribution of tenure types according to the ABS; about 30 percent of all Australian households do not own the roof over their heads (see Appendix 8.1). The sample consists of three distinct cohorts: just over 70 percent rent; some 20 percent share with their parents; and the remaining ten percent have other accommodation arrangements. All three groups answered the same set of questions.

The survey was used to garner a variety of insights. In the first instance, we collected information on basic economic and demographic characteristics. Next, we presented a series of questions about the history of the respondents' housing market transactions, their view of past and future property price dynamics, and their perceptions regarding the magnitude of house price risk. In the final and most important part of the analysis, we sought the participants' opinions on specific policy initiatives. It was in this section that, among other things, we tested their willingness to play a part on the demand and supply sides of the market.

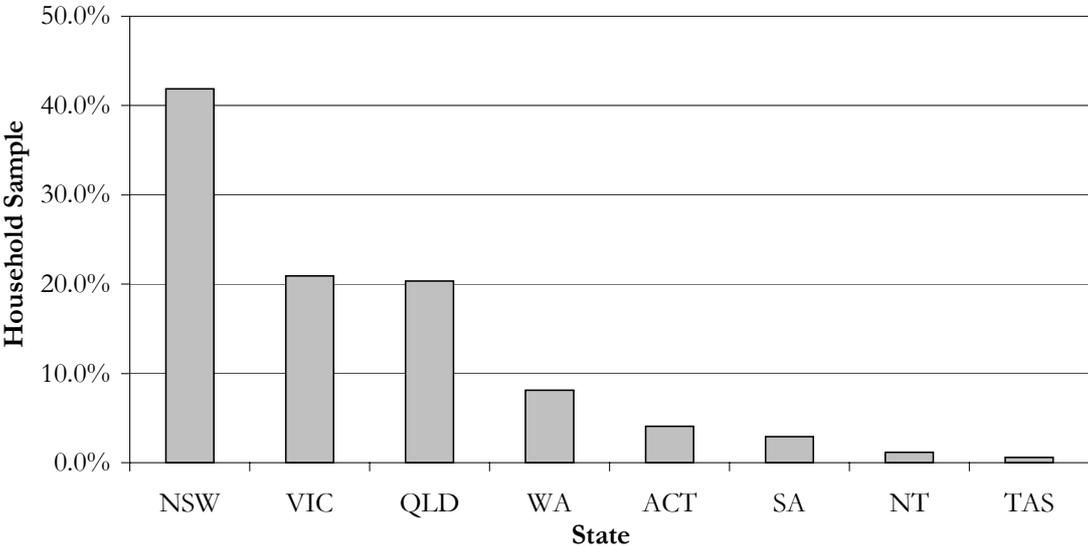
Because the survey was conducted on a national basis, the distribution of respondents is representative of the broader population, as Figure 53 depicts. Over 40 percent of people hail from the most populous State, NSW, followed by Victoria and Queensland. In total, some 80 percent of respondents live in metropolitan regions, with the remainder located in non-urban areas (see Appendix 8.10). Once again, this latter statistic resonates with ABS data on countrywide densities (see Chapter 4.2).

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(The Menzies Research Centre), Tom Tyler (New York University), and Terry Walter (University of New South Wales), among others.

<sup>163</sup> Selection biases plague all surveys, and participants in an electronic questionnaire such as this will not be perfectly illustrative of the actual population.

**Figure 53**  
**Non-Owning Survey Sample**  
Geographic location



Source: ACNielsen.consult and authors' analysis

Table 19 collates some of the other demographic features of the sample. In both economic and social terms, it would appear to account for a fairly good cross-section of the non-owning population. The bulk of participants are relatively young, with nearly 70 percent between the ages of 20 and 40, and roughly 85 percent under 50. Approximately three quarters rent, with one in six occupying their parents' property and the residual living in other accommodation. While just under half are full-time members of the labour force, there are a number of part-time workers, self-employed, students, homemakers, retirees, voluntary workers and unemployed. Unsurprisingly, family status tends to be a function of age, with the number of children per household rising (up to a point) in line with the maturity of the individual in question. This, of course, is not necessarily true of the elderly, with a discernable exodus of offspring from the parental nest after the respondent reaches the half-century mark.<sup>164</sup> In total, just over 50 percent of the sample have one or more children living with them in their current residence (which, by definition, they do not own).

<sup>164</sup> Apologies on behalf of one co-author to his Jurassic-like co-conspirators.

Table 19

<b>Non-Ownning Survey Sample</b>					
Cross-Sectional Characteristics					
	<b>Age</b>				
	<b>20 to 29</b>	<b>30 to 39</b>	<b>40 to 49</b>	<b>Over 50</b>	<b>Av.</b>
<b>Total</b>					
Respondents	33.1%	34.3%	16.9%	15.7%	
<b>Gender</b>					
Male	38.6%	44.1%	34.5%	66.7%	46.0%
Female	61.4%	55.9%	65.5%	33.3%	54.0%
<b>Dependent Children</b>					
None	70.2%	33.9%	10.4%	74.1%	47.2%
One	26.3%	47.5%	58.6%	11.1%	35.9%
Two	3.5%	16.9%	24.1%	0.0%	11.1%
Three or more	0.0%	1.7%	6.9%	14.8%	5.9%
<b>Current Residence</b>					
Rent a home	54.4%	84.7%	72.4%	85.2%	74.2%
Live in parents' home	36.8%	6.8%	17.2%	3.7%	16.1%
Other	8.8%	8.5%	10.4%	11.1%	9.7%
<b>Employment</b>					
Full-time	57.9%	47.5%	44.8%	22.2%	43.1%
Part-time	17.5%	30.5%	17.2%	11.1%	19.1%
Student	19.3%	6.8%	3.4%	14.8%	11.1%
Self-employed	1.8%	1.7%	3.4%	0.0%	1.7%
Other <sup>165</sup>	3.5%	13.5%	31.2%	51.9%	25.0%

Source: ACNielsen.consult and authors' analysis

With the basic demographic attributes under control, let us now move on to consider consumer interest in drawing on both debt and equity capital when buying a home.

### 2.5.2.1 The Supply of Equity Capital

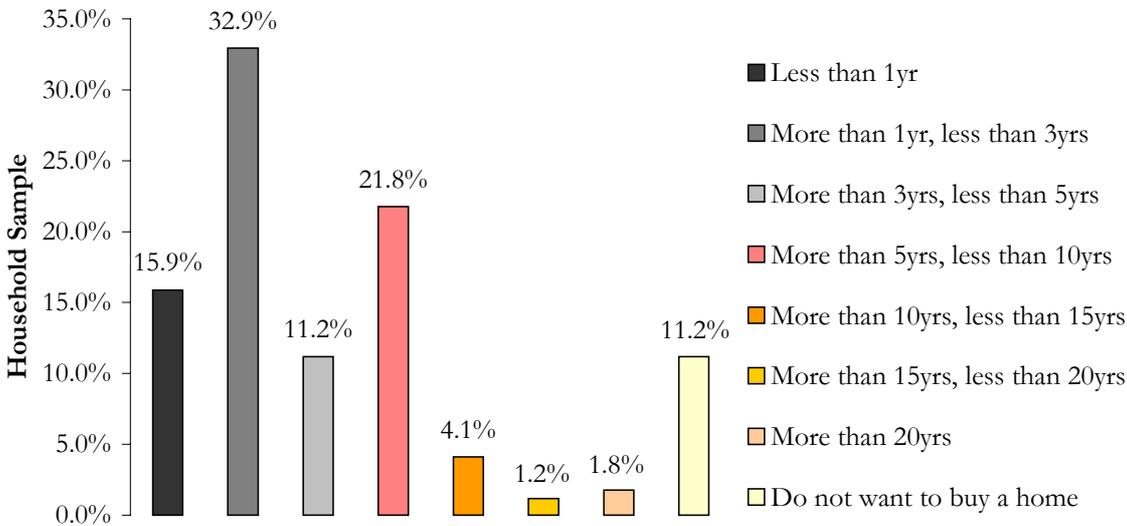
Prior to exploring whether households would be prepared to play a part on the supply-side, we first asked them if and when they anticipated purchasing a property in which to live. The answers, summarised in Figure 54 below, reveal that about half of all

<sup>165</sup> The 'other' category includes full-time homemakers, voluntary workers, retirees, those who are not in the labour force, and the unemployed.

respondents would like to acquire a house within three years, while 60 percent have their sights set on owner-occupation at some point during the next five. There is also a small minority who believe that it will take them more than a decade before they will be able to make the daunting leap across the tenure divide. Finally, one in ten felt that they would never buy their own home.

**Figure 54**  
**Non-Ownning Survey Sample**

When do you expect to purchase your own home for the purposes of actually occupying it?

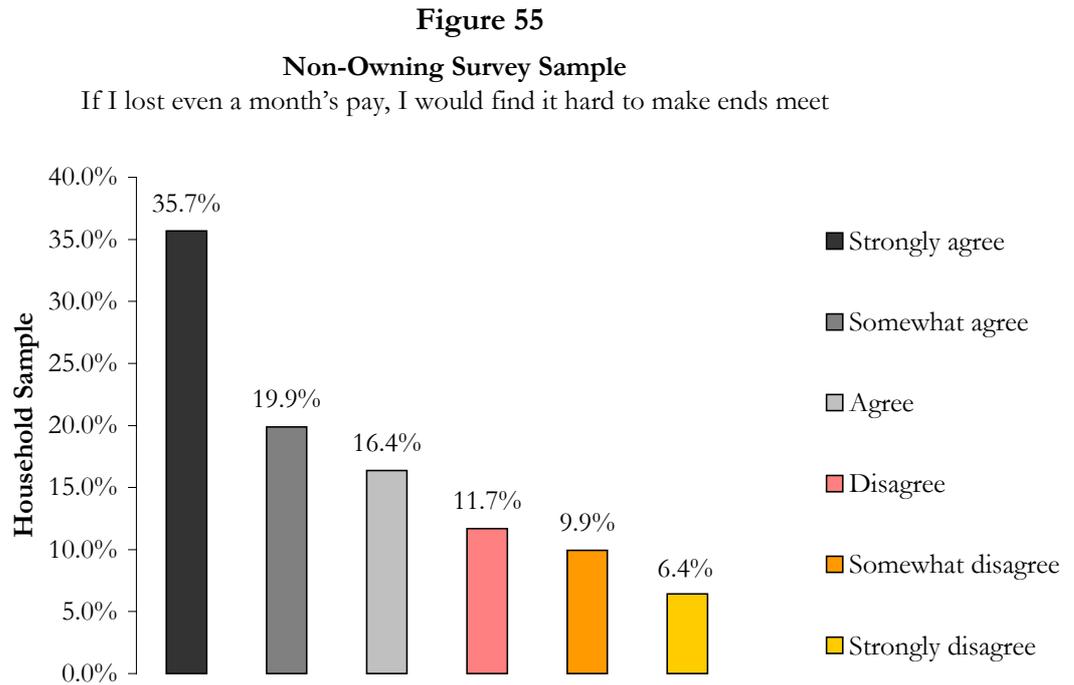


Source: ACNielsen.consult and authors’ analysis

So in total, approximately 90 percent of all individuals surveyed hope to one day own the roof over their heads. But what factors prevent them from realising this dream in the near term? In a great many cases, it looks like economic constraints should be burdened with the blame. Direct evidence on this subject comes from a question concerning the households’ disposable income. Specifically, we asked participants about the extent to which they agreed with the following statement:

- *If I lost even a month’s pay, I would find it hard to make ends meet*

In response, consumers were able to select among six options: ‘agree strongly’; ‘agree’; ‘agree somewhat’; ‘disagree somewhat’; ‘disagree’; and ‘disagree strongly’. Figure 55 below displays the distribution of their answers.



Source: ACNielsen.consult and authors' analysis

More than 35 percent agreed 'strongly', and over 70 percent agreed at least 'somewhat' with this characterisation of their conditions. One may therefore infer that liquidity constraints exert a nontrivial influence on the behaviour of these individuals. Combined with the earlier findings, this data implies that although most wish to purchase a property in the not-too-distant future, they are being held back by a paucity of financial resources. Accordingly, such households would appear to be ideal candidates for scaling the home ownership heights with the assistance of equity finance. Nonetheless, prior to appraising their interest in our proposition, we offered a few words of warning on the novelty of the instruments:

- *In the remainder of this survey, you will be asked a series of questions about some housing finance opportunities that are not currently available to consumers. When responding, please assume that the products are already well established, and that the institutions offering them are reliable and trustworthy.*

After tendering this cautious introduction, we proceeded to outline the essential elements of the transaction:

- *Suppose that a financial institution offers you a new method of raising cash to purchase a home of your own. The precise offer made is as follows:*

- *You can obtain any amount of money today, up to 35%<sup>166</sup> of the appraised value of the home;*
- *The institution will not seek any of this money back until you chose to sell it (i.e., there will be no ongoing cash payments);*
- *If you take up their full offer of 35% of the appraised value of the home, you pay them back one half of the final sale proceeds at point of sale;*
- *If you raise a smaller amount of cash today, the share the institution receives at point of sale is adjusted correspondingly;*
- *Prior to the date of sale, which is determined at your discretion, you undertake to occupy the home and keep it in reasonable condition. Should you make significant improvements to it, your ownership interest increases according to the appraised impact of the improvement on the value of the home.*

Observe that this contract is identical to the fixed payoff functions that were used throughout much of the earlier analysis (see Part Two). The cost of equity finance is measured by the difference between the proportionate value the household collects today and the 50 percent share the investor is entitled to at point of sale. Naturally, the so-called discount to par (i.e., the gap between 35 percent and 50 percent) in this particular example equates to 30 percent. It is also worthwhile emphasizing that the product description above is hardly the euphemistic sales pitch that most consumers would in reality receive. Here we made a conscious attempt to paint as objective a picture as possible.

In addition to employing the preceding hypothetical to determine consumer interest in issuing equity claims, we also used it to quantify the impact of a change in the cost of capital on their propensity to supply. This was achieved by varying the financial terms on an entirely random basis. More precisely, in return for foregoing half the sale proceeds, the sample household was (randomly) offered anything from 25 percent to 45 percent up front, in 5 percent increments (where these two figures equate to a 50 percent and 10 percent discount to par, respectively).

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<sup>166</sup> In fact, this value and the corresponding figure in the third bullet were randomized, in the manner outlined above.

Immediately following the transaction exegesis, respondents were presented with a question to gauge their level of enthusiasm for the commercial opportunity itself:

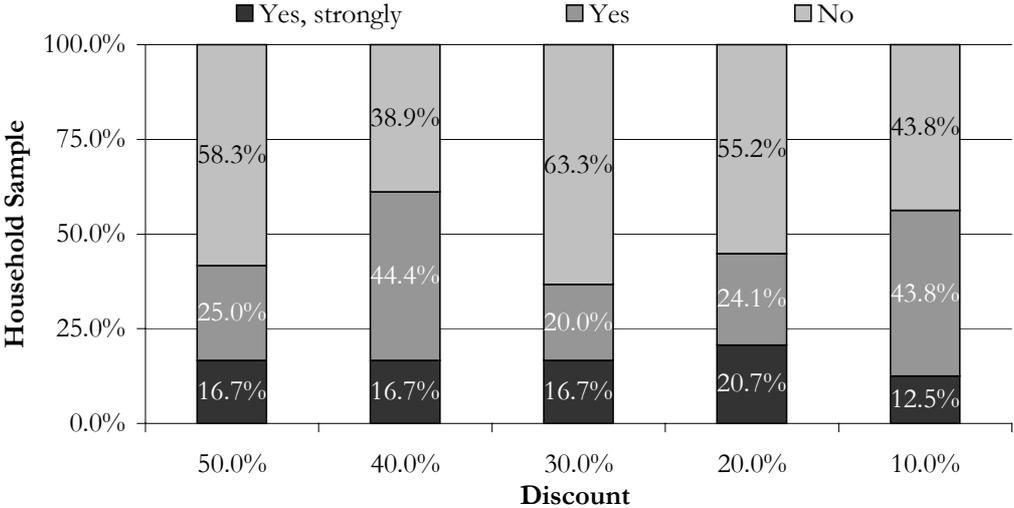
- *Would the availability of this product increase your likelihood of moving to a new home?*

In response, they were given three different options from which to select: ‘yes strongly’; ‘yes’; and ‘no’. Figure 56 below shows that even assuming an extraordinarily steep discount of around 50 percent, more than four in ten households believe that equity finance would increase the probability of them moving to a new abode. Truth be known, we consider these to be remarkably high numbers in light of the sizeable cost of capital and the complexity of the transaction on offer.

**Figure 56**

**Non-Ownning Survey Sample**

Would the availability of this new product increase the likelihood of you moving to a new home?



Source: ACNielsen.consult and authors’ analysis

Predictably, when applying lower discounts, the proportion of interested consumers grew even further: at 10 percent, about 56 percent of occupiers felt that the ability to issue home equity would help them along the road to ownership; at 20 percent the equivalent figure was 45 percent; while at 30 percent the share of willing parties was 37 percent. Curiously, when introducing a hefty discount of 40 percent this proportion jumped back up to 60 percent of the sample (i.e., when offered 30 percent today in return for 50 percent of the proceeds at point of sale, three in five respondents perceived this to

be an attractive opportunity). All told, roughly half of the surveyed households thought that the availability of this product would improve their likelihood of purchasing a property.

A second question was posed that revealed even higher latent demand under somewhat altered conditions of payout. Specifically, we offered respondents the choice between two product alternatives: ‘Option A’ (identical to that outlined above), and ‘Option B’, defined as follows:

- *If you take up the institution’s full offer of 35% of the current value of your home, you commit to paying them back 35% of the future sales proceeds, plus an additional payment amounting to another one third of the appreciation in your home over the period.*

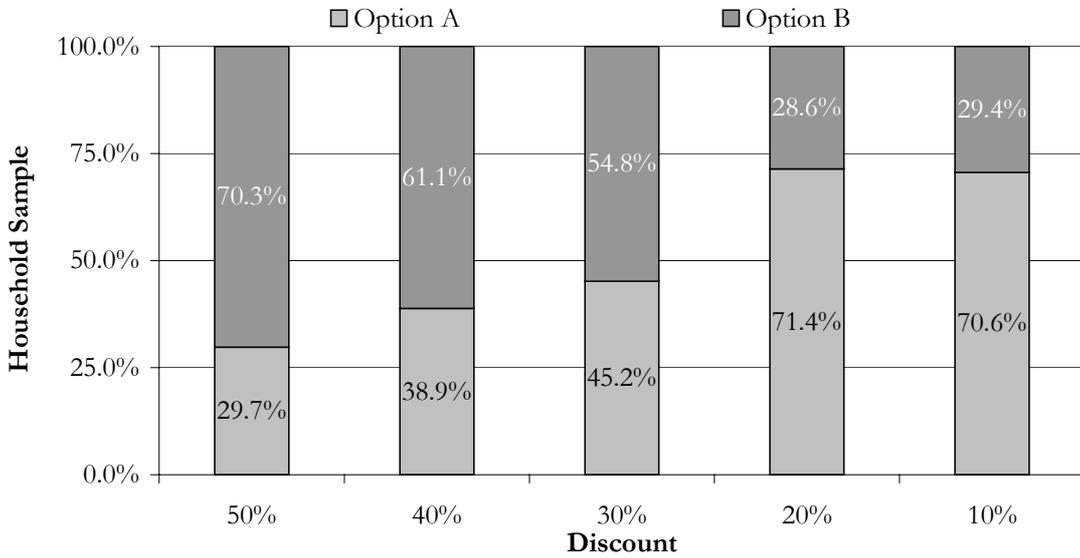
Of course, this contract is analogous to the class of state-dependent instruments discussed in Section 2.4.6, with an appreciation share,  $S_G$ , corresponding to around 1.9 (i.e., at the high end of the range used in the earlier optimisations). Now for each individual, the actual proportion offered up front and the amount due on the date of divestiture was matched with the figures presented in the first part of the example. In this manner, if the original transaction stipulated that they were able to raise, say, 40 percent instead of 35 percent (as in the previous example), then the second question was altered accordingly so that 40 percent replaced the two 35 percent values above. In spite of this, the appreciation share always stayed fixed at one third, regardless of the fraction of the purchase price offered by the investor.

The fact that we amended one part of the proposal and not the other provides us with some insights into the occupiers’ views on the trade off between the proportion of the initial property price sacrificed and the share of the capital gains owed at termination. In the 35 percent case illustrated above, Option A diverges from Option B in that the home owner pays back an additional 15 percent of the original cost of the home (50 percent less 35 percent), yet saves one third of the future appreciation. In contrast, when the amount raised upfront is 40 percent, Option A involves the household paying back 10 percent (50 percent less 40 percent) more of the initial value than Option B, yet one third less of the capital growth. The implication here is that consumers should be more likely to select the state-dependent alternative as the cost of equity finance increases, since the higher share of appreciation buys a larger reduction in the fixed portion of the payment. Figure 57 depicts non-owner preferences over the two products as a function of price, and confirms that precisely this pattern is evident in the data.

**Figure 57**

**Non-Owning Survey Sample**

Which of the two payment options would you prefer?



Source: ACNielsen.consult and authors' analysis

An interesting feature to note here is that with a 30 percent discount to par in Option A, around 55 percent of occupiers prefer the state-dependent product. Apparently, they would rather pay fully 33 percent more in additional appreciation than a 15 percent higher share of the upfront purchase price. And so, it would seem that respondents are more willing to forego one dollar's worth of capital gains than they are to give up a dollar's worth of equity in the home. Myopic loss aversion probably explains this phenomenon.

Figure 57 contains another very important result. In the case of a discount of either 30 percent or 40 percent, Option B is similar to the contracts we introduced in Section 2.4.3 above: that is, a product in which the share of the appreciation paid out is twice as large as the financing offered by the institution. Since most dwellers display a distinct preference towards the state-dependent instrument over its static counterpart, the availability of the former would only serve to further elevate the already high consumer demand for equity finance.

In sum, the survey evidence presented thus far suggests that an enormous number of Australians who do not currently own a home would be interested in supplying both static and state-dependent equity claims. Yet just how big a market are we talking about? According to the ABS, there are about 2.6 persons per dwelling unit and 1,858,324 rented properties. We conservatively suppose that

there are only two paying occupiers per rented house. This gives a total opportunity set of 3,716,648 persons. Let us now assume that one third of all renters (less than our survey estimate) would be willing to ‘entertain’ the idea of using a combination of both debt and equity. Taking the median CBA/HIA house price at December 2002 of \$350,400, we suppose that the average total finance to value ratio is 80 percent, 37.5 percent of which could be raised by way of equity claims.<sup>167</sup> This then implies a universe of \$128,929,032,461. That is, a \$130 billion market opportunity amongst renters alone. Observe that for the purposes of this example, we have excluded all other non-owners (e.g., individuals that currently reside in the parental abode) in addition to incumbent dwellers and the elderly. Collectively, it is not hard to imagine figures well in excess of \$200 billion. Table 20 below sensitises the possibility set around two of the most vital assumptions.

Table 20

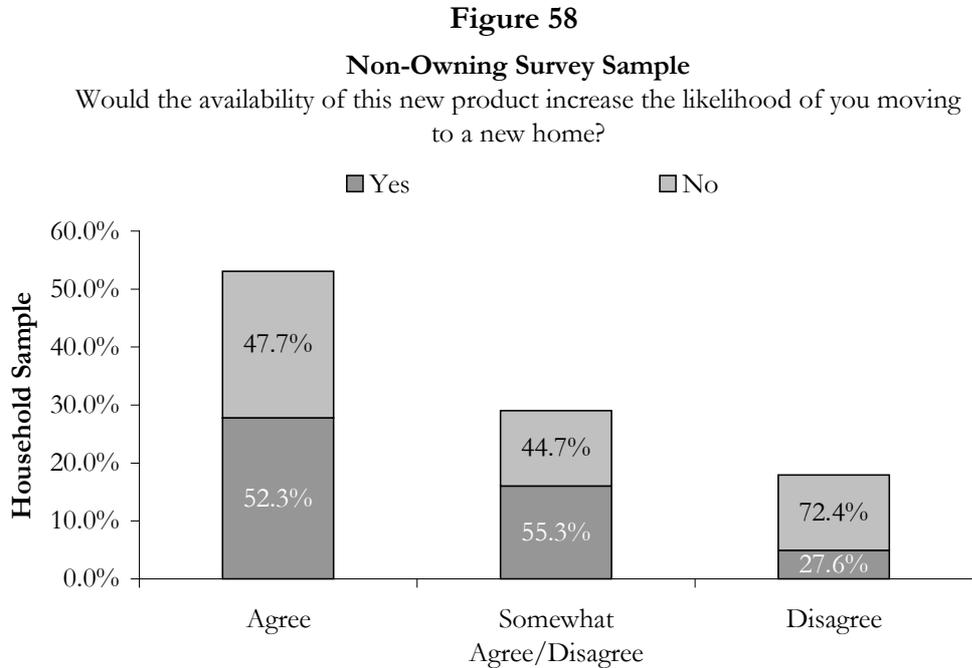
		Indicative Valuation Range of the Rental Market Opportunity						
		‘Interested’ Share of the Rental Population						
		18.0%	23.0%	28.0%	33.0%	38.0%	43.0%	48.0%
Median House Price	\$200,400	\$40,220bn	\$51,392bn	\$62,565bn	\$73,737bn	\$84,909bn	\$96,081bn	\$107,254bn
	\$250,400	\$50,255bn	\$64,215bn	\$78,174bn	\$92,134bn	\$106,094bn	\$120,054bn	\$134,013bn
	\$300,400	\$60,290bn	\$77,037bn	\$93,784bn	\$110,532bn	\$127,279bn	\$144,026bn	\$160,773bn
	\$350,400	\$70,325bn	\$89,860bn	\$109,394bn	\$128,929bn	\$148,464bn	\$167,998bn	\$187,533bn
	\$400,400	\$80,360bn	\$102,682bn	\$125,004bn	\$147,326bn	\$169,649bn	\$191,971bn	\$214,293bn
	\$450,400	\$90,395bn	\$115,504bn	\$140,614bn	\$165,724bn	\$190,834bn	\$215,943bn	\$241,053bn
	\$500,400	\$100,430bn	\$128,327bn	\$156,224bn	\$184,121bn	\$212,018bn	\$239,916bn	\$267,813bn

Source: Authors’ analysis

It is instructive to reflect for a moment longer on the roots of this enthusiasm. One explanation stands out: households who think of themselves as being encumbered by liquidity constraints appear most eager to capitalise on these opportunities. Recall that we asked respondents whether they agreed with the statement, “If I lost even a month’s pay, I would find it hard to make ends meet”. Figure 58 illustrates the relationship between their answers to this question and the perceived appeal of equity finance. Observe that people who do not classify themselves as being burdened by financial pressures (i.e., those that select ‘disagree’) are nearly three times more likely to believe that this product will have no effect on the probability of them moving to a new residence. On the other hand, just over half of

<sup>167</sup> That is, 30 percent of the dwelling’s total value. We suspect that this is the maximum finance to value ratio that institutions would be willing to tolerate.

those who currently find it difficult to make ends meet felt that divisible equity interests could assist them attain the ownership objective.



**If I lost even a month’s pay, I would find it hard to make ends meet?**

Source: ACNielsen.consult and authors’ analysis

It is therefore our firm belief that consumers who are presently hard pressed for cash would be the first to make use of this form of finance. The value proposition to this cohort is most clear cut: by issuing equity capital they could truncate the onerous savings period preceding purchase while also lowering the interest and principal payments once they transition into their new home.

**2.5.2.2 The Demand for Equity Capital**

In the introduction to this section it was noted that we envision sophisticated financial market intermediaries acting as ‘specialists’, buying up equity stakes, pooling them together into larger, well diversified portfolios, and then offering shares in these baskets to the wider investor community. We need not belabour the point that an interest in such a fund would eliminate all of the idiosyncratic risks inherent in a single residence. Naturally, there is also scope to enhance the security’s returns by way of the contract design—be that state-dependent or otherwise. Our present objective is to examine whether lay consumers would be prepared to invest in such vehicles (which could offer performance significantly in excess of that realised

by a broad pricing proxy for any given area). Notwithstanding this, we once again adopt a conservative approach and seek to identify a market for a product that does no more than match a citywide house price index.

While we employ a cautious method with respect to pricing, we are somewhat more aggressive in fiscal terms. As before, our fundamental aim is to identify the gains from exchange. In the contemporary environment, households do not pay tax on the homes that they own and occupy. Accordingly, we set up a survey scenario in which investments in residential real estate are afforded the same advantage.<sup>168</sup> Specifically:

- *Suppose that the Government decided to allow parents and their children to invest a limited amount of money in a tax-free fund, which could then be used for the purpose of helping the children one day buy a home of their own.*

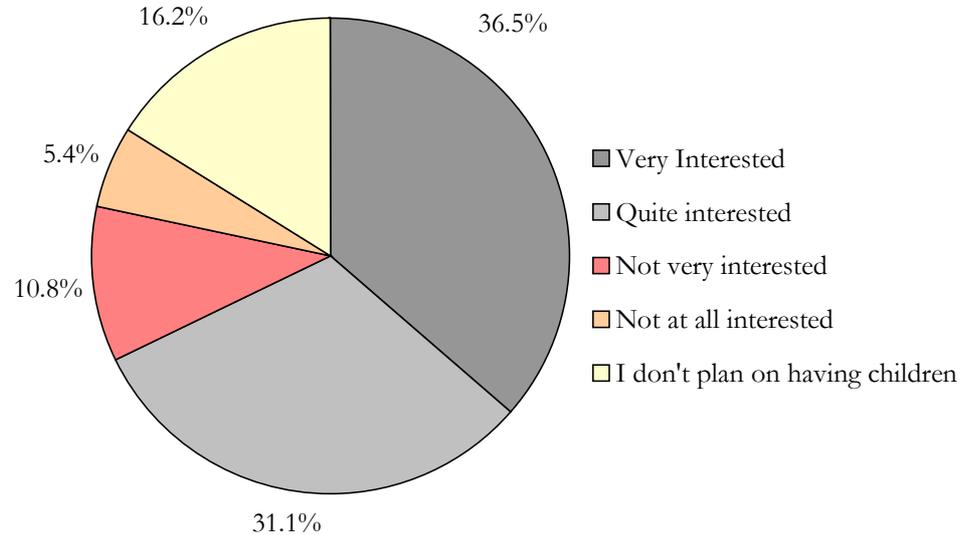
This hypothetical helped us in one crucial way. In the current market, dwellers are not motivated to dedicate specific funds to the purchase of a property: they simply save money, some of which may be used for a later vacation; some for a car; some to be kept for retirement; some for a rainy day; and some for the house. By proposing that these funds remain tax-advantaged if and only if they are applied for the purposes of buying a home, we hoped to elicit a vision of saving explicitly for this endgame. Thus, we wish to investigate consumer preferences particularly with regard to the acquisition of a residence in which to live. After outlining this opportunity, we asked participants whether they would personally be interested in putting money into such a fund on behalf of their children (see Figure 59 below). As you can see, over 80 percent of eligible candidates responded in the affirmative.

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<sup>168</sup> The reader should be aware that while we do not advocate subsidies of this sort, they do have several supporters. In its submission to the Task Force, the Urban Development Institute of Australia argued that capital gains on investments in home equity should be eligible for reduced rates of tax. Peter Berriman and Pat Byrne, on behalf of the Australian Family Association, also proposed explicit policies designed to provide tax advantages for savings dedicated to a property purchase. Indeed, they recommended the establishment of a 'Home Buyers Savings Scheme', whereby employers would deduct a certain proportion of an employee's earnings into a provident fund to be paid out upon the acquisition of a residence. They suggest that funds so earmarked be subtracted from gross earnings, and that the interest accrued be tax-free.

**Figure 59****Non-Ownning Survey Sample**

How interested would you be in investing in a property-linked account on behalf of your own children?



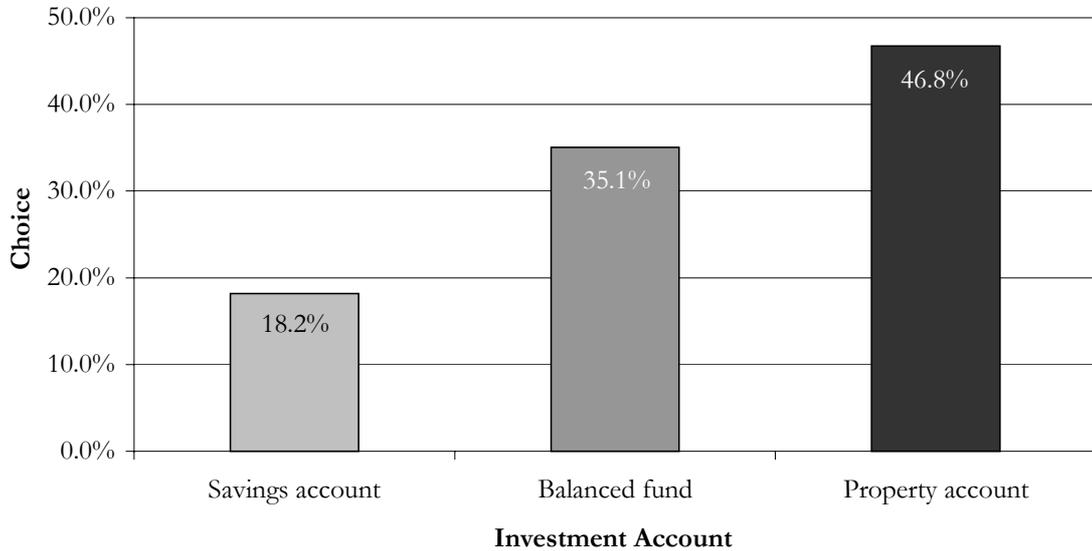
Source: ACNielsen.consult and authors' analysis

Next, we asked those who were keen to establish these accounts to which of the following three products they would be most likely to allocate their money (if they were forced to choose only one): a standard savings account; a real estate fund; or a balanced portfolio. To avoid any confusion, we also supplied brief sketches of the three alternatives:

- *Option 1: A savings account. (This is the safest investment in monetary terms. However, it may fall behind the value of residential real estate should real estate appreciate rapidly.)*
- *Option 2: A real estate fund that delivers a rate of return equal to the average return on residential property in an Australian city or state of your choosing. (This is the safest investment in terms of keeping up with residential real estate. However, it may fall in value in monetary terms if the value of real estate declines.)*
- *Option 3: A balanced fund consisting of equities, bonds, and cash. (This fund normally offers a higher rate of return than either the savings account or the real estate account. However, it is not as safe as the savings account in terms of monetary value, or the real estate fund in keeping up with changes in the value of residential property.)*

**Figure 60****Non-Owning Survey Sample**

To which of the following investments would you be most likely to allocate your money as part of this policy?



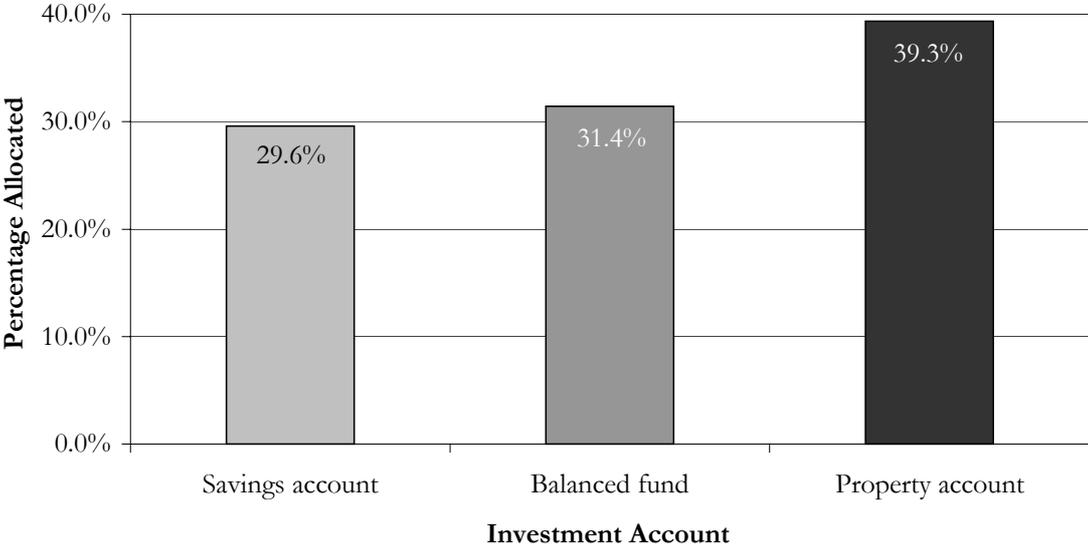
Source: ACNielsen.consult and authors' analysis

Here the data plainly says it all (see Figure 60 above). Unambiguously, the single most popular product is the property fund. Almost 50 percent of households would select this option when required to make an exclusive choice, which is an extraordinarily compelling result for the demand-side of the equity finance equation. When we subsequently relaxed the constraint, and allowed consumers to apportion their money amongst all three classes of investment, the housing fund maintained its dominant position, as Figure 61 below shows. Stunningly, the average non-owning individual would choose to allocate nearly 40 percent of all their savings to home equity (if such an opportunity actually existed)—significantly more than they would invest in either cash, or a managed combination of bills, bonds and equities. Of course, they are currently unable to set aside any money to owner-occupied housing. So listen, financiers, loud and clear: this would have to be one of the biggest economic opportunities in Australian corporate history! And just imagine what demand will be like when institutions start guaranteeing performance that exceeds that attributable to a standard city-based index.

Figure 61

Non-Owning Survey Sample

How would you allocate your money across the three investment alternatives?



Source: ACNielsen.consult and authors' analysis

The importance of this finding cannot be overstated. We have discovered a large group of working and middle class Australians who are just aching to get their hands on an asset category that provides them with exposure to residential housing. What's more, they have demonstrated this eagerness in spite of an explicit warning that these funds could lose money in nominal terms. Once again, we are left to conclude that this is a massive market in the making. It is ironic to think that we do not now need to rely on institutional investors, since a vast number of households are eager to represent both the demand and supply side teams. Savvy financial market participants (who we originally thought would be the most crucial clientele) may even be pushed to the periphery. Doubtless there will continue to be one or two crazy politicians, and perhaps the odd commentator, who think that they know exactly what people do and do not want, or, more precisely, what opportunities they should and should not be afforded. But the simple fact of the matter is that the aspirants have spoken, and their message is plain as can be: do not tell us how to behave; a great many of us want to issue equity claims, and an even larger number would like to invest in residential real estate. In layman's terms, these respondents are giving our critics the metaphorical bird!

As with the supply-side of the market, the surveyed households have displayed a strong understanding of the problems they face when trying to purchase a property. And the conclusion seems

straightforward: dwellers who do not currently own the roof over their heads are keen to get a piece of the housing market action, both to help themselves and their children.

### **2.5.2.3 The Focus Groups**

The results of Section 2.5.2.2 painted a profoundly powerful picture of the demand for equity finance. As fate would have it, we were also able to collect further corroboratory evidence on this crucial subject thanks to a series of focus groups. These were kindly underwritten by HomeStart Finance, a government sponsored enterprise in South Australia that specialises in the supply of finance to low-income households.<sup>169</sup> HomeStart's visionary CEO, Gary Storkey, was the driving force behind their eagerness to support our efforts. The objective of this exercise was simply to gain a better understanding of our target audience's willingness to issue equity claims. The individuals to whom we refer here are younger aspirants desperate to buy a home of their own, yet who are unable to do so because of the high costs involved. Of course, HomeStart itself is an organization that focuses on exactly this cohort, which made it an ideal source for exploring the preferences of such people.

Under the guidance of Gary Storkey and his able consultant, Patrick Mangan, two non-owner focus groups were carried out, with a total of 25 Adelaide based participants. A great deal of thought had been put towards their composition, with emphasis placed on a couple of critical clusters. The first was the so-called 'basic needs' category, who were all on Centrelink payments. The second was known as the 'fairer deal' class, who, while not on public subsidies, nevertheless found themselves 'stretched' for money. These two groups met on the 7<sup>th</sup> of April and the 8<sup>th</sup> of April 2003, respectively. At the start of the meetings, surveys were distributed (identical to the one above in every respect except that this time around a state-dependent contract was the primary platform) and worked through question by question. Both focus groups were moderated by Patrick Mangan, who was well acquainted with the nature of the home equity option, and in a position to dispense information in the event that participants were confused. Once the surveys had been completed, additional discussions took place on some of the key product sensitivities. At the conclusion of the session, each person was asked to provide a final opinion on whether or not they would be prepared to accept the shared appreciation product if it were to become available.

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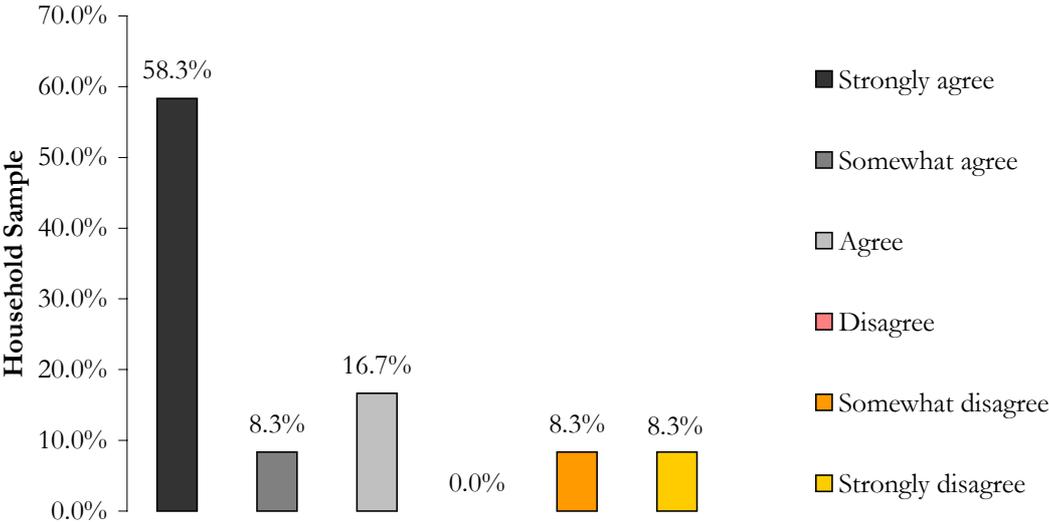
<sup>169</sup> Indeed, since 1989 it has assisted over 38,000 families into home ownership

Taking into account the differences between the survey and the focus group participants, we expected there to be greater interest in this form of finance among the latter (as they were obviously more in need). While virtually all of the attendees aspired to move into their own home within the next three years, they were at the same time very hard pressed for cash. True to form, the basic needs cohort displayed especially strong signs of liquidity constraints, with 10 of the 12 members agreeing at least somewhat with the statement that they “would have a hard time making ends meet if they lost one month’s pay”. Yet even the fairer deal group seemed more disadvantaged than their survey counterparts, with 9 of the 13 either agreeing or agreeing strongly with this characterisation of their conditions.

Figure 62

Basic Needs Focus Group Sample

If I lost even a month’s pay, I would find it hard to make ends meet

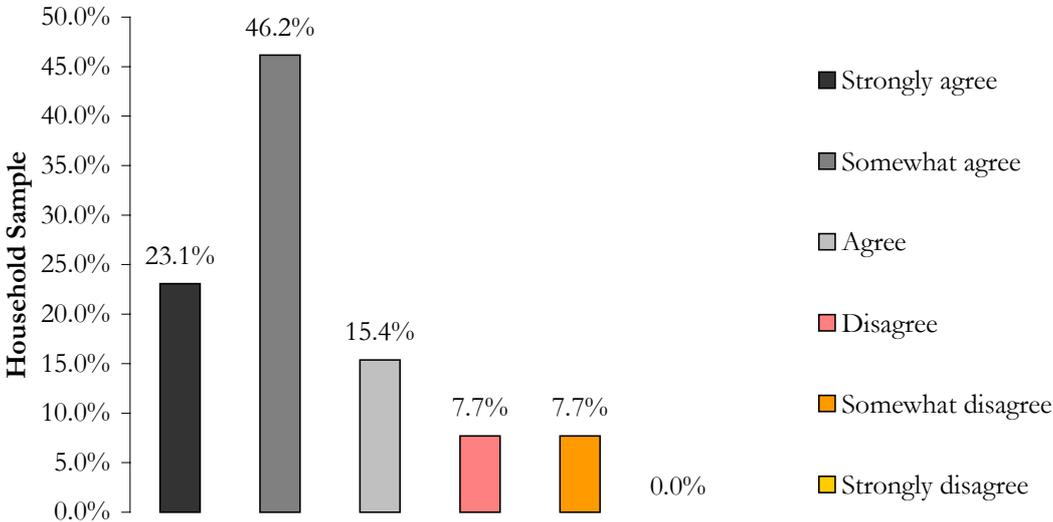


Source: HomeStart Finance and authors’ analysis

Figure 63

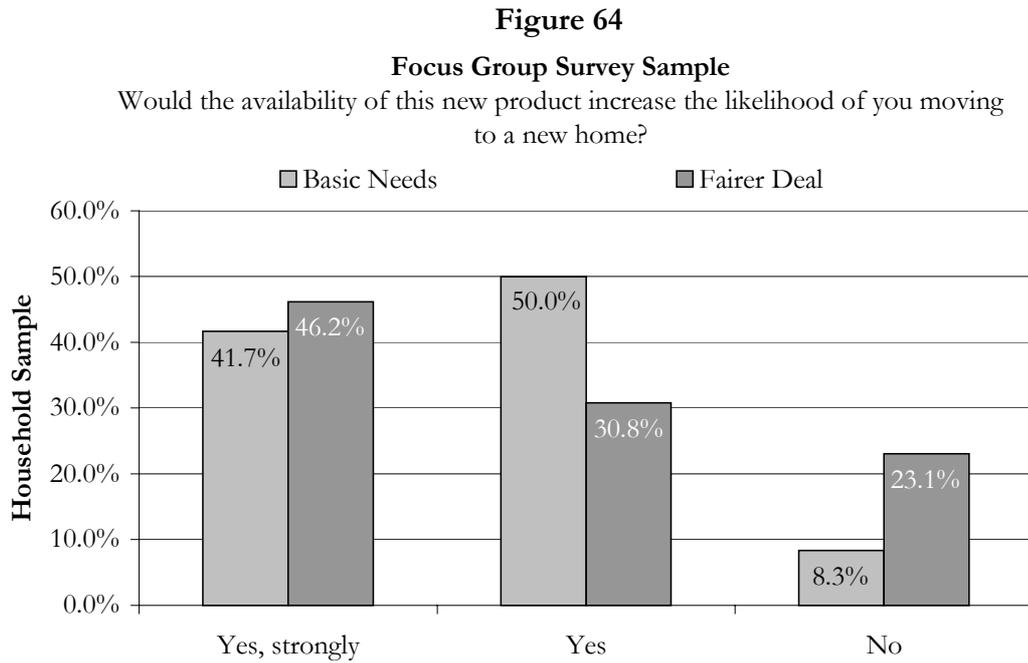
Fairer Deal Focus Group Sample

If I lost even a month's pay, I would find it hard to make ends meet



Source: HomeStart Finance and authors' analysis

Over and above these representational dissimilarities, it is also important to appreciate that the product purveyed to the focus groups varied from that which was offered to the regular survey respondents. In the questionnaire completed in the former exercise, the contract outlined was a state-dependent instrument, rather than the more rudimentary fixed equivalent. Also, there was no randomisation of the pricing parameters. Given the small sample size, and the desire for common understanding, all were pitched this form of finance on precisely the same terms. Specifically, they were offered 35 percent of the property's current appraised value upfront, with the payment upon termination equal to this same proportion of the sale proceeds, plus an additional one-third of the appreciation during the intervening period.



Source: HomeStart Finance and authors' analysis

Turning to the results, it will be no shock to reveal that interest in equity finance was extraordinarily high in both groups (see Figure 64 above). In the basic needs category, 11 of the 12 felt that it would increase the likelihood of them buying a home of their own. In the fairer deal class, 10 of the 13 participants responded likewise. Throughout the discussion about their feelings toward the opportunity, the prevailing opinion seemed to be that divisibility presented them with the chance to stop wasting money on rent, and to make an earlier start on the home ownership path.

All told, the focus group findings add further weight to the argument that the ability to issue equity capital would be of immense value to those members of the community who are least well served by our current system of housing finance. In addition, this analysis once again demonstrates that liquidity constraints are a key explanatory variable with respect to cross-sectional variations in dweller preferences. Here it does not hurt to reiterate the main points: when using a shared-appreciation product, nine out of ten low-income households responded that such arrangements would enhance their ownership prospects. If we take one step up the socio-economic ladder and consider those searching for a 'fairer deal', roughly 80 percent concurred that the probability of them purchasing a property would be improved as a result of the advent of equity finance.

### 2.5.3 Concluding Remarks

It will have been obvious to readers of this report that the preceding discussion represented a complete break from our theoretical simulations of the gains from trade. Recall that in opening this section we claimed that we were keen to move on from abstract mathematical delineations of utility so as to study whether these instruments actually appealed to the ‘human’ senses. What have we learnt? Overall, we conclude that although divisibility may not be all things to all people, it is a great many things to a vast number of non-owners. In a survey of a broad spectrum of households who do not currently have a home to call their own, we found that around one in two would be interested in supplying equity claims, even when we imposed harsh financial terms. And by making some cautious assumptions about the rental segment alone, we estimated that this market opportunity would, at the very least, be in the order of \$130 billion. The supply-side of the equation was wrapped up via two focus groups, where we discovered that roughly nine out of ten liquidity constrained consumers (i.e., those on Centrelink payments) felt that the introduction of this innovation would boost the likelihood of them achieving the otherwise arduous ownership goal. Throughout all of this it is worthwhile remembering that these products do not exist—anywhere. And so, the enthusiasm we discerned prevailed against the inherent unfamiliarity of the contracts in question.

But our work was not finished there. Oh no. With supply sewn up, we took a step back and asked ourselves: aside from the obvious candidates (i.e., institutions), are there any other constituents who would be eager to acquire interests in the securitised pools? And there certainly were. Roughly half of all non-owning households responded that they would prefer to invest exclusively in a portfolio consisting of residential real estate than in cash or a diversified fund. Perhaps most remarkably though, this was in spite of an explicit warning that such an investment could lose money in real terms. When we relaxed the constraint and allowed them to apportion their capital across cash, housing and a balanced fund, most of their wealth (about 40 percent) ended up in home equity. Thus, we feel confident that we also have the demand side of this new market firmly within our grasp.

In light of the 200 or so pages above, we think it best to now close our assessment of the economic viability of equity finance. But just in case you missed it, the message is unequivocal: contrary to what the critics have claimed, there is a veritable tsunami of theoretical, practical and human evidence which suggests that there exist massive gains from trade. In turn, this thus affords individuals and investors with tremendous wealth creation opportunities. In the remaining

chapters of the report we therefore commit ourselves to evaluating concerns regarding institutional feasibility. The thorniest such issues are of a regulatory and fiscal ilk. Specifically, we have identified a market that would not require any subsidies, since it is a direct result of gains from exchange. But it will be crucial to avoid a situation whereby overzealous authorities try to tax away these mutually advantageous possibilities. In the discussion that follows, we demonstrate that the rigid application of existing tax rules could do just that, while highlighting how very easy it would be to avoid this outcome. It would certainly be tragic to allow bureaucratic belligerence to kill off such a socially important innovation.

As a penultimate point, we want to highlight the fact that the survey methods presented herein only scratch the surface of the potential role of these techniques in guiding market development. In the future, we would like to make much greater use of this approach, both to hear from a wider universe of respondents, and to further refine our knowledge of the demand and supply sides of this complex theatre.<sup>170</sup> While acknowledging the current survey's limitations, we still regard the results as striking. Indeed, we know of no other example in which a technique such as this has been used to establish not only the need for a major new financial market, but also to locate the specific groups who would be willing to trade the commodity in question. Since so many of us are biased toward the status quo, particularly in matters of a financial nature, we anticipated immense resistance to these proposals. This makes our ability to identify the early pioneers all the more gratifying.

Finally, in subsequent research we will endeavour to extend the analysis to other life-cycle cohorts; in particular, incumbent dwellers and the elderly. In the interim, it might be helpful to recount what happened when we first published the primer. In short, The Menzies Research Centre was overwhelmed with calls from lay householders—yes, mums and dads—wanting to know how they could enter into these arrangements. Consider just three examples, the first of which was a note the youngest author received from the centre's Executive Director after a radio interview:

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<sup>170</sup> Specifically, it is anticipated that the survey will be extended to cash-constrained older Australians in order to ascertain their interest in these products. In this context, Neil Bird noted in his submission to the Task Force, “more needs to be understood about what motivates the dominant behaviour of retaining the family home and living on a low income. Is it the familiarity with the home and its environment? Is it because they worry that such arrangements would eat up all the asset value before they die (which would put them in a difficult financial situation late in life [with] nothing left to leave to their descendents)?” A survey of this topic would allow one to clarify the role of these factors vis-à-vis tenure choice.

“I just got a phone call from this delightful lady out in middle suburbia that heard you speaking on Adelaide radio last night. She thinks the idea is brilliant and would love to take advantage of it herself right now. She thinks that your interview went very well, and thinks that there would be a lot of people out there very excited by the proposal and champing at the bit to be able to do it in practice.” Mr Jason Briant, 10 July 2002

As a second illustration, a wise man sent us these thoughts:

“Hullo there, My name is [...], and I live in Orange, NSW. I heard through the media that the Centre was seeking expressions of interest with regard to the housing finance and reform process, and I would like to make one brief suggestion, which I hoped could be added to the document, if not already included. I live in my own home near Orange, and am approaching retirement age. Most of my equity for retirement is tied into this place of residence. My choice upon retirement is stark. I shall have to sell my home in order to realise enough equity to finance my retirement. This I am unwilling to do, simply because my home is near friends, and over the years I have put a lot of work into making the home and its surrounding comfortable and pleasant. What I should like considered, is the ability to be able to forward sell to a suitable financial institution, possibly backed by the government, part equity in my home, which would enable my family to continue living in comfort and financial security for our lifetime, with the institution then realising full ownership. Is this feasible? Many thanks.” 15 July 2002

Finally, on the same day, we received the following message from a gentleman in his middle years:

“Dear Sir, I have downloaded a copy of your proposal and welcome the alternative that it suggests. I had thought of a scheme that would allow a home owner to have a lender be part owner in a principal dwelling in return for an agreed equity transaction. This would allow the home owner to have access to funds that otherwise are obtainable only on sale. In our particular case, we are married with no dependents; and it would be a great advantage to realise the equity in our home to allow for an enhanced living standard in our later years - providing complete independence and requiring no government assistance. I understand the legalities that

would be required to satisfy those concerned, but these would not be any more basically different than in any mortgage type contract; the major item being the calculated future return to the lender. Is such a scheme operating at present? 15 July 2002

### 3 Part Three: Institutional Viability

With the proposal's economic viability now established, we move on to examine the second subject of interest: institutional obstacles to success. The discussion of Chapter 2.4 provides a natural bridge between the economic and institutional issues. One opportunity of particular significance is the 'state-dependent' contract. Under this arrangement, the investor receives a share of the initial house price commensurate with their original contribution, plus disproportionately large rights to future changes (in either direction) of the dwelling's value.<sup>171</sup> Interestingly, the state-dependent structure is in many respects similar to a shared appreciation mortgage (SAM), which has on occasion been available to consumers in both the US and the UK. It is, however, noteworthy that the SAM has failed to achieve significant scale in either market, which begs the question:

- If SAMs have never really taken off, does this mean that there is likely to be limited household demand for equity finance?

It is certainly true that the instruments we advocate offer economic and social advantages over the standard SAM. Yet this cannot be the complete answer, because shared appreciation contracts do represent an important step in the right direction compared with current alternatives. Upon closer examination, we find two candidate explanations for the failure of these products to achieve better market penetration. In the US, the early variants were very poorly designed, and met with resistance from some of the major regulatory institutions (including the powerful Internal Revenue Service (IRS)). In the UK, the engineering was somewhat superior, but the product suffered from being classified as a derivative instrument. So despite 'huge' consumer demand,<sup>172</sup> and a healthy institutional appetite, government interference once again stifled the emergence of a secondary market.<sup>173</sup>

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<sup>171</sup> As the analysis in Chapter 2.4 makes clear, there are a whole host of mixed time- and state-dependent products that economically dominate their fixed counterparts.

<sup>172</sup> The success of the contract was borne out in the press coverage at the time (see Chapter 3.1), and private conversations that we held with the primary purveyor, the Bank of Scotland.

<sup>173</sup> There was some consumer inertia in the years after the contract's launch, which, we believe, was a result of the harsh terms (Chapter 3.1).

Our review of the history of the SAM highlights a telling point: even economically viable markets can fail to take off if there is inadequate political support, and if the main players display excessive impatience. (Indeed, as we shall see shortly, the secondary mortgage market in Australia was nearly consigned to a similar fate.) The sad fact of the matter is that innovations of this kind have never been introduced with the necessary institutional or political infrastructure in place.

This leads into our evaluation of the architecture of the primary and secondary markets, and an assessment of the legal amendments required to get these ideas off the ground.

In Chapter 3.2, we communicate a detailed vision of the industry architecture in an attempt to equip constituents with sufficient information to take the first tentative steps towards commercialisation. Once the end-user product has been purveyed, it is envisaged that sophisticated intermediaries will act as ‘market-makers’, bundling otherwise illiquid contracts into diversified portfolios, and issuing shares on the underlying baskets. These participants might be viewed as conduits connecting households in need of equity finance with institutions that wish to obtain regulated exposures to a new and highly uncorrelated asset-class. Of course, this process should sound familiar, because it is exactly what transpires in the market for mortgage-backed securities. Indeed, the latter could serve as the ultimate vehicle through which these products are introduced to the investor community.

In spite of this optimistic outlook, we make a plea for all parties to display patience. These innovations do not develop overnight, as the case of the SAM and its premature withdrawal illustrate. Another example of this principle is to be found in the history of the secondary mortgage market in Australia, which evolved at a truly glacial pace (notwithstanding the existence of several compelling precedents). Indeed, there was a lively debate at the time as to whether the nation even needed one.<sup>174</sup> At in excess of \$80 billion today, it is hard to imagine what life would be like without alternative lenders and the pressures they exert on the banks! We conclude therefore with the following question:

- Will the growth in equity finance be similarly slow, or can market participants and the powers that be work together so as to accelerate the maturation process?

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<sup>174</sup> See Tingle, Laura (1981), “Big Expansion of Secondary Mortgage Market Unlikely”, *Australian Financial Review*, 28 October.

We believe that one way or another the use of home equity to assist with the property purchase will eventually become standard industry practice. It is more a matter of whether that day will arrive in the near term or in some far-flung future; and that, truth be known, is a question only you (i.e., consumers, decision-makers, investors and opinion-shapers) can answer.

Legal hurdles often pose major impediments to a new market's progress. Chapter 3.3 contemplates some of the contract and property law considerations that these structures could raise. The specific nature of the contractual relationship between the individual and the institution is also outlined. Once again, we are sanguine. The anticipated provisions ensure that the interests of both parties are protected, while legal and other transactions costs are kept to a minimum. Importantly, we are also able to demonstrate that the contract can be accommodated within the existing principles of the law. As such, legislative intervention is unlikely to be required. Many of the conditions that one would expect to be inserted into the arrangement can be modelled on standard form provisions found in mortgages and leases.

In Chapter 3.4, we extend the legal analysis to consider the use of debt instruments. The advantage of this alternative is that it circumvents the complexities inherent in co-ownership, while building on a precedent with which private sector participants are already comfortable. Nevertheless, the treatment of these contracts is by no means straightforward. In particular, there are a number of sophisticated tax issues that one would have to address before bringing such products to market. The most weighty of these concerns is whether the securitised pools would be taxed on an accruals or cash basis. The former would almost certainly guarantee the absence of institutional interest—that is, the market would die a very quick death. Here we stake the claim that it is simply not reasonable to tax investors on unrealised capital gains. We are also at pains to point out that these instruments would present policymakers with an opportunity to levy charges on owner-occupied housing for the very first time. Given that residential real estate is a multi-trillion dollar asset-class, the revenue raising possibilities would be absolutely immense. Thus we submit that even the most bloodthirsty of bureaucrats should be motivated to facilitate the widespread promulgation of these products.

Our goal in spending so much time thinking about the institutional detail is not necessarily to provide definitive answers, but rather to familiarise potential stakeholders with the subjects that need to be addressed in order to reform Australia's system of housing finance. Our sincere hope is that those who read the report will be moved to

ask the question: what can I do to help advance this important process?

We conclude with a request to you, the reader, to present us with your thoughts on the durability of these ideas, and the likely road ahead as you see it. We have no claims to a monopoly on knowledge, and are genuinely interested in suggestions concerning both the proposal itself, and the best way to ensure that these recommendations realise their full potential.

### 3.1 The Shared Appreciation Mortgage

In this section, we quickly review some of the lessons learnt from attempts to introduce shared-appreciation mortgages (SAMs) overseas. The earliest such products were developed in the US in response to the inflationary pressures experienced during the 1970s (see Dougherty, Van Order and Villani (1982) for an introduction, and Murphy (1991) for a more recent discussion). When the general price level rises, there is a front-end loading of interest payments in standard mortgage instruments. That is, inflation causes nominal rates of interest to rise while simultaneously driving down the real value of outstanding debt. The unfortunate outcome is that borrowers experience severe financial stress because they are forced to pay off their debt ahead of schedule. A SAM reduces the extent of this front-end loading by enabling users to pay lower rates of interest today in exchange for a share of the inflation-induced increase in the value of housing in the future.

The SAMs offered in the US were relatively short term (generally ten years in duration), and combined sizeable cuts in interest payments with a substantial sharing of appreciation. One product in particular presented households with a six percent per annum interest rate concession in return for a contingent claim on 40 percent of the appraised price growth. Very few such instruments were in fact issued, in part because of some rather regrettable features:

- The Impact of Inflation on the Real Cost of Debt

The value of the SAM's terminal repayment is strongly influenced by the rate of inflation: if prices increase by 20 percent per annum over, say, the next five years and the real worth of the property does not change, the total amount due at termination equates to around 24 percent of the value of the house. If instead this period were to be characterised by deflation, the dweller would not owe the institution anything.

The former scenario was indicative of the circumstances that prevailed in the 1970s, since this was a time of high and very volatile inflation. Accordingly, SAMs tended to appeal to only one side of the market, depending on the nature of inflationary expectations. When price expectations were high, there were lenders aplenty but few borrowers. The converse was of course true when future inflation was anticipated to be low. This was exacerbated by the extreme price volatility, which rendered estimates of the cost of capital uncertain at best.

- **Nebulous Tax Treatment**

The Internal Revenue Service's (IRS) primary mandate is to prevent tax avoidance. Sadly, this seems to have coloured its attitude when called to rule upon the prickly subject of whether a SAM is debt or equity. In the context of the US, this was even more important because a finding to the effect that it was a form of ownership would have eliminated the prospect of obtaining the mortgage interest deduction—at great cost to the occupier. In the end, the IRS decided (somewhat reluctantly, if one reads between the lines) that both the fixed and contingent interest payments on a specific SAM product were indeed deductible (IRS (1983)). The ruling was deliberately narrow, and as a further sign of hostility, the IRS has twice since announced that it would not issue any additional determinations on the subject, most recently in 1996 (IRS (1996)).

The consequences of the IRS' draconian attitude towards the SAM continue to ripple throughout the US housing market to this day. There was of late, for instance, a well-funded and researched attempt to launch just such an instrument, with the National Commerce Bank Services (NCBS) of Memphis offering to acquire contracts from local issuers in the Southeastern States, and Bear Stearns undertaking to sell the securitised bonds. Yet the product was withdrawn almost immediately, in large part because of ongoing questions about the stance of the IRS. To illustrate the manifest ambiguity, consider the advice NCBS offered to potential clients (2000: p. 19):

“The application of the federal income tax rules to a SAM is both uncertain and complicated, and the rules will affect each borrower differently. Accordingly, you must talk to your tax advisor about the consequences of borrowing under a SAM.”

One can hardly hope to reduce the costs of home ownership by introducing a product that requires interested parties to engage in extensive consultations with their tax planners! More recently,

bankers, employers, local governments and not-for-profit organizations have launched shared appreciation products in many of America's most expensive housing markets, from Howard County, Maryland (a pricey suburb of Baltimore, Maryland and Washington, DC) to San Diego, California. These contracts generally have one common element: instead of a shared-appreciation product replacing the conventional first mortgage, as in the experiments of the 1980s, the scheme supplements it, usually in the form of a second mortgage or, in one case, a co-ownership agreement. Typically, an equity source provides 20 to 25 percent of the purchase price (in one program this percentage has risen to 50 percent) in exchange for a similar share of the appreciation at point of sale. The remainder of the acquisition costs are financed by a small down payment and a conventional first mortgage of 70 to 75 percent of the home value.

These initiatives have usually been implemented as either public-purpose programs to help low-to-moderate income families or as employer-sponsored schemes to assist employees acquire a home (the latter of which is most prevalent among universities in dear markets such as MIT, Stanford and the University of Colorado at Boulder.) As such, it is not surprising that most have operated on a small scale, producing at best only a few thousand financing arrangements nationwide. They are not at present shaped in a way that can attract significant private capital for two basic reasons. First, the current design does not give rise to returns that would be high enough to appeal to outside investors—equity partners do not normally receive any premium for giving up the potential rental income. Second, the existing programs do not share a common contractual structure, with different parameters on everything from duration to repayment formulas to contract structure. As a consequence, these efforts have not spurred the emergence of a tradable commodity in housing equity, which would provide the homogeneity that the secondary markets so desperately seek.

There is, however, one innovative offering that supplies a template for how the nascent US market could evolve to secure greater scale. In 1996, Northbay Family Homes, a not-for-profit organization in the San Francisco Bay Area, developed a product known as the 'Community-Assisted Shared Appreciation' (CASA) contract. Unlike its peers, CASA has attracted considerable investment from banks, development firms, and other private entities that supplement the government funding. The investors obtain an equity stake in the house in the form of a second mortgage, which is then backed up by the local authorities with a third mortgage. The second and third mortgages each equal ten percent of sales price, for a total equity investment of 20 percent. Both the investor and the government agency get their funds back when the home owner sells the property. If the occupiers have not sold after 14 years, they are required to

refinance and buy out the investors if they can afford to do so. Significantly, when the house is disposed of, the family receives 40 percent of the appreciation, while the equity partners collect 60 percent (most of which goes to the private institutions). Due to the high prices in the San Francisco area, this initiative has proved to be extremely popular with residents.

Indeed, all of these programs have experienced demand that has been much greater than the available supply. In Howard County, for instance, a recent financing round for nine buyers attracted 347 applicants. Part of the reason demand has exceeded supply is that most schemes have offered financing on exceptionally favourable terms as a result of the flexibility afforded by public funding. But the fact that even the CASA program has garnered strong demand shows that there exists the potential for a much larger consumer market than is presently the case.

If design flaws and institutional barriers can be overcome, there is another encouraging precedent in the UK. In 1996 and 1997, the Bank of Scotland (BoS) introduced private SAM products in England and Scotland for the first time. At the outset, its operation was supported by the securitisation services of the Swiss Bank Corporation (SBC). Despite the inherent unfamiliarity of the instrument itself, and some exceptionally novel clauses, the market took off almost immediately after the BoS started offering the product in October 1996. In fact, 3,005 loans were issued between March and November 1997.

So what were the unique conditions of the BoS contract? Well, to begin with, the mortgages did not have fixed maturity dates, but instead became repayable upon the occurrence of certain specified events; e.g., sale, death of the occupier, or default. Of course, this is consistent with the arguments we tendered earlier about the predictability of the cash flows at the securitised portfolio level. Second, the borrower was not required to pay any interest whatsoever. Rather, the lender was remunerated by way of an 'appreciation amount' equal to three times the initial loan-to-value ratio; which is equivalent to  $S_G = 3$  in the parlance of our report. (While this might sound like a somewhat steep figure, the plot thickens, as we shall see in a second.) Finally, the household was compensated for any improvements in a similar fashion to that which we have previously advocated. In particular, the terms provided that once a renovation had been made, the base value of the relevant property could be increased or decreased (as the case may be) by the appraised impact of the change, and the appreciation amount adjusted to allow for the effect of the alteration. Yet perhaps the most extraordinary aspect of the BoS agreement was the lender's so-called

‘equity compensation’, which was determined by the following formula:

$$\frac{L}{LV} \times IF \times SAP,$$

where  $L$  designates the amount outstanding under the mortgage;  $LV$  the original loan-to-value ratio;  $SAP$  the shared appreciation percentage agreed to under the offer (i.e., three times  $LV$ ); and,  $IF$  denotes the indexation factor, which measures the time-series change in the Halifax house price index.

It should be easy to see why we view the success of this product to be so astounding—the commercial proposition was, to say the least, skewed massively in favour of the financial institution. Specifically, the contract tripled the rate of return one would normally realise by way of a real estate investment, while removing all of the risks associated with a price decline.<sup>175</sup> On this note, three other points are worthy of comment. First, the dweller was exposed to enormous basis risk—it was not the performance of their house that counted, but rather that which was attributable to a much broader proxy. Self-evidently, there would, on the balance of probabilities, often be a very significant divergence between the two. Second, this experience demonstrates that consumers are comfortable using house price indices as a mechanism for measuring returns. Interestingly enough, similar evidence has also been documented in the US (see Chapter 4.6). Lastly, it is remarkable to think that there was such great demand for a product in which occupiers were obliged to sacrifice a vast proportion of the future capital gains, while weathering all of the downside risk. Put yourself in their shoes. You borrow 25 percent of the appraised value of your home today. In exchange, the institution receives 75 percent of the price appreciation, but burdens none of the risks associated with potential price declines. To make matters worse, it does not take 75 percent of the growth realised by your specific home; no, this payment is made in reference to the performance of a broad-based price index!

In February 1998, these contracts were packaged by SBC into two tranches of mortgage-backed notes (SBC Warburg Dillon (1998a,b)), valued at £203.57m and £45.65m respectively. Given the initial success, it must have been a particularly bitter blow to the BoS when, as a result of its merger with UBS, SBC pulled out of the mortgage

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<sup>175</sup> It also eliminated concerns about the peculiarities of the properties in question, by conditioning on a well-diversified portfolio of homes (i.e., the Halifax house price index).

business altogether. This was compounded by the UK Treasury's decision to prohibit life-insurers from obtaining exposures to the instruments. The lack of an organizing intermediary combined with unsympathetic regulatory interpretations compelled the BoS to withdraw the product from the market. It is rather ironic that the problems lay with investors, because whoever bought the bonds in the first instance would have made a killing given the performance of property during the intervening period! Examples of the product's success were also borne out in the press coverage at the time:

- “Just Too Many Borrowers”

“SAMs are temporarily off the market after demand from borrowers outstripped the supply of money from the bond markets. SAMs were pioneered by the Bank of Scotland, which packaged up the loans and then sold the rights to the repayments to institutional investors via the bond markets. But demand for the bonds has dried up after £250m worth [had been issued].” *The Financial Times*, 11 July 1998

- “Bank’s Success is a Bit of a Rarity”

“It is rare for a financial service to be withdrawn because there is too much demand for it. I can’t recall a money contract being taken off the market because it was too popular. This is what has happened to “SAMs”...The Bank of Scotland pioneered this facility and acted as a matchmaker between the individuals and the bond market for wholesale money.” *Edinburgh Evening News*, 13 July 1998

- “A New Scheme Freeing Capital from Property”

“The SAM...offered by the Bank of Scotland, was immensely popular. But it was not a risk banks could take on their own balance sheet. And the Treasury prevented life insurers from buying the loans via securitisation plans. So, the banks that offered it simply ran out of organizations which would finance the funds.” *The Guardian*, 15 May 1999

### **3.1.1.1 Future Prospects**

If the SAMs discussed above could not get off the ground, why are we so optimistic? There are two distinct sets of economic and institutional reasons, each of which we now outline.

### 3.1.1.1.1 Economic

First, our approach to relaxing the all-or-nothing constraint is characterised by an immense degree of flexibility. Indeed, we offer constituents two entirely different trajectories: plain-vanilla equity or a debt hybrid. (A detailed exegesis of the issues implicit in these two paths is provided in Chapters 3.3 and 3.4, respectively.)

Second, while the end-game objective may be in the same ballpark, our models have superior design features. By definition, the suite of state- and time-dependent instruments presented thus far require no interest payments during the life of the loan. In contrast, the standard SAM affords users a one-third reduction in the rate of interest in exchange for a sizeable share of the future appreciation (the BoS product was the first and only exception to this rule).

Third, the majority of SAMs impose a fixed term, which obliges occupiers to pay off their loan prior to the termination date, even if there is no corresponding revenue-generating event (once again, the BoS contract was anomalous here). On the other hand, the structures we advocate do not have a predetermined maturity, since at the portfolio level one can accurately forecast the average date of divestiture. Moreover, the use of financial engineering techniques such as amortisation and total return swaps should enable participants to smooth the cash flow stream.

Fourth, we can calibrate our models so as to supply home owners with price protection (i.e., insurance) on the downside, whilst preserving the integrity of the underlying commercial proposition. This is no trivial matter: in recent times, a growing number of economists have recognized that the absence of such opportunities constitutes one of the most serious threats to the average dweller's standard of living (see, for example, Caplin and Joye (2002b) and Shiller (2003)).

Fifth, we have engineered a whole host of additional contractual features, such as the use of composite structures that condition on local price indices (not in the manner envisaged by the BoS), which help us to overcome the Byzantine issues relating to adverse selection and moral hazard.

Finally, even if one were to dismiss the persuasive numerical evidence of Part Two above, we know from our survey of consumer sentiment that the demand and supply sides of this market already exist. In fact, we do not even need to captivate the attention of those hard-to-please institutional investors. The majority of surveyed households expressed extraordinary enthusiasm for saving via a real estate linked account, in strong preference to current alternatives such as cash or

managed funds. They evidently recognized that this product would allow them to hedge the risks of future property price changes in a more efficient fashion to that which is presently available via conventional structures.

#### 3.1.1.1.2 Institutional

While the economic advantages of the instruments above are considerable, there is little doubt that if a market for SAMs had taken off, superior product variants would have been tested. And so, we suspect that the impediments to progress were of a fundamentally institutional ilk. One explanation for these difficulties is that the SAM represents a ‘stealth’ technique by which to change the system of housing finance (in contrast to, say, a more radical plain-vanilla equity product). Presumably, the rationale was to alter as little as possible, while introducing a significantly improved debt contract. Sadly, this approach did not galvanize sufficient institutional support. In the US, the IRS has been under little pressure to deliver new rulings on the subject, which has stifled the instrument’s acceptance. In the UK, there has been no policy debate vis-à-vis the need to foster a secondary market, while the nebulous legal treatment of the product once again conspired to dissuade investor interest. It is therefore our belief that we need to stimulate a wide-ranging discussion on the road that lies ahead so as to iron out all of the relevant wrinkles prior to practical implementation.

Our study of the launch processes in both the US and the UK yielded a number of other noteworthy insights:

- The products must make a very good first impression. Equity finance cannot be introduced with major design flaws (which was unambiguously the case in these countries), since one rarely gets a second opportunity to capture consumer mindshare. Indivisibility is emphatically an example in which it makes sense to sacrifice self-interested pursuits in order to harness the intellectual and commercial synergies that manifest when collaborating as a collective.
- Political support is vital to the market’s long-run viability. While the engineering phase is partly our responsibility (along with the relevant third parties), crystallizing the attention of public sector participants is beyond the scope of an academic’s remit. It is nonetheless our sincere wish that by initiating a vigorous debate, we will have increased the probability that these opportunities receive the political backing they so deserve. Of course, it is only by embracing the key decision-makers in the early stages of such an effort that one can hope to avoid opening up a Pandora’s box of

institutional problems. On this note, the ATO and the Treasury must be convinced that there is no need to tax away gains from trade. In our minds, to do so would be tantamount to fiscal fratricide.

- Patience will be required to ride out the initial storms. As we show in the Chapter below, the secondary market for mortgage-backed securities took a very long time to develop in Australia, with much bickering between State and Federal Government constituents. Such inertia was even more apparent in the country that innovated these opportunities in the first place—the US (see, for instance, Jones and Grebler (1961)). Thankfully, powerful precedents now exist. Yet given the haste with which the BoS withdrew its promising line of contracts when secondary interest evaporated, it would seem wise not to raise expectations to ridiculous heights.

## 3.2 The Architecture of the Primary and Secondary Markets

### 3.2.1 Introduction

In the empirical analysis of Part Two we found that there was an enormous valuation wedge between the prices individuals and institutions place on a residual stake in the residence. In fact, this spread may be as large as 20 cents in the dollar (or 200 percent of the investor's original contribution), depending on the contract employed. Equity finance could therefore unleash tremendous gains from trade and present prospective participants with some extremely lucrative opportunities.

At this early stage of the game there remains, however, a rather daunting chasm between our theoretical vision and the practical realities of housing finance. It is for that reason critical that we clearly communicate a detailed picture of the primary and secondary markets, which should in turn equip the key constituents with sufficient information to take the first tentative steps towards commercialisation. Naturally, the ultimate objective of this 'road map' will be to guide us along the path to Pactolus<sup>176</sup>—that is, a place where the welfare of all is immeasurably enriched.

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<sup>176</sup> Pactolus is a small river in Asia Minor, once famous for the vast quantities of gold deposited in its sands as a result of Midas having bathed there.

To effectively harness this fresh housing finance environment, we would recommend the establishment of an over-the-counter (OTC) trading platform in real estate equity, with the market for mortgage-backed securities used as a model. In brief, we envision institutional acting as ‘market-makers’, bundling the underlying contracts, holding them in a portfolio, and issuing shares on the securitised pools. And so, they might be viewed as conduits efficiently connecting households in need of equity finance with investors that wish to obtain diversified exposures to a new and highly uncorrelated asset class.

The precise structure of this industry is difficult to predict and will doubtless flex to embrace a variety of potential participants. It could, for instance, be the case that our system evolves such that originators focus more on the administration of equity finance, leaving the packaging of the individual interests to sophisticated intermediaries. On the other hand, there may be some purveyors who prefer to adopt a ‘vertically integrated’ approach and involve themselves directly in the securitisation process.

If a liquid secondary market develops in home equity contracts, it is anticipated that the broader financial community, including superannuation funds, insurance companies, and wealthier households, will independently contribute capital. The asset purchased by the investor would be a share in the price appreciation associated with the house occupied by an individual. To a first approximation, the return pattern on these pools would mimic those of residential real estate, with the advantage of nontrivial enhancements.<sup>177</sup> Of course, at the fully securitised portfolio level one also diversifies away all of the idiosyncratic risks associated with the timing of individual tenure. Indeed, large pools of real estate equity would be characterized by steady streams of future cash flows, the incidence of which one could easily predict. The primary uncertainty lies in the estimated size of those flows, which would depend to a very significant degree on systemic factors of a demographic and macroeconomic nature.<sup>178</sup>

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<sup>177</sup> The institution is not in any way committed to holding their equity share until the property is sold. On the contrary, the entire structure of the secondary market is designed to ensure a continuously operating platform in which these contracts are bought and sold, so that there is the usual separation between the trading period and asset maturity.

<sup>178</sup> These might include labour market demand, interest rates, consumer sentiment, changing population structures, and the accessibility of regional amenities, among others.

### 3.2.2 The Secondary Mortgage Market

Residential real estate accounts for around half of all the tangible capital assets in the developed countries of the world. At in excess of \$70 trillion it is, in fact, the most valuable asset class on earth. Housing finance ranks, therefore, among the largest components of capital markets, its size being of the same order of magnitude as government debt and traded equity securities combined. One of the most significant events in post-war housing finance has been the rapid expansion of secondary mortgage markets in countries around the globe.<sup>179</sup> Encouraged by the advent of ‘securitisation’, mortgages have become highly marketable instruments, which are actively traded by the investment community.<sup>180</sup>

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<sup>179</sup> In technical terms, mortgages are debt instruments secured by commercial, industrial or residential collateral. The mortgage market can be divided into ‘primary’ and ‘secondary’ elements. The primary market involves the creation and issuance of the underlying instruments. Operating in isolation, it could restrict the universe of available capital since funds would be effectively locked away for lengthy periods. A secondary market provides a mechanism through which originators can divest of their mortgages and use the new money to engage in additional lending. They need not, therefore, hold on to their portfolios until maturity. This recycling of funds generally take one of three forms: (1) a ‘pass-through’ market, such as in Australia, Canada and the US, where writers of primary mortgages sell them to market-making institutions that form pools against which medium to long-term participation certificates are issued; (2) a ‘mortgage-backed bond’ market, as in Denmark and Italy, in which a pool of mortgages provides collateral to secure repayments of principal without actual ownership of the underlying; and, (3) a ‘bill market’, such as in France, where originators issue short-term bills backed by their mortgage portfolio (see Conway and Weston (1985)).

<sup>180</sup> Securitisation may be defined as a process by which designated pools of receivables are packaged and subsequently sold (with appropriate credit support) to investors in the form of instruments collateralized by the underlying assets and their associated streams of income. It is, for that reason, a procedure by which lenders are able to group previously illiquid assets into marketable parcels. Funds arising from the sale of these securities can then be recycled to enable a new round of lending, without any need for an increase in the institution’s equity base or a breach in its capital adequacy requirements. Additional fees are charged in lieu of this packaging service, which supplements the rate of return on shareholder funds and delivers a valuable new source of non-interest income. The securitisation phenomenon serves, therefore, to build bridges between otherwise isolated constituencies, significantly improving the welfare of both. In the case of mortgages, it furnishes financial market participants with regulated access to an asset class that would, under different circumstances, simply entail too much idiosyncratic risk. At the same time, the increased pool of funds expands the dweller’s housing finance opportunities. These structures are often rather complex and typically involve a number of different parties, including the originating bank, a special purpose vehicle, a trust manager, liquidity providers, and end-user investors (see Austin (1991) and Forsaith (1995)).

A market for mortgage-backed securities is considered desirable on social and economic grounds. Implicit and explicit benefits include, among other things, a significant expansion in the supply, flexibility and continuity of housing finance, a reduction in the cost of capital, improved affordability and home ownership opportunities, superior balance sheet risk management capacities, new diversification possibilities, and a decline in the need for public subsidies. Less obvious advantages also accrue to the wider community. Chief amongst these are increased competition in the provision of financial services, a more efficient financial system and distributional changes to the domestic economy.<sup>181</sup>

The US secondary mortgage market originally emerged as a method for obtaining off-balance sheet financing to attenuate the interest rate and liquidity risk inherent in fixed rate lending. In the past, issuing institutions had to hold onto mortgages until maturity, which resulted in a strong financial interdependency with their customers. It also meant that the risks in purveying mortgage finance remained with the originating entity. Today the issuer of a standard US mortgage can almost instantaneously sell the product to an intermediary, which pools them and provides credit guarantees in the secondary market.<sup>182</sup> Investors then buy the mortgage-backed securities and acquire the rights to the underlying cash flows. Although they have little or no default risk, the investor is still subject to significant uncertainty as to the timing of the cash flows, since the holder might pay off the mortgage as a consequence of refinancing or divesting the dwelling. The market for mortgage-backed securities now constitutes the single largest source of debt in the US economy, with around \$6 trillion worth outstanding as at December 2002. This would not, however, have been possible without the assurance of some form of federal 'sympathy'. In fact, the Canadian and US markets received much more than that, with the formation of well funded public intermediaries whose primary objective was to stimulate the growth of housing finance.<sup>183</sup>

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<sup>181</sup> In Australia, the advent of securitisation has facilitated the transfer of financing from the banking sector to the capital markets. This process has been reinforced by (1) the flow of household savings into superannuation, and (2) the reduced supply of government and semi-government debt securities as a consequence of recent budget surpluses and asset sales.

<sup>182</sup> In the US, some private companies, such as Citibank (through its Citi Mae subsidiary), perform these functions in the non-conforming market. The agencies' chartered objective is to promote the secondary market's liquidity by providing services that increase the orderly flow of funds.

<sup>183</sup> In Canada, the Residential Mortgage Financing Act authorized the creation of the Federal Exchange Corporation in 1974, whose task was to develop the secondary market (see Horrigan and Weston (1980)).

Government supported or controlled institutions play a prominent part in the provision of housing finance in most developed countries. The largest housing finance institution in the world, the Government Housing Loan Corporation of Japan, is a public entity. The leading player in the US, FNMA, is a 'government-sponsored enterprise' (GSE) with private shareholders, a limited government charter, exemption from SEC registration requirements, and considerable fund raising and tax advantages.<sup>184</sup> In this context, it is often argued that the presence of GSEs improves the liquidity of the secondary market and contributes to lower mortgage interest rates.<sup>185</sup> The absence of such certainly impeded the progress of mortgage-backed securities in the Antipodes, as we shall see shortly.

There is, nonetheless, an emerging trend towards reducing public participation once some form of stability has been secured, with subsidised institutions in Argentina, Australia, France, Korea and Spain having been recently privatised. A similar pattern is beginning to manifest in the US, where popular sentiment suggests that FNMA and FHLMC have long since matured beyond the need for government support. Indeed, on the 15<sup>th</sup> of July 2002, the US Congress embarked on a formal investigation of their comparative advantages vis-à-vis aggrieved private market contemporaries. While testifying to the authorities, a Treasury under-secretary commented, "The government-sponsored entities are no longer modest experiments on the fringes of our financial system...They need to be role models for investor protection, not exceptions to it."<sup>186</sup> And so, the lesson seems to be that although public sympathy is a vital ingredient to the success of any new trading platform, there is less of a need for such support once the market gains critical mass.

The Australian market for mortgage-backed securities first emerged in 1984, although there had been some trading since 1979 (see Wright (1989)).<sup>187</sup> Today, Australia has one of the most active and innovative

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<sup>184</sup> The GSEs also have a line of credit to the Federal government, and their securities are exempt from certain limitations that apply to bank holdings of other corporate debt. The result is that their cost of funding is below even the most creditworthy of private firms.

<sup>185</sup> With an implicit (though usually denied) government guarantee for their debt, default rates are, of course, very low for all GSE securities.

<sup>186</sup> Congress' willingness to tame its own wayward children is being viewed by many as an important test of its ability to reform the US financial system.

<sup>187</sup> The first securitised pools tended to comprise of commercial mortgages, which were known as 'Annie Maes' (Austnat Mortgage Pool Agency Ltd), 'Aussie Macs' (the National Mortgage Market Corporation), 'Fannie Maes' (the First National Mortgage Acceptance Agency), 'Mortgage Trust Certificates' (McCaughan, Dyson & Co), and 'MMSs' (MGICA Mortgage Securities).

mortgage markets in the world. After a somewhat insipid start, it has experienced stunning growth, with roughly \$80 billion in securitised mortgages outstanding as at December 2002 (see Figure 65 below).<sup>188</sup> Default ratios are very low (less than one percent) and the high credit rating of these securities has proved attractive to investors looking for near substitutes to the diminishing government debt. The structure and legal underpinnings of mortgage-backed securities in Australia are also attractive. There is extensive use of mortgage insurance, and, as in the UK (and not in the US), there is full recourse to the assets of the individual borrower.<sup>189</sup>

Support for the secondary market in Australia was supplied at both the State and Federal levels, despite resistance to the idea in the Campbell (1981) and Martin (1983) inquiries and a great deal of initial government indifference.<sup>190,191</sup> In fact, it is not unreasonable to

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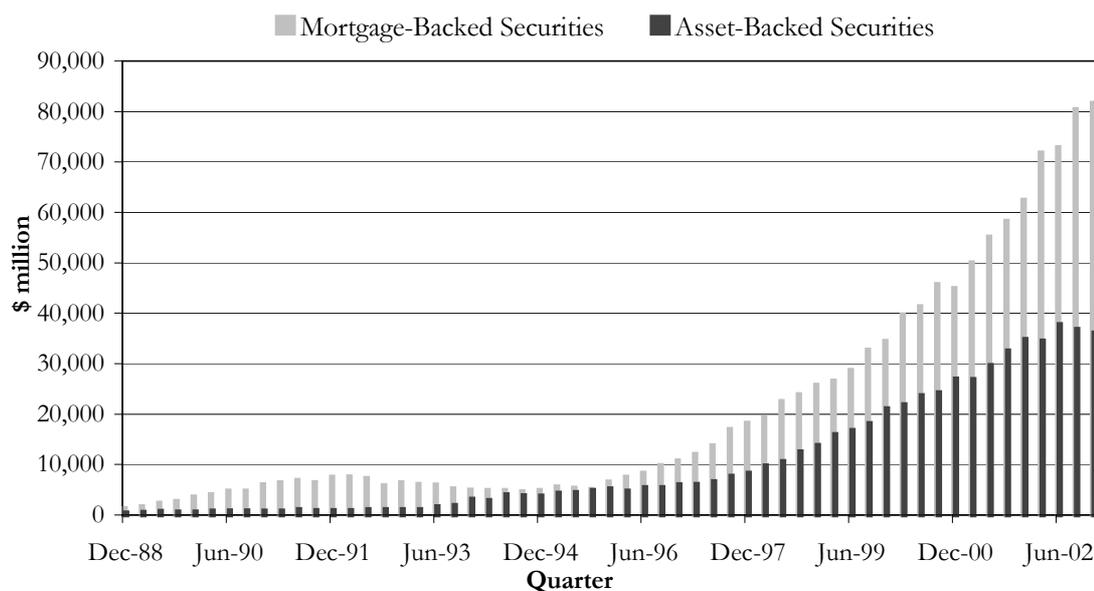
<sup>188</sup> More recently, the sector has experienced a sharp increase in the volume of securities backed by assets other than mortgages. In Australia, these instruments are collectively known as 'asset-backed securities'. They are typically secured by credit card receivables, automobile loans, aircraft loans, equipment leases, gas and water receivables, and corporate loans. Investors have demonstrated an increasing appetite for these instruments as they can provide diversification benefits, higher yields, shorter 'legal' lives and associated reductions in portfolio volatility. Banks are attracted to the sector in part because asset-backed securities offer greater capital relief than their mortgage counterparts (as commercial loans attract a larger capital charge). Axiss Australia has published a comprehensive overview of the domestic debt securities market and the interested reader is referred to its website ([www.axiss.com.au](http://www.axiss.com.au)).

<sup>189</sup> A short lesson in history suffices to explain the different trajectories of the Australian and US markets. In Australia, the banking system has been dominated by a small number of large national entities with branches scattered throughout the country. In contrast, the US is characterized by a very significant degree of decentralization and a preponderance of regional franchises. The market for mortgage-backed securities helped, therefore, to address structural issues relating to geographic disparities in the cost and supply of housing finance. The discrete and independent nature of the US branch networks made it especially hard to efficiently distribute available finance to areas of excess demand. On the other hand, Australian banks accept deposits on a nation-wide basis and lend them out in a similarly uniform fashion (as we shall see in Chapter 4.2, Australia is also one of the most urbanised states in the world). And so US style frictions do not pervert the efficient allocation of funds. Put differently, one would not expect the Australian market for mortgage-backed securities to have had as great an influence on the inter-regional supply of housing finance.

<sup>190</sup> Neither report advocated a need for the Commonwealth Government to intervene to promote the secondary market on the grounds that it would not prove efficient, or that it would be too costly and conflict with monetary policy. This policy vacuum certainly contributed to the serious State centric problems that emerged during the first ten years or so. In 1980, Horrigan and Weston observed, quite prophetically, "It was our view of previous Australian proposals for a secondary market that they suffered from the defect, potentially fatal on overseas evidence, of a lack of government participation. It remains to be seen whether the present development is able to overcome the loss of the lender of last resort facility

suggest that the absence of coordinated government support was one reason why the market failed to gather any real momentum during the first decade.

**Figure 65**  
**Securitization in Australia**  
 December 1988 to December 2002



Source: Reserve Bank of Australia

Notwithstanding this, progress was eventually made.<sup>192</sup> State Governments variously took equity in the vehicles established to

in a country in which 'lifeboat' operations are still only confined to banks.' Sadly, it did not.

<sup>191</sup> The absence of a secondary mortgage market in Australia prior to 1984 has been attributed to, among other things: stamp duty on mortgage transfers; government regulation of residential home loan rates; restrictive building society and credit union legislation; the tax status of the proposed securitisation structures; heterogeneity in the legal documentation between States; the long-term nature of the mortgage investment; and public naiveté with respect to the characteristics of mortgage-backed securities apropos other asset categories. Many of these problems were resolved by the deregulation of the financial system in 1984.

<sup>192</sup> The policy epiphany probably occurred in 1987 when the Australian Housing Council concluded that securitised instruments provided the best prospect for attracting new investment in owner-occupied residential real estate. In May 1988, the Department of Industry Technology and Commerce and the Department of Community Services and Health sponsored a conference to co-ordinate initiatives to remove the regulatory impediments to securitisation in Australia. And so from this point forth, it could be argued that the prospects were rather promising.

facilitate the securitisation process,<sup>193</sup> exempted mortgage transfers from Stamp Duties, amended legislation to enable building societies and credit unions to participate in the market, and provided trustee status to securitisation issues, which enhanced their take-up by the market.<sup>194</sup> In April 1985, the Commonwealth Government permitted the Housing Loans Insurance Corporation to extend insurance to pooled mortgages, while precisely 12 months later they partially deregulated home loan rates. Government also indirectly assisted the asset-backed securities industry through the deregulation of the financial system, which removed other obstacles to success. So while domestic public support has been less than in the US, it was nevertheless a critical cornerstone of the market's ultimate growth (see Forsaith (1995)).

Here it is instructive to reflect for a moment on the role of the major financial market participants. If the history of the Australian secondary market is any guide, they are not nearly as industrious or innovative as we might like to think. Our savings and trading banks were agnostic to say the least, and for many years played little part in the market for mortgage-backed securities. At the time, arguments offered to explain their inertia focused on the risks associated with an industry still embryonic in its development and indifference with respect to the need to securitise flexible rate mortgages. The problems appear to have been all on the supply-side, with issues marketed and underwritten professionally, and often oversubscribed. Either the mortgage originators were unaware of the advantages of securitisation or the perceived benefits were not compelling enough to motivate them to enter into the market. Perhaps it was simply a case of bureaucratic risk-aversion, and the complacency engendered by a regulated system of housing finance. Irrespective, the banks'

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<sup>193</sup> Such as the NSW and Victorian governments' 26 percent interests in the First National Mortgage Acceptance Agency (FANMAC) and the National Mortgage Market Corporation (NMMC).

<sup>194</sup> Early interstate rivalry hindered the development of the consistent legislation necessary for the market to achieve its full potential, while accounting principles did not offer any clear guidelines regarding the treatment of securitisations. Growth was also impeded by the competing desires of the governments of NSW, Queensland, and Victoria to establish their State as the epicentre of the nation's financial flows, and fragmentation became the order of the day. Each tried to develop its own broad-based market to the detriment of the other. At least twice in 1984, the Premier of Victoria (John Cain) invited the Premier of NSW (Neville Wran) to work together to create a national secondary market, and each time he was rebuffed. The sad result was that the three States ignored the compelling economic arguments for coordinating their efforts, and built their own platforms in isolation, with distinctive structures, securities and regulations. Another unfortunate consequence of this parochial approach was that it made the task of educating investors all the more difficult. In turn, ignorance stifled wider acceptance of the securities and the market's overall growth.

hegemonic stranglehold was to be short lived with the dawn of a newly competitive environment and the downward pressure this placed on fees. The arrival of spirited non-bank lenders, to whom the securitisation industry supplied a very competitive source of funding, without the need for a substantial capital base, was to focus the incumbents' minds and force them to offer much more attractive terms. It is no surprise that this coincided with exponential growth in the secondary market.

### 3.2.3 Primary and Secondary Markets in Home Equity

We envisage an identical set of basic institutional structures evolving in the secondary market for enhanced home equity. At origination, the institution would own an investment with extremely attractive return properties but an uncertain maturity. It would also be subject to considerable liquidity constraints while at the same time eager to initiate a new round of financing. Accordingly, one of the purveyor's immediate concerns would be to dispose of the contracts at a reasonable price so that it can obtain fresh capital with which to offer equity finance. This is, of course, analogous to the situation faced by many non-bank lenders in Australia.

To facilitate the recycling of funds between home owners, originators, and investors, we would recommend the establishment of an OTC trading platform, with the secondary market for mortgage-backed securities used as a model. In short, we envision a market-making institution acquiring individual contracts, bundling them into a 'special purpose vehicle', which we refer to here as an 'Enhanced Real Estate Fund' (EREF), and issuing shares on the underlying baskets (see Flow Chart One).<sup>195</sup> The specialist might then choose to split up the EREFs into geographic pools (such as by region, state or post code) or along a variety of other dimensions. The composition of the portfolios would depend on the desires of the institutional holders of the fund shares and on any pertinent guidelines provided by policymakers.<sup>196</sup>

The originators exact role is, of course, very difficult to predict. It could be the case that this develops into a two-stage process with some institutions focussing on the origination and administration of

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<sup>195</sup> This is similar to a 'pass-through security' in which a securitised vehicle sells shares in a portfolio of pooled assets to outside investors. Ownership of the underlying is then transferred to the new parties.

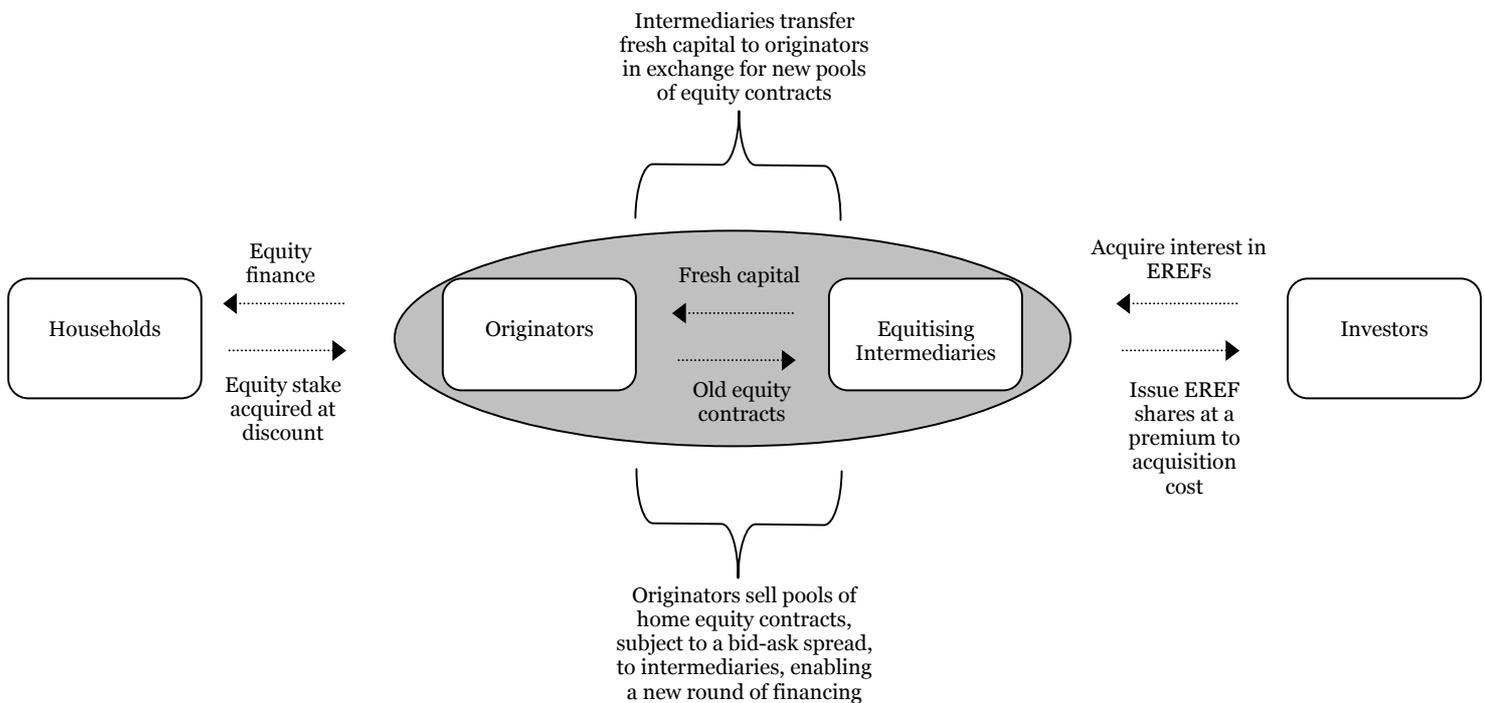
<sup>196</sup> Throughout this process, occupiers would remain oblivious to the securitisation of the originator's interest, and moreover, the ultimate change in the beneficial owner.

the underlying assets (akin to Aussie Home Loans), leaving the packaging of the EREFs to the more sophisticated intermediaries (e.g., PUMA, RAMS and Resimac). Note though that purveyors would continue to earn collection and servicing fees on the assets after they had been removed from their balance sheets.<sup>197</sup> And so while final ownership of the equity interests could belong to other parties, the participants agree to their respective contractual responsibilities and are compensated accordingly.

Other institutions might prefer to adopt a ‘vertically integrated’ approach and actively involve themselves in the securitisation process. This is analogous to the method employed by alternative lenders like RAMS and Wizard. We do not, therefore, pretend to believe that one particular model will prevail. Rather, the industry structure should be flexible enough to embrace a wide range of potential players. However, just as in the secondary mortgage market, we would expect the most profitable and least competitive role in the conforming home equity industry to be that of the securitising intermediary (see Section 2.3.1 for a hypothetical valuation exercise).

Flow Chart 1

The Circular Flow of Funds in the Enhanced Home Equity Market



<sup>197</sup> They might also wish to retain a small interest in the pool such that they can participate in the secondary market.

In terms of the pricing and packaging of the product, there are clearly a variety of possible permutations and combinations, a small selection of which we have previously outlined. It is not, as a result, impossible to conceive of a situation whereby one has a proliferation of increasingly exotic EREFs, sliced and diced according to the risk preferences of participants. Here we are thinking of a world in which intermediaries form portfolios based on housing characteristics (e.g., detached, semi-detached and attached), geographic region (e.g., Sydney, Melbourne, and Brisbane), and instrument design (e.g., fixed, state-and time-dependent pricing).

A final consideration is contractual provisions that enhance the marketability and liquidity of the instruments. In this regard, homogeneity and standardisation are absolutely paramount. We have, after all, learnt from the experience of mortgage-backed securities in Australia that a motley approach breeds uncertainty and conspires to dissuade investor interest. Accordingly, it would be most advisable that a self-regulating body articulated a uniform set of standards that defined the essential criteria for the conforming home equity industry.

### **3.2.3.1 New Diversification Opportunities**

Special purpose vehicles offering diversified access to real estate equity would, without doubt, open up an extraordinary new universe of hedging and investment opportunities. In Chapter 2.1, we concluded that enhanced home equity would appeal to large portfolio investors (e.g., fund managers, pension plans, and insurance companies), who would be attracted to its unique risk-return properties. Indeed, our analysis indicated that the lay investor should dedicate a very significant proportion of all their wealth to this asset class, contingent on their appetite for risk and return. Yet we also believe that there are many other constituents who would benefit from obtaining exposure to securitised home equity pools.

Consider, for instance, Australian families, who have no way to ‘hedge’ the risk of changes to the value of their dwelling—derivative and futures markets for residential real estate simply do not exist. The absence of such is of special import considering the recent surge in property prices, which distinctly resembles the experience of the late 1980s (see Chapter 4.2). Although there is no assurance that past performance is of any guide to future returns, we can be confident that in some regions prices will eventually decline. And so a secondary market in enhanced home equity contracts could spawn a multiplicity of new commercial possibilities for those willing to trade

in real estate risk.<sup>198</sup> While it would be presumptuous of us to forecast exactly what might unfold, it does not hurt to peer into the future and imagine that which lies ahead. In this regard, we anticipate that a number of cohorts would be interested in capitalising on the myriad risk-management opportunities that such markets present. These would include:

- Aspirational and existing home owners keen to hedge the risk of unanticipated future price rises, which could impact on their ability to purchase a new property (see the contracts proposed in Chapter 1.5);
- Incumbent households who want to preserve the equity in their dwelling and (partially) insure themselves against prospective price declines (see Chapter 4.6);<sup>199</sup>
- Governments that wish to remove the influence of house price fluctuations from the value of their capital gains and land tax revenue receipts;
- Companies underwriting replacement cost home insurance that hope to hedge against increases in future policy payouts as a result of price inflation; and,
- Foreign investors yearning for low-cost access to the nation's largest asset class (see Part Two).

It is apparent from the evidence above that the simple act of eliminating the indivisibility of the housing asset, and furnishing families with the option of using both debt and equity finance when purchasing their property, could lead to far-reaching changes beyond that which was originally envisaged. Sure, we reduce the costs of home ownership and dramatically increase the average household's disposable income and expected wealth at retirement. We might also

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<sup>198</sup> In his submission to the Task Force, Professor Terry Walter of the University of New South Wales predicted similar opportunities unfolding: "It should be noted that such arrangements could add considerable liquidity to residential real estate. Suppose the firms that financed these propositions were listed. Any individual could easily lever up an exposure to residential real estate by buying the equity in these organizations, and financing that with borrowed funds. The cost of such a 'negative gearing' would be very low relative to taking a direct position in residential property. And the exposure would be to a portfolio of homes, not just one or two. It is also possible that futures contracts could be traded on an index of house prices."

<sup>199</sup> There may be some basis risk since individual properties would not be perfectly correlated with EREF price movements.

alter the aged Australian's way of life. Yet in addition to these important, albeit oft-stated, implications, equity finance could unlock the doors to a new world of hedging and investment possibilities, the likes of which has not been seen before. If what we believe is true, an OTC market in real estate equity would revolutionize the capital-allocation strategies of individuals and institutions, and significantly improve their welfare in the process. This brings us to the issue of what is, in fact, the most efficient and equitable legal framework with which to capture these complex arrangements.

## 3.3 The Plain-Vanilla Equity Approach

### 3.3.1 Introduction

In this chapter we consider the contract and property law considerations that the proposed model would raise. In our view, these issues can be accommodated by existing principles of the law, without the need for legislative intervention.<sup>200</sup> When preparing this work, we benefited from a number of experts in the related areas.<sup>201</sup> Indeed, several individuals were kind enough to supply us with detailed comments on earlier drafts. We are grateful to them for their insights.<sup>202</sup>

Our proposed model has two key elements. The first is the concept of ‘co-ownership’. The partners would hold the property under a type of arrangement known as ‘tenancy in common’. Initially, they would take title in shares proportionate to their rights to the ultimate sale price. The agreement would allow subsequent variation to these shares, in specified circumstances.

The second feature of the model is the agreement between the partners (‘the partnership agreement’). This regulates the respective parties’ rights and obligations towards one another. The agreement would make it clear that the householder retains all of the rights of

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<sup>200</sup> Later in this chapter we suggest several minor legislative changes that would help clarify certain matters; but the suggestions are not necessary for the workability of the model we propose. On this specific subject, Phillips Fox commented, “Generally, we are of the view that legislative changes are not vital in order to allow for the development of the equity partnership arrangements (at the origination stage). We consider a proactive and ongoing participation and support by governments (both State and Commonwealth) is vital in order to ensure the development of a vibrant market, which would efficiently link the capital markets to residential home ownership.”

<sup>201</sup> Professor William Duncan (Queensland University of Technology), Professor Diane Skapinker (University of Sydney), Arash Farhadieh and Sevag Chalabian (Phillips Fox, Sydney), and, Peter McMahon and Brian Salter (Clayton Utz, Sydney).

<sup>202</sup> Peter McMahon, Managing Partner of Clayton Utz’s National Property Group, opined, “By way of preliminary comment, I commend the innovative approach by Andrew Caplin and Christopher Joye in developing an alternative home ownership model that seeks to improve the affordability, availability and flexibility of housing in Australia. The costs of home ownership and the delivery of affordable housing have been, and will continue to be, issues of major concern to the majority of Australians. The work to date of Caplin and Joye has considerable merit and forms a valuable basis for home ownership models.”

use and occupation that a ‘typical’ owner has over a property. As long as the household complies with its obligations under the agreement, the investor would have no grounds for intervening with its occupancy and use of the residence. This reflects current practice in relationships between landlord and tenant and mortgagor and mortgagee. In fact, many of the provisions in the agreement would resemble those commonly found in leases and mortgages—that is, conditions which give the tenant and the mortgagor effective control over the ordinary use of the property, and which reserve rights to the landlord and mortgagee only in the event of default.

This chapter considers the proposed model from two perspectives:

1. Provisions regulating the purchase of the property; and
2. Provisions regulating the partners’ obligations after purchase.

It is anticipated that certain conditions will become standard across the industry, just as they have become the norm with respect to the application of leases and mortgages. This should lend a degree of homogeneity and predictability to the contract design. And so, while these agreements will be tailored to meet the circumstances of the particular partners and the property in question, broad industry benchmarks will inevitably emerge.

### **3.3.2 Provisions Regulating the Purchase of the Property**

The partnership agreement would regulate the parties’ rights and obligations regarding the initial purchase of the property. Four main issues arise here:

1. Pre-contract disclosure;
2. Proportionate interests in the property;
3. The partners’ respective rights and obligations vis-à-vis the vendor of the property; and,
4. Potential conflicts of interests.

#### **3.3.2.1 Pre-Contract Disclosure**

The householder and the investor would each require pre-contract disclosures from the other. The purpose would be to ensure that each party enters into the agreement cognisant of the financial implications of the transaction. In particular, investors would want reassurance that householders are able to meet their initial obligations under any

contract for the purchase and their continuing obligations with respect to the partnership agreement. On the other hand, householders will want comfort about the institution's experience in and attitudes towards arrangements of this type.

The content and extent of the disclosures would eventually become settled by industry practice. However, in outline they might be expected to cover the following:

- The householder's financial standing (including matters such as income, employment history, and debts);
- The extent of any borrowing the householder plans in order to purchase their interest in the property; whether that borrowing is to be secured by a mortgage or charge; and whether the householder will be able to meet their obligations under that borrowing;
- The investor's experience in relationships of this kind, and its attitude to a householder's default; and,
- Who is to live in the house, and that person's past experience (if any) in these types of arrangement.

The partnership agreement would warrant that the specified pre-contract disclosures had been made. It would also provide remedies for non-disclosure. These disclosures would be made before the partners entered into a contract to purchase the property. The specific content and extent of the remedies for non-disclosure would become settled by industry practice. However, the investor's remedies could be expected to include at least the following:

- If the failure to disclose was innocent and the financial effect on the investor was minor, then no remedy would lie;
- If the failure to disclose was innocent and the financial effect on the investor was substantial, then the investor could terminate the agreement and sue for any damages that flowed from the failure; and,
- If the failure to disclose was deliberate, then the investor could terminate the agreement and sue for any damages that flowed from the failure.

### **3.3.2.2 Proportionate Interests in the Property**

The partnership agreement would identify the partners' proposed interests in the dwelling. Normally, this would reflect their proportionate contributions to the purchase price: for example, if the householder contributed 40 percent (including any mortgage obtained to help purchase the householder's share) and the investor contributed 60 percent, then the partners would hold as tenants in common in proportions 4:6. If (unusually) the agreement provided for interests that did not reflect their contributions, then it would need to do so clearly and in a way that rebutted any resulting trust that would otherwise arise.

### **3.3.2.3 Rights and Obligations of Each Partner vis-à-vis the Vendor of Property**

The agreement would need to deal with the rights and obligations each partner assumes under the contract for sale from the vendor. As noted above, the householder and investor would purchase the property as co-owners in agreed shares. Contracts for sale involving two or more purchasers invariably provide that each is jointly and severally liable to perform the purchasers' obligations under the contract. This gives the vendor the power to sue them for breach individually or together: thus, each effectively remains liable to the vendor for performing all of the purchasers' obligations under the contract.

Vendors are unlikely to consent to varying this standard provision. In particular, they are unlikely to agree that each purchaser should be liable only to the extent of the individual share that each acquires. However, the householder and investor may agree between themselves how they will apportion their rights and obligations under the contract for sale. This can—and should—be done in the partnership agreement. While it cannot affect the vendor's rights, it establishes the partners' obligations as between themselves.

Here too, industry practice will determine the scope and extent of appropriate provisions in the agreement between householder and investor. Such provisions might be expected to cover the following:

- Who is to pay the deposit under the contract for sale (normally 10 percent of the purchase price)?
- If, instead of a deposit, the vendor is willing to accept a deposit bond, is the investor to have some choice in the company which supplies the finance?

- If (unusually) the householder is a company, are guarantees to be provided?
- In what proportions are the householder and investor to provide the balance of the purchase price?
- Who is to pay stamp duty (the most onerous of indirect taxes) on the property purchase? In practice, this is likely to be apportioned between the two parties.
- Who is to investigate the title to the land and make the enquiries and requisitions that purchasers normally make of vendors?
- Who is to prepare and register the transfer documents?

The partnership agreement would need to provide remedies for one stakeholder against the other, if either breached its inter-se obligations. Of course, a breach could have far-reaching consequences. For example:

- If the breach were failure to pay the deposit on time, the vendor could terminate the contract for sale and sue both partners for damages (including for the unpaid deposit);
- If the breach were failure to pay the balance of the purchase price, the vendor could similarly terminate the contract for sale and sue both partners for damages;
- If the breach were failure to pay stamp duty, the other partner could be liable to pay the charge (under the provisions of the relevant legislation); and,
- If the breach were failure to investigate the title, the consequence could be the transfer of a defective title, which might make it difficult for the property to be sold in the future.

Depending on the extent of the default, the agreement would give rights to damages or termination:

- If the breach were minor and caused the innocent partner insubstantial loss, damages would be the appropriate remedy; and,
- If the breach were substantial, damages would also be appropriate; but, in addition, so might termination of the

agreement. Also, depending on the progress of the sale, the agreement might give the innocent partner the right to take over the purchase contract and receive the entire title. (Purchasers are entitled by law to instruct vendors to transfer title to whomever they direct. The agreement could require the defaulting interest to direct the vendor to transfer the title to the innocent party.)

Since breach by one partner could leave the other seriously exposed to liability to the vendor under the contract for sale, the agreement would require each party to indemnify the other against any loss suffered as a result of the breach. Some investors might also require the householder to provide a guarantor to guarantee performance of the householder's obligations, or a bond that can be drawn upon to cover loss caused by the householder's breach.

#### **3.3.2.4 Potential Conflicts of Interests: Would the Partners have Separate Representation?**

When entering into the agreement, the partners' interests are obviously distinct. Each has its own aims to protect. At that stage, therefore, each should be separately represented.

However, when purchasing the property from the vendor, the householder's and investor's interests are broadly aligned. Both are motivated to ensure that the vendor complies with its contractual requirements, including obligations to give a good title and to furnish vacant possession on completion. To that extent, it would be sensible for the householder and investor to use the same lawyer or conveyancer. If in a particular transaction the interests of the parties were to diverge, then it might be preferable for each to be represented by their own lawyer or conveyancer. But generally speaking, that would be a rare event: in practice, the investor should be content to rely on the services of the householder's representative, in much the same way as mortgagees are often comfortable relying on the services of the mortgagor's solicitor.

#### **3.3.2.5 No Intractable Contract Law Issues**

The matters discussed thus far raise issues that are essentially practical in nature. While the partnership agreement needs to anticipate them, they should not give rise to legal problems beyond the scope of the existing law. Indeed, the issues are not very different from those that arise whenever a number of prospective co-owners join together to purchase a property.

### 3.3.3 Provisions Regulating the Partners' Rights and Obligations after Purchase

#### 3.3.3.1 Introduction

Once the householder and investor have become co-owners of the residence, a number of practical and legal issues would arise concerning the rights and obligations they have towards each other and the property. The agreement would need to address these issues.

The following are the main issues that would likely emerge, and the ways in which they might be dealt with. It will be seen that we envisage the investor's participation in certain aspects of the ongoing relationship between the partners. Some institutions might prefer not to be involved in these continuing matters; if so, the agreement could be drafted so as to minimise the need for their input.

#### 3.3.3.2 Residence Rights and Obligations

The chief purpose of the agreement is to facilitate the purchase of housing. The agreement would give effect to this objective. In particular, it would guarantee that the householder retains all of the rights of use and occupation that a 'normal' owner has over a property. It would also ensure that the investor has no rights of use and occupation, as long as the householder complies with his or her obligations under the agreement. To achieve this purpose, the agreement would cover at least the following:

- The right and obligation to reside

The agreement would require the householder to reside in the house as his or her normal place of residence. It would also allow members of the householder's family to reside there. Special provision could be made where employment, extended illness, or other commitments requires the occupier to be away for long periods of time. If the householder contemplated being absent for a considerable period, a more appropriate provision might be one merely precluding leasing or parting with possession.

- Prohibitions on leasing, licensing or parting with possession

The agreement would prohibit the householder from leasing, licensing, or parting with possession of the property, since those activities are inconsistent with the objectives of the model. The prohibition could be drafted as an absolute one, negating the right altogether. However, the enforceability of

an absolute prohibition might be open to question as an unreasonable restraint on alienation (though courts could well regard it as reasonable, given the purpose behind the arrangement). A preferable prohibition would be a ‘qualified’ one, namely a prohibition against leasing, licensing or parting with possession without the investor’s consent. Prohibitions along these lines have long been common in leases. Since the investor is a co-owner, not a landlord, a qualified condition such as this would not invoke the common statutory provision that requires a landlord to act reasonably when considering applications for consent.

- No right of residence for investor

The common law of co-ownership gives all owners the right to possession of the property, unless they agree otherwise. Clearly, it would be inappropriate for the investor to seek to invoke the common law right to possession. The partnership agreement would, therefore, provide that the investor gives up its right to occupation and supplies the householder with the sole right to possession.

- Remedies for breach

The agreement would need to specify remedies for breach of these residence and related obligations. One option would be to give the investor the right to terminate the agreement for any breach, no matter how minor. Nevertheless, the courts might restrict the practical exercise of this kind of power by imposing rules akin to the ‘relief against forfeiture’ principles applied in the law of landlord and tenant. That is, the courts might reinstate the householder’s interest where it remedies the breach and undertakes not to commit it again. And so a more realistic provision may be to distinguish between different degrees of breach: for minor breaches, damages might be the appropriate remedy (assuming the investor can prove loss); for major breaches, the institution might be given the power to force a sale of the property. (The issue of forced sales is discussed below). The partnership agreement could resolve potential arguments about the significance of the breach by declaring violations of specified obligations to be ‘essential’ (provisions of this kind are common in leases).

### **3.3.3.3 Maintenance Obligations**

The partnership agreement would deal with the obligations to repair and maintain the co-owned property. As a practical matter, it is clearly

in the interests of both householder and investor that the residence be maintained in good repair. Nonetheless, the current law does not require a co-owner to repair and maintain the co-owned property (unless the abode poses a health hazard, in which case statutory duties arise). And so the agreement would need to stipulate responsibilities to preserve the co-owned property.

Here too, industry practice will eventually determine the scope of a contractually-imposed obligation to maintain. However, an appropriate provision could be expected to cover the following:

- The obligation and its extent

The obligation would be similar to responsibilities imposed under mortgages and leases. The householder would be contractually bound to maintain the property in at least as good a condition as at the time of purchase. If it were in poor repair when purchased, the householder (perhaps with financial assistance from the investor) would be required to return it to reasonable repair within a certain period. Disputes over the state of repair, both at the time of acquisition and thereafter, would be solved by an experienced architect or valuer appointed by agreement between the parties (or failing agreement, appointed by an independent person).

The agreement would compel the householder to carry out the maintenance and repairs in a proper and workmanlike manner. It would also require compliance with all building, environmental and other relevant laws when carrying out the work.

For repairs or maintenance of a minor kind, the investor's consent would not be needed. However, for more major work (which the agreement would define) consent may be required; so also would approval once the work had been completed. Here too, disputes would be resolved by an experienced architect or valuer.

- Remedies for breach of the obligation

The partnership agreement would provide remedies for breach of the obligation to repair and maintain. In this, the agreement could adapt similar provisions from leases and mortgages. For example, if the householder breached the obligation, the investor would be given the right to enter and carry out the repairs and recover the cost from the householder. If the householder failed to pay, the investor could be given a lien or charge over the householder's share,

recoverable with interest on eventual sale, or (if the amount were large enough) recoverable by forced sale.

Here too, the institution could be given the right to terminate the agreement for any breach, no matter how minor. But again, courts might apply the ‘relief against forfeiture’ principles, mentioned earlier, and reinstate the householder’s interest where the latter remedies the breach and undertakes not to commit it again. Hence it might also be advisable for the agreement to distinguish between different degrees of breach, allowing damages for minor breaches and restricting termination and forced sale to major breaches. The agreement could clarify the parties’ rights by declaring breaches of specified obligations to be ‘essential’.

- Recompense for cost of repair?

The agreement would also prescribe whether the householder carrying out the repairs and maintenance could demand a contribution from the investor towards their cost. This kind of provision would be necessary, as current Australian law suggests that a co-owner carrying out repairs and maintenance is not entitled to call on the other for compensation.

The provision might, for example, require a contribution from the institution, since as a practical matter regular maintenance and repair prevents the property from deteriorating in value (which benefits both partners). Or it could stipulate that the householder carrying out the repairs and maintenance cannot demand a contribution from the investor; this may be a reasonable provision, since the householder in possession would receive the practical benefit of the maintenance and repairs. Or yet again, it might deny recovery except for those repairs and maintenance that are not exhausted at the time of eventual sale—for example, the value added by painting work current at the date of the eventual divestiture. As a final option, the provision might require a contribution for repairs that exceed a certain value, recoverable either at the time of carrying out the works or when the property is sold later.

#### **3.3.3.4 Improvements to the Property**

The agreement would need to provide for the partners’ rights and obligations if one of them wished to make improvements to the property. By ‘improvements’, we mean works which are more

permanent than recurrent repairs or maintenance, and which materially add to the dwelling's capital value.

Two main matters would need attention. (The following discussion assumes that the partner wishing to carry out the improvements is the householder, but similar considerations would apply if it were the investor.)

1. Consent to works

At common law, a co-owner may carry out improvements to a property without obtaining consent from the other party. This is because the co-ownership is over the whole of the physical property, and a person is always entitled to improve their 'own' home. This principle may not be appropriate for the kind of arrangements under consideration here. The investor could, for instance, be eager to ensure that the work did not diminish the property's value, or over-capitalize it. They might also require input into the aesthetics of the work and the choice of builder. On the other hand, the relationship may be an entirely passive one.

In the event that the first case is a more realistic one, the agreement would require the investor's consent to any improvements being carried out, and its approval of the completed work. It would also oblige the householder to submit plans and specifications to the investor for approval (the institution being, in any case, a necessary party to any application for council approval), and to carry out the work in a proper and workmanlike manner. Since the investor's interests might not coincide with the householder's—the householder is looking for a home, while the investor is concerned with financial returns—it would be prudent for the agreement to specify grounds on which the investor could refuse approval. And of course the agreement would compel the householder to comply with all building, environmental and other relevant laws when carrying out the work.

It may, however, be the case that the investor grants the occupier complete discretion as to what changes they do and do not make to the property. The householder presumably has a large proportion of their wealth invested in the home, and it could therefore be expected to act in a value maximising fashion. Furthermore, at the fully securitised portfolio level, the institution is able to diversify away all of the risks associated with the peculiarities of consumer preferences.

## 2. Recompense for the works

At general law, a co-owner who makes improvements to the property is not entitled to sue in debt to recover recompense for the work done. However, the co-owner may generally recover when the property is sold or when it is partitioned (that is, physically divided between the partners)—but this may be many years after the improvements were made.

The partnership agreement would, therefore, need to regulate the right to recompense for improvements made. Industry practice would eventually determine the availability and scope of recompense, but clauses might be expected to address the following:

- The amount of compensation

At general law, an improving co-owner who (on partition or sale of the property) claims reimbursement for improvements he or she has made to the property, is entitled to recover the lesser of (a) the amount actually expended, and (b) the amount by which the expenditure has increased the value of the property at the time of the partition or sale. The principle tries to ensure recovery for expenditure wisely made, but not for expenditure foolishly wasted. Industry practice might consider this principle appropriate to incorporate into the agreement, with or without amendment.

- When is compensation to be paid?

At general law, any right the improving co-owner has to reimbursement is deferred until the property is later sold or partitioned. The partnership agreement could adopt this principle, or vary it as appropriate. A variation could provide, for example, that the improver is entitled to be recompensed as soon as the work is done, or within a fixed period afterwards (perhaps to allow for the effect of the improvements on the value of the property to become settled over time).

- If compensation is to be paid before eventual sale or partition of the property, how is the right to be secured?

If the agreement were to allow recovery for improvements before the time of eventual sale or partition, attention would need to be given to ways of securing the debt. For example, the agreement might provide for the amount to

be charged on the non-improver's interest in the property, with interest to accrue until payment.

- Must the householder offset an amount for use and occupation?

At general law, if an improving co-owner who makes a claim (on sale or partition) for recompense has enjoyed sole possession of the property, he or she must set-off against the claim an amount reflecting the benefit received from occupying the property. This is required as a matter of fairness. Unless the partners had agreed otherwise, the courts would almost certainly apply this principle where the householder who seeks recompense for improvements has had the benefit of occupying the premises. The agreement would have to address this matter. The partners might be happy for the general law principle to apply; but a fairer result could be to excuse the householder from any liability to off-set an occupation fee.

### **3.3.3.5 Insurance Obligations**

Since the householder has the sole right to occupy the property, the partnership agreement would require it to insure the property against fire and the other usual risks, with a reputable company approved by the investor acting reasonably. The policy would be in the joint names of the householder and the investor, for the full insurable value of the property on a replacement and reinstatement basis. If asked by the investor, the householder would be required to produce evidence of satisfactory insurance cover.

The partnership agreement would prohibit the householder from doing anything to reduce or cancel the insurance cover, and would oblige it to notify the investor if anything happened that could prejudice the cover. Both parties would agree to do everything reasonable to ensure that the proceeds of any claim were applied towards reinstatement or rebuilding. Where the investor's interest in the property exceeded a specified percentage, it might be appropriate to entitle it to take over the householder's right to make claims under the policy. Here too, it may be fitting to allow the investor to direct the householder to hold or apply the proceeds as it directs.

If the householder breached the obligation to insure, the investor would be given the power to take out the necessary insurance and to recover costs. These costs could be made as a charge on the occupier's interest in the property until payment. The agreement would also require the householder to indemnify the investor against loss occasioned by any failure to insure.

### **3.3.3.6 Rates, Taxes and Similar Obligations**

The agreement would need to allocate liability for the payment of rates, taxes and similar obligations on the property. Since the householder has the sole right to possession, it might be appropriate to require it to pay all rates and taxes that relate to the ordinary use of the residence. These would include council rates, water rates, waste removal rates, and the like.

As a general rule, rating and taxing statutes make all co-owners jointly and severally liable—that is, each co-owner can be sued separately for the whole amount, and all can be sued together. The statutes also normally charge unpaid rates and taxes on the co-owned property. While the agreement could not negate each partner's statutory liability, it could regulate the liability as between themselves. For example, the agreement may provide that if the householder failed to pay the rates and charges as they fell due, the investor could pay and then sue to recover costs from the householder, with the amount in the meantime being charged to the latter's interest in the property. In the case of deliberate and persistent default, the agreement may give the investor the power to force a sale of the property. The institutional parties will want to ensure that the householder is able to compensate them for rates and taxes which the investor is called upon to pay, for the reality is that local and governmental authorities are likely to look first to the 'deep-pocketed' party for payment. One alternative might be for the agreement to require the householder to lodge a bond to cover obligations of this kind.

Land tax could pose a special problem. In some jurisdictions, the whole of a landowner's land tax liability (for all properties owned) is charged on each individual property. And so, for example, the investor's interest in any one dwelling would be charged with the land tax liability for all of the investor's land holdings. Similarly, the householder's interest would be charged with the land tax liability for all of its holdings (although this is unlikely to be a problem in practice, since the occupier's holding will generally be exempt as a principal place of residence). If an investor (or householder) failed to pay the charge, the authorities could seek to sell that person's interest in the property, an event which may prejudice the holdings of the other partner. (A statutory exemption for this type of co-ownership would be a useful incentive for investors.) The agreement may seek to deal with these issues; or industry practice might take the view that the land tax statutes should simply be left to their own course.

### **3.3.3.7 Rents and Profits**

Generally, a co-owner who receives rent or income from the co-owned property is required to account to the other party for a proportionate share. (There are exceptions to this rule, but they are not relevant to the present discussion.) As a practical matter, since the householder is obliged to remain in occupation, the opportunity for receiving rents and profits from the property is likely to be rare, and so an obligation to account should not arise. However, for avoidance of doubt, it might be useful for the agreement to provide that a householder who receives rents and profits from the property is not compelled to account to the investor (except, perhaps, where the rents or profits arise as a result of breach of the residency requirement).

### **3.3.3.8 Compliance with Easements, Covenants and Similar Limitations on Use**

The agreement would need to allocate practical responsibility for complying with title restrictions, such as easements and covenants that burden the land. Examples might include easements that allow a neighbour to use a right of way across the land, or covenants that limit the use to which the land can be put. Normally, obligations under easements and covenants are imposed on the ‘owners’ of the burdened land. As both householder and investor are owners, both would be liable. An agreement between the owners allocating responsibility for obeying a covenant or easement cannot preclude the person with the benefit of the easement or covenant from enforcing the rights against both owners; but the agreement would be effective as between the co-owners.

Given that the householder has the sole right to possession, it would seem appropriate for the agreement to place the compliance obligations on the householder. If the householder failed to do what was necessary to comply with the easement or covenant, then the agreement could empower the investor to do so and then sue the householder to recover costs, which could constitute a charge on the householder’s share in the property until payment. The agreement would also require the householder to indemnify the investor for any loss or damage caused by failure to comply.

### **3.3.3.9 Mortgaging, Charging or Selling a Partner’s Interest in the Property**

Under general law, a tenant in common has the right to mortgage, charge, sell or otherwise dispose of the whole or part of his or her interest in the property without needing the consent of the other. In

the theory of the law, each tenant in common has a separate (though physically ‘undivided’) share, which can be freely dealt with. However, that general law right can be varied—and even completely surrendered—by contract between the co-owners. Considering the closeness of the ‘partnership’ relationship, it may or may not be appropriate that each should surrender the right vis-à-vis the other.

Also, the general law does not normally require co-owners to place the interests of the other ahead of their own. This concept is expressed as a principle that co-owners do not owe each other a ‘fiduciary’ duty. Here too, however, the general law can be amended by agreement between the co-owners.

It would be prudent for the agreement to deal with these matters. While the specific circumstances of the parties—and particularly of the householder—will vary, relevant provisions could be expected to cover the following:

- The need for consent to a mortgage, charge, sale or other disposition
  - (a) Mortgage, charge, sale or other disposition by the householder

The closeness of the relationship between householder and investor would require the former to obtain the latter’s prior consent to any proposed mortgage, charge, sale or other disposition. If the householder sought to borrow against his or her interest in the property in order to finance the purchase of that interest, then the investor’s consent would be needed pre-purchase. If the householder sought to borrow (or to increase existing borrowings) against his or her interest in the dwelling post-purchase, then the investor’s consent would also be required. The agreement would specify the factors to be taken into account when considering an application for consent (including, perhaps, the state of the market), and what kinds of conditions (if any) could be imposed on the consent. It might preclude the consent from being unreasonably withheld. It could also provide for disputes to be decided by an independent expert.

A few investors may prefer an absolute prohibition against the householder mortgaging, charging, selling or disposing of its interest in the property. However, the market is unlikely to accept such a broad restriction on a co-owner’s right to deal with their share. Further, an absolute

prohibition of this kind may well be legally unenforceable as an unreasonable restraint on alienation.

(b) Mortgage, charge, sale or other disposition by the investor

In contrast to the restrictions on the householder, almost certainly the agreement would not preclude the investor from mortgaging, charging, selling or disposing of its interest in the property. As we have explained in other chapters, investors will want to bundle their individual agreements with householders into larger pools, which will then be traded on the secondary market. The prospect of being able to ‘securitise’ interests in this manner will encourage investors to enter into the agreements. Consequently, the ultimate owner of the investor’s interest may be expected to change. However, as a practical matter, this would not affect the householder’s day-to-day rights to use and enjoy the property; indeed, householders will generally be oblivious to any such securitisation process.

- Right of first refusal?

The agreement might give the investor a right of first refusal if the householder were to seek consent to a mortgage, charge or sale of the householder’s interest. For example, if consent were sought to a mortgage or charge, the agreement might allow the investor to offer an advance on similar terms in return for a charge or mortgage. If consent were sought to a sale, the agreement might give the investor a right of pre-emption, to allow it to purchase the householder’s interest on terms no less favourable than those offered to any outside purchaser. The agreement could impose time limits on exercising these rights and would provide for disputes (including disputes over value) to be determined by an expert valuer.

- Value of interest

In the case of sale of part or the whole of a householder’s interest, if there were no right of pre-emption (or if there were a right of pre-emption, but it was not exercised), the agreement might impose an obligation on the householder to obtain the market value of the interest. The purpose would be to ensure non-devaluation of the investor’s holding. The provision would be necessary to counter the general law position, mentioned earlier, that co-owners do not usually owe each other any fiduciary duty.

- Default under mortgage

Assuming that the investor had consented to a mortgage or charge over the householder's interest, the agreement would need to provide for the consequences of any default. This is because a default could allow the mortgagee (chargee) to take possession of the householder's interest, putting the two parties in potential conflict; it could also allow the mortgagee (chargee) to sell the householder's interest to a third party, placing at risk the value of the investor's holding in the property; indeed, it could even empower the mortgagee (chargee) to apply to the court for a forced sale of the entire property. And so, the partnership agreement could:

1. Require any mortgagee (chargee) of the householder's interest to agree that its rights are subject to the partnership agreement;
2. Regulate the mortgagee's (chargee's) exercise of its rights to possession and sale; and
3. Require the householder to notify the investor of any breach of the mortgagee (chargee).

The agreement could give the investor appropriate remedies: for example, a right of pre-emption—to purchase the householder's interest, from the mortgagee (chargee) if necessary—or the right to force a sale or partition. To be effective, a right of pre-emption would need to bind the mortgagee (chargee), and so would require their consent at the time of taking out the mortgage (charge). Further, consideration might be given to a legislative amendment to allow this right of pre-emption to be caveatable,<sup>203</sup> so as to enable the investor to adequately protect it.

### 3.3.3.10 Procedures for Partners to Acquire Further Interests from Each Other

The agreement would need to provide procedures by which the partners could vary their shares *inter se*. Thus, the agreement could allow each party to approach the other to see if they were interested in transferring a further interest to, or acquiring a further interest

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<sup>203</sup> Under existing law, a right of pre-emption is not caveatable. Another avenue might be to provide for a statutory notification on the Register that this is a 'partnership' type of co-ownership, alerting searchers to the possibility of a right of pre-emption.

from, the other. If the partners agreed on the terms of the sale or purchase, then appropriate documentation would be executed to implement the agreement. The transfer of interests could be noted on the title; although provided that the variation were sufficiently documented, the registered title could remain unchanged, with the variation being given effect to by monetary adjustment on eventual sale of the property (whether consensual or forced).

### **3.3.3.11 Death of Householder or Winding up of Investor**

Being tenants in common (and not joint tenants), on the householder's death their share in the property would pass to the next of kin under the will or on intestacy. Likewise, on the winding up of the investor, the latter's interest would devolve according to the provisions of the corporations law.

Clearly, the death of the householder or the winding up of the investor could undermine the partnership concept of the arrangement. It might therefore be appropriate in such cases for the agreement to empower the other party to elect to force a sale of the property.

Special problems could arise on the death of the householder who had occupied the property with his or her family. It might be appropriate to allow the family to remain in occupation and for someone to take over the deceased householder's obligations under the agreement. For example, the agreement could provide that the deceased's family (residing in the house at the time of death) should be entitled to stay there until they attained a specified age, so long as that individual—approved by the investor, acting reasonably—was prepared to enter into an arrangement similar to that which was crystallised with their deceased relation. That person could be the adult beneficiary(ies) of the householder's share in the property, or if there were no beneficiary of adult age, then the executor, trustee or administrator of the householder's estate. The investor would be given the power to seek a forced sale of the property if no appropriate person was prepared to enter into the agreement.

### **3.3.3.12 Rights to Title Documents**

Since there are two co-owners but only one set of title documents, the agreement should provide for one party to be entitled to custody the title documents. That party would be obliged to produce them to the other partner for inspection on specified occasions (for example, where the other party is validly selling or dealing with its share). In some jurisdictions, the Torrens title legislation allows for separate certificates of title to be issued for the respective tenants in common;

in those states, the agreement would entitle each partner to possession of the certificate of title relating to its own share.

### **3.3.3.13 Forced Sales**

We have already mentioned the common law principle that a co-owner may sell or dispose of their interest without needing the consent of the other owner. Of course, the selling or disposing co-owner can only deal with their share—they cannot interfere with the share of the other co-owner. Nor can they force the other party to sell or give up their interest. However, in all Australian jurisdictions, the statutes give one of a number of co-owners the right to apply to court for a sale or a partition of the whole property, even against the wishes of the other co-owner. Courts normally (but not always) grant applications of this kind.

This unilateral right to seek a sale or partition of the whole property against the wishes of the other partner might seem inappropriate to the nature of the partnership between householder and investor. And so it may be fitting for the agreement to preclude one partner from seeking a court order for sale or partition without the prior consent of the other. Courts usually give due weight to provisions of this kind. Indeed, the existence of a ‘partnership’ affecting the co-owned property is an accepted ground for the court to decline to order a forced sale in contravention of the terms of the partnership. (There is a technical legal issue as to whether the court must refuse a sale or partition in the face of an agreement between co-owners not to apply for such an order. However, as a practical matter, courts rarely order a partition or sale in the face of such an agreement. Nevertheless, it might be appropriate at some stage to consider statutory amendments to put the matter beyond all argument.)

The restriction on applying to the court would be modified in one important way. The agreement would provide that, where a party has a right to require a forced sale as a result of the other’s breach, the party in breach could not oppose an application for such.

### **3.3.3.14 No Intractable Property Law Issues**

As with the contract considerations discussed above, the property law issues we canvassed are essentially practical. The partnership agreement needs to anticipate and deal with them where appropriate. But the issues should not create legal concerns beyond the scope of the existing law to resolve.

In those few instances where legislative intervention might be useful to clarify issues or to increase incentives to investors, the changes

should be uniform across Australia. This poses a practical problem, in that land law is generally state-based. By construction, uniformity requires the co-operation of all states. This can be difficult, but it is not impossible. Precedents exist in other areas, and could be achieved here also. If necessary, Commonwealth legislation (assuming it is constitutionally valid) could be passed, ensuring Australia-wide regulation.

### 3.3.4 A Statutory Framework?

Although not essential for workability, legislation could usefully provide a statutory framework for the concept we have discussed in this chapter. Specifically, it could provide a set of standard provisions, in much the same way as existing legislation provides short-form covenants for leases and mortgages. Parties would be free to insert, alter or delete the conditions, and to tailor their agreement to their particular circumstances; but to the extent they did not do so, the agreement would be governed by the framework. This would have the benefit of shortening the documentation the parties must sign. It would also help demonstrate government endorsement of the equity finance concept.

## 3.4 The Debt Hybrid

### 3.4.1 Introduction

We previously noted that the advent of equity finance could be practically realised in two specific ways: either via a co-ownership agreement or through a debt instrument. This chapter considers the treatment of state-dependent debt structures from the perspective of Australian law. It begins by outlining the main characteristics of ‘standard’ shared-appreciation mortgages (SAMs). It then discusses two of the variants we propose in order to make the contract more attractive to modern homeowners and investors. Subsequently, it reflects on matters that commentators (particularly in the US) have argued might pose problems in property law for the product—specifically, the anti-usury statutes, the rules relating to unconscionability, the doctrines of ‘clogging the equity of redemption’, and ‘restraints on alienation’. The chapter argues that none of these matters pose significant problems for SAMs in Australia. It also discusses whether SAMs should be treated as ‘debt’ or ‘equity’, and issues of priorities. It finds that they are clearly ‘debt’ instruments and should not be at risk under rules relating to the priority of ‘further advances’. It concludes by exploring the taxation implications of SAMs.

### 3.4.2 What is a Shared Appreciation Mortgage?

A SAM gives the mortgagee the right to a specified proportion of the increase in value of the property over the life of the loan. While SAMs are rare in Australia, they are relatively well-established in the US and (to a somewhat lesser extent) in the UK. From experience in these countries, a SAM can be expected to have the following main characteristics:

- The mortgagee’s proportion of the increase in value of the property becomes payable on the occurrence of specified events (which we will refer to as ‘the specified events’). These events may include:
  - The maturity date of the mortgage.
  - The sale or realisation of the property by the mortgagor.
  - The resumption (compulsory acquisition) of the home.

- The death of a sole mortgagor or of the last survivor of a number of mortgagors (but providing for a period of grace to allow the deceased's beneficiaries to arrange a sale, if they so wish).
- The sale of the dwelling by the mortgagee following the mortgagor's breach of the contract terms (for example, failure to pay interest if required by the mortgage, or failure to maintain the house).
- If the property does not increase in value, or if it decreases in value, then the mortgagee has no claim to a share of its value.
- The property is valued at the time the mortgage is taken out and at the time the specified event occurs, in order to calculate the change in value. These valuations may be completed by a professionally-qualified valuer. On the other hand, the parties may agree to rely on publicly-available indices of movements in house prices (refer to the BoS product discussed in Chapter 3.1).
- The mortgagee's right to a proportion of any increase in value may be in addition to interest payable under the mortgage, or it may be in substitution for any right to interest. In some US SAMs, the property value is re-appraised at set intervals (such as every five years), with the proportionate increase at that stage being added to the principal sum owing under the mortgage.

### 3.4.3 Modifications to the Shared Appreciate Contract

In light of the analysis of Chapter 2.4, we consider two variations to the US and UK forms of SAM. The first is what we call the 'sharing of risk and return' mortgage, while the second is a 'time-dependent share' mortgage.

1. The SRR (Sharing of Risk and Return) mortgage
  - The SRR mortgage we propose is intended for use in conjunction with a 'regular' mortgage. It allows the household to share the risk of any increase or decrease in the value of the home—hence the name.
  - Under the SRR mortgage, the payoff to the lender at point of termination (that is, on the occurrence of one of the 'specified events' referred to earlier) depends on the rate of house price

appreciation or depreciation. If the house sells for more than it was purchased, the lender's payoff is computed as follows:

- The lender receives an agreed, but disproportionate, share of the appreciation up to a target price (typically measured by a local house price index). For example, an institution financing 30 percent up-front might receive 60 percent of appreciation up to the target price.
- Beyond the target price, the lender receives a lower share of appreciation. For example, an institution financing 30 percent up-front might receive 30 percent of appreciation over and above the target price, thereby providing the householder with rights to 70 percent of the capital gains.
- If the house sells for less than it was purchased, the lender forgives the homeowner a certain proportion of the debt, thereby providing partial insurance against the loss. For example, a lender financing 30 percent up-front might forego 30 percent of its losses. We call this 'the insurance bonus'.
- In Chapter 1.5 we discuss in detail the benefits that are likely to accrue to aspirational households, incumbent dwellers and the elderly when using shared-appreciation contracts of this kind.

## 2. The TDS (Time-Dependent Share) mortgage

- The second product we propose offers the lender an agreed (but disproportionate) share not only of the appreciation, but also a 'time-dependent' share of the initial value of the home. This enables the lender to offer the homeowner more money than would otherwise be possible with an SRR mortgage. While the maximum amount available under an SRR mortgage will probably be some 30 percent of the value of the home, mortgages with time-dependent sharing may allow the home owner to borrow at least 40 percent up-front, thereby permitting a one-third increase in the accessible funds.
- Under the TDS alternative, the payoff to the lender at point of termination depends on the initial cost of the home, the length of time since the inception date, and the underlying rate of appreciation, as follows:
  - If the house sells for less than it was purchased, the lender receives back a time-dependent share of the final price. For example, an institution financing 40 percent up-front might receive an agreed 40 percent share of the final sale

price, that proportion increasing by one percent for each additional year the home owner remains in the residence, staying constant at 100 percent after 60 years. (We anticipate that the TDS mortgage would be offered primarily to older households who own their homes free and clear. Given this, one might expect very few such mortgages to survive for a full 60 years.)

- If the house sells for more than it was purchased, the lender receives back a time-dependent share of the initial purchase price, using the same formula discussed above. In addition, they obtain a share of appreciation, calculated using the ratios outlined under the SRR mortgage. For example, an institution financing 40 percent up-front might get back 60 percent of appreciation up to the target price, with its rights declining to 30 percent for any gains over and above the target.

#### 3.4.4 Property Law Issues Arising from SAMs

The experience with SAMs in other jurisdictions means that the property law issues to which they give rise can be anticipated with some certainty. It is our belief that these legal matters can be accommodated within the existing Australian law of mortgages, without the need for special legislation. This is the case both for ‘standard’ SAMs of the type used in the US and the UK, and for the variants proposed in this report.

Despite their rarity to date in Australia, SAMs—whether of the standard type or one of our variants—are genuine mortgages, in both substance and form. A SAM creates a debt between mortgagor and mortgagee, secured by a mortgage over the property. It gives the mortgagee no greater interest in the property than is found under a standard mortgage. This distinguishes it clearly from the tenancy-in-common, equity-sharing, relationship that exists under other proposals in this report (see Chapter 3.3).

The ensuing discussion deals with the following legal issues which apply to SAMs:

- ‘Usury’ considerations
- Unconscionability
- Clogs on the equity of redemption
- Restraints on alienation

- Debt versus equity
- Priorities
- Valuing the property

### 3.4.4.1 'Usury' Considerations

In the US, SAMs in some States must run the gauntlet of legislation fixing a maximum permissible interest rate for lenders. This is the so-called 'usury' legislation, which prohibits unconscionable rates. If the lender's right to a proportion of the increase in value can be characterised as 'interest', then usury legislation may apply. Commentators in the US have considered at some length the potential application of the usury laws to SAMs.<sup>204</sup>

Australian States have no similar 'usury' legislation. That is to say, there is no legislation fixing maximum rates of interest for property mortgages.<sup>205</sup> Accordingly, the US concerns pertaining to this issue do not arise here.

On a related note, the Australian common law does not prohibit the mere setting of interest rates in ways that guarantee generous rates of return to lenders. Hence, in Australia, a mortgage provision is not unenforceable merely because it happens to charge a high rate of interest.<sup>206</sup> Furthermore, there are no prohibitions against tying interest rates to inflation rates generally.<sup>207</sup> Nor is there any proscription against tying interest rates to movements in international exchange rates.<sup>208</sup> It is true that courts in recent years have struck down some transactions of this latter kind; however this is not because of any general prohibition, but rather because the lender has failed adequately to warn the borrower of the risks inherent in foreign currency transactions.<sup>209</sup> If the abovementioned restrictions did exist,

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<sup>204</sup> See, for example, Friend, "Shared appreciation mortgages" (1982) 34 Hastings LJ 331 at 350-355.

<sup>205</sup> Although, as we mention below, Australian courts can re-open mortgage transactions that are 'unjust'.

<sup>206</sup> *Circuit Finance Pty Ltd v Glenauchen Pty Ltd* [2001] SASC 41.

<sup>207</sup> *Stanwell Park Hotel Co Ltd v Leslie* (1952) 85 CLR 189 at 201; followed in *Charmelyn Enterprises Pty Ltd v Klonis* (1982) A & NZ Conveyancer Rep 356.

<sup>208</sup> *Multiservice Bookbinding Ltd v Marden* [1979] Ch 84.

<sup>209</sup> As in *David Securities Pty Ltd v Commonwealth Bank of Australia* (1990) 93 ALR 271.

they would likely reduce the supply of housing finance available to aspiring residents.

#### **3.4.4.2 Unconscionability**

Australian courts have an inherent power to strike down mortgages that are unconscionable. By ‘unconscionable’ we mean mortgages that impose harsh terms on borrowers in ways that are morally reprehensible, thereby affecting the lender’s ‘conscience’. Likewise, Australian courts have a statutory power to strike down mortgages that are ‘unjust’ in the circumstances in which they were made—either under consumer credit legislation or by way of the more general contracts-review legislation. As a final point, trade practices legislation outlaws conduct that is unconscionable, misleading or deceptive.

But powers of these kinds exist to control the activities of lenders who set out to take unfair advantage of borrowers or who have not clearly and fully explained the significance of the obligations being undertaken. The powers do not apply where the transaction is otherwise legal and the lender has described to the borrower the consequences of entry into the loan transaction. For in such circumstances no unfair advantage is taken; the borrower knows from the outset the consequences of taking up the loan. And so, there is nothing unconscionable or oppressive in the transaction.

It can therefore be predicted that powers to set aside a SAM on these grounds will rarely, if ever, be exercised where the full effect and consequences of the transaction are explained to the borrower in language that the borrower can understand. The description would need to include the possibility that, if the property increases significantly in value, the amount to which the lender is entitled may be high. Note here though that one has to make implausible assumptions about future capital growth to approximate a substantial divergence in the two party’s respective rights. For example, suppose that the value of the property rises by 15 percent per annum in nominal terms over the next 64 years (most unlikely), and that the lender finances 30 percent of the current value of the residence in return for a 60 percent share of the appreciation. At the end of the 64 year period, the total amount owed to the institution only represents 60 percent of dwelling’s appraised value at that time. Moreover, if the SRR product above had been employed, the lender’s dues would have been even lower, since the home in question would almost certainly have outperformed the regional pricing proxy. Ideally, the product explanation would include worked examples of this kind, so that the amount of the mortgagee’s payout comes as no surprise to the mortgagor (and, in the case of elderly borrowers, to the borrowers’

close family). But these are practical hurdles, not legal ones. No ground of public policy outlaws SAMs or renders them somehow unenforceable. In a perfect world, the borrower would consult an independent adviser (for the lender's protection), who would be asked to provide a certificate to the effect that he or she explained the transaction and its consequences and that the borrower (and, in the case of elderly individuals, their close family) appeared to understand the explanation.

Any residual uncertainty over the unconscionability of SAMs could be set at rest by amending relevant legislation (such as the Consumer Credit Code and the Trade Practices Act), to exempt SAMs from review where the mortgagee has disclosed prescribed information to borrowers. In addition, to reduce risk on the ground of unconscionability and to safeguard against abuse, statutory guidelines could be enacted to cap 'reasonable' returns for investors.

### 3.4.4.3 Clogs on the Equity of Redemption

Under the Australian law of mortgages—which is, in this respect, similar to the law of the US and the UK—a mortgagee is not permitted to 'clog' the mortgagor's equity of redemption. By this it is meant any provision that is inconsistent with the mortgagor's right to fully recover the property on discharging all of the obligations under the mortgage is invalid. In this sense, the mortgagor's interest in the property (the equity of redemption) cannot be fettered or 'clogged'. A classic example is where the mortgage gives the mortgagee a collateral advantage of some kind that continues even after the mortgagor has repaid the loan and interest, for then the mortgagor's right to get back the property after discharging the loan is rendered illusory.<sup>210</sup> Another is where the mortgage gives the mortgagee an option to purchase the property, since the option effectively empowers the mortgagee to deprive the mortgagor of the right to recover the property on repaying the loan.

Much of the US literature on SAMs is concerned with the possible effect of the 'clogs' doctrine. Some US commentators see a potential 'clog' under a form of SAM which requires the borrower to refinance after, say, five years, and the amount owed to include the rights to the property's appreciation over that period. They argue that, if the appreciation is substantial, some mortgagors might be unable to

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<sup>210</sup> As in the House of Lords decision, *Noakes & Co Ltd v Rice* [1902] AC 24.

afford the substantially increased repayments, thus effectively being precluded from redeeming the mortgage.<sup>211</sup>

However, it seems clear that the model of SAM we are considering does not breach the prohibition against clogging the equity of redemption. The mortgagee's right is merely to an increased amount if the property appreciates in value. On payment of that amount, the mortgage is discharged. No enduring rights remain with the mortgagee after that date. In short, there is no fetter or clog on the mortgagor's right to redeem upon paying what the mortgagor agreed to pay under the mortgage. There is an analogy in an old English case, where the court upheld a mortgage that entitled the mortgagee to a bonus over and above the sum advanced; on the facts, the court held valid a loan of £700 which could be discharged only on payment of £1,000.<sup>212</sup>

However, to allay any residual concerns of institutional lenders in this regard, statutory amendments could confirm the non-applicability of the relevance of the law about clogs on the equity of redemption to this type of mortgage.

#### 3.4.4.4 Restraints on Alienation

The law looks with disfavour on restraints against freedom of alienation. However, it does not prohibit them completely. They are prohibited only where they are 'unreasonable' in the circumstances. SAMs generally contain 'due on sale' provisions, requiring the borrower to pay out the mortgage—including the mortgagee's share of appreciation—on sale of the property. A provision of this kind precludes the mortgagor from selling without paying out the mortgage. Could this due-on-sale provision be seen as an unreasonable restraint on alienation?

On this subject, there is a great deal of US commentary.<sup>213</sup> The consensus is that due-on-sale provisions in SAMs do not breach the prohibition on unreasonable restraints on alienation, because in the

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<sup>211</sup> See, for example, Viverito, "The Shared Appreciation Mortgage: A Clog on the Equity of Redemption?" (1982) 15 *John Marshall Law Rev* 131 at 150-154; Preble and Cartwright, "Convertible and shared appreciation loans: unclogging the equity of redemption" (1985) 20 *RPP & TJ* 821 at 860-861; compare Friend, "Shared appreciation mortgages" (1982) 34 *Hastings LJ* 331 at 408-415.

<sup>212</sup> *Potter v Edwards* (1857) 26 *LJ Ch* 468.

<sup>213</sup> See, for example, Friend, "Shared appreciation mortgages" (1982) 34 *Hastings LJ* 331 at 363-372; Kinzler, "Due-on-sale clauses: the economic and legal issues" (1982) 43 *Uni of Pittsburgh Law Rev* 441; Weiner, "Due-on-sale: enforceable?" [1982] *Michigan Bar J* 214.

circumstances the provisions are not unreasonable. The mortgage takes a 'shared appreciation' form to enable the borrower to finance the house in circumstances where standard mortgage finance is either not available or not affordable. The benefit of reduced or non-existent interest payments during the term of the loan is at the anticipated and consensual cost of deferring the repayment obligation until sale. To strike down a due-on-sale provision would allow the borrower to redeem the mortgage without paying the agreed proportion of increase in value. That would undermine the very purpose of the transaction.

#### **3.4.4.5 Debt versus Equity**

Other forms of finance discussed in this report give the lender (investor) an equity interest in the residence. The lender becomes a tenant-in-common with the borrower (householder). Under those forms of finance, the lender's legal rights are determined, in part at least, by the law of co-ownership.

In contrast, under a SAM of the kind we are considering here the lender acquires a mortgage security, but no other kind of proprietary interest. The mortgage is a mortgage in both substance and form. The fact that it gives the mortgagee a share of the increased value of the property on the occurrence of a specified event does not, of itself, give the mortgagee any 'equity' in the property. The mortgagee's rights lie in debt, secured by the instrument of mortgage. No equity interest is created or transferred. The parties remain at all times in the relationship of creditor-debtor. It is true that the mortgagee acquires the potential right to a proportionate part of the value of the property, but that is a right to be repaid an ascertainable (but not yet ascertained) sum of money, not a right to an equity interest in the property itself. At no stage does the mortgagee's right to be repaid the ascertainable sum rise above the rights of a mortgagee under a more traditional form of mortgage. (If necessary to allay concerns over this point, the mortgage documentation could expressly provide that the relationship between the parties is that of debtor and creditor only, and that they are not entering into any joint venture, partnership, or tenancy in common; but such a provision would be purely precautionary and strictly unnecessary.)

Some US commentators have argued that, to avoid characterisation as an equity relationship, a SAM should shun provisions giving the mortgagee substantial management rights over the property and its use. Provisions of that kind, though intended only as a way of protecting the mortgagee's anticipated share of appreciation, might

(this argument runs) make the transaction resemble a partnership or joint venture.<sup>214</sup> Under our proposed shared appreciation mortgage, however, the mortgagee's interference with the day-to-day use and operation of the property is minimal, so that the prospect of creating a joint venture or partnership is remote. However, any fears in this regard could be allayed by drafting the mortgagee's power as a right (acting reasonably) to refuse consent to actions by the mortgagor, as distinct from powers to join with the mortgagor in taking actions. This kind of consent-refusal power is well recognised in leases, where landlords are commonly given powers to consent to acts by the tenant (such as proposals to alter the property). It has never been suggested that these powers create a joint venture or partnership between the landlord and the tenant.

#### **3.4.4.6 Priorities**

The mortgagee's right to a proportion of the increase in the value of the property does not crystallise until some time after the initial loan advance. Its precise characterisation could be a matter of debate. It may be a presently existing right, whose calculation depends on a future event (appraising the increase in value of the property on a specified event); or it may be a contingent right, which does not vest until the increase in value of the property is appraised on a specified event. However, under either characterisation, the mortgagee becomes entitled to a payment and the size of the charge securing the mortgage swells accordingly. Could it be argued that the mortgagee's right to this future payment is in the nature of a further advance, and so at risk under the law relating to the priority of further advances? Under that law, further advances cannot be 'tacked' onto an existing mortgage if they are made with notice of an intervening mortgage.

Before considering this argument, two preliminary points should be made. First, the mortgagee's right is akin to interest whose payment is deferred until the future specified event. Some US models specifically describe it as 'interest' or 'contingent interest'. Now, where the payment of interest is deferred until repayment of the principal, the mortgagee's right to that interest enjoys the same priority over intervening mortgages as the right to the principal itself. The possibility that its 'deferred' or 'contingent' nature might somehow lead to its postponement to intervening mortgages is (as one

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<sup>214</sup> See, for example, Preble and Cartwright, "Convertible and shared appreciation loans: unclogging the equity of redemption" (1985) 20 RPP & TJ 821 at 862.

commentator has suggested) “merely the product of overactive imagination.”<sup>215</sup>

Second, where an owner enters into two mortgages with different mortgagees—one a SAM and the other a standard mortgage—then it would be prudent for the two mortgagees to enter into a priority agreement as between themselves. This is common commercial practice. The following discussion assumes that no priority agreement of this kind exists.

We now (for the sake of completeness) consider the argument that the mortgagee’s rights to a share in the appreciation should be treated as akin to a further advance. Let us assume that the owner takes out two mortgages. Where the SAM is a second mortgage, the mortgagee’s right to a proportionate increase in the value of the property is subordinate to the dues owed to the first mortgagee. In such a case the legal position is straightforward. The first mortgagee would have first right of recourse to the mortgaged property. Although on paper the SAM would secure to the (second) mortgagee a right to be paid a proportionate increase in the value of the property, as a practical matter the utility of that right would depend on sufficient proceeds remaining after the first mortgagee had been paid out. The second mortgagee would have a right to sue the mortgagor for any deficiency in the amount owed under the SAM, but that would be a personal action only. If, for example, the first mortgagee were to sell the property, the purchaser would take the property free of the claims of the second mortgagee. However, this is the same position in which all second mortgagees find themselves if the property is not sufficient to pay out the amounts secured by both first and second mortgages.

Notwithstanding this, the position is more complex where the SAM is a first mortgage. Under the Australian law of further advances, where a mortgage (mortgage one) secures present and further advances, the further advances can be ‘tacked’ onto mortgage one despite the giving of an intermediate mortgage (mortgage two), as long as the further advances are made without notice of mortgage two. In the event that the further advances are made with notice of mortgage two, then mortgage two prevails over them. In the case of ‘normal’ mortgages, this principle might be thought to work hardship where mortgagee one has notice of mortgage two, particularly where mortgage one obliges the mortgagee to make further advances. However, the law resolves this potential unfairness by excusing mortgagee one from

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<sup>215</sup> Friend, “Shared appreciation mortgages” (1982) 34 *Hastings LJ* 331 at 357.

having to make the further advances once notice is received of mortgage two.

Where mortgage one is a SAM, however, mortgagee one does not have the luxury of withholding payment of a further advance (assuming for the sake of argument that the analogy with further advances applies at all). No actual advance is made. Rather (on the hypothesis we are making), the law treats the right to payment of the increase in value as if it were a further advance. In practical terms, mortgagee one has no discretion to withhold the deemed further advance, and since (on our hypothesis) by then mortgagee one has notice of mortgage two, it will not be possible to ‘tack’ the relevant amount to mortgage one in priority to mortgage two.

However, this possible inability to ‘tack’ is not, we consider, a major drawback with SAMs, for two chief reasons:

- Under Australian law, the ‘notice’ that precludes tacking is actual notice, not merely constructive notice;<sup>216</sup> and so, for example, mortgagee one has no notice of mortgage two merely because mortgagee two lodges a caveat against the title;<sup>217</sup> and
- The SAM will almost certainly require the mortgagor to seek the mortgagee’s consent to any second or later mortgage. The first mortgagee can then require as a condition of consent that the second or later mortgagee agree that the first mortgagee’s share of appreciation be entitled to priority over the second or later mortgage

#### 3.4.4.7 Valuing the Property

The SAM requires the property to be valued at least twice—at the date the mortgage is taken out, and at the date the specified event occurs which triggers the liability to pay the proportionate increase in value. Earlier, we mentioned the concept of a local house price index. Such an index obviates the need for a valuation at the point of termination of the mortgage. However, the parties may prefer to have the property valued individually, rather than by reference to a more general index. Where this occurs, accuracy of valuation is of course crucial to the interests of both mortgagee and mortgagor. Of course,

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<sup>216</sup> *Central Mortgage Registry of Australia v Donemore Pty Ltd* [1984] 2 NSWLR 128; *R v I Bank of WA v Cash Resources Australia Pty Ltd* (1993) 11 WAR 536.

<sup>217</sup> *Central Mortgage Registry of Australia v Donemore Pty Ltd*, above.

the need for accurate valuation is not unique to SAMs. In other kinds of transactions also, the parties' rights depend on accurate valuations. An example is rent review provisions in leases. And so it can be expected that valuation clauses of kinds analogous to those in leases will become standard in SAMs to ensure accurate valuations by experienced valuers. For example, the clause might provide that:

- Valuations are to be made by persons whose qualifications are recognised by the relevant professional organisations;
- The valuations are to be made by a valuer appointed by the mortgagee;
- If the mortgagor disputes the amount, then a valuation is to be made by a valuer appointed by the mortgagor; and,
- If there is a substantial discrepancy between these valuations, a dispute resolution provision is to operate, providing for a definitive valuation to be made by another valuer or valuers. Precedents from the law of leases, or from other analogous practice areas, would not be difficult to find.

### 3.4.5 Taxation implications

Several advisors to Task Force have commented on possible taxation implications of SAMs.<sup>218</sup> We set out below their chief concerns. Of necessity, this discussion is brief, and readers should seek their own taxation advice before acting on any of these comments.

#### 3.4.5.1 The Mortgagor

The tax consequences for the mortgagor will depend on how he or she is categorised for tax purposes.

- Mortgagor is carrying on a business

If the mortgagor is carrying on a business of buying and selling properties, the entire sale proceeds (without allowing for any payment to the mortgagee of its share) are likely to be ordinary income in the hands of the mortgagor and assessable as income. However, the payment to the mortgagee of its share of the sale proceeds is likely to be an

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<sup>218</sup> Ebsworth and Ebsworth, Solicitors, Sydney; Clayton Utz, Solicitors, Sydney. Our discussion relies heavily on their comments, but should not be taken as representing their concluded views.

allowable deduction as it is a cost of financing the purchase of the property.

Whether a mortgagor carries on a business of buying and selling properties is a question of fact. Some of the indicia of carrying on a business developed by the courts include:

- Profitability;
  - Whether the buying and selling is conducted with a view to profit;
  - Whether transactions are frequent, and are conducted continuously and systematically;
  - The size and scale of the activities; and,
  - Maintenance of business records.
- Mortgagor is not carrying on a business

If the mortgagor is not carrying on a business of buying and selling properties, the entire sale proceeds are likely to be treated as capital proceeds in the hands of the mortgagor and assessable as income.

The Income Tax Assessment Act 1997 ('ITAA97') currently provides for an exemption from capital gains tax where the asset disposed of is the taxpayer's main residence (provided certain requirements are satisfied). As the mortgagor will usually be the owner of the property under our proposed scheme (and provided the normal conditions are satisfied), this exemption should be available. The exemption continues to apply in certain circumstances even where the taxpayer has derived some income from the rental of the property.

Where the exemption does not apply, tax is assessed on the capital gain arising from the sale of an asset, i.e., the difference between the capital proceeds from the sale of the asset and the asset's cost base. An asset's cost base includes, among other things:

- The acquisition costs of the asset;
- Incidental costs incurred by the taxpayer, e.g., legal fees; and,
- Interest on money the taxpayer borrowed to acquire the asset.

Therefore, to the extent that the proceeds payable to the mortgagee by the mortgagor represent (or are a substitute for) interest, it is likely that that payment by the mortgagor will be regarded as interest on money the mortgagor borrowed to acquire the asset. Accordingly, that payment should form part of the mortgagor's cost base and should reduce the mortgagor's capital gain (and the amount of tax payable).

To the extent that the proceeds payable to the mortgagee by the mortgagor represent something more than the mere substitution of interest, it will be more difficult for the mortgagor to argue that the payment to the mortgagee is the payment of interest on money borrowed to acquire the asset and should therefore form part of the asset's cost base. Further, the payment to the mortgagee of its share of the sale proceeds is unlikely to fall within any other element of cost base.

Therefore, as the tax law currently stands, the payment by the mortgagor to the mortgagee of the latter's share of the sale proceeds is unlikely to form part of an asset's cost base and consequently, a mortgagor, not in the business of buying and selling properties, would be liable to tax on the entire gain (i.e., sale proceeds less the asset's cost base) with no allowance for the payment to the mortgagee.

This would obviously be a significant tax cost to the mortgagor. To provide certainty and fairer treatment for mortgagors, the tax legislation should be amended.

The entry by the mortgagor into the mortgage is the creation of a contractual right (or other legal or equitable right) in the mortgagee. The inception of such a right may give rise to a capital gain under s 104-35(1) of the ITAA97. However, s 104-35(1) of the ITAA97 does not apply where the right was created by borrowing money or obtaining credit from another entity: s 104-35(5)(a) of the ITAA97. As the rights in the mortgagee are created by borrowing money, this provision should not apply to our proposed scheme.

### **3.4.5.2 The Mortgagee**

The mortgagee will almost always be an institutional investor, in the business of granting mortgages. The financial return for a mortgagee is usually the interest paid by the mortgagor on the principal advanced by the mortgagee. The interest earned from the granting of mortgages

is ordinary income in the hands of the mortgagee and is subject to tax at the company rate (after allowing for any available deductions).

To the extent that the mortgagee's share of the sale proceeds under the proposed scheme represents a substitution for interest, those proceeds are likely to be viewed as ordinary income in the hands of the mortgagee. In respect of sale proceeds that are categorised as payments to the mortgagee in excess of interest, although the position is less clear, they are likely also to be regarded as ordinary income in the hands of the mortgagee.

As a mortgagee carries on a business of granting mortgages, all receipts should be on revenue account and it is unlikely that any receipts will be on capital account.

- Accruals basis of taxation?

There is a significant risk that the mortgagee might be taxed on an accruals basis. Under Australian tax law,<sup>219</sup> a security is taxed on an accruals basis if it is a 'qualifying security'. SRR mortgages are likely to be qualifying securities since:

- They are securities under the tax law definition, either because:
  - They can be classified as secured loans; or
  - They are contracts under which a person is liable to pay an amount;
- If house prices increase over time (which is the historical norm), it is 'reasonably likely' that the sum of all payments on the SRR mortgage to the mortgagee will exceed the amount lent under the mortgage, even though no interest (strictly so called) will be charged on the mortgage;
- At the time that the mortgage is entered into, it is 'reasonably likely' that the term of the mortgage will be greater than one year; and
- SRR mortgages are not annuities and are not issued by the Commonwealth.

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<sup>219</sup> Accruals Taxation (Division 16E of Part III of the Income Tax Assessment Act 1936).

The contrary argument is that the definition of ‘qualifying security’ requires that the eligible return can be calculated at the time the loan is issued. In an interpretive decision, the Australian Taxation Office stated that ‘interest’ that was determined on the basis of tree harvest revenue could not constitute an eligible return. However, it may be unwise to rely on this interpretive decision alone, given the nature and context of SSRs.

If SRR mortgages are classified as qualifying securities, then the mortgagee will have to include in its assessable income an ‘accrual amount’ for each ‘accrual period’. More precisely, the return that is reasonably likely over the term of the SRR mortgage is brought to account on a six-month compounding accruals (yield to maturity) basis over the term of the mortgage.

An ‘accrual period’ is every six months, or if the security is only on issue for part of a six-month period, then that amount of time. For instance, if a mortgagee issues a SRR mortgage on 1 April and has a tax income year ending on 30 June, the first accrual period will be three months.

Given that the precise terms of SRR mortgages may vary between mortgagees, it is difficult to predict exactly how the ‘accrual amount’ would be calculated under Australian tax law. One possibility is that the ‘eligible return’ will be the portion of the ‘target price’ that the mortgagee is to receive in accordance with the terms of the contract. The implied interest rate would then be calculated by assuming that the house will be held until the end of the mortgage.

Taxation on an accruals basis would be an untenable outcome for mortgagees. It would result in the mortgagee being taxed each year, effectively on the unrealised appreciation in property value. In order to clarify the position, the ATO could be approached for a ruling. If the ATO considers that the accruals taxation regime does apply, then legislative change would need to be sought.

- Traditional securities?

If SRR mortgages are not classified as ‘qualifying securities’ because they do not have an ‘eligible return’, they may be classified as ‘traditional securities’. If so, mortgagees will be taxed at the point that the security is redeemed or disposed of, under section 26BB of the Income Tax Assessment Act 1936.

This will result in gains being taxed as ordinary income (i.e. rather than as a capital gain). However, even in the absence of these rules, the gains would likely be regarded as ordinary income, as the investors will be financial institutions.

- Gains on sale as ordinary income

If SRR mortgages are subject to accruals taxation, this does not prevent a gain on disposal or redemption being included in a financial institution's assessable income as ordinary income. Nonetheless, tax legislation is generally construed to avoid double taxation; this should mean that amounts included in assessable income under the accruals regime should not be included again as assessable income at the time of disposal or redemption.

- Capital Gains Tax

If SRR mortgages are subject to accruals taxation, and gains are not included in ordinary income (e.g., because the mortgagee is not a financial institution), then they will be included in assessable income as statutory income under the capital gains tax regime. When the gain on the mortgage is crystallised by one of the specified events (for instance, the house is sold), the mortgagee may realise a capital gain. Anti-overlap provisions in Australia's capital gains tax regime reduce a capital gain for amounts that have already been incorporated into a taxpayer's assessable income. Hence, sums that have been included on an accruals basis will reduce the mortgagee's final capital gain.

If SRR mortgages are not subject to accruals taxation, but are instead classified as traditional securities, the gain on the securities will be included in the mortgagee's assessable income when the security is redeemed or disposed of. If this is the case, then the anti-overlap provisions will ensure that no capital gain is realised under the capital gains tax regime. If section 26BB of the Income Tax Assessment Act 1936 does not apply, and the gain is not included as ordinary income, then the SRR mortgages may still be subject to the capital gains tax regime.

This may be a distinction without a difference if the mortgagee is a corporate taxpayer. If the mortgagee can access the capital gains tax discount, then the distinction will be material. The more important issue, however, will be whether SRR mortgages are classified as qualifying securities.

### 3.4.6 Conclusion

This chapter has argued that, from the perspective of Australian property law, SAMs of the kind we are proposing can be accommodated within existing legal principles. Where some residual uncertainty might be thought to exist, it can be resolved by appropriate amendment to consumer and trade practices legislation. More problematic, however, is the application of the taxation regime to SAMs. The treatment of the share of appreciation is unclear. Institutional investors, in particular, are likely to require greater certainty before committing to SAMs. In this sense, amendments to the tax law may be needed.

Here it is worthwhile noting that there should be no ‘net’ revenue sacrifice associated with the introduction of these structures. In fact, we expect this to be a tremendous boon for the Commonwealth’s future finances. Insofar as the emergence of equity finance permits policymakers to tax capital gains on owner-occupied housing (a \$2.5 trillion asset category), it should trigger a very significant rise in revenue receipts. Of course, there is a *quid pro quo*. If government does not remove the key obstacles to success and supply participants with sufficiently attractive incentives to enter into these arrangements, the market may fail and this remarkable revenue opportunity will never transpire.

It is also important to understand that as a consequence of unlocking the large amount of wealth that is currently invested in residential real estate, and facilitating subsequent multi-asset class saving, equity finance could alleviate the pressures placed by an ageing population on health, aged care and the pension. And this is to say nothing of the many indirect benefits that should accrue—e.g., increased consumption, investment, employment, and demographic changes such as a rise in family fecundity and perhaps population growth. The social and economic returns to the Commonwealth would be manifold.

Accordingly, we believe that this is a unique window with which to enact serious reform and significantly improve the average Australian’s quality of life. We would hope, therefore, that policymakers are able to set aside partisan preferences, and ensure that the waves they create contribute to shaping this nation’s great shores. Torpor is an affliction that all too often encumbers decision-makers, much to the detriment of innovation and entrepreneurship. To make matters worse, there is no real precedent for that which we propose. And so the present situation demands men and woman of fortitude and prescience—individuals willing to take serious risks in order to advance human development. It also demands a far-sighted

public apparatus that is capable of embracing the regulatory framework necessary for the establishment of a new system of housing finance.

### 3.5 Final Thoughts on Institutional Viability

In light of the evidence above, one might reasonably ask, “if equity finance is such a great idea, surely it has been thought of before and implemented elsewhere? And if not, does this mean that there are insurmountable obstacles to success?”

This proposal will, like other innovations throughout history, seem extremely simple to some in retrospect. It is, nevertheless, an entirely different proposition considering the relative merits of such *ex ante*. In the 1920s, one company wrote when declining an opportunity to invest in early radio technology, “The wireless music box has no imaginable commercial value. Who would pay for a message to be sent to nobody in particular?” Similarly, during the 1930s and 1940s, twenty companies rejected the plan of Chester Carlson, inventor of the Xerox machine, to copy a document on to plain paper. Today it is hard imagine life without either!

The issuance of home equity should not be viewed as necessarily more radical or inventive than countless other financial breakthroughs. Prior to Fisher Black, Myron Scholes and Robert Merton’s pioneering work on options pricing in the 1970s (for which the latter two received the Nobel Prize), liquid derivative markets did not, for all intents and purposes, exist. In 2003, they amount to a multi-trillion dollar asset class that has unambiguously revolutionized risk-sharing. Foreign currency swaps, which now account for around half the gross turnover of the foreign exchange market, did not materialize until the early 1980s. Futures markets in stock price indices only emerged in 1982. And we have just recently witnessed the development of the indexed bond. Of course, many a slip twixt cup and lip—ideas of this nature are seldom embraced without considerable delay and frequently take a very long time to gather a decent head of steam. Moreover, anyone who dares contemplate committing the time and effort to establishing such may be deterred by the legacy of past failures (a very good example of which is Lovell and Vogell’s CPI futures market). This dispiriting environment is exacerbated by the perennial ‘public goods problem’ wherein inventors tend to capture only a small fraction of the benefits and almost all of the costs of their creation. These costs include, among

other things, sizeable investments in research and development, the promotion of the product, and the education of the public.<sup>220</sup> In addition, financial instruments are difficult to patent. And when firms finally issue a new product, competitors typically offer a similar one within two to three months (see Athanasoulis, Shiller, and van Wincoop (1999)).

This proposal is also a rather new one. As such, it has yet to penetrate the popular consciousness or captivate the imagination of prominent private sector participants. Hence, one objective of our report will be to elevate the sophistication of the community's information set. We need a great deal of public debate regarding the merits of equity finance and ultimately a broad consensus among academics, commentators, lawyers, regulators, and policymakers. History suggests that professional leadership is a key criterion to making such a success...

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<sup>220</sup> This particular point has policy implications. In brief, knowledge is a global 'public good' which gives rise to externalities that are of immense value to the community. One important corollary of the so-called non-rivalous nature of knowledge is that its production and provision cannot be completely governed by competitive market forces. Firms encounter great difficulties capturing the returns to an investment in knowledge since the marginal cost (and therefore the charge) associated with its supply is essentially zero. As a result, they are not motivated to deliver the socially desirable quantity. It is precisely this market failure, and the disjunction between the private and social rates of return to knowledge, that justifies a role for government action to ensure its optimal production. This may involve conferring monopoly rights to agents via patents and copyright protection, direct financial support through grants, or indirect assistance by way of tax deductions.

## 4 Part Four: The Elasticity of Housing Supply<sup>221</sup>

### 4.1 Introduction

The financial reforms presented thus far could have tremendous implications for the lifestyles of many Australian households. We do not, though, intend to limit our analysis to just the demand-side of the housing market equation. Accordingly, in this section we extend the discussion of Parts One, Two and Three of the report and conduct a detailed appraisal of the performance of the ‘supply-side’. In particular, we consider two issues of interest: (1) constraints on the availability of land; and, (2) regulatory restrictions that artificially inflate the price of properties.<sup>222</sup> Subsequently, we advocate a specific model to enhance the elasticity of housing supply. Our proposal does not require any government subsidies or draconian regulations to legislate affordable housing into existence. Instead, we focus on eliminating the barriers that currently constrict the supply of new dwellings in Australia.

At the outset, it should be stressed that our goal is to reduce the costs of home ownership with the maximum degree of ecological sensitivity. While the suggested initiative imbues municipalities with strong incentives to boost the stock of available dwellings, it does not impose strict guidelines as to how they should practically manage the

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<sup>221</sup> The ideas presented in this chapter have benefited from the advice of Andrew Barger (HIA), Alexander Calvo (Reserve Bank of Australia), Andrew Charlton (Oxford), Jason Falinski (IAG), William Fischel (Dartmouth), Samuel Gullota (Goldstream Capital), Michael Guerney (Australian Bureau of Statistics), Chris Johnson (NSW Government Architect), Ian Joye (Kona Asset Management), Adrian Pagan (University of New South Wales), John Oliver (Rider Hunt), Frank Sensenbrenner (University of London), Tom Skinner (McKinsey), Alex Turnbull (Harvard University), Lucy Turnbull (City of Sydney), Malcolm Turnbull (Turnbull & Partners), and Peter Verwer (Property Council of Australia).

<sup>222</sup> In a question posed to Professor Warwick McKibbin on the most important issues for policy makers to address in the Australian housing market, his response included, “To prevent asset price bubbles from developing due to distortions in incentives to the supply of housing. And provision of infrastructure to encourage the supply of land.” Submission to the Prime Minister’s Home Ownership Task Force, 9 February 2003. As usual, Professor McKibbin was right on the money.

implementation process. In this regard, it is our belief that councils are the best guardians of their own unique environments. And so, by placing planning controls firmly in the hands of local decision-makers, we hope to give them the power to deliver a balance between the community's long-term accommodation needs, and the broader desire to foster a clean, green and sustainable Australia.

## 4.2 Popular Misconceptions

A great deal of confusion tends to reign in the emotive affordability debate. Above all, combatants make the mistake of attempting to judge the costs of home ownership in relation to the income levels of prospective acquirors. While there is no question that poverty leads to significant suffering, this does not justify tying housing policies to the distribution of income. If government wants to assist the economically disenfranchised, it should do so via targeted anti-poverty proposals. If it is especially eager to ensure that poor people are able to afford appropriate shelter, then housing vouchers that are linked to income may make sense. Good public policy does not, however, obfuscate issues that cause high house prices with those that contribute to depressed incomes. As such, we concentrate our efforts on schemes that improve the affordability of housing by relaxing regulatory restrictions that have the potential to propagate price rises. We do not recommend responding to a housing 'crisis' by lavishing low-income occupiers with taxpayer-funded subsidies. To reiterate, the two problems are distinct.

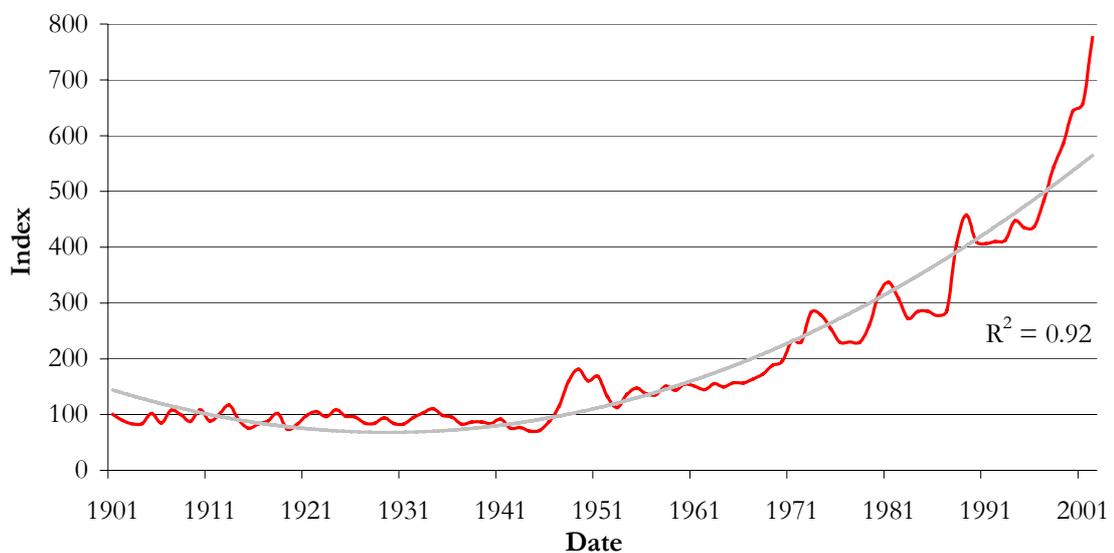
There are doubtless many commentators out there who believe that the high cost of real estate in this country is a universal constant, particularly in larger cities like Sydney and Melbourne. But, as the figures below illustrate, this is a flawed interpretation—the stunning growth in the 'real' value of owner-occupied homes (i.e., after removing the influence of inflation) is a modern phenomenon. To underscore this point, we chart the growth in Sydney house prices since 1901 (see Appendix 8.11 for a logarithmic alternative).<sup>223</sup> A polynomial least squares line is also fitted to provide a sense of the trend movements. At the very least, the last hundred years has been a case study in contrasts: whereas the first half of the century was noteworthy for its unremitting stability, the second has spawned a seemingly interminable acceleration in prices. Interestingly, this effect has been most pronounced during the past two decades. In

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<sup>223</sup> This data, generously provided to us by Residex Pty Ltd, constitutes the longest available time-series.

December 1979, the median established house price in Sydney (Melbourne) was \$171,914 (\$119,283) in 2002 dollar terms. Fast forward to the present day, and aspirants have to contend with a much more challenging environment. By December 2002, the median Sydney (Melbourne) established property price had risen to \$445,000 (\$260,000), a rate of change that far exceeds that which is attributable to consumer prices.<sup>224</sup>

**Figure 66**  
**Real Sydney House Prices**  
 1901 to 2002

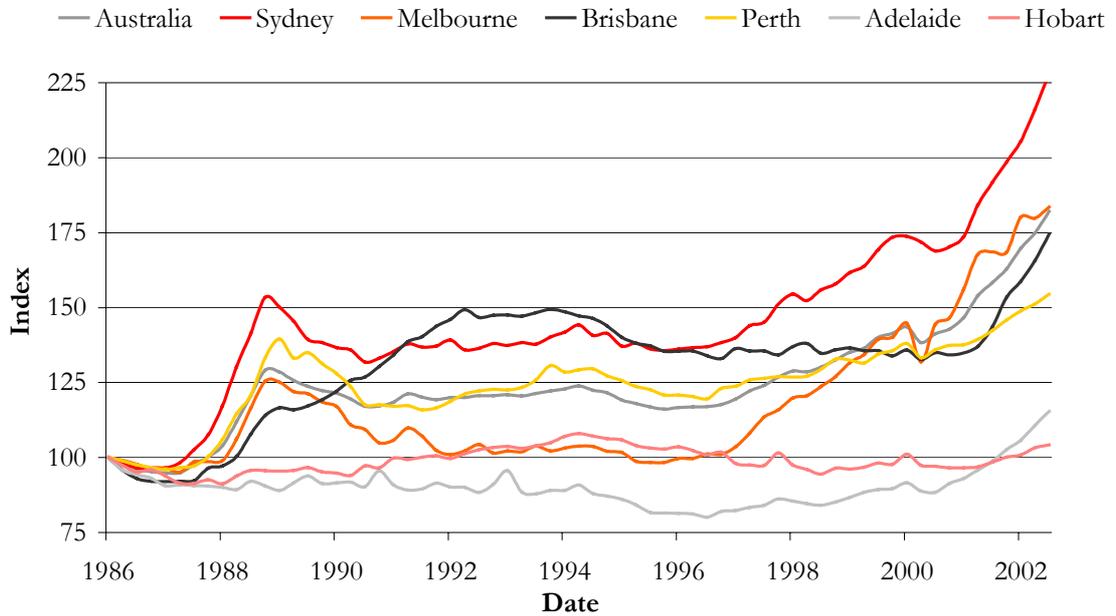


Source: Residex Pty Ltd

Figure 67 illustrates real movements in the value of dwellings in each of the capital cities, with the national proxy representing a weighted average of the individual series. Although we are limited by the length of the measurement period (i.e., 1985 to 2002), the overriding story is much the same. In every population centre except Adelaide and Hobart, there has been a rapid escalation in prices. Also note that contrary to popular belief, house values do decline, and sometimes by considerable amounts. To take just one example, between 1989 and 1991 the real price of the median dwelling in Sydney (Melbourne) fell by 14.1 percent (19.5 percent) from its peak of three years prior (see also Chapter 2.2).

<sup>224</sup> Based on data supplied by the Australian Bureau of Statistics and Residex Pty Ltd.

**Figure 67**  
**Comparison of Real House Prices in Australia**

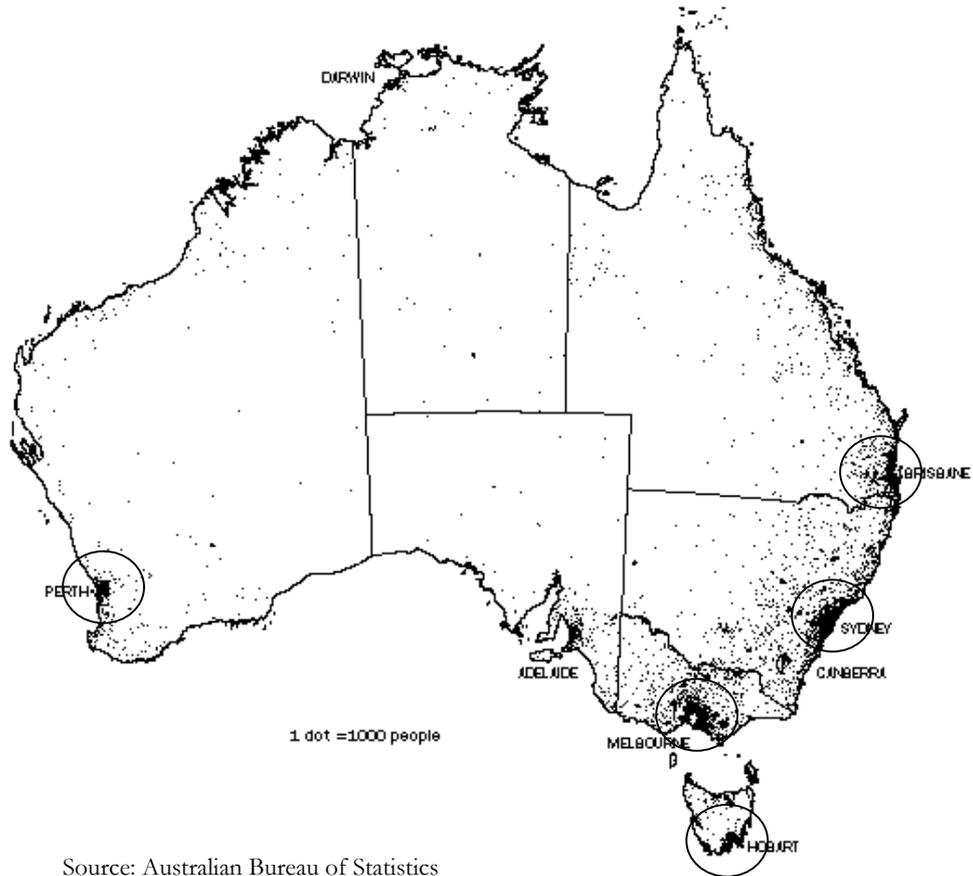


Source: Australian Bureau of Statistics

So what factors have contributed to the remarkable climb in the real cost of housing over the last 50 years? There are at least four possible hypotheses. On the demand side, the quality of local consumption amenities (such as schools and the weather) or the dominance of a particular labour market can drive a significant pricing premium, akin to a kind of 'Manhattanisation'. In Sydney, this may have been the case, since it has certainly become a Mecca for financial market activities in the Asia-Pacific region. More generally, it is probable that in sparsely populated nations such as Australia (which has vast tracts of inhospitable territory), there is a natural tendency towards spatial consolidation. In fact, Australia is one of the most urbanised states in the world, with 85 percent of its population residing in cities (see Figure 68 below and Appendix 8.11).<sup>225</sup>

<sup>225</sup> Curiously, this is despite the emphasis on primary industries in our export mix. Bradley and Gans (1996) argue that agglomerative forces have had more of an influence on Australia's urban environment than first nature (i.e., natural) effects.

Figure 68  
Population Density: Today



Source: Australian Bureau of Statistics

The unusual concentration of Australia's population in the major metropolises may be responsible for its exalted cost of housing relative to peers overseas. Property prices are usually higher in bigger cities vis-à-vis smaller ones. Consequently, the more expensive conurbations in this country drag up the average level of dwelling prices compared with that found in other nations, which leads to a larger share of wealth dedicated to housing (see also Ellis and Andrews (2001)).

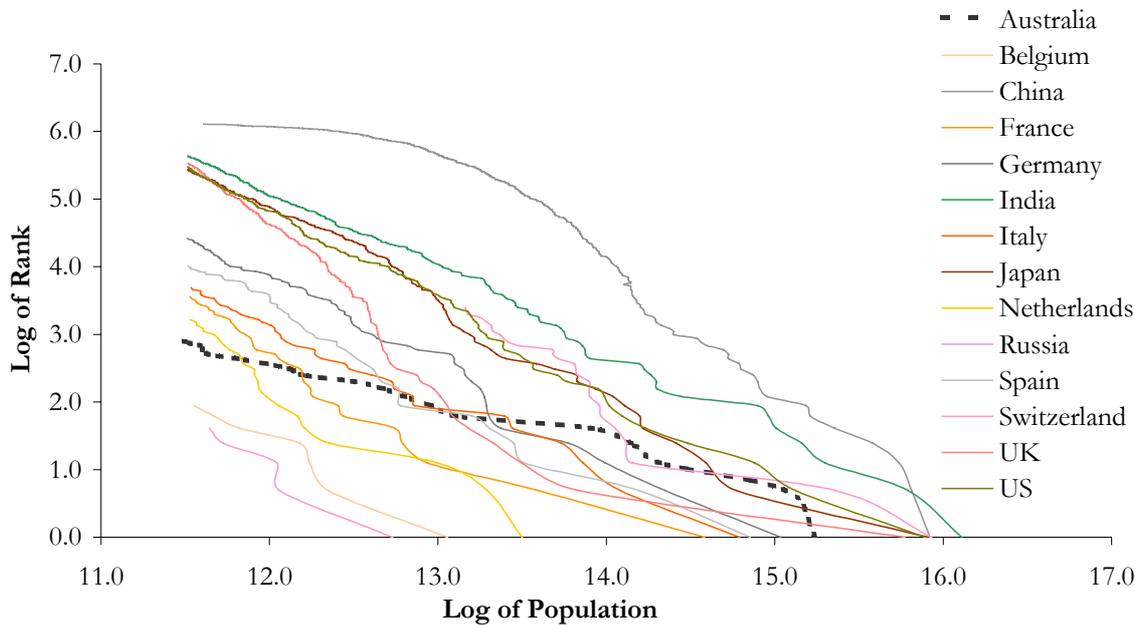
In academic speak, the abnormal spatial aspects of Australia's demography have produced a flat 'Zipf curve', with multiple primate cities—namely, the State capitals. (Sydney and Melbourne alone account for 52 percent of the country's urban population.) Ordinarily, the size of a city is an inverse and proportional function of its ranking by number of inhabitants. Hence, the second-largest city is typically one-half the size of the largest, the third-largest city one-third the size, the fourth-largest one-quarter the size, and so on. Although this rule,

known as, among other things, ‘Zipf’s Law’ or the ‘rank-size distribution’, holds for metropolises around the world (see Krugman (1996) and Ioannides and Dobkins (2001)), the same cannot be said of Australian cities (see also Ellis and Andrews (2001)).

A simple experiment suffices to demonstrate this incongruity. In Figure 69, we plot the natural logarithm of a city’s rank against the natural logarithm of its population size. Despite the fact that this ‘power law’ provides a good approximation of the data for virtually all nations across the globe (evidenced by a slope coefficient of around negative one), its predictive capacity with respect to the cross-section of Australian cities is poor.<sup>226</sup> In an effort to more formally validate the integrity of this result, we also employ the ordinary least squares technique (see Table 21). Observe how the Australian point estimate is significantly less than those of its overseas contemporaries. The implication here is that our primate regions account for a disproportionately large share of the total population. Interpreted differently, Australia has virtually no ‘middle-sized’ cities.<sup>227</sup>

Figure 69

Country Rank-Size Relationship



<sup>226</sup> In a recent Reserve Bank of Australia study, Ellis and Andrews (2001) arrive at the same conclusions employing a somewhat more sophisticated method.

<sup>227</sup> Using the standard United Nations definition of between 500,000 and one million inhabitants.

Table 21

<b>Indicators of Australia's Unique Urban Structure<sup>228</sup></b>			
	<b>Zipf Curve Exponent Estimates</b>	<b>Share of Urban Population in Two Largest Cities</b>	<b>Primacy Ratio(a)</b>
	<b>OLS</b>		
<b>Australia</b>	(0.65)	52.0%	1.2
<b>Belgium</b>	(1.32)	47.9%	2.0
<b>China</b>	(1.28)	4.5%	1.1
<b>France</b>	(1.34)	34.3%	2.7
<b>Germany</b>	(1.29)	20.1%	2.0
<b>Italy</b>	(1.11)	29.3%	2.0
<b>India</b>	(1.15)	14.7%	1.4
<b>Japan</b>	(1.35)	14.5%	3.1
<b>Russia</b>	(1.18)	19.6%	1.8
<b>Netherlands</b>	(1.55)	27.1%	1.2
<b>Spain</b>	(1.35)	26.6%	1.9
<b>Switzerland</b>	(1.45)	55.6%	2.0
<b>United Kingdom</b>	(1.94)	15.4%	7.0
<b>United States</b>	(1.33)	15.6%	2.2

(a) Ratio of largest city to the second largest city. Where Zipf's Law holds, this should be about two

Source: Australian Bureau of Statistics, Reserve Bank of Australia, Statistics New Zealand, United Nations, and the United States Bureau of Census

Indeed, it is as if our larger population centres act like labour market magnets, systemically sucking citizens away from the smaller towns.<sup>229</sup> This empirical regularity has important repercussions for the composition of household portfolios. In particular, it precipitates a ratio of dwelling prices to disposable income that is very high by international standards (see Appendix 8.1).<sup>230</sup>

<sup>228</sup> This is analogous to an experiment undertaken by Ellis and Andrews (2001).

<sup>229</sup> Just as an aside, we understand that there is a colloquial expression for this process: the much-maligned 'Adelaide effect', which has on occasion been used to describe the prospect of Australia becoming a 'branch-office economy'. (It was no surprise when we discovered that this particular city has been by and large insulated from the supply-side pressures identified subsequently.)

<sup>230</sup> In 2001, only 33 percent of the population lived outside the capital cities (Australian Bureau of Statistics (2001)).

Although the benefits of urban agglomeration help to explain the robust demand for housing evidenced in Australia, it does not necessarily shed any light on the relentless price growth. There have, for instance, been previous periods in which the country has undergone economic expansion while property prices remained reasonably stable (refer to the westerly half of Figure 66). In these circumstances, builders responded by swiftly boosting the supply of new dwellings in response to mushrooming demand. And so, the market was able to accommodate changing preferences in a fairly efficient fashion. What then accounts for the inexorable rise in property prices today?<sup>231</sup>

The three other alternatives that spring to mind reside on the supply-side. First, in cities such as Sydney, there may be limitations on the availability of land, which can place considerable pressure on prices. Second, there could be an upward shift in the underlying costs of production, with much the same effect. (Both these factors feature prominently in the classical urban economics literature.) Third, it is conceivable that in spite of sufficient land, housing is expensive because of regulatory constraints on development created by sluggish release programs, zoning, antediluvian approval processes and other government imposed transaction costs. Adopting this argument, the advent of new construction could reduce the cost of housing towards its production baseline in high priced areas.

In what follows we try to distinguish between these different accounts of the dynamics of the pricing process. One of the fundamental implications of modern economics is that in an open, competitive, and unregulated market, the price of a commodity should not be greater than the marginal cost of producing it. If such an inequality did emerge, suppliers would have strong incentives to manufacture more of the goods in question. Sooner or later, competition amongst agents would ensure that prices converged with

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<sup>231</sup> The Property Council of Australia notes that there have been other demand-side transformations: “economic reform, globalisation and technological change have created the symbolic analyst professional class, many of whom are seeking to live closer to their workplaces than traditional suburban areas and have a higher capacity to pay more for their real estate; female workforce participation has increased at the same time as the average age of childbirth has risen; both of these changes resulted in a rise of high income dinks and yuppies who are time poor, cash rich, lifestyle focussed and unencumbered by children; the pent-up demand for housing in inner ring suburbs was released when the economy moved out of recession in the early 1990s and interest rates dropped; which then cascaded through to other Sydney markets, fuelled by rising real wages and lower household populations.” Property Council of Australia submission, May 2003.

their marginal costs. This logic holds as strongly for Australian houses as it does for meat pies.<sup>232</sup>

It seems sensible therefore to commit ourselves to exploring the relationship between the price of a property and the value of the elements used to produce it. Specifically, our analysis will be framed around one simple question: do these two variables diverge, and if so, why? We deliberately ignore demand side considerations, since there is little that governments can or should do to quell consumer interest in ownership opportunities.

### 4.3 Investigating the Housing Needs-Production Mismatch

When thinking about the cost of supplying new housing, economists like to identify two broad components: the physical construction charges and everything else. Historically, building-related expenses (bricks and mortar, wood etc) have accounted for the lion's share of supply costs in Australia and the US. To get a better feel for this dynamic, we examine the time path of dwelling and building material prices, where the established (project) house price index includes (excludes) the cost of land (see Figures 70 through 76).

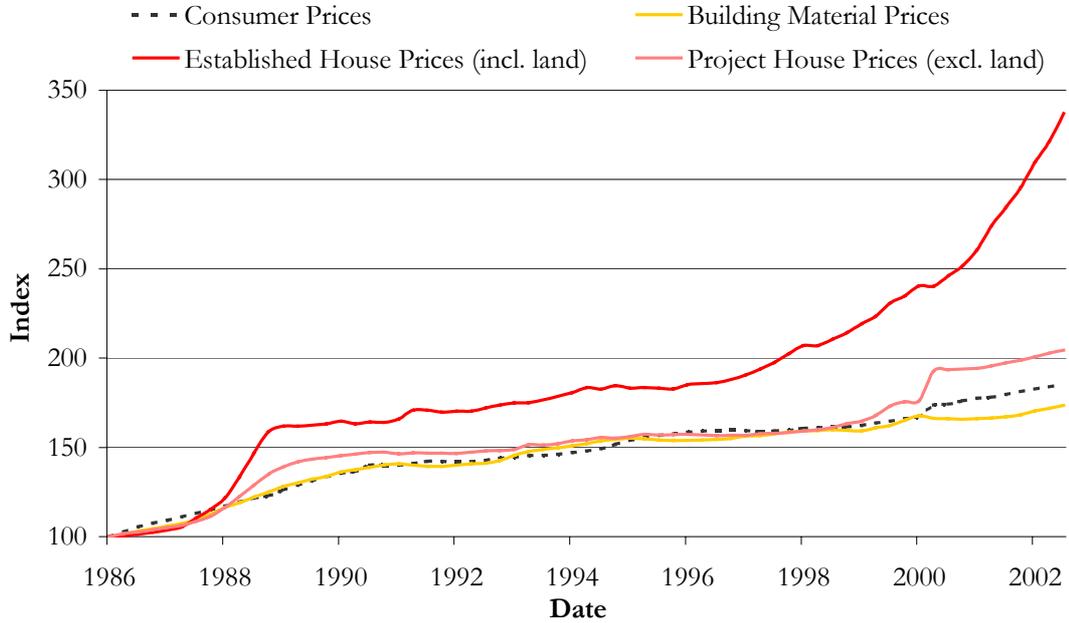
Prior to the asset price inflation of the late 1980s, all three lines hugged one another quite closely. Since that point, there has been a striking wedge between the price of established homes and the cost of the inputs used to build them in every city except Hobart. Disturbingly, this disjunction has become increasingly large over the past one and a half decades, with unusually rapid growth during the last five years. As one would expect, the price trajectory of project homes (which does not include the value of the land on which they sit) has mirrored that of building material prices throughout most of the sample period. Nevertheless, there has been a noticeable breach in the past few years. This is explained in part by the introduction of the goods and services tax in July 2000, which precipitated a sudden jump in the price path at that time. It is also possible that manufacturers have capitalised on Australia's prosperous economic conditions by expanding margins somewhat. But this trend should abate once conditions moderate, as was the case in the early 1990s.

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<sup>232</sup> The one caveat we would impose here is that the unique attributes of the dwelling asset frequently result in a delayed adjustment between the short and long term. We return to this point later.

**Figure 70**

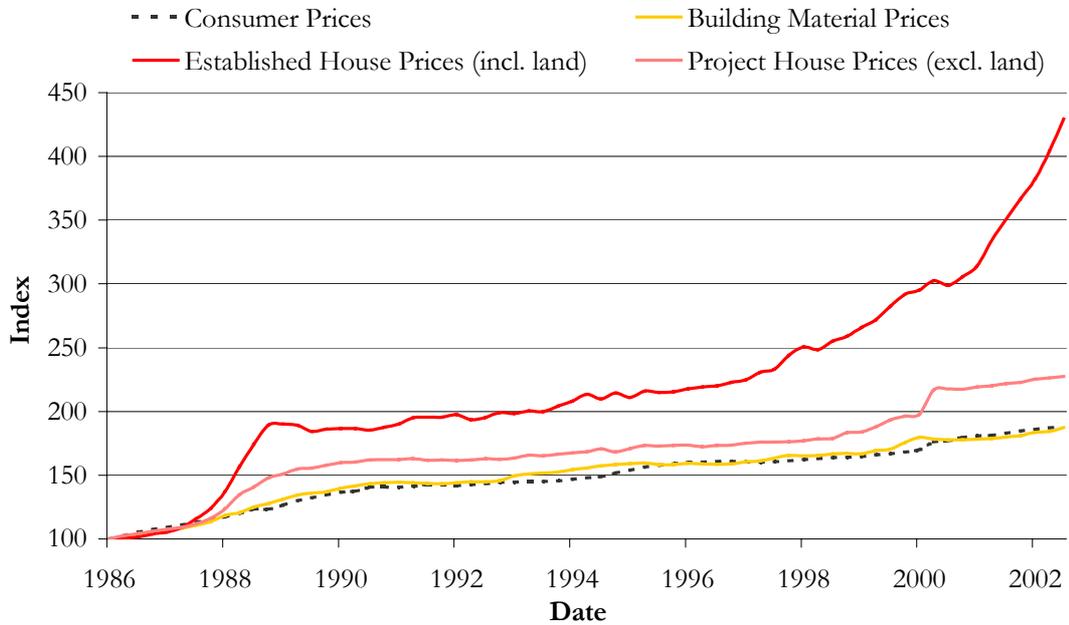
**Comparison of House and Building Material Price Indices in Australia**



Source: Australian Bureau of Statistics

**Figure 71**

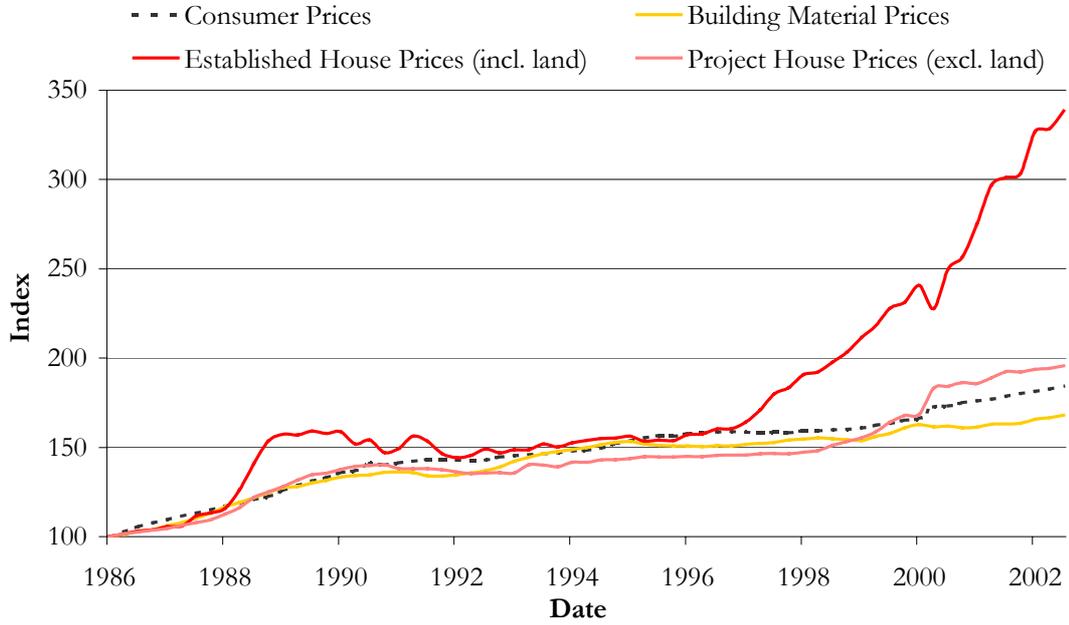
**Comparison of House and Building Material Price Indices in Sydney**



Source: Australian Bureau of Statistics

**Figure 72**

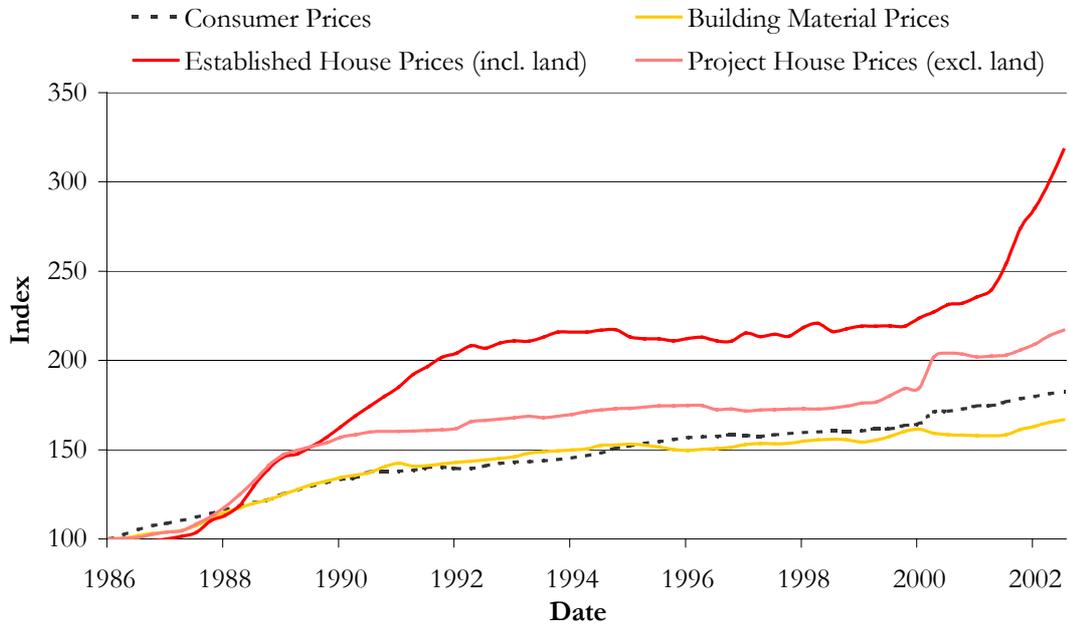
**Comparison of House and Building Material Price Indices in Melbourne**



Source: Australian Bureau of Statistics

**Figure 73**

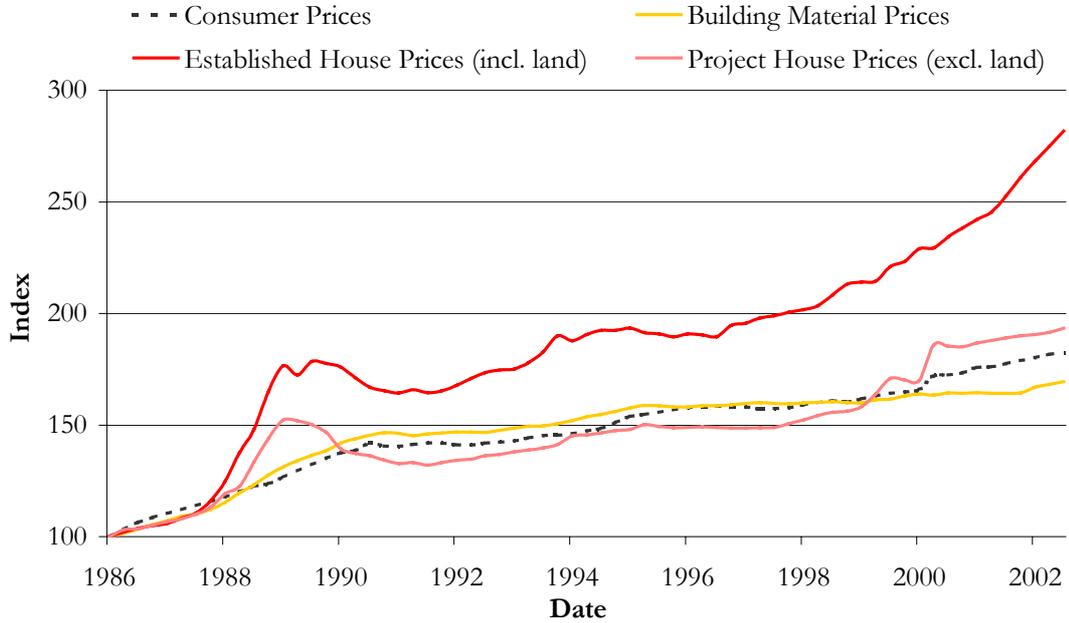
**Comparison of House and Building Material Price Indices in Brisbane**



Source: Australian Bureau of Statistics

**Figure 74**

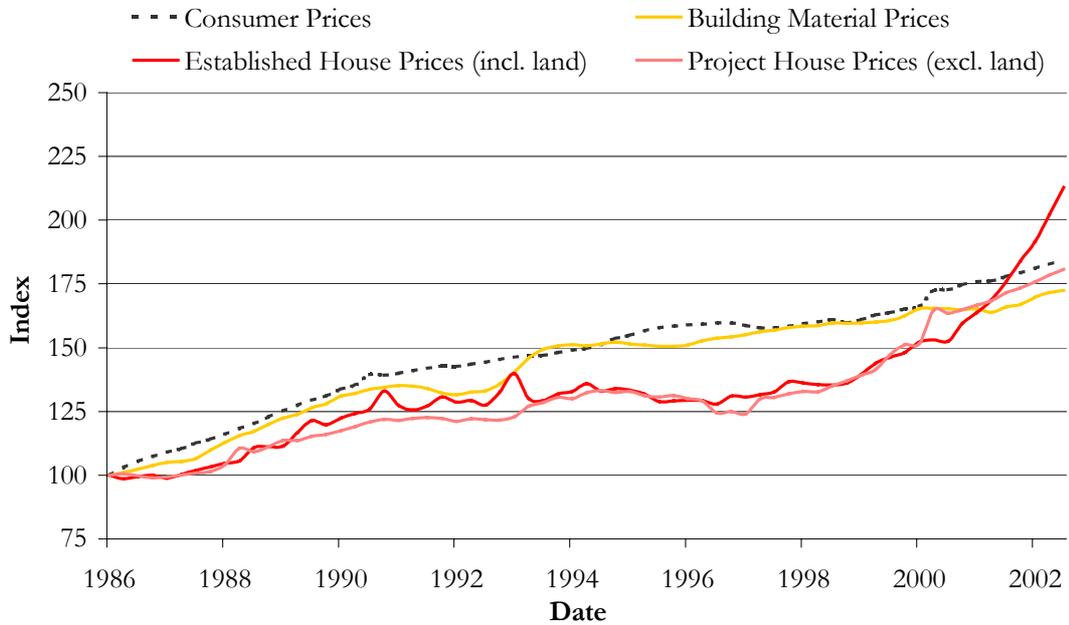
**Comparison of House and Building Material Price Indices in Perth**



Source: Australian Bureau of Statistics

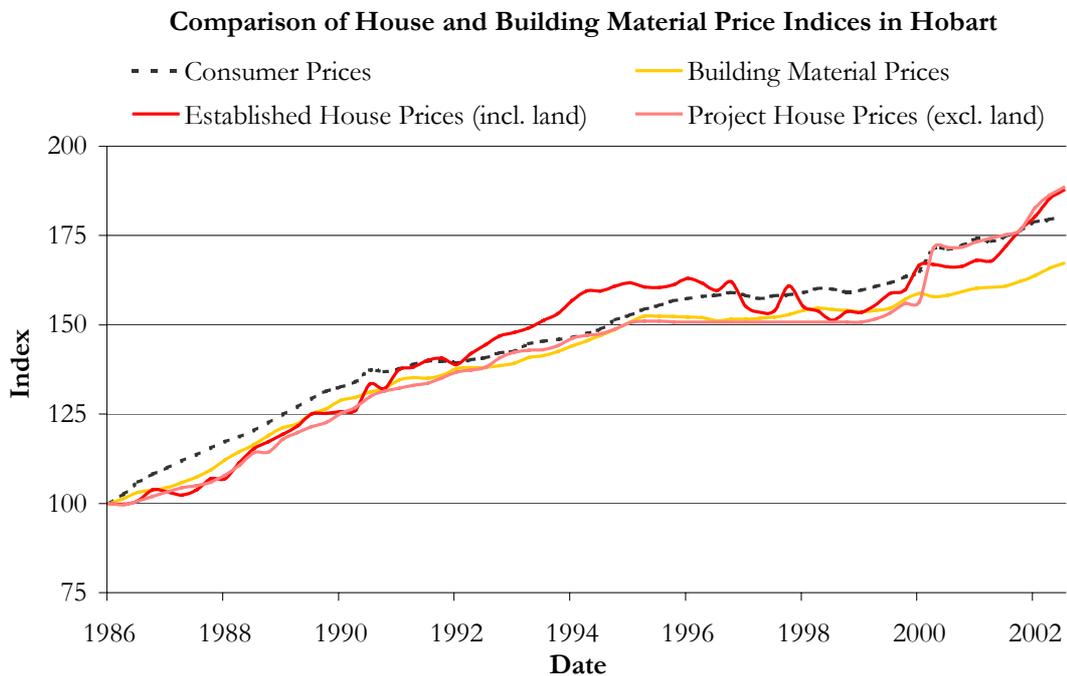
**Figure 75**

**Comparison of House and Building Material Price Indices in Adelaide**



Source: Australian Bureau of Statistics

Figure 76



Source: Australian Bureau of Statistics

The ever-widening gap between the prices of established properties and their costs of supply could be seen as both a warning and an opportunity. It is a warning in the sense that unless something is done soon, real estate in Australia will become progressively less affordable for low- to middle-income households. To make matters worse, this demographic is responsible for contributing the bulk of ‘essential workers’ to the domestic economy.<sup>233</sup> In cities such as London, New York and San Francisco, these indispensable members of the community have been slowly priced out of the market, undermining crucial services like education, health and policing (a similar effect is said to be emerging in Sydney).<sup>234</sup>

On the other hand, the housing needs-production mismatch may be viewed as an opportunity. If the price inflation manifest throughout the 1990s simply reflected rising costs of construction (e.g., bricks, labour and wood), then our ability to temper it would be rather

<sup>233</sup> Essential workers include fire-fighters, law enforcement officers, school teachers, and other unskilled and semi-skilled labourers who occupy jobs that are vital to keeping the country running.

<sup>234</sup> In a recent opinion poll, the Mayor of London’s office reported that residents believe that the lack of affordable housing is second only to transport as a key issue for living in London.

limited. Put differently, how can one expect to make housing more affordable when the principal inputs have become increasingly expensive?

Thankfully, the high cost of home ownership in Australia has little to do with swelling construction prices, as the figures above clearly demonstrate. No, this phenomenon is an artefact of something else, which might be loosely referred to as the ‘extrinsic’ cost of land. Here it is useful to distinguish between market-based valuations that recognize control rights, and intrinsic measures of worth that make no attempt to incorporate such. Ultimately, a property’s costs of production will be determined by three factors: the physical characteristics of the dwelling structure, the innate value of the turf on which it was built, and land use regulations that interfere with the market’s estimate of the latter. These distortions may take the form of specific rights that attach to the lot in question (i.e., zoning), or holistic supply-side strategies that dictate the release of greenfield and brownfield sites.<sup>235</sup> As we shall see, the soaring cost of owner-occupied housing in this country has much more to do with government restrictions of this type than, say, a shortage of exploitable land. In a series of landmark studies, two leading economists, Edward Glaeser and Joseph Gyourko, document this verity in the US. And precisely the same principle appears to apply in Australia.

In light of the issues above, it makes sense to embark on a more thorough decomposition of the housing needs-production mismatch. We saw earlier that there was a growing discrepancy between the price of established properties and the costs associated with their construction process. One might reasonably infer that this disjunction is explained by growth in the extrinsic value of land. We undertake two experiments to assess the veracity of this conjecture. In the first, we quantify the real differential between new house prices and the value of approved private sector dwellings over time.<sup>236</sup> This facilitates a more accurate comparison of the price of a property with its developer-estimated costs of production (which include all

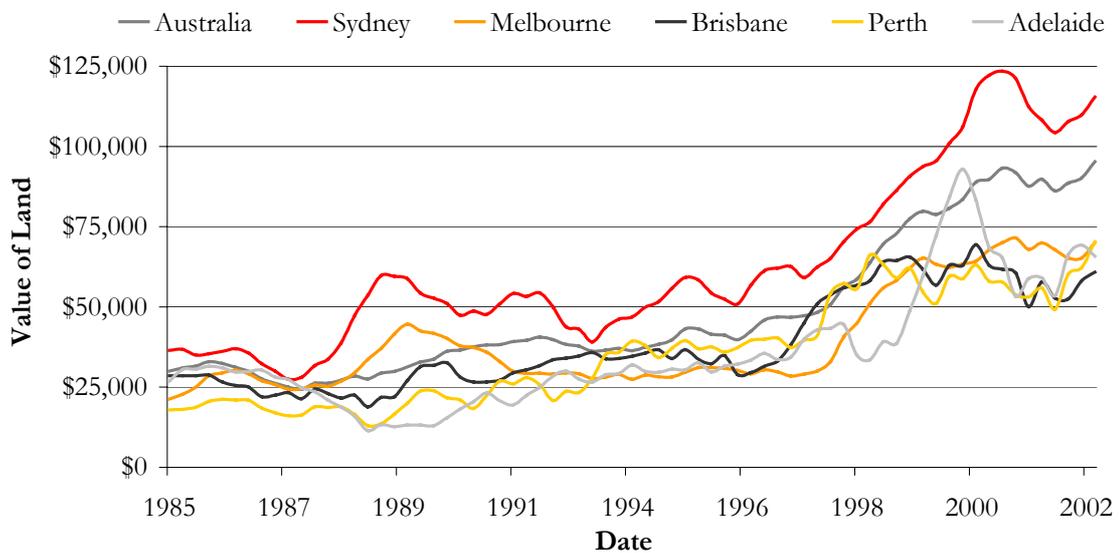
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<sup>235</sup> In a submission to this Task Force, the Hon. Jackie Kelly, MP, proposed that one way to increase the supply of affordable housing would be to make brownfield sites available, rapidly and at reduced cost, to organizations such as Habitat for Humanity.

<sup>236</sup> According to the ABS, these estimates are derived “by aggregation of the estimated value of building work when completed as reported on approval documents. Such data exclude the value of land and landscaping but includes site preparation. These estimates are usually a reliable indicator of the completed value of ‘houses’.” Building Approvals, Explanatory Notes (8731.0).

margins, taxes and related charges),<sup>237</sup> where the disparity between the two should reflect the market value of land. The ABS figures also strip out the cost of alterations and additions, which in view of the historical shift towards larger homes, could be used to rationalise the time-series changes in the cost-price gap that were previously discerned (see Appendix 8.11). The figure below presents the results.<sup>238</sup>

**Figure 77**  
**The Extrinsic Cost of Land: Real Differential Between New House Prices and the Value of Private Sector Dwellings**  
 Four Quarter Moving Average



Source: Australian Bureau of Statistics and the Housing Industry Association

Although there will inevitably be some degree of lumpiness in the series because of the nonsynchronicity between the reported number of approvals and their corresponding value, the overall trend is quite clear. In June 1985, the land component of the median Australian dwelling was valued at \$30,058. In constant dollar terms, today's equivalent figure is three times higher at \$103,306—a phenomenal increase in anyone's books. Importantly, this growth has been strong right across the board. In Sydney (Melbourne), land prices have risen by 360 percent (418 percent) over the last one and a half decades. Maybe there is something to be said for decoupling ownership rights

<sup>237</sup> Michael Gurney, ABS.

<sup>238</sup> Our land cost proxy is computed by subtracting the value of approved private sector homes from the CBA/HIA new dwelling price series. For the period prior to September 1989, the national index represents a correlation-weighted composite.

to the physical dwelling structures and the lots on which they are built; but that story will have to wait for another day!

Table 22 provides a nominal dissection of the data and plainly shows that a considerable proportion of the housing costs in this country can be ascribed to the extrinsic value of land. In Sydney, 66.5 percent of the median dwelling price is attributable to this factor. At the other end of the spectrum are smaller, and presumably less constrained, conurbations like Perth, where only 38.0 percent of the value of residential real estate is accounted for by terra firma.

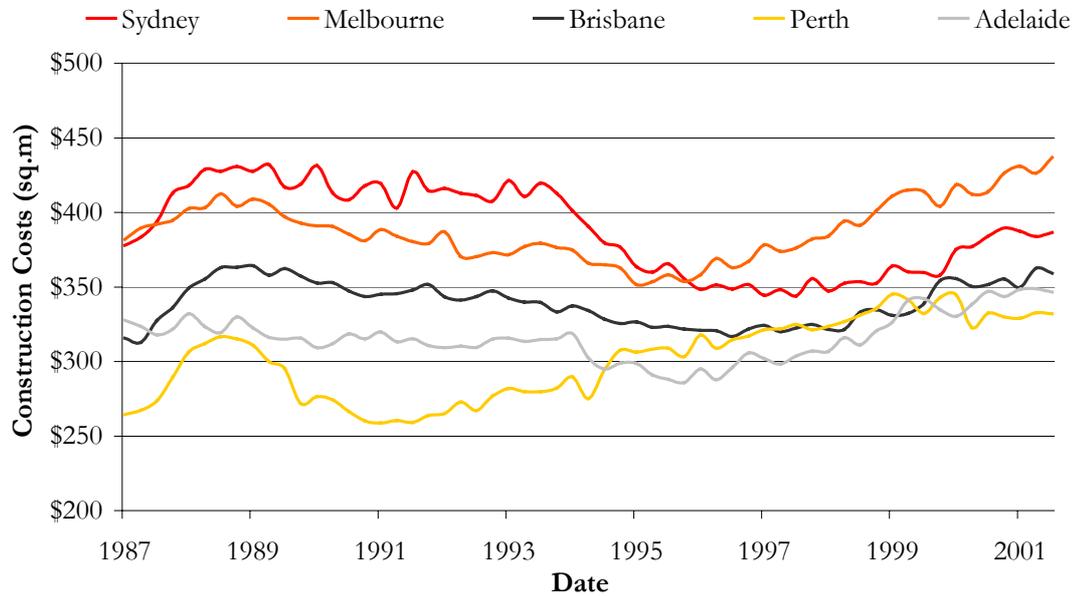
**Table 22**

<b>A First Approximation of the Extrinsic Cost of Land</b>					
December 2002					
	<b>CBA/HIA Median New Dwelling Price</b>	<b>Value of Approved Private Sector Houses</b>	<b>Estimated Extrinsic Cost of Land</b>	<b>Proportion of New Dwelling Price</b>	<b>Proportion of Australian Average</b>
<b>Sydney</b>	\$538,200	\$180,453	\$357,747	66.5%	156.2%
<b>Melbourne</b>	\$326,200	\$169,463	\$156,737	48.0%	68.4%
<b>Brisbane</b>	\$305,700	\$154,704	\$150,996	49.4%	65.9%
<b>Adelaide</b>	\$299,200	\$128,772	\$170,428	57.0%	74.4%
<b>Perth</b>	\$231,000	\$143,239	\$87,761	38.0%	38.3%
<b>Australia</b>	\$390,000	\$161,016	\$228,984	58.7%	100.0%

Source: Australian Bureau of Statistics, Housing Industry Association and authors' estimates

In a second test of the housing needs-production mismatch, we draw on a higher resolution set of cost data. This was kindly supplied by the HIA and consists of the value of building approvals over time combined with the total number of dwelling units and their estimated floor size area. The figure below illustrates the time-path of construction prices per square metre for five of the major capital cities. In accordance with the trends documented earlier, the basic costs of erecting homes in this country have not increased much during the past decade or so. Indeed, production prices in Sydney have almost declined when measured in real terms. Based on this data alone, it does not seem unreasonable to suggest, as several developers do in Chapter 4.4, that the domestic housing industry has done a good job of controlling its expenses.

**Figure 78**  
**Time-Series Change in the Real Value of Construction Costs**



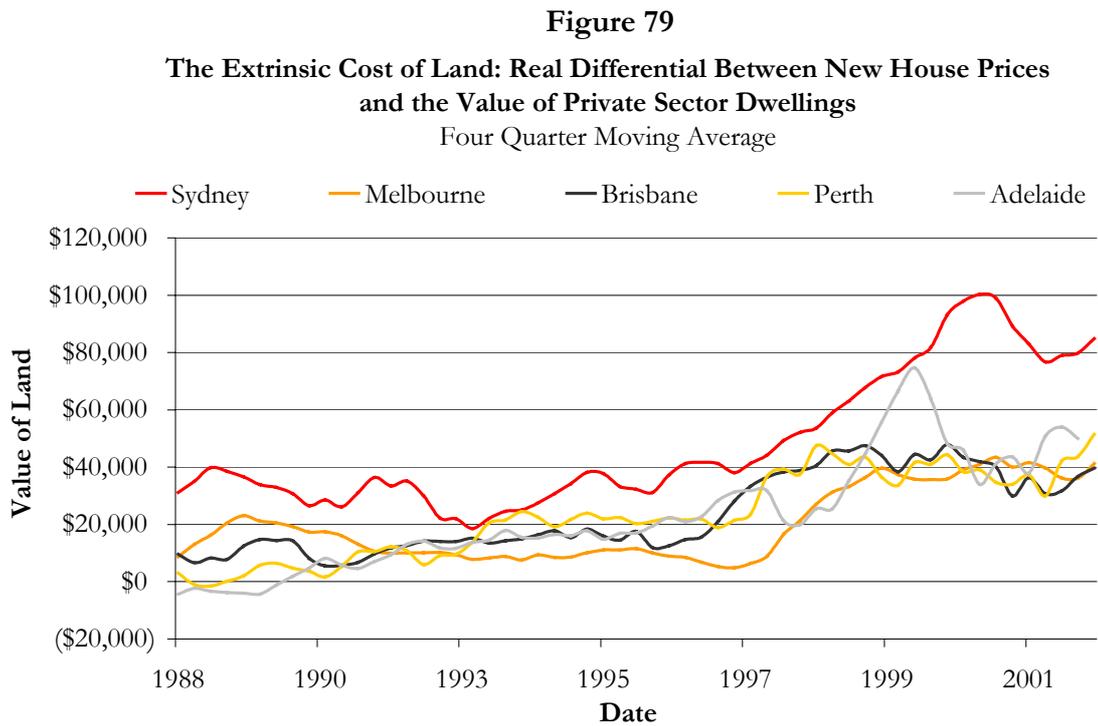
Source: Housing Industry Association

Now the question is what do these new numbers tell us about the value of land? Applying roughly the same technique that was used before, we contrast changes in median house prices over time with the costs of production per square metre multiplied by the average floor size area. This furnishes us with a comparable set of results against which one can benchmark the earlier findings (see Figure 79 below). Although the method is somewhat different, the time-series dynamics are strikingly similar. In Sydney (Melbourne), there has been a 272 percent (475 percent) increase in land prices since 1988. Once again, minor metropolises such as Adelaide and Perth register even more robust growth.<sup>239</sup>

So our basic conclusion is straightforward: the high cost of home ownership in Australia appears to be a function of growth in the extrinsic value of land. Furthermore, this is a disease that is rapidly spreading throughout our largest urban centres. And unless radical action is taken, there seems to be no respite in sight.<sup>240</sup>

<sup>239</sup> In the first series of charts, the Adelaide experience is only borne out in the final few years.

<sup>240</sup> Of course, in view of the preliminary nature of our experiments, a great deal more analysis is required.



Source: Housing Industry Association

Having identified that land is the responsible party with respect to the recent property price rises, one might justifiably inquire as to what factors could have contributed to its changing value. There are two likely candidates: either an overt shortage of exploitable territory, or, more realistically, government actions that impede the operation of the supply-side. Our mission is to ascertain the relative merits of these theses. With this task in mind, we know of at least four tests that one can carry out in order to determine the influence of public policy on dwelling prices.

The first and strongest test is to examine the cost-price dichotomy and assess whether the implied wedge is equal to the intrinsic value of the land on which the house is located (*viz.*, its cost multiplied by the quantity employed). While this might sound exceedingly simple, the absence of an economic market for unencumbered land makes implementing it somewhat more complicated. The best method for calculating the innate price of land is to use 'hedonic' estimates of value, which compare identical properties with the same rights on lots of differing size. By contrasting the cost of a home on a quarter-acre block with the cost of an indistinguishable residence on a half-acre lot, the hedonic technique enables one to compute how much an unadorned acre of land is actually worth (*i.e.*, four times the difference). Note, however, that this is not just an intellectual curiosity—hedonic models have been a mainstay of real estate

research for over 30 years, and it is accepted that they facilitate robust insights with respect to the value of various housing attributes.

And what then of the empirical evidence? In the US, Glaeser and Gyourko (2002) find that the intrinsic value of land (measured by multiplying its hedonic price by the average plot size) accounts for only one-eighth of the overall disparity between construction costs and property prices in dear areas. In the San Francisco metropolitan region, for instance, the hedonic price of land is US\$320,000 per acre. Yet the average cost-price gap for a 10,000 square foot lot is US\$600,000, or US\$527,000 more than it would have been if the land was acquired at its inferred market price of US\$320,000 per acre.<sup>241</sup>

If the innate value of land does not explain the disjunction between house prices and production costs, what does? One obvious candidate is zoning.<sup>242</sup> A quarter acre, valued using the hedonic method, is just an extra 10,890 square feet of land. However, a quarter acre that is zoned incorporates the legal right to have a house of a particular size and type. Since zoning, and the myriad other land use controls that one encounters at the municipal level, have made it difficult to erect new homes on vacant land or to subdivide existing plots, this right carries with it immense value. Interpreted another way, regulatory restrictions such as zoning have created a huge new tax that acts to stymie construction and push up the price of housing.

A second, ultimately simpler experiment, involves a comparison of the price of ‘attached’ housing with its costs of production. In dense areas, building a new unit does not (normally) necessitate any additional land. Rather, it is simply a matter of increasing the height of the existing structure. As such, the price of supplying an extra apartment should, in the absence of regulatory hurdles, be roughly equal to the marginal cost of its inputs. To appraise this hypothesis, we study the cost-price dichotomy for multi-family properties in New

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<sup>241</sup> Sadly, we do not have sufficient Australian data to undertake estimations of this type. Our inferences will therefore rely on the remaining tests.

<sup>242</sup> Exclusionary zoning became popular in the 1960s as a result of growth in the rate of home ownership and the widespread introduction of more efficient transportation technologies such as the bus, car, truck, and intra-urban highway systems. (The very first recorded use of the zoning ordinance is said to have occurred in Germany in 1870.) These events combined to raise the risk of disruptive, high-density development impacting on the value of a household’s most important asset holding—their own home. Breton (1970) was the first to posit that zoning might in fact serve as a surrogate for the absence of insurance contracts that insulate dwellers from fluctuations in the value of their housing equity. Regrettably, much of the later literature has not recognized this pioneering contribution (see also Fischel (2001)).

York and Sydney.<sup>243</sup> In Manhattan, we learn that units sell for about US\$450 per square foot. Yet the costs of construction are closer to US\$150. Even the most luxurious apartments rarely require more than US\$225 per square foot to build at the highest levels. And so, this rudimentary breakdown suggests that at least one-half of the cost of high-rise units in Manhattan can be ascribed to regulatory hurdles that prevent participants from supplying new housing.

In Sydney, we examine five separate projects valued at \$374 million over the period 2001 to 2004. Rider Hunt, one of the world's leading cost management consultancies, generously granted us access to this information. While two of the five sites had been successfully transacted, sales prices for the remaining three are Rider Hunt estimates. All told, there were 708 one, two, three and four bedroom units and a small number of penthouses. Weighted average construction costs per saleable (total) square metre averaged \$2,670 (\$1,508). Conversely, the average sales price per saleable (total) square metre was \$5,546 (\$3,139). Our Sydney results therefore resonate with that which we documented for Manhattan; that is, even when we consider attached housing, there is a sizeable 40 percent to 50 percent gap between market valuations and the costs of production. As a consequence, one is again left to deduce that it must be regulation, not the intrinsic cost of land, which makes housing so expensive.

A third approach to indirectly evaluating the influence of regulatory interventions requires one to investigate the nexus between the cost of housing and densities across metropolitan areas. If high prices were caused by land shortages, one would expect to see a positive relationship between the concentration and cost of dwellings. This is an essential prediction of the neoclassical model and precisely the empirical regularity we discern in the data. Figures 80 and 81 plot median house prices in 215 Sydney suburbs against two proxies for residential density: the postcode's geographic area divided by its total number of inhabitants and the total number of housing units (detached, semi-detached, flats etc), respectively.

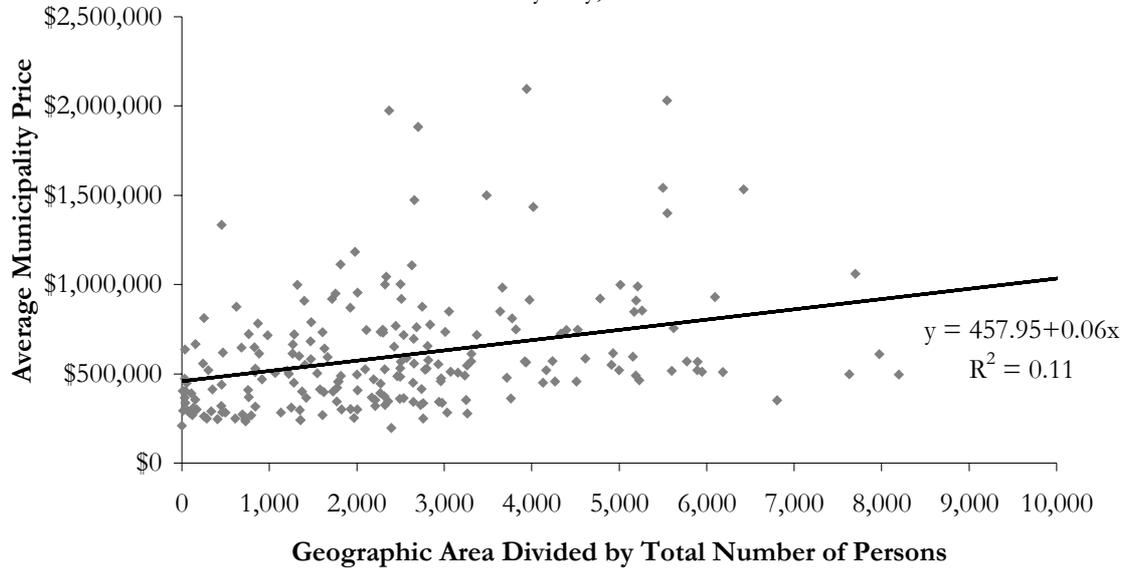
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<sup>243</sup> Sydney and New York are similar in many ways, since both are new world cities based on a prominent coastal port. They also serve as key labour market hubs in their respective countries.

Figure 80

Relationship between the Cost of Housing and Human Densities across Municipalities

Sydney, 2002

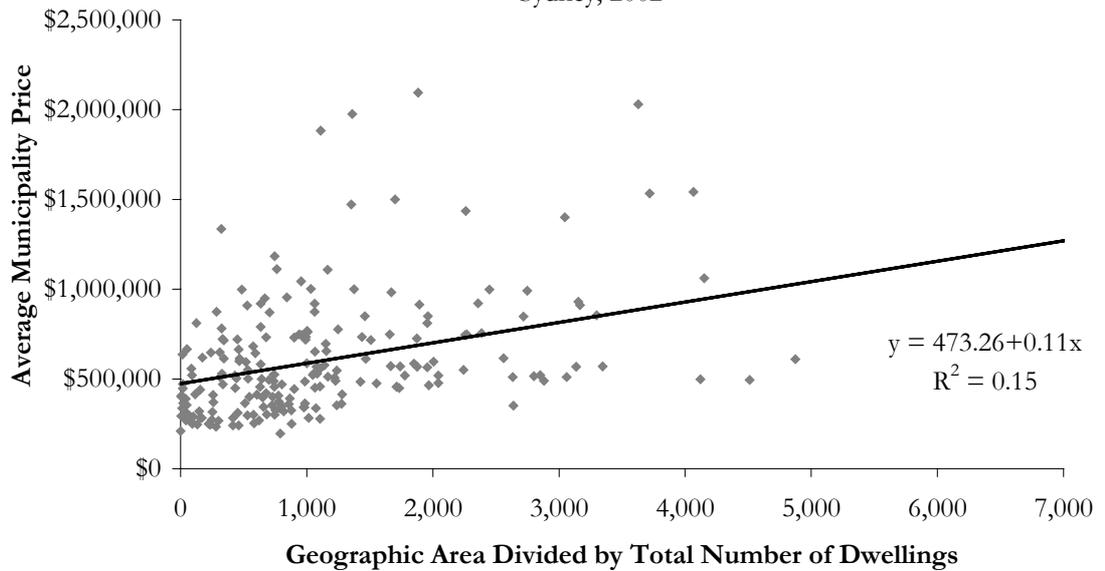


Source: 2001 Census on Population and Housing and Australian Property Monitors

Figure 81

Relationship between the Cost of Housing and Dwelling Densities across Municipalities

Sydney, 2002



Source: 2001 Census on Population and Housing and Australian Property Monitors

The evidence indicates that there is a statistically significant relationship between the density and pricing of properties in the country's biggest city, Sydney.<sup>244</sup> While we are reluctant to read too much into casual associations, they do imply that the most sought-after localities are those in which there is a paucity of new land. This begs the question: why not just build up? The only plausible answer is that government barriers thwart developers from increasing the stock of homes in response to the rising demand. In Sydney's case, we know that the postwar period was characterised by a great deal of construction in high amenity suburbs (e.g., those situated in close proximity to the city's inner ring), so much so that it appears to have contributed to the backlash against urban consolidation that present day planners have to contend with. But is this rampant supply-side inertia, encapsulated in political movements like 'Save Our Suburbs Inc', motivated by an altruistic attempt to safeguard the interests of all Australian households? Or is it a rather self-interested position that could realistically deny future generations their right to affordable shelter?

The fact of the matter is that our urban environment is diffuse by overseas standards, even in the larger metropolises such as Sydney. Figure 82 throws some cold water over the combatants' posturing by ranking the world's leading cities by number of persons per square kilometre. Sydney, the most concentrated of all our capitals, comes in way down the list at number seventy. Above it one might be surprised to find many acclaimed life-style destinations, including Auckland, Christchurch, Glasgow, Hamilton, Montreal, New Orleans, Ottawa, Paris, Vancouver, San Francisco, Stockholm, and Toronto. So perhaps the key takeaway here is that popular conceptions of tenure choice, and the spatial strategies that arise as a result, will have to evolve to accommodate the changing economic needs of future cohorts of consumers.<sup>245</sup>

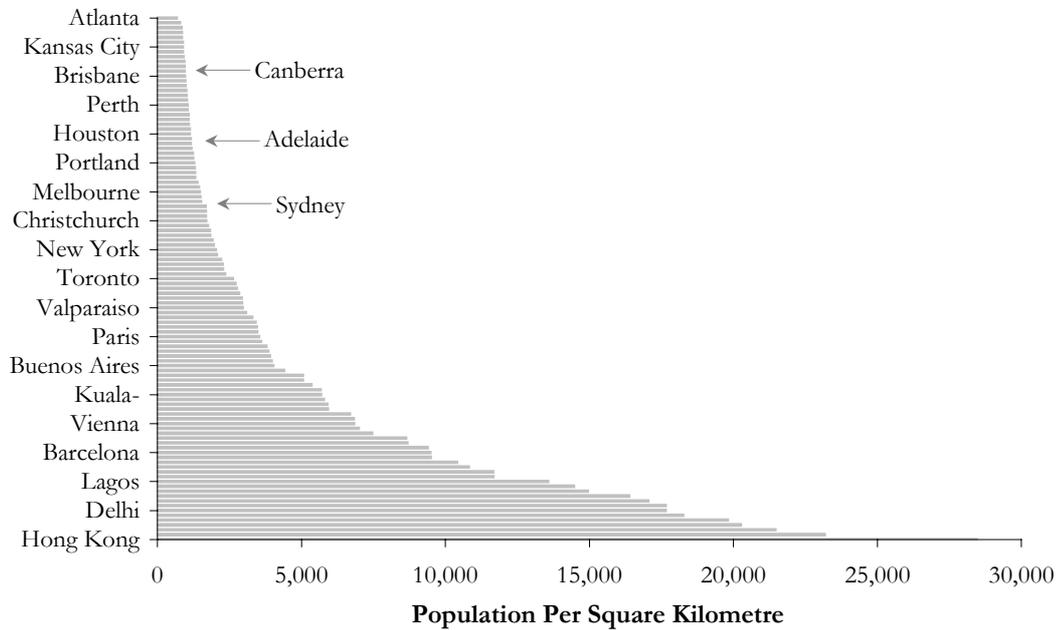
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<sup>244</sup> Sadly, limitations on the availability of data prevent us from extending this analysis to the other capital cities.

<sup>245</sup> Another way in which to test the impact of zoning on affordability would be to study the relationship between property prices and density rules across municipalities. In the US, Glaeser and Gyourko (2002) document a strong positive connection apropos the severity of zoning ordinances and house prices. Similarly, the highest priced suburbs in Australia tend to be those with the most onerous density rules (the five priciest localities in Sydney—Bellevue Hill, Rose Bay, Double Bay, Woollahra and Palm Beach—have notoriously tough land use restrictions).

**Figure 82**

**International Urban Areas by Population Per Square Kilometre**



Source: Demographia 2002

On this note, we would strongly urge households and policymakers alike to open their minds to a more sophisticated and prescient architectural reality. The most successful conurbations of the twenty first century will be those that embrace the need to assimilate the natural and built worlds.<sup>246</sup> Architects in Singapore and Tokyo are at the vanguard of this ‘urban greening’ effort, which has the potential to enhance biodiversity, improve air quality, reduce temperatures, slow water run-off, and attenuate general stress levels. Planners in these cities require flora on the roofs and walls of their buildings as well as aerial gardens within the structures themselves. One leading Australian proponent, Chris Johnson (the NSW Government Architect) characterises the Sydney challenge as follows:

“With predictions of another million people over the next 20 years, and with fewer people living in each household, urban consolidation will occur. By designing the landscape as part of

<sup>246</sup> Illustrations of this integrated ecology include Emilio Ambasz’s Fukuoka building in Japan, which has a stepped garden cascading over 15 floors (a park when viewed from one side, and a 15-storey building when seen from the other), and Ken Yeang’s celebrated design of a ‘bio-climatic’ skyscraper in which gardens spiral right throughout the high-rise. The genesis of the urban greening movement can be traced back to the Viennese artist Friedensreich Hundertwasser, who proposed that rooftops be landscaped with trees and grasses (Johnson (2002)).

the building, we can lead the world in how to keep a balanced environment. To do this requires bold thinking about a nature that is part vegetation and part bricks and mortar. If the built environment can be seen as an integral part of the natural environment, then the city should regain an ecological balance that will sustain it for future generations.” Sydney Morning Herald, 28 April 2003

As a final approach to exploring the impact of public policy on the value of residential property, we appraise time-series changes in the price elasticity of housing supply. In a perfect world without any frictions, the stock of available dwellings would seamlessly flex to variations in demand. Of course, reality rarely conforms to these textbook interpretations, and the housing asset is imbued with a number of special traits that complicate the operation of the market. Such features—which include durability, heterogeneity, imperfect malleability, and spatial fixity—result in a distinction between adjustment in the short- and long-run. More precisely, the irreversible nature of dwelling investment, combined with the geographic immobility of the house itself, means that the construction of new units involves nontrivial lead times and production lags. Builders cannot therefore immediately increase the stock of dwellings to satisfy demand, which results in a short-period gap between prices and production costs, and thus a temporal decline in affordability.

Most important, though, is the potential for disequilibrium in the market for housing services to be exacerbated by local government behaviour. In particular, land use regulations can hinder the ability of developers to respond to fluctuations in the relative mix of buyers and sellers. If the advent of zoning has indeed had such an effect, we would expect to detect a gradual corrosion in the price sensitivity of supply over time. Ideally, one would study this dynamic throughout the second half of the twentieth century, since the structural breaks are likely to have coincided with the emergence of exclusionary ordinances in the 1960s and 1970s. We are, however, limited to inspecting only the contemporary horizons covered in published price-series. Notwithstanding these difficulties, the predicted pattern is observed in Sydney. Prior to 1990, there appears to have been a healthy relationship between the demand and supply sides of the housing market equation—rapid price rises stimulated proportionate increases in construction. Post 1990, the elasticity of supply looks to have declined.<sup>247</sup> It is certainly astonishing to think that the total number of dwellings approved by Sydney municipalities in 2002 was 17.4 percent less than the corresponding figure in 1971. With a muted

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<sup>247</sup> Refer also to the square of the Pearson product moment correlation coefficients.

willingness to accommodate burgeoning consumer demand, the skyrocketing (real) property prices experienced during the last decade should not come as any surprise. And the picture is not going to get any prettier in the future, with Sydney's population forecast to tip five million in just twenty or so year's time.<sup>248</sup>

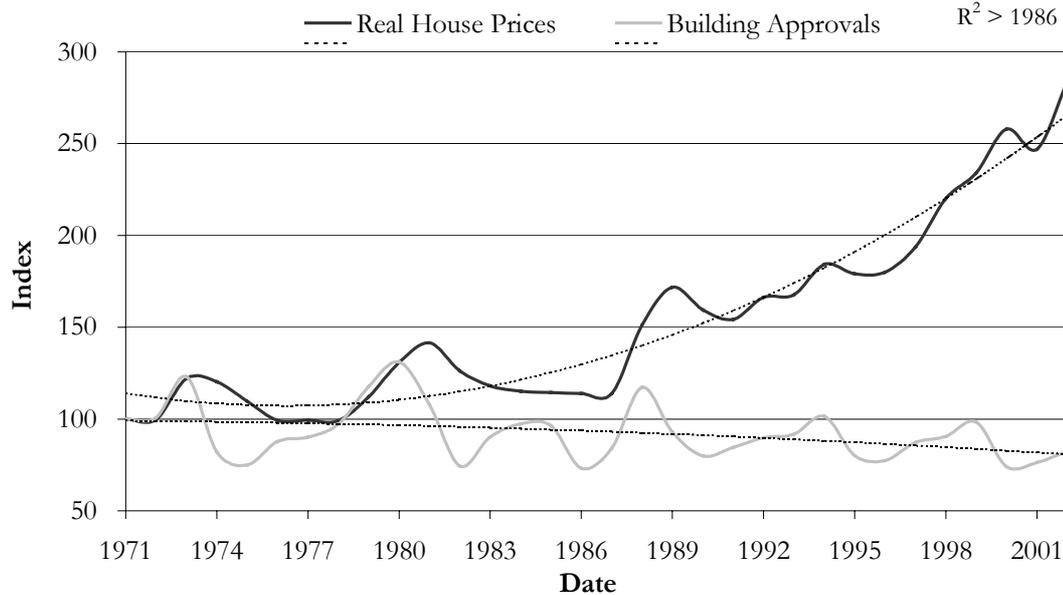
**Figure 83**

**Comparison of Number of Building Approvals and Sydney House Prices**

Four Quarter Moving Average

$R^2 < 1986 = 0.07$

$R^2 > 1986 = 0.02$



Source: Australian Bureau of Statistics and Residex Pty Ltd

#### 4.4 Industry Interface

Extensive consultations with leading members of the housing industry have lent credence to the conclusions above. Participants claim that their proficiency in terms of containing costs is beyond reproach, with domestic building expenses 20 percent less than equivalent US charges, and a little more than half the price of Japanese outlays.<sup>249,250</sup> In spite of this performance, the industry

<sup>248</sup> This is clearly a crude exercise and future research should seek to further explore these insights.

<sup>249</sup> Peter Kirby, CSR Managing Director, Housing Industry Association Home and Building Expo, 16 May 2002.

<sup>250</sup> A McKinsey & Co. study of the Australian housing industry found that it is one of the most cost-effective sectors of the economy (see "Growth Platforms for a Competitive Australia", McKinsey & Co (1995)).

believes that the cost of Australian housing has been needlessly magnified by three factors:

1. A 314 percent (420 percent) increase in land (dwelling) related taxes over the last decade, which have been levied at all levels of government (see Table 23 below);<sup>251,252</sup>
2. Ad hoc, inconsistent and highly restrictive planning processes that prevent developers from boosting existing capacity; and,
3. Reluctance on the part of municipalities and State Governments to release new greenfield and brownfield sites, and fund the essential infrastructure necessary to service such areas.<sup>253</sup>

These concerns were clearly echoed in the public remarks of one major manufacturer:

“The broad acre price of land in Sydney has trebled in the last 12 months because: (1) there is a chronic shortage of new land; (2) trying to negotiate with councils for infill sites is a complete nightmare; and, (3) taxes and charges are rampant. You pay \$120,000 to government on a typical house and land package.”<sup>254</sup>

The HIA estimates that 32.4 percent of the cost of a representative property can be attributed to the taxes, fees and charges paid to government, a sum that notably exceeds the margins earned by builders and developers (see Figure 84 below).<sup>255</sup> Nationally, these levies are responsible for inflating the price of the average Australian home by around \$68,112.

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<sup>251</sup> Housing Industry Association submission, February 2003.

<sup>252</sup> In a submission to the Task Force, Professor Warwick McKibbin suggested that we need tax reform apropos, “land tax, stamp duty, negative gearing of rental properties against wage income, and the GST treatment of new off the plan apartments versus completed dwellings.”

<sup>253</sup> Here the Property Council of Australia comments, “We agree that government restrictions on supply (both greenfields and brownfields) is a major cause of increased land prices in Sydney, particularly since the early 1990s.” Property Council of Australia submission, May 2003.

<sup>254</sup> Housing Industry Association submission, February 2003.

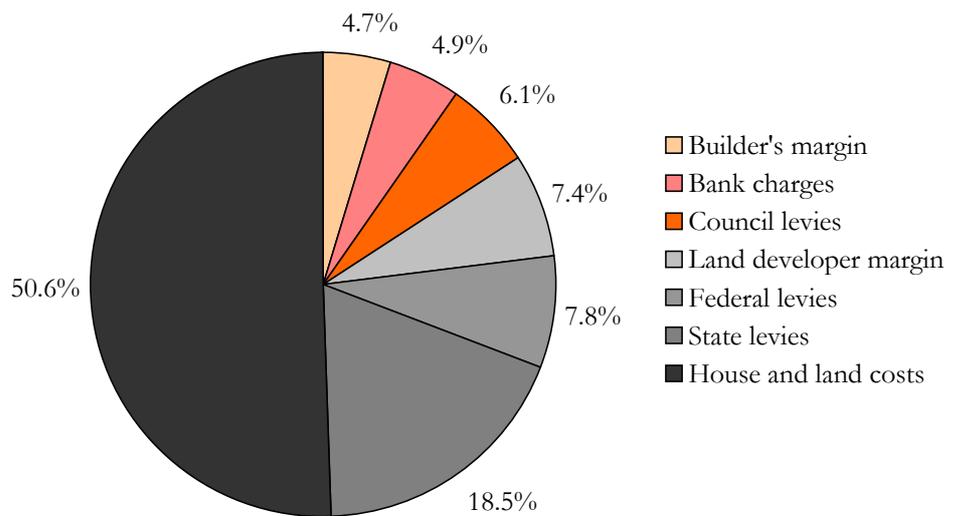
<sup>255</sup> Urban Development Institute of Australia, “Landcost: The impact of land costs on housing affordability”, March 2002, p 8.

Table 23

<b>Fees, Taxes and Charges on Residential Development</b>		
1993 to 2003		
	<b>1993</b>	<b>2003</b>
<b>Land Component</b>		
Major Roads	\$0	\$3,000
Drainage & Public Open Space	\$3,000	\$23,000
Sewer & Water Headworks	\$3,000	\$10,000
Water Clearance Fees	\$500	\$1,000
Council Fees	\$500	\$1,000
Land Titles	\$500	\$1,000
<b>Total Land Charges</b>	<b>\$7,500</b>	<b>\$39,000</b>
<b>Dwelling Component</b>		
Building Permit Levy	\$250	\$460
BCITF Contribution	\$190	\$263
Kerb Deposit	\$100	\$300
Water Corporation	\$115	\$238
Home Owners Warranty	\$120	\$1,086
Occ Health and Safety	\$1,000	\$5,000
<b>Total Dwelling Charges</b>	<b>\$1,775</b>	<b>\$7,347</b>

Source: Housing Industry Association

Figure 84  
The Costs of Home Ownership



Source: Housing Industry Association

On the rare occasion that councils do expeditiously facilitate new development, their decisions are frequently made without reference to global supply requirements. Take Sydney, where the problems are most acute.<sup>256</sup> While the city's population presently stands at around 4.1 million, it is (conservatively) forecast to reach five million by 2026. The challenge will then be to accommodate 40,000 additional persons annually over the next 25 years. Even assuming zero population growth, Sydney will have to produce more properties to house the same number of people if living standards continue to rise and the size of the average family unit declines. The HIA describes the dilemma thus:

“For Sydney, the shortage of residential land is severe and immediate—not something to worry about down the track. The production pipeline is blocked and that's showing up in skyrocketing land prices and growing affordability problems for new home buyers.” HOUSING magazine, “Land supply—planning reform needed to unblock the pipeline”, June 2002, p. 44-46.

Planning NSW predicts that over the next five years Sydney's demand for new dwellings will surpass 25,000 units per annum.<sup>257</sup> Yet, only 5,000 lots are scheduled for annual release, severely limiting the contribution of greenfield development (the least expensive form of construction) to managing population growth. Furthermore, on the basis of current programs, industry estimates suggest that actual production is more likely to deliver an average of just 1,400 lots per year.<sup>258</sup>

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<sup>256</sup> Evan Jones, Planning NSW's director of Sydney strategy, believes that Sydney will meet its expected population of 4.5 million ten years earlier than forecast, in 2010 instead of 2021. Some 56,000 people migrated to Sydney in 2001, and that is not expected to slow. Concurrently, there is what Mr Jones describes as “the double whammy” of shrinking household sizes, “We've had to build 110,000 extra dwellings just to cope with that trend,” he says. “That puts considerable strain on communities, on infrastructure and on us. It means bringing forward by ten years planning for population.” He also acknowledges that the land earmarked for new development has almost been exhausted, “We are in an extremely tight supply situation in south-west Sydney. It's never been this tight,” Mr Jones says (Anne Davies, Sydney Morning Herald, 3 May 2003).

<sup>257</sup> This figure includes the local government areas of Sydney and the Central Coast.

<sup>258</sup> According to the HIA (2001), Sydney has some 78,000 lots on its metropolitan land supply program. Of these, 24,000 are labelled ‘available’, 24,000 ‘short term’ (i.e., five years out) and 30,000 ‘long term’. These definitions are, however, inherently problematic: ‘available’ does not automatically mean that this land can be used. It merely indicates that it has been zoned residential, and has scant bearing on when it will actually be ‘market-ready’. Given the scarcity of greenfield supply, these timing difficulties could intensify the price pressures associated with Sydney's

In this vein, the HIA's National Executive Director of Planning, Wayne Gersbach comments:

“Current planning processes are incredibly cumbersome, uncoordinated and largely ineffective in meeting supply targets. Our rezoning procedures are shot to pieces. The State Government clearly understands this but its ability to do something about it is yet to be tested. What's needed is a more coordinated effort to deal with the reality that a continuing supply of residential land is essential to maintaining housing affordability. The industry must be able to predict confidently where market shifts will be and how to expand business accordingly, rather than be subject to artificially induced highs and lows that constrain opportunity. When all is said and done, it really gets down to having a solid, predictable planning system underpinned by well-communicated and well-understood regional growth strategies.” Housing Industry Association submission, February 2003.

All told, the evidence above indicates that Australia's affordability 'crisis' is a reflection of synthetic constraints on supply. The culprits seem to be local and State Government land use restrictions, which more often than not encapsulate obsolete notions of urban growth. This is not the complete story however, since there are some good reasons as to why zoning ordinances exist—new construction can have negative externalities. Yet if we hope to cut the costs of home ownership, tractable solutions to these problems will have to be found. In the next section, we endeavour to do precisely that. Specifically, we present two simple proposals for improving the affordability of residential real estate in Australia.

## 4.5 Affordable Housing Strategies without Supply-Side Reform

There have been several approaches to increasing the affordability of housing in the absence of supply-side reform. Historically, the most popular policy has been rent control. While this certainly has the virtue of placing downward pressure on prices, a large literature has

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besieged production pipeline. Indeed, the HIA's calculations suggest that only 6,000 lots can be realistically included in the 'short term' category.

demonstrated that such initiatives only cause consumers hardship in the long-term. Among other things, rent controls:

- Hamper new construction, because landlords are unwilling to build knowing that they will not realise market rents;
- Accelerate depreciation, as the payments property-owners receive are fixed and do not fall if the apartment becomes less attractive;
- Induce labour immobility, since occupiers cannot be sure that they will secure another rent-controlled home if they leave their current abode; and,
- Replace the market mechanism (which allocates units to the bidder that values them most) with a much more ad-hoc and inefficient process.

Overall, rent control strategies appear to be quite detrimental to housing markets, and are often poorly targeted at the truly needy. A much more successful policy has been the use of ‘housing vouchers’ (known in the US as Section VIII vouchers). These can be directed at disadvantaged families and allow for a fraction (perhaps all) of the housing costs to be paid through an entitlement. The allure of these instruments is that they do not act as a substitute for the market system—on the contrary, they seek to empower consumer choice.

Recent efforts to examine the benefits of vouchers, which were put into practice via the so-called ‘Moving to Opportunity Experiment’,<sup>259</sup> indicate that households use them to move to wealthier neighbourhoods, and in most cases, their health, safety and general well-being improve as a result. Indeed, even their children reap tangible rewards, with a reduced likelihood of injuries, asthma attacks, and victimizations by crime (see Katz, Kling and Liebman (2000)).

While vouchers are a preferred method for dealing with the housing needs of the deprived, they will do nothing to keep property prices from rising. In fact, as a demand-side policy, they could add further fuel to the flames of asset price inflation. For this reason, we now turn to a proposal that directly addresses problems associated with the supply-side.

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<sup>259</sup> The ‘Moving To Opportunity’ initiative is a US demonstration program that is operated by the Department of Housing and Urban Development. It provides researchers with one of the first chances to investigate the impact of a change in neighbourhood on the well-being of low-income constituents.

## 4.6 Incentivizing Municipalities to Boost Supply

Traditional approaches to thinking about supply have concentrated on publicly subsidized construction programs that target those on the threshold of poverty. As we noted in Chapter 1.2, many observers argue that State and Federal Governments should radically increase the stock of affordable homes to attenuate demand pressures. Yet aside from exhausting scarce tax-payer funds, these initiatives typically yield only a trickle of properties while spawning a new layer of bureaucracy. In both Australia and the US, the affordable housing movement has for many decades focused energetically on this line of attack with, we believe, limited results.

If a more enduring change is to be made to the functioning of our housing market, it will require much more drastic steps. The evidence above clearly demonstrates that the root cause of escalating house prices is regulatory constraints on new construction. In view of such, the most effective way to reduce the costs of home ownership is through eliminating the major obstacles to increasing supply. This is, of course, much easier said than done. Academics have for a considerable period of time now been frustrated in their attempts to crack the housing needs-production mismatch by the wide prevalence of ‘NIMBYism’ (see Portney (1991), Downs (1994), Fischel (2001), and Nelson (2003)). Not-in-my-backyard style sentiments refer to the incumbent resident’s profound aversion to the prospect of relaxing spatial restrictions (this might go some way to explaining the existence of high cost, low density areas). In terms of the ownership opportunities available to ‘outsiders’,<sup>260</sup> there is an inherent conflict of interest in having current property owners determine limits on dwelling dispersion. As a matter of fact, local government decision-making processes seem to be calibrated so as to minimise the supply of new housing, whilst maximising the value of existing properties.<sup>261</sup>

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<sup>260</sup> An outsider might be defined as someone that currently rents in the region, but who wishes to acquire a property of their own, or dwellers from other areas that hope to move to the municipality.

<sup>261</sup> One recent example is the Strathfield council’s unanimous decision to reject a State Government proposal that would have allowed 10- to 12-storey residential developments in the town centre. This was in spite of advice from council staff to accept the plan and move to the next stage of implementation. Strathfield’s Mayor, Virginia Judge, who was also a Labor Party candidate in the March 2003 election, claimed that residents did not support the initiative: “I just feel that my local community wants a breather from development...They feel overwhelmed by the amount of development that’s already gone in. We all felt that this particular plan was not suitable.” (Anne Davies, Sydney Morning Herald, 16 December 2002)

In the context of global housing objectives, this is exceedingly perverse. And yet council members must also have an intimate understanding of the issues that confront the households they represent. In a funny sort of way, this situation is analogous to the governance problems that tainted corporate boards in the 1980s. (Perhaps we should recommend that a certain proportion of councillors live outside their area of interest, in a manner not dissimilar to the premium public companies place on the role of non-executive directors!)<sup>262</sup>

There may, however, be another explanation for the pervasiveness of this behaviour among owner-occupiers. NIMBYism could be a rational response to the absence of markets that enable residents to hedge the risks associated with changes in the values of their properties. Although the expected effects of fresh construction are frequently benign, households may be more concerned about the second moment—that is, its impact on the variance of expected outcomes (see Fischel (2001)). Since it is not possible for them to insure against fluctuations in property prices, they are instinctively doing the best they can to reduce the probability of some unlikely future event.<sup>263</sup> This obviously intimates toward significant gains from trade were one to establish a market in which to exchange synthetic claims on home equity—but more on that later.

Returning to the task at hand, we can think of at least two trajectories that would help to liberate the supply-side such that it can more easily adapt to changes in demand. The first would be to create a centralized zoning authority at the regional or state level with the ability to approve projects quickly.<sup>264</sup> This method might afford a number of advantages, such as capitalising on economies of scale, and providing builders with a homogenous set of guidelines over wide

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<sup>262</sup> More pointedly, this is a classic case of competing interests: on the one hand we have the individual home owner wanting to maximise the value of her house and the amenity of her suburb; on the other the interest of the society as a whole in making housing more affordable and reining in urban sprawl (with all of its attendant taxpayer-borne costs). The solution surely lies in a balanced approach that involves both local and city-wide concerns being represented in the planning process.

<sup>263</sup> The antecedents of this account can be traced back to the work of Marcus and Taussig (1970) and Breton (1973), who each proposed the idea of home-equity insurance and identified the importance of exclusionary zoning in the presence of incomplete markets.

<sup>264</sup> A useful template is the Queensland Government's Integrated Planning Act (1997), which provides one procedure for all development related assessments: the Integrated Development Approval System (IDAS). Prior to the introduction of IDAS, there were 60 different permitting schemes that each had their own separate processes for lodgement and decision-making.

tracts of territory.<sup>265</sup> On the other hand, the costs could be quite high. It is, for instance, hard to imagine that this über-authority would be able to successfully circumvent the prejudices of local partisans. Indeed, there is the distinct risk that it would have to engage in protracted negotiations with municipalities prior to any new projects being approved. Philosophically, we also think that there is a lot to be said for devolving decision-making and allowing consumers to have greater control over their lives. Massive government consolidation is hardly conducive to enabling individual liberties.<sup>266</sup> And unless localities are bypassed altogether, they will doubtless retain some capacity to delay the construction of new dwellings. Yet probably the most damning objection to this initiative is that it could run roughshod over the idiosyncrasies of local ecological needs. Our ambition is not to plaster the nation with obtrusive housing, but rather to stimulate supply within a framework that gives a strong voice to municipal preferences. A centralized zoning agency might only contribute to heightened acrimony with little tangible impact on supply.

In light of the above, we would not advocate a top-down approach. We do, however, believe that there is a role for State-based provision of model zoning codes (which could be adopted voluntarily by councils), and a call for distributing more information about the most efficient ways in which to deal with the legal complexities that plague the planning process.<sup>267</sup> Few would contest the claim that a simplified set of ordinances apropos new construction could significantly improve the welfare of all constituents. (The NSW and Queensland Government's recent endeavours in this area provide promising

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<sup>265</sup> In its submission to the Task Force, the Australian Consumers' Association took note of the fact that "development occurs along corridors of transportation infrastructure." In part for this reason, they expressed a preference for policies that address the housing shortage to operate at the regional level. The best approach will probably involve an intricate mix of regional and localized initiatives.

<sup>266</sup> A member of the Industry Advisory Committee counters that while this may be the case, "it can hardly be argued that, by contrast, local governments are bastions of enlightened democracy. In fact, it could be claimed that a comparison of the effectiveness of planning laws that apply in Brisbane compared with those of Sydney would tend to bolster the argument for centralisation. The greater Brisbane area has a single city council which is constrained by a single State Planning Act, whereas Sydney has many much smaller councils, which have far greater latitude to impose planning restrictions."

<sup>267</sup> Mr Peter Verwer, CEO of the Property Council of Australia, avers, "The model code would need to distinguish between metropolitan, regional and rural areas. It would also need to be enabling and support less rather than more zones to allow flexibility." Property Council of Australia submission, May 2003.

precedents.)<sup>268</sup> It does, nonetheless, seem somewhat foolish to try to micro-manage each suburb's zoning protocols from Canberra!

An alternative tactic might be to maintain the status quo and allow localities to determine dwelling dispersion, while allocating each 'targets' for new supply (see Flow Chart Two).<sup>269</sup> In principle, individual suburbs could be given a quota of permits for a fixed, say, 12 month, period, which would be based on the size and density of their current housing stock, environmental considerations, and relative prices. Expensive regions typified by low concentrations would face commensurately high quotas.<sup>270</sup> This is motivated by the standard economic argument that rising prices reflect excess demand. Our goal is not to bring unwanted units to market, but simply to satisfy the aspirations of Australian households. As such, current prices are a critical guide to understanding where demand exists.<sup>271</sup> The targets could be enforced by linking them to State and Federal Government funding.<sup>272</sup> Municipalities that fail to expand supply in line with their mandated objectives would experience cuts in their

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<sup>268</sup> See footnote 265. The NSW Government is presently in the midst of implementing 'PlanFIRST', an initiative to modernise the State's planning system in coordination with local governments.

<sup>269</sup> A prominent member of the Industry Advisory Committee notes, "Your recommendation to impose housing targets on councils and link these to access to funding is similar to the approach Minister Knowles instituted in NSW in the mid 1990s. In this case, the stick was a threat to remove planning powers and have the State mandate where new housing would go (as Minister Refshauge did with Kuring-gai last year)...For a Sydney context, I think it would be more appropriate for a mixture of State direction on the major distribution of future housing supply and mandated targets for councils to achieve within this overall framework. Perhaps you already intend to recommend this."

<sup>270</sup> Density levels will be a vital part of the formula. No one would expect a highly developed area to build as much as regions with vast amounts of vacant land. Consequently, suburbs with lower (higher) levels of dispersion should face higher (lower) targets, all else being equal.

<sup>271</sup> Naturally, communities that are able to encourage new construction and restrain price growth will be subject to less taxing supply objectives in the future.

<sup>272</sup> The National Office of Local Government is responsible for distributing around \$1.3 billion per annum in 'untied' grants to municipalities on a per capita basis. Amendments could be made to this scheme to facilitate the proposal. The Commonwealth-State Housing Agreement is another vehicle through which these aims might be achieved. Interestingly, we are informed that the HIA has previously called for the funding of local governments to reflect the relative efficiency of their planning systems. Predictability and flexibility are important influences on affordability, and a funding system which rewarded regions that had efficient (and hence low cost) planning systems would serve to further motivate the expansion of supply. A final alternative would be to provide councils with an entirely new set of monetary incentives.

fiscal aid. Equally, proactive councils that manage to boost the stock of new homes would be rewarded via more generous funding.

One obvious attraction of this approach is that local administrators retain control over urban planning policy.<sup>273</sup> At the same time, it also instils powerful incentives to dissuade decision-makers from insidiously exploiting land release programs and zoning laws so as to constrain supply and maximise the prices of existing properties. Execution issues could nevertheless arise. First, will the system be based on the issuance of permits or actual units built? Since we are hoping to augment supply, not the number of new permits, it makes sense to utilize the latter as the final measure. Yet in the early days it might be more appropriate to focus on accelerating the approval process by monitoring the quantum of permits passed. Second, what requirements will there be with respect to the kinds of dwellings built? Affordable housing advocates would almost certainly lobby for low priced properties. We would, however, advise against dictating to local authorities—where practicable, power should remain with the people. Having said that, it might be worthwhile stipulating two constraints:

1. A minimum floor size area based on recent construction in the region. We want to ensure that councils do not ‘game’ the system by building units that are too small for the current market; and
2. A minimum number of single-family detached homes. Communities should not be allowed to meet their targets by simply erecting one large, skyscraper. Again, this number (or, more accurately, the smallest proportion of detached units to overall supply) could be conditioned on construction experience in the locality.<sup>274</sup>

Third, should State Governments oblige councils to develop properties in specific areas? No. We think it is best to let the neighbourhoods themselves decide where to build. Finally, will the

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<sup>273</sup> Mr Peter Verwer, CEO of the Property Council of Australia, responds, “The development of the local plans [should] however be guided by strong regional plans. These would be based on a bigger picture view taking into account transport networks, infrastructure capacity, environmental constraints and general urban design principles.” Property Council of Australia submission, May 2003.

<sup>274</sup> One caveat here is that higher density areas should not be required to build as many single-family detached homes as their lower density counterparts. In comparatively concentrated regions, the formula should seek to stimulate the construction of multi-family units that are more in keeping with the suburb’s prevailing urban structure.

targets condition on the number of applications actually submitted? Yes, when setting quotas, authorities should take into account developer demand.

While this sounds fine in theory, how will it work in practice? In the beginning, communities will have to put a lot of thought towards identifying those districts in which they are willing to decrease dispersion, balancing the costs of new development against the social gains derived from expanding supply. Increasing densities around commercial areas would seem like a natural way in which to make affordable housing available.<sup>275</sup> Along similar lines, producing single-family detached homes in a few focused locales could make a lot of sense. At the end of the day, it will be incumbent on councils to craft a vision of their region's future urban structure.

One issue that will undoubtedly exercise the minds of policymakers is how best to handle those residents who are adversely affected by the new construction. This is, after all, just a microcosm of the wider problem associated with NIMBYism. Occupiers situated in close proximity to the development should certainly be compensated for any inconvenience caused. But where will the money come from? Well, although our scheme encourages municipalities to expand the supply of housing, it does not advocate the complete abolition of impact fees on development. Hence, as long as councils are able to satisfy their building quotas, they should feel free to tax the relevant participants where appropriate. These charges could then be used to cover the social costs of new construction, and in particular, to recompense dwellers for any complications that come to pass.<sup>276</sup>

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<sup>275</sup> To its credit, the NSW Government has of late encouraged higher density development in regions situated next to major transportation nodes.

<sup>276</sup> In fact, we can envisage classifications according to the area's development potential (e.g., high, medium or low). While the specific interpretations could be determined by communities, they should be predicated on current levels of diffusion and the environmental significance of the land. Impact fees paid by developers in 'high potential' regions would be negligible. Conversely, charges levied on medium or low potential locales would be much higher. Although the magnitude of these taxes would be shaped by municipalities, State Governments should outline their preferred schedules. When deciding on the size of the fees, councils will, of course, have to weigh the advantages of additional revenues against the possibility that excessive charges could prevent them from meeting their supply targets and, as a consequence, invoke nontrivial funding penalties. Once the tax schedule has been set, communities would ideally establish a fast-track construction authority to administrate the system. The aim here would be to approve new development in days and weeks, rather than months, as is currently the case. Discussions with industry participants suggest that they would be happy to pay these fees if local governments were able to eliminate the onerous supply-side constraints to which they are presently subject.

A more sophisticated approach might be to pool the funds raised through impact fees and use them to establish a house price ‘insurance’ program for affected residents. Economists have long recognized the grave financial risks implicit in the household’s real estate investment (see Caplin and Joye (2002d)). In spite of this, there are few practical proposals for creating markets to diversify away the principal threats to our standard of living. It is, for instance, far more likely that a property will decline in value owing to unfavourable economic conditions than it will burn down. And yet whereas there is a sizeable industry dedicated to insuring the home against physical damage, there remains virtually no way for households to hedge the risk of declines in the value of their real estate holdings (see also Shiller (1993)). But relief may be closer than we think. In the US, there is a nascent ‘equity assurance’<sup>277</sup> movement that attempts to offer exactly this service.<sup>278</sup> These schemes have been successfully deployed in several urban areas to stem the tide of middle class flight, restore home owner confidence in the local housing market, and revitalize transitional communities by both retaining and attracting dwellers (see Hersch (2001)). While each program has its own peculiarities, the fundamental objective is to develop vehicles through which households can eliminate a large proportion of any future price depreciation.<sup>279</sup>

There is no reason why Australian councils could not offer similar products (through private intermediaries) to residents troubled by the notion that new development detracts from the value of their properties. Indeed, we would be happy to work with municipalities to design such schemes. The contractual structure might look something like this: if the value of the occupier’s home did not increase by an amount that it would have in the event that the construction had not taken place (as measured by a regional house price index), the insurer undertakes to pay the owner the difference at the time they decide to sell. Upon receipt of payment, succeeding households have no further claims with respect to the effects of the development on that specific property. Here it is instructive to highlight the divergent implications of cash or in-kind compensation (e.g., corporate contributions to, say,

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<sup>277</sup> The word assurance has been used in place of insurance to circumvent issues associated with complex State-based regulations.

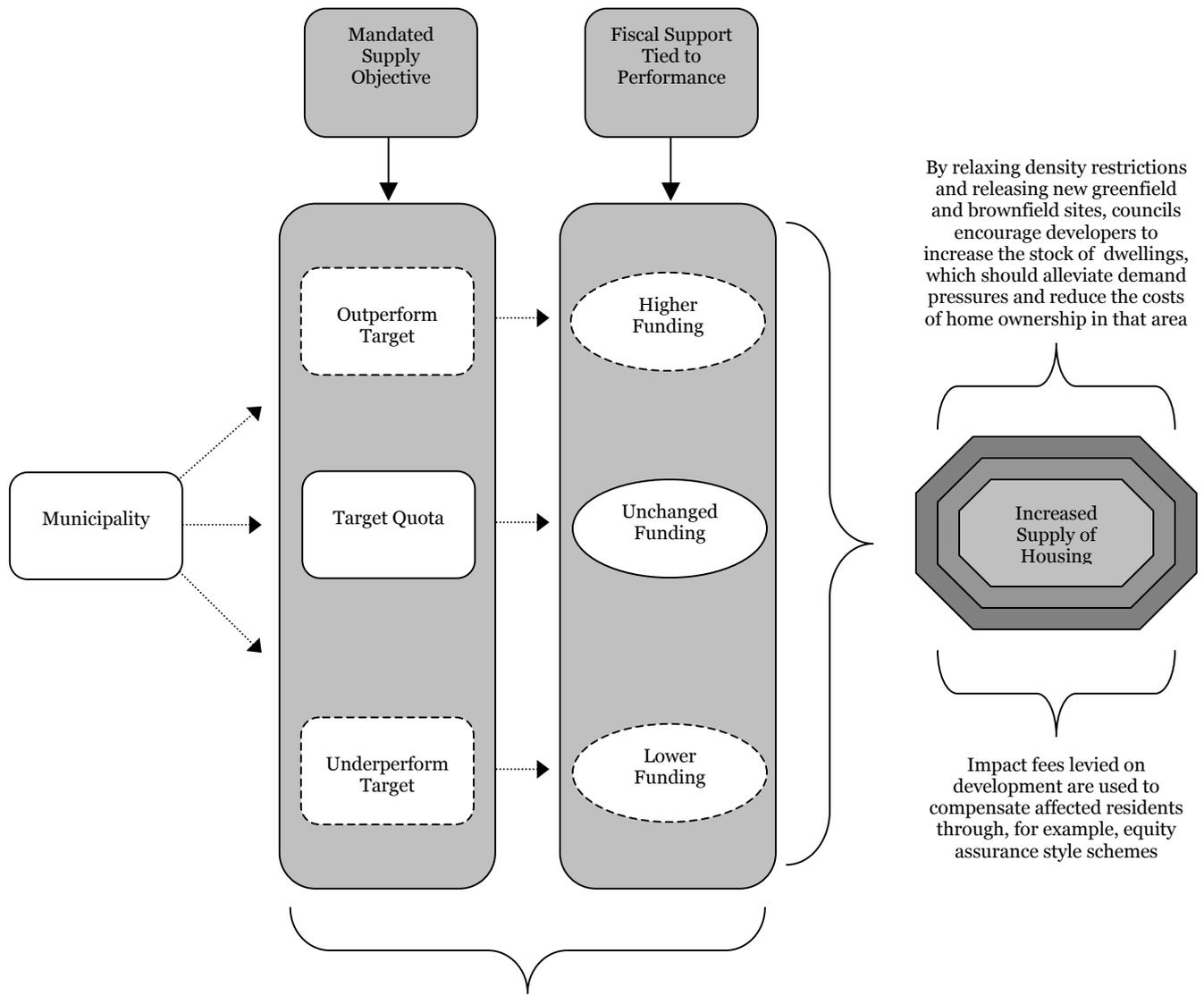
<sup>278</sup> We are aware of at least 10 equity assurance programs in the US, most of which are publicly run. These include Aurora, Ferguson, Florissant, Oak Park, Northwest Chicago, Patterson Park, Pittsburgh, Southwest Chicago, and Syracuse. The four Illinois initiatives were enabled by the landmark Home Equity Assurance Act of 1988. This legislation was the result of sixteen years of community lobbying and research (see Fischel (2001) and Caplin et al (2003)).

<sup>279</sup> Interestingly, the structure of this model is spiritually similar to that which Dr Brendan Nelson has recently advocated for higher education in Australia.

a neighbourhood park) and plain-vanilla insurance. While both are directed at alleviating the angst of residents, they have different repercussions. When householders accept compensation, they still bear the burden of the downside risk invoked by the development. Conversely, insurance is a contingent claim that helps to protect home owners from aversive future outcomes—if the construction has no effect, payments will not be made. An equity assurance program should therefore be more effective in allaying the fears of NIMBYs, since their troubles are typically a reflection of uncertainties associated with ‘potential’ price paths. The key decision node for the developer will then be: do the adverse consequences of the construction outweigh the present value of the prospective profits they hope to realise (see also Fischel (2001))?

On a related note, futures markets based on house price indices have already been established by companies such as City Index and IG Index in the UK, while comparable instruments are being developed by the Chicago Board of Trade in the US. It suffices to say that these projects hint at an exciting alternative reality, in which home owners will be able to equitise the major risks to their standard of living by cost-effectively trading claims (or derivatives therein) on real estate equity. Doubtless there will be problems to contend with, particularly in terms of arriving at a reliable proxy for the underlying return generating process, but recent technological advances suggest that the portents are promising.

**Flow Chart 2**  
**Improving the Elasticity of Supply**



Federal and State Governments set municipalities supply 'targets' based on the size and density of their current housing stock, environmental considerations, and relative prices. While localities retain complete control over the urban planning process, this proposal provides them with powerful incentives to expand the supply of new properties

In closing this section on the elasticity of supply, we leave you with the thoughts of one of our esteemed colleagues, Professor William Fischel (2001: p. 32):

“The public costs of undertaking more research and [developing an equity insurance] demonstration project should be balanced against the social and economic costs of living with the problem of exclusionary zoning. By most indications, they are not trivial.”

## 4.7 Summary

The chapter above offers a few key learnings. First, commentators tend to confuse two entirely independent issues—the cost of acquiring shelter and a household’s ability to pay. Now while both matters are of tremendous importance to the welfare of consumers, only one is of relevance to housing per se. To be sure, we would encourage governments to strive where possible to introduce practicable anti-poverty policies. However, if housing is not unusually expensive, such initiatives should not be advocated as a response to rising property prices.

Second, our analysis indicates that there is an ever-growing divergence between the price of Australian properties and their underlying costs of construction. Importantly, this does not appear to be a manifestation of natural constraints on the supply of land, but rather a product of regulatory restrictions that artificially inflate the price of housing. Viewed differently, these limits on dwelling dispersion and the release of greenfield sites act as a burdensome tax on new building, which in turn leads to a mismatch between the accommodation needs of Australian households and the stock of available properties. In this context, we recommend expanding the affordability debate to encompass local government reform, in favour of confining ourselves to that perennial panacea—public housing.

Specifically, we believe that several innovative steps can be taken to improve the elasticity of supply without resorting to subsidies, and which would result in a striking reduction in the costs of home ownership right across the country. The overall objective here is to accelerate the approval and land release process so as to promote private sector investment in the production of affordable housing. In particular, we propose a system in which local authorities are set (binding) targets vis-à-vis the number of new permits they issue during any given period. The size of these quotas would be determined according to a variety of considerations, including the

environmental considerations, the density of existing dwellings, developer demand and cross-municipality prices. Hence, regions characterised by a combination of high prices and low dispersion would be set comparatively high construction targets, all else being equal. The scheme could be enforced by tying the council's funding to their ability to increase supply in line with the mandated goals.

This brings us to a more general point, which is that many local and State Governments have failed to come to the affordable housing party. To a certain extent, this is an upshot of that aforementioned aversion to instituting changes that are perceived to be disruptive to incumbent residents. While we believe that our proposal goes a long way to countenancing such concerns, it may not garner adequate political support.<sup>280</sup> In the event that it does fail, councils still have an arsenal of other strategies on hand. As a minimum, they should strive to adopt clearer and more objective review standards, and expeditiously render land use decisions in an attempt to enhance the universe of ownership opportunities available to current and prospective home owners.<sup>281</sup> The States, on the other hand, need to make a much greater commitment to providing the vital physical infrastructure (or at least its funding) that is a precursor to the zoned land being useful for housing purposes.<sup>282,283,284,285</sup>

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<sup>280</sup> The political difficulties implicit in such were made abundantly apparent in the NSW State election wherein the Carr Government's desire to encourage medium-density development emerged as a major flashpoint. In fact, a new party, Save Our Suburbs, ran candidates for both the lower and upper houses specifically for the purposes of opposing this policy.

<sup>281</sup> There are several other options that might help to address the cost-price dichotomy. These include: (1) Fast-track permitting, which would entitle projects that meet the 'affordability' criterion to an accelerated review, even if this entails a delay in decisions on proposals that may be technically ahead in the queue (see Nelson (2003)); (2) Inclusionary zoning, which would require developers to set aside a certain proportion, say, 15 percent of their project for the purposes of low-cost housing. In return, they would receive a density bonus of around, say, 20 percent. This has the advantage of generating affordable accommodation without isolating poor families into economically segregated communities (see Brown (2001)); and, (3) Proportional impact fees, which would be calculated according to the size of the property in question. Census data illustrates that larger homes have a higher number of occupants, and therefore constitute more of a drain on amenities in the immediate environs. Notwithstanding this, impact fees are usually levied at a flat rate, which conditions on the dwelling type. A proportional charge could be determined on the basis of the relation between the size of a house and the average number of occupants, school-age children, vehicles and any other variables of interest. Indeed, councillors might decide to waive impact fees altogether for qualifying low-income housing projects (see Nelson (2003)).

<sup>282</sup> Sadly, the affordability of residential real estate seems to have been the 'collateral damage' in the cross-fire between these two tiers of government.

In wrapping up this chapter, let's once again cast our primary conclusion into stark relief: there is an affordability problem, but it has nothing to do with the distribution of income or a dearth of exploitable land. Rather, it is the result of oppressive government regulations (often imposed with the enthusiastic support of proximate communities) that severely constrict the stock of low-cost properties. Combined with ever-growing demand, these artificial constraints on supply propagate price rises. And so, despite the fact that many Australians are increasingly concerned about the costs of home ownership, much more intellectual capital needs to be invested in fostering supply-side policies. The good news is that we can do so without spending a cent of public money. Metaphorically, it is akin to blasting away the large swathes of sand that currently obstruct the wheels of our market mechanism. In the UK and the US there has been emerging recognition of the merits of this method. For example, the Mayor of New York City, Michael Bloomberg, comments:

“Our affordable housing strategy has two principal elements. The first is innovative financing, and the second is changes that will cut building and land acquisition costs in order to facilitate private housing construction. I've directed officials to streamline the approvals needed to develop and rehabilitate housing and to work with the city council to consider adopting the International Building Code. We are also undertaking targeted rezoning of abandoned waterfronts and

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<sup>283</sup> Here Professor Warwick McKibbin comments, “I would focus on the provision of infrastructure in a coordinated way rather than the apparently ad-hoc way it currently happens. In the US, the development of superhighways and effective urban transportation system enabled more effective land to be utilized. Houses that are separated from city employment by a congested and long commute are not good substitutes for inner city houses. I believe that there is a lot that can be done to increase the effective supply of land.” Submission to the Prime Minister's Home Ownership Task Force, 9 February 2003.

<sup>284</sup> Mr Peter Verwer, CEO of the Property Council of Australia, notes “Infrastructure financing arrangements for the provision of public transport and other services are not local government responsibility. The just in time provision of infrastructure to meet the needs of new residents requires a coordinated state and private sector consortiums. These consortiums only exist in rare instances.” Property Council of Australia submission, May 2003.

<sup>285</sup> On the subject of inclusionary zoning, one prominent member of the Industry Advisory Committee responds, “[We] have actively opposed the introduction of this approach on the grounds that it doesn't serve to lower costs, it simply transfers costs through disguised cross subsidisation. In many ways inclusionary zoning or quotas are a lazy policy option for governments; rather than address the source of the cost increases (increases in which they have played a considerable part in generating), they effectively raise the barriers to home ownership for the majority of potential home owners, in the interests of making home ownership more affordable for low-income households.”

under-utilized manufacturing areas for mixed residential and commercial use...That's New York City's strategy: using government resources to maximise private sector investment." Housing Facts & Findings, The Fannie Mae Foundation (2003).

His counterpart in London, Mayor Livingstone, recently tendered a vision for his city along similar lines:

"The draft London Plan is based on the twin housing priorities of encouraging higher density development to maximise supply and providing more affordable housing. The shortage of affordable housing has led to increasing numbers of households being forced to live for longer periods in temporary housing, overcrowded conditions and bed and breakfast accommodation. Increasingly, households on low and moderate incomes cannot afford private housing but do not qualify for social housing. These households are being squeezed out of living in London and either have to face longer journeys to work or leave the capital altogether. The Mayor aims to increase the proportion of affordable housing to 50 percent of all new dwellings."

## 5 Conclusion

Well, after 300 odd pages, what more is there to say? To be frank, we are all a bit breathless! How about just one final parting thought? And that is this. Without wanting to sound self-aggrandizing or supercilious, it is our belief that in an increasingly competitive world of highly mobile capital and labour, Australia must make an enduring commitment to nurturing continued innovation if we are to have any chance of maintaining our current economic strength. When all is said and done, that boils down to individual responsibility. In our own small way, each and everyone one of us has the capacity to indelibly mark the tides of time. The mind is, after all, one of the great levers of human progress.

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## 7 About the Authors



**Andrew Caplin**  
(PhD (Distinction), Yale; BA (1st Class Hons), Cambridge)

Andrew is one of the world's most eminent economic theorists. He has been a fully tenured Professor of Economics at New York University since 1995, prior to which he was Professor and Vice-Chairman of the Economics Department at Columbia University. Andrew also served on the faculties of Princeton and Harvard for eight years. He is Co-Director of New York University's Centre for Experimental Social Science, a Fellow of the Econometric Society, an NBER Research Associate, a member of the NBER Economic Fluctuations Group, affiliated with the Furman Centre for Real Estate and Urban Science, and a Director of Equity Headquarters in Syracuse, New York. He has published prolifically in many of the most highly regarded academic journals, including the *Rand Journal of Economics*, the *Quarterly Journal of Economics*, *Econometrica*, *American Economic Review*, the *Journal of Economic Theory*, the *Journal of Monetary Economics*, *Economic Journal*, the *Journal of Money, Credit and Banking*, the *Review of Economic Studies*, and *Mathematics of Operations Research*.



**Christopher R.E. Joye**  
(PhD (current), Commonwealth  
Trust Bursary, Cambridge; BComm  
(Joint 1st Class Hons (Economics &  
Finance), Credit Suisse First  
Boston Scholar, University  
Honours Scholar, University Medal  
in Economics & Finance, Sydney)

In December 1999, Christopher completed a Joint Honours degree in Economics & Finance at the University of Sydney. He received 1st Class Honours and the University of Sydney Medal in Economics & Finance, with a final Joint Honours year grade of 95 percent, the highest in the Discipline's history. Other accolades included The 1999 University of Sydney Honours Scholarship for Economics & Finance, The 1999 Credit Suisse First Boston Scholarship for Finance, and The 1999 Securities Industry Research Centre of Asia-Pacific Prize for the Best Honours Thesis. Christopher's dissertation was awarded the highest individual assessment in the Department of Finance's history (97 percent). In January 2000, Christopher travelled to Harvard (Harvard Business School, The JFK School of Government, and The School of Economics), Yale (Yale School of Management and The Institute of Finance) and New York University (The Stern School of Business) to present two of the three studies deriving from his dissertation. Christopher's research on financial markets has been widely covered by press and industry periodicals, including, among others, The Age, Asia Pulse, The Australian, The Australian Financial Review, The Bulletin, Business Review Weekly, The Canberra Times, The Courier Mail, The Daily Telegraph, The Herald Sun, Investor's Advisor, Investor Weekly, The Mercury, The Newcastle Herald, The Sun Herald, The Sunday Telegraph, The Sydney Morning Herald, and The Weekend Australian. The first paper to be extracted from Christopher's undergraduate dissertation is presently under second-round review at one of the world's pre-eminent academic publications, The Journal of Finance. Christopher has previously worked in mergers and acquisitions with Goldman, Sachs &

Co., in London, New York and Sydney, and with the Reserve Bank of Australia. In March 2002, Christopher was awarded a Cambridge Commonwealth Trust Bursary and invited to study for a PhD at Cambridge University. In his spare time, Christopher acts as a Visiting Economist at The Menzies Research Centre.



**Peter Butt**  
(LLM, BA, Sydney)

Peter is one of Australia's leading authorities on real property law and author of the highly regarded academic text, "Land Law" (now in its fourth edition). He is an Associate Professor of Law at the University of Sydney and has previously held positions as a Visiting Professor at the University of Bristol, Nottingham University, and Vanderbilt University. Peter has served on the Editorial Boards of The Australian Property Law Journal, The Property Law Review (UK), and Clarity. He has authored or co-authored nine books, including "Modern Legal Drafting", "Land Law", "Contract for Sale of Land in New South Wales", "The Perpetuities Act", "Real Property Cases and Materials", "Mabo, Wik & Native Title", "Property Law Statutes - New South Wales", "The Torrens System in New South Wales", and the "Australian Legal Dictionary". Peter has delivered papers at conferences in Australia, England, Ireland, Canada, and the United States on the topics of land law, plain language legal drafting, and native title. He is a Founding Director of the Centre for Plain Legal Language, President of Clarity (an international plain legal language organization), and has acted as a Consultant to the Australian Government on land law aspects of native title legislation, and to the New South Wales Law Reform Commission on various reforms to property law. Peter is also a consultant in property law and drafting with Mallesons Stephen Jaques.



**Edward Glaeser**  
(PhD (Sloan Dissertation  
Fellowship, Bradley Foundation  
Grant, Javits Fellowship, Caisse  
des Depots Research Grant),  
Chicago; AB (Cum Laude),  
Princeton)

Edward is one of the world's pre-eminent experts on the determinants of city growth and a rising star in global economics community. He has been a Professor of Economics in the Faculty of Arts and Sciences at Harvard University since 1998. Previously, he was the Paul Sack Associate Professor of Political Economy in the Department of Economics. Edward has served as an Arch W. Shaw National Fellow at the Hoover Institution, Stanford University; a John M. Olin Fellow in Law and Economics at the University of Chicago Law School; and as a Visiting Fellow at the Brookings Institution. He currently acts as a Faculty Research Fellow with the National Bureau of Economic Research. Edward teaches urban and social economics and microeconomic theory and has published dozens of papers on cities, economic growth, and law and economics in periodicals such as the *Journal of Comparative Economics*, the *Journal of Legal Studies*, *Tax Policy and the Economy*, *European Economic Review*, *American Economic Review*, the *Journal of Economic Literature*, the *Journal of Monetary Economics*, the *Journal of Regional Science*, *Economic Journal*, the *Quarterly Journal of Economics*, the *Review of Economics and Statistics*, the *Journal of Urban Economics*, the *Brookings Papers on Economics Affairs*, *Journal of Labor Economics*, the *Journal of Public Economics*, the *Journal of Economic Geography*, *American Law and Economics Review*, the *Journal of Housing Economics*, the *Journal of Urban Affairs*, the *Journal of Political Economy*, *Public Choice*, *Economic Inquiry*, the *Journal of Economic Perspectives*, the *Journal of Financial Intermediation*, the *Journal of Economic Dynamics and Control*, *Journal of Comparative Economics*, and *Economics Letters*, among others. In particular, his work has focused on

city growth and the role of cities as centres of idea transmission. He is Editor of the Quarterly Journal of Economics; Associate Editor of Journal of Regional Science, Regional Science and Urban Economics; an Editorial Board Member of Economic Inquiry, the Journal of Economic Geography, International Regional Science Review; and a Board Member of the Bastiat Institute.



**Michael Kuczynski**  
(PhD, Cambridge; (1st Class  
Hons), Cambridge)

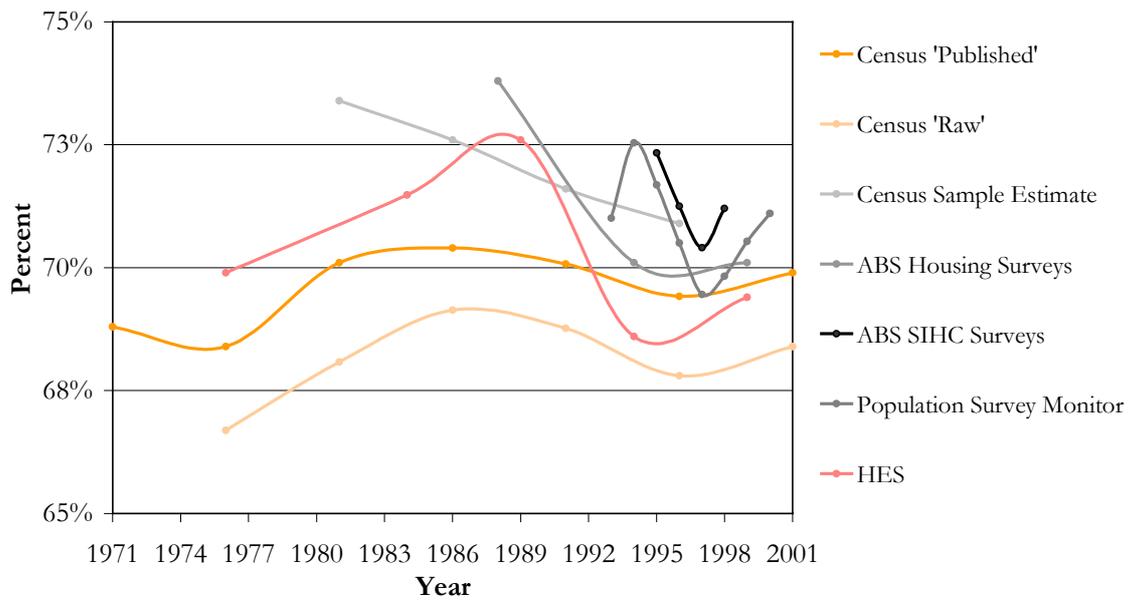
Michael Kuczynski was trained as a mathematician in Cambridge, England and then as an economist on the research staff of the International Monetary Fund (Washington D.C.) where he worked with J. Marcus Fleming on exchange rate arrangements. He has been back in Cambridge since the mid 1970s, where he directs studies in Economics at Pembroke College, and lectures in international economics, monetary economics, and international finance. His current research is in market mechanisms; international financial arbitrage; competition processes in banking; and monetary policy in dollarised economies. He has been a visiting professor at the European University Institute (Fiesole, Italy); and has lectured regularly at both the London Business School and the Judge Institute of Management Studies (Cambridge). He is completing a text on international finance.

## 8 Appendices

### 8.1 Statistical Summary of the Australian Housing Market

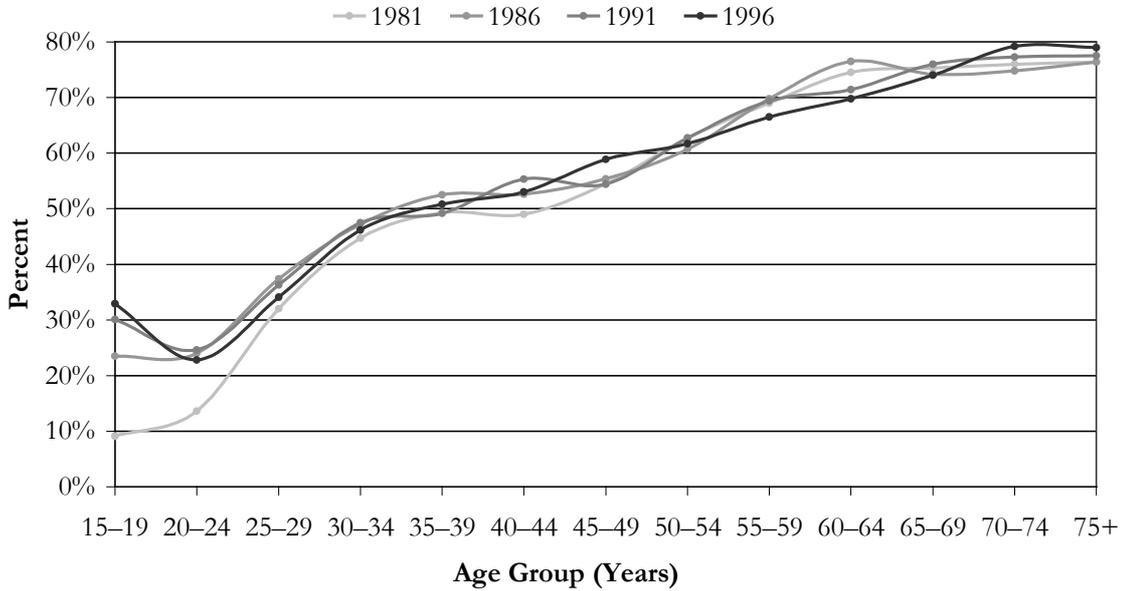
#### 8.1.1 Home Ownership

**Figure 85**  
**Estimates of the Home Ownership Rate**  
 Various Sources



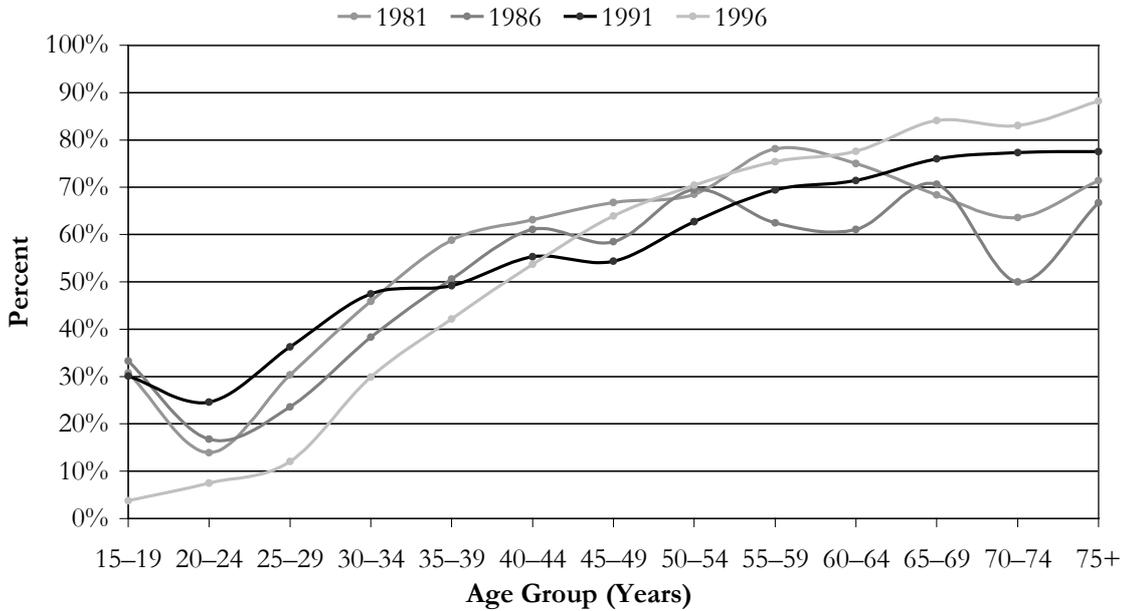
Source: Department of Family & Community Services

**Figure 86**  
**Home Ownership Rate by Household Type**  
 Single Person



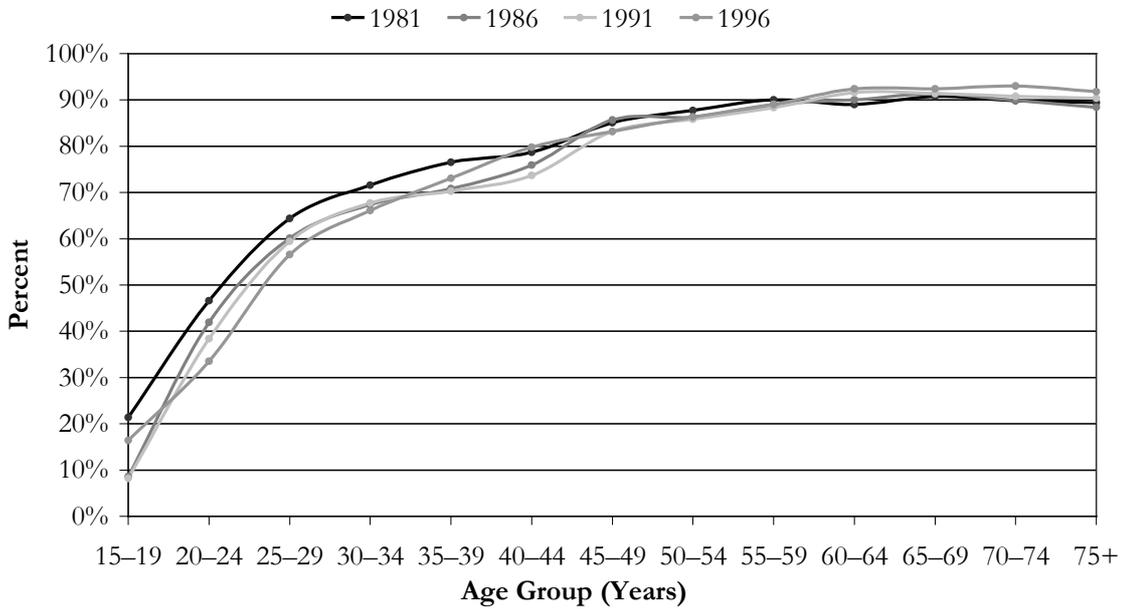
Source: Department of Family & Community Services

**Figure 87**  
**Home Ownership Rate by Household Type**  
 Sole Parent



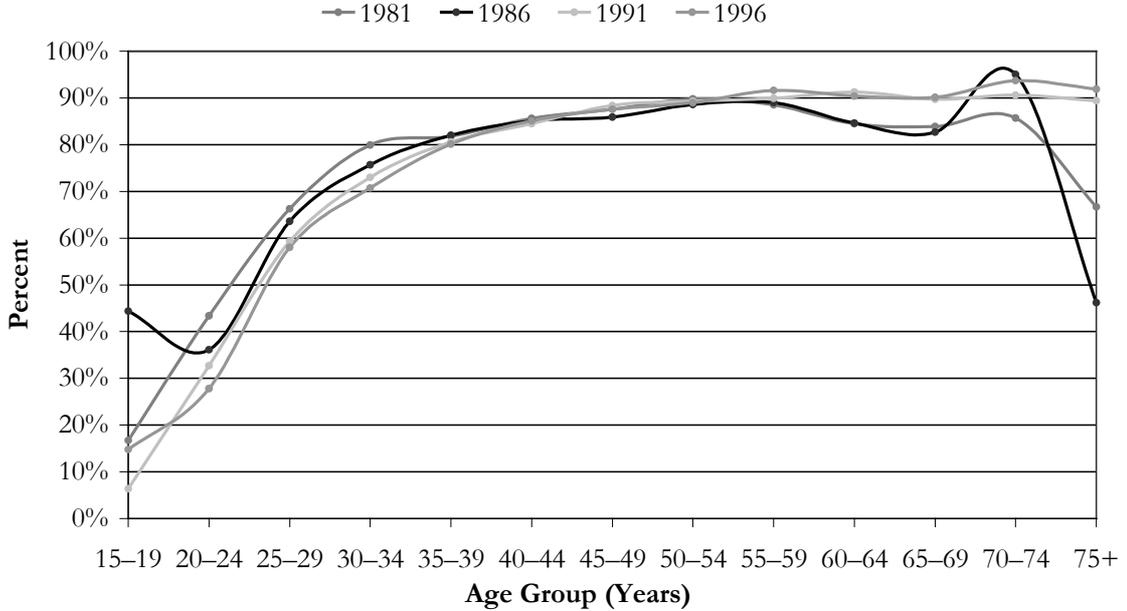
Source: Department of Family & Community Services

**Figure 88**  
**Home Ownership Rate by Household Type**  
 Couple without Children



Source: Department of Family & Community Services

**Figure 89**  
**Home Ownership Rate by Household Type**  
 Couple with Children

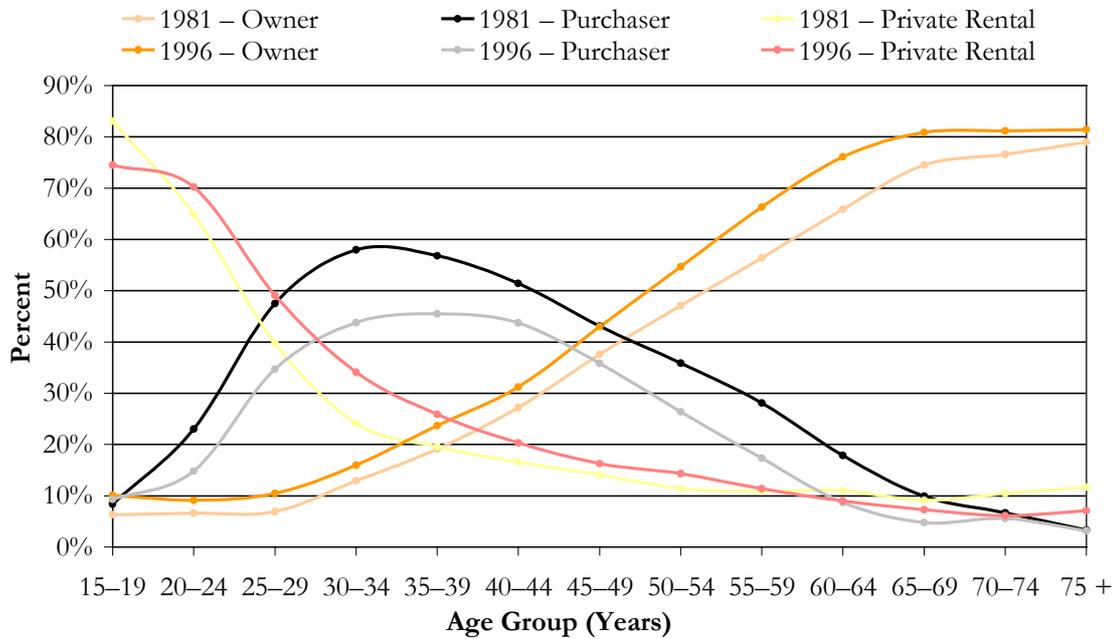


Source: Department of Family & Community Services

### 8.1.2 Home Ownership by Age

**Figure 90**

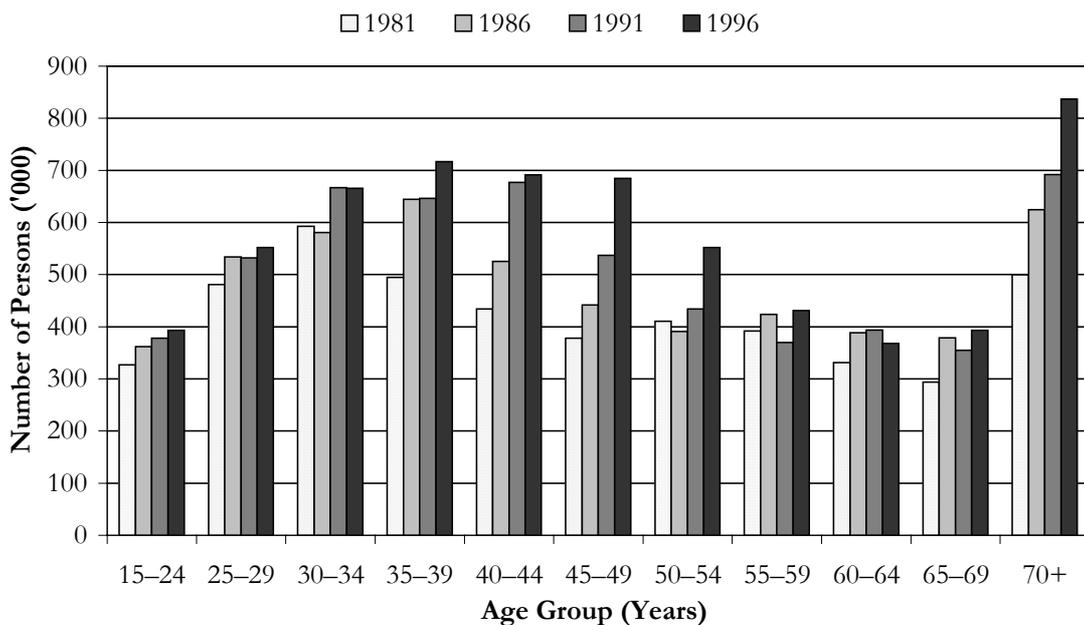
**Tenure by Age of Reference Person**



Source: Department of Family & Community Services

**Figure 91**

**Households in Occupied Private Dwellings by Age of Reference Person**



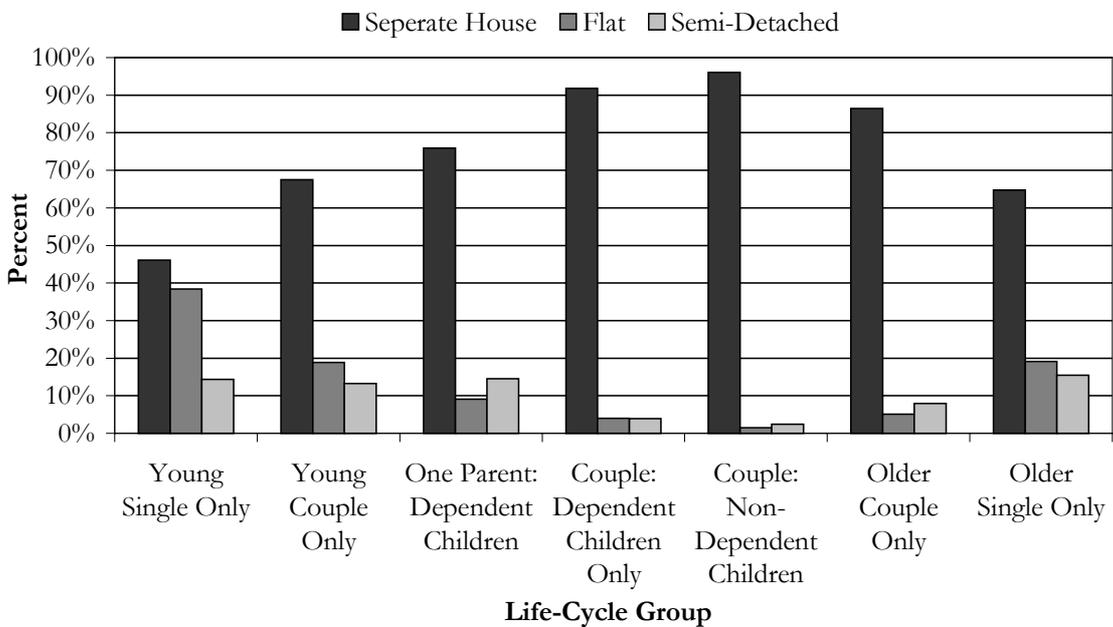
Source: Department of Family & Community Services

**Figure 92**  
**Tenure by Age**



Source: Australian Bureau of Statistics

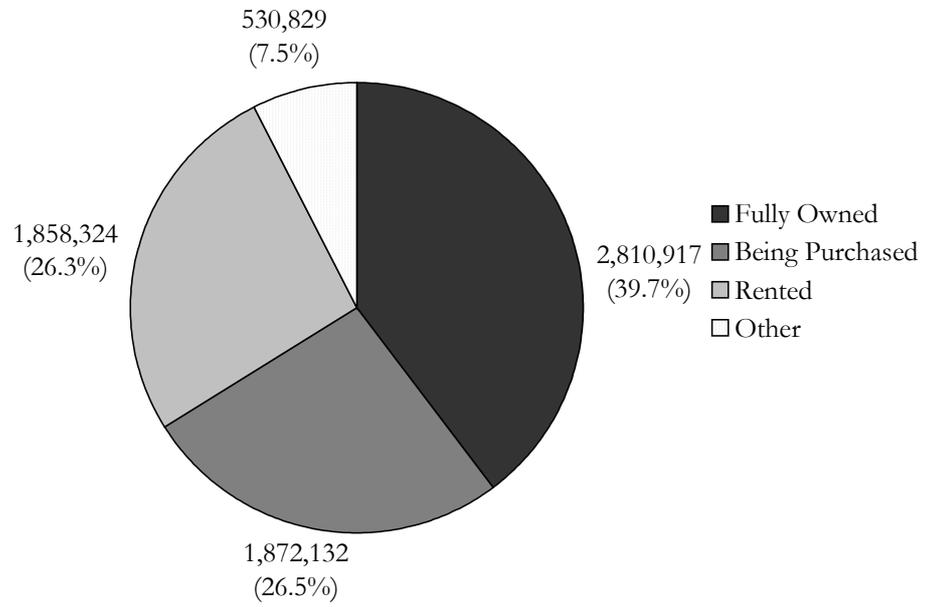
**Figure 93**  
**Selected Life-Cycle Groups by Private Dwelling Structure**



Source: Australian Bureau of Statistics

### 8.1.3 Tenure

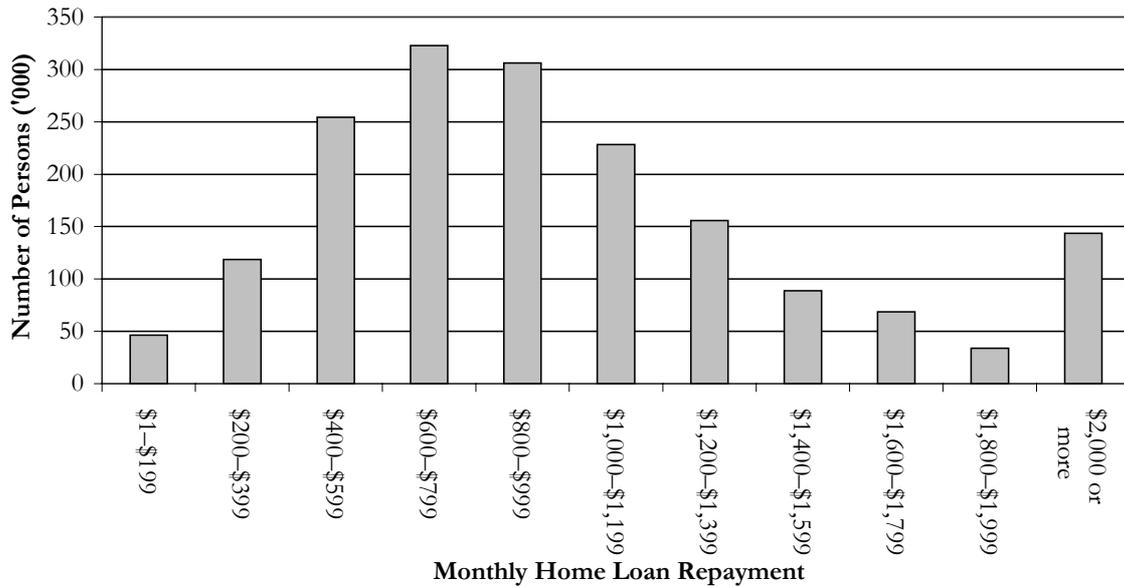
**Figure 94**  
**Dwelling Structure by Tenure Type**



Source: Australian Bureau of Statistics

8.1.4 Accessibility

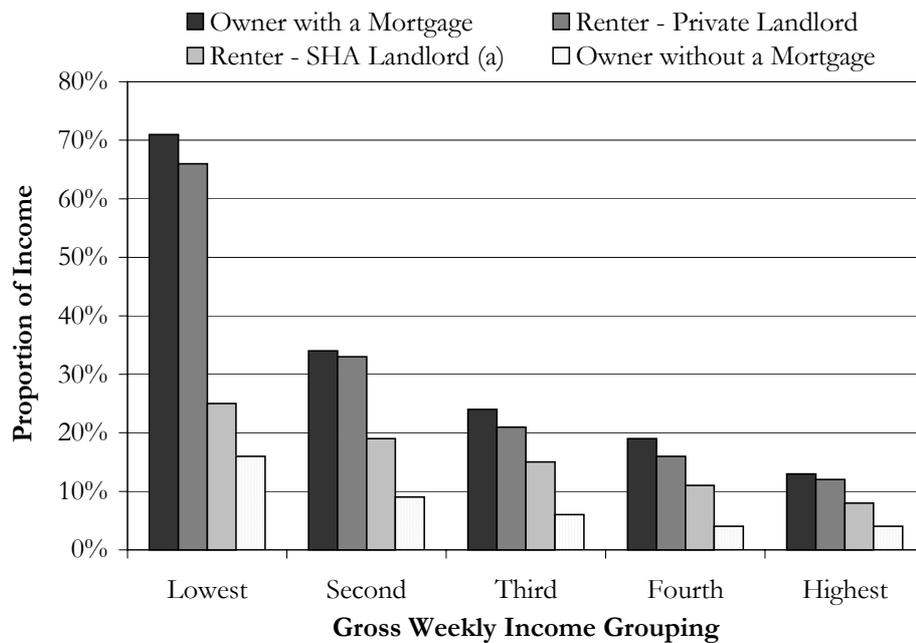
**Figure 95**  
**Monthly Home Loan Repayment**



Source: Australian Bureau of Statistics

**Figure 96**

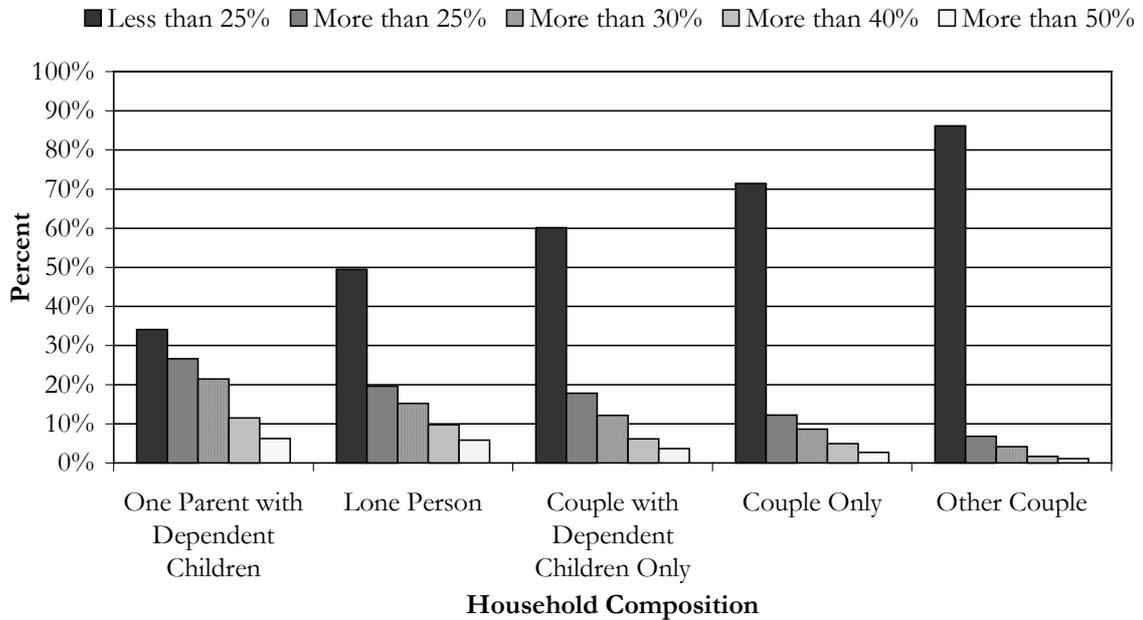
**Proportion of Income Spent by Tenure and Income Grouping**



(a) State or Territory Housing Authority

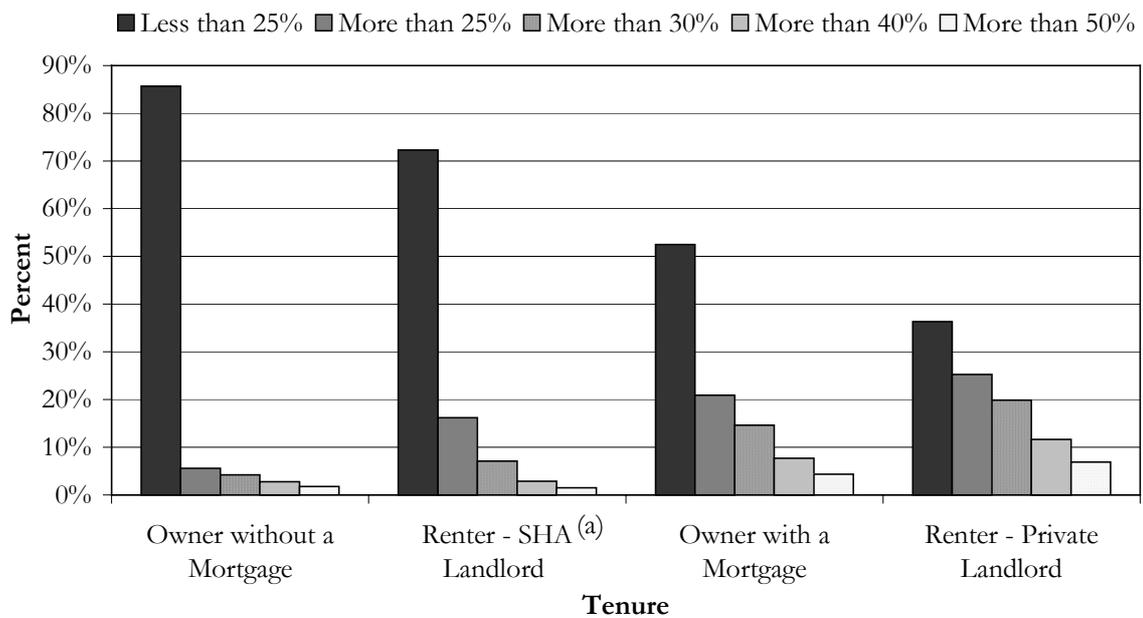
Source: Australian Bureau of Statistics

**Figure 97**  
**Housing Costs as a Proportion of Income by Household Composition**



Source: Australian Bureau of Statistics

**Figure 98**  
**Housing Costs as a Proportion of Income by Tenure**



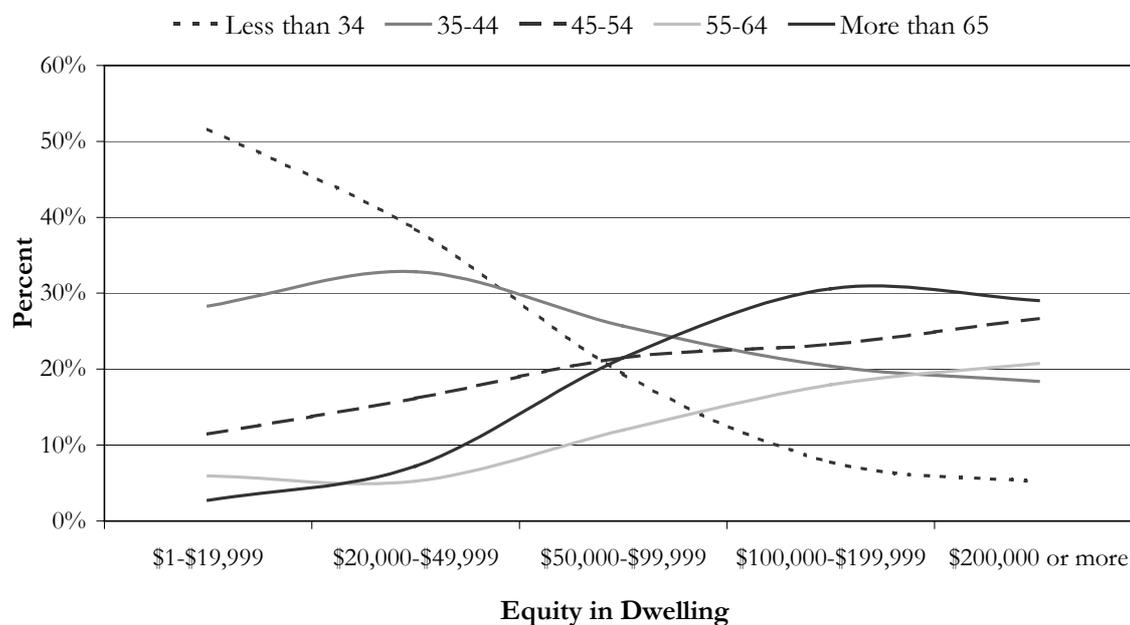
(a) State or Territory Housing Authority

Source: Australian Bureau of Statistics

### 8.1.5 Equity in Dwelling

**Figure 99**

**Age of Reference Person by Value of Equity in Dwelling**



Source: Australian Bureau of Statistics

**Table 24**

**Dwelling as a Share of Total Assets**

	1993	1996	1999
<b>Australia</b>	63%	63%	64%
<b>Canada</b>	45%	43%	42%
<b>France</b>	51%	50%	na
<b>Germany</b>	65%	64%	60%
<b>Italy</b>	50%	48%	na
<b>Japan</b>	57%	51%	na
<b>UK</b>	45%	42%	42%
<b>Sweden<sup>(a)</sup></b>	51%	47%	45%
<b>New Zealand</b>	57%	61%	60%

(a) 1999 data refer to 1998

Source: Reserve Bank of Australia (2001)

Table 25

<b>Dwelling Wealth to Household Disposable Income</b>			
	<b>1990</b>	<b>1995</b>	<b>1998</b>
<b>Australia</b>	281%	303%	355%
<b>Canada</b>	118%	129%	129%
<b>France</b>	218%	218%	227%
<b>Germany</b>	331%	302%	301%
<b>Italy</b>	170%	172%	166%
<b>Japan</b>	641%	429%	381%
<b>UK</b>	361%	252%	293%
<b>Sweden<sup>(a)</sup></b>	245%	182%	198%
<b>New Zealand</b>	243%	278%	283%

(a) 1998 data refer to 1997

Source: Reserve Bank of Australia (2001)

Table 26

<b>Dwelling Prices by City Relative to Disposable Income</b>				
1998 to 99				
	<b>Population (000')</b>	<b>Average Income (% Nat. Av.)</b>	<b>Dwelling Price-Income Ratio</b>	
			<b>(Disposable)</b>	<b>(Gross)</b>
<b>Sydney</b>	4 041.4	113.1%	8.1	5.6
<b>Melbourne</b>	3 417.2	113.2%	4.7	3.5
<b>Brisbane</b>	1 601.4	97.1%	5.2	3.9
<b>Perth</b>	1 364.2	100.4%	4.9	3.8
<b>Adelaide</b>	1 092.9	91.4%	4.2	3.5
<b>Canberra</b>	348.6	124.7%	3.8	2.9
<b>Hobart</b>	194.2	93.3%	3.4	2.6

Note: These price-income ratios are not strictly comparable with the national data in the Table 25. Survey data understate national accounts disposable income, and number of households does not equal the number of dwellings.

Source: Reserve Bank of Australia (2001)

Table 27

<b>Policies Affecting the Relative Attractiveness of Dwelling Wealth</b>				
	<b>Mortgage Interest Deductibility</b>	<b>Capital Gains Exemption on Family Home</b>	<b>Share of Public Housing</b>	<b>Memo Item: Home Ownership Rates</b>
<b>Australia</b>	No	Yes	5.1%	70.1%
<b>Canada</b>	No	Yes	1.7%	63.7%
<b>France</b>	Yes <sup>(a)</sup>	Yes	17.0%	56.0%
<b>Germany</b>	Yes	Yes	26.0%	43.0% <sup>(b)</sup>
<b>Italy</b>	Yes <sup>(c)</sup>	Yes	6.0%	68.0%
<b>Japan</b>	No	No <sup>(d)</sup>	7.0%	60.3%
<b>UK</b>	Yes <sup>(e)</sup>	Yes	24.0%	69.0%
<b>US</b>	Yes	Yes <sup>(f)</sup>	1.2%	67.4%
<b>Sweden<sup>(a)</sup></b>	Yes	No	22.0% <sup>(g)</sup>	56.0%
<b>New Zealand</b>	No	Yes	6.4%	71.2%

(a) Interest is deductible for the first five years. The deduction is equivalent to 25 percent of the total interest bill, subject to a ceiling based on the date of the contract and age of the building.

(b) West Germany only.

(c) A tax credit of 27 percent of interest payments is allowed up to a ceiling.

(d) A special deduction of ¥30,000,000 can be claimed for the principal residence.

(e) Mortgage interest deductible only on the first £30 000 of a mortgage.

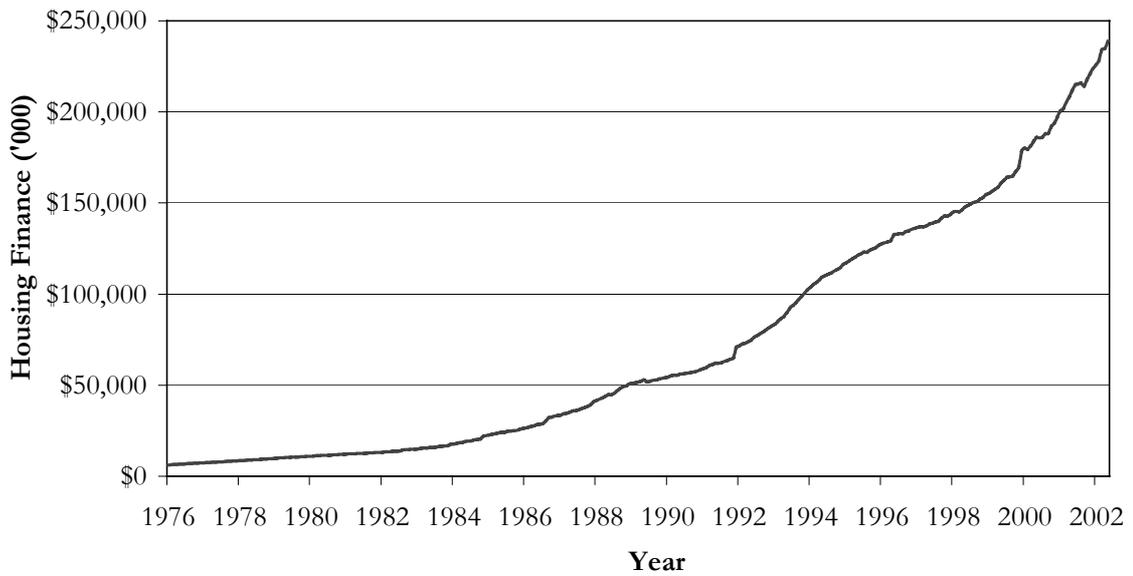
(f) Capital gains are theoretically subject to tax. However, any capital gains from the sale of the family home when another dwelling costing at least as much is purchased within two years of the sale is exempt from taxation. A once-in-a-lifetime exclusion of US\$125,000 also exists for people over 55 years.

(g) Excludes co-operative sector.

Source: Reserve Bank of Australia (2001)

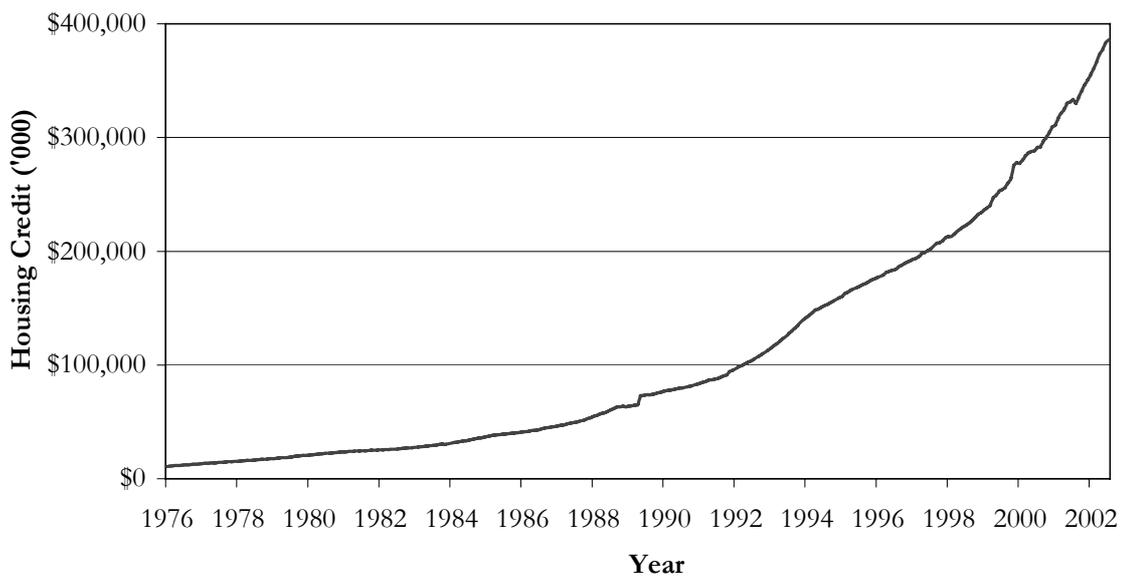
### 8.1.6 Lending and Credit Aggregates

**Figure 100**  
**Housing Finance**  
 August 1976 to December 2002



Source: Reserve Bank of Australia

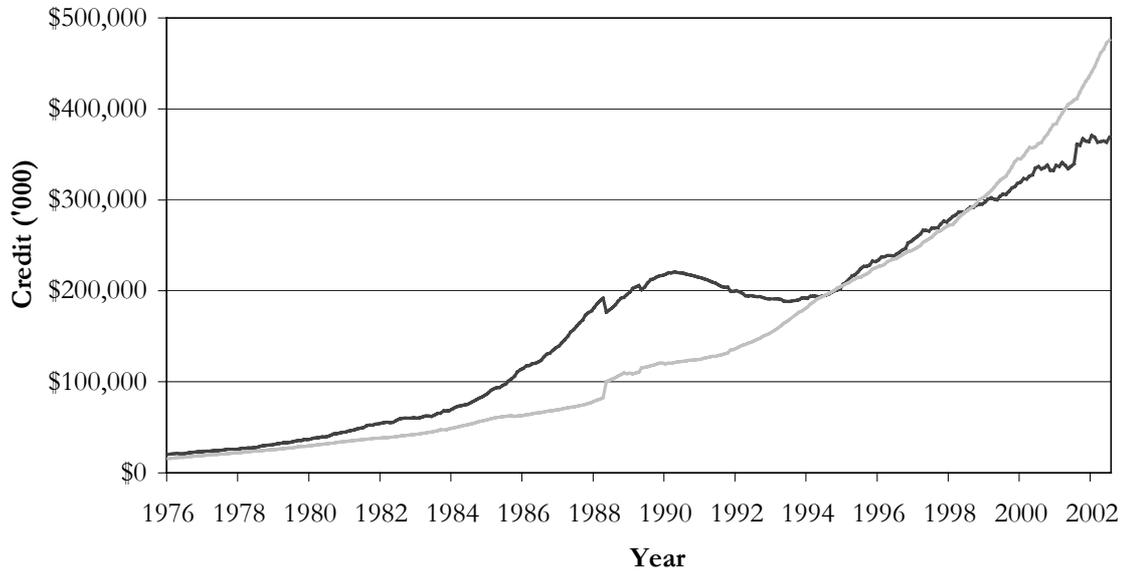
**Figure 101**  
**Housing Credit**  
 August 1976 to December 2002



Source: Reserve Bank of Australia

**Figure 102**

**Household vs Business Credit**  
August 1976 to December 2002



Source: Reserve Bank of Australia

## 8.2 Reverse Mortgages

### 8.2.1 The North American Experience

In the US, there are around 175 providers of reverse mortgages that enable individuals aged sixty-two and over to turn their non-liquid dwelling into an income producing asset. These instruments have advantages over standard home equity loans, which most elderly households fail to qualify for due to low income. The reverse mortgage generally does not require the home owner to make any interest payments, and only becomes due when they move out of the dwelling or die. The occupier receives either a lump sum or a regular stream of payments from the lender. The house is used as security for the loan and the title is mortgaged, while the property remains in the name of the owner. The value of the loan grows over time as the interest payable is capitalised and more is borrowed. Of course, the advantage for the borrower is their ability to harness the ‘dead’ capital tied up in the dwelling.

In 1987, the US Congress created the Home Equity Conversion Mortgage (HECM) insurance demonstration program under the National Housing Act to accomplish three objectives: (1) to permit the conversion of home equity into liquid assets to meet the special needs of elderly home owners; (2) to encourage and increase participation of the mortgage markets in this process; and, (3) to determine the extent of demand for home equity conversion and the types of mortgages that would best serve the needs of aged individuals.<sup>286</sup> Under the HECM Program, elderly home owners assume a reverse mortgage secured by the equity in their residence. As the borrower receives payments, the amount of debt tied to the mortgage rises over time. This debt is non-recourse, with the implication that only the value of the dwelling may serve as collateral, and other personal assets cannot be seized if this value is not sufficient to pay off the loan.<sup>287</sup>

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<sup>286</sup> The loan became known as a ‘reverse’ mortgage because the lender makes payments to the home owner, which is the converse of the traditional payment pattern of ‘forward’ mortgages.

<sup>287</sup> HECM loans are available to all home owners over 62 years of age who have low outstanding mortgage balances or own their own home clear and free. The borrower must occupy the property, which may be a single-family home, a one-to-four-unit dwelling, a manufactured home, or a unit in an approved condominium building or planned unit development. An appraisal is completed prior to closing to determine the value of the house and to ensure that it meets the minimum

Originally authorized by Congress to insure 2,500 reverse mortgages through to September 1991, the Department of Housing and Urban Development (HUD) designed the demonstration program in consultation with other federal agencies and industry experts and implemented it with a Final Rule in July 1989. The next year, Congress extended the demonstration through to 1995 and expanded HUD's authority to insure 25,000 mortgages. It subsequently amended the program again to authorize HUD to insure up to 50,000 mortgages through to September 30, 2000. Finally, in October 1998, Congress increased the number of allowable outstanding loans to 150,000.<sup>288</sup>

After 10 years of operation the HECM Demonstration has now been converted into a permanent HUD program.<sup>289</sup> In a recent evaluation report to Congress, the Federal Housing Administration (FHA) found that most, "participants were very enthusiastic about the impact the HECMs have had on their lives. These respondents note that they are no longer concerned about their financial well-being and are enjoying retirement. For others, the mortgage has not drastically improved their quality of life, but allows them to meet daily living expenses while remaining in their homes" (see Rodda, Herbert and Lam (2000)).

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standards of maintenance. The borrower's income and credit worthiness are not of concern to the underwriting process. The Federal Housing Administration (FHA) insures HECM loans originated by approved lenders to protect them against loss if the amounts withdrawn exceed equity when the property is sold. The FHA is a wholly owned US government corporation, established under the National Housing Act of 1934 to improve housing standards and conditions. Its goal is to provide an adequate home financing system through insurance of mortgages, and to stabilize the mortgage market.

<sup>288</sup> In addition to the HECM, a second important type of reverse mortgage is the 'HomeKeeper', which has been offered by Fannie Mae since 1995. While this product is still primarily a creature of federal policy, there are also private companies purveying reverse mortgages. The Financial Freedom Senior Funding Corporation not only offers its own proprietary reverse mortgage, but has successfully issued the first secondary market product in the history of the reverse mortgage industry. In 1999 Lehman Brothers issued \$317 million in bonds against Financial Freedom's portfolio of reverse mortgages.

<sup>289</sup> As of October 1999, more than 38,000 elderly home owners had selected HECM loans to assist with their financial needs and the program continues to grow steadily. Of the total 38,000 HECM loans, 9,063 have terminated and only 388 loans ended in claims on the insurance fund. The terminations generally follow expectations and the claims have been low so far, allowing the fund to build substantial reserves for future claims.

## 8.2.2 Issues

There has been considerable debate in the literature about the economic potential of the US reverse mortgage market. Yet even the most pessimistic assessment suggests that this market should be larger than it is by an order of magnitude. We now briefly outline some of the economic and psychological forces that help to explain the gap between the current market and its theoretical potential.

Two of the strongest reasons for avoiding reverse mortgages altogether may be a desire to move from the current home, and a powerful bequest motive. For an elderly household planning to move in the near future, a reverse mortgage might seem like a very bad idea, since the transactions cost alone could take a huge bite out of the housing equity. Nevertheless, for a household planning to stay put, the calculus is very different. One can obtain insights into market potential by studying the actual and anticipated patterns of mobility for older home owners. The most striking finding in this respect is the profound desire of elderly home owners not to move. In the US, roughly 80 percent of residences with a head of household aged 65 and over own their own home, and the vast majority have lived in the dwelling long enough to fully pay off their mortgage. Such households respond to survey questions on the subject by stating a strong preference for remaining where they are for the rest of their lives.

A second possible incentive for avoiding the reverse mortgage market may be a strong bequest motive. Yet there is evidence that for families not among the super rich, this objective is far from overwhelming. Sheiner and Weil (1992) find that US savings respond little to increases in the value of housing equity, as they might if the latter was intended to satisfy a desire to bequeath wealth.

Thus for households that intend to stay in their current home for life, and who do not have an overpowering bequest motive, the reverse mortgage seems like a potentially important product. Consequently, there would appear to be room for a larger market. We now present a short description of the problems that have to date limited the development of US opportunities. Among others, these include:

- Severe moral hazard

Those who apply for HECM loans are generally very old, poor, and living in homes that are more valuable than they can afford to maintain. They may be expected to suffer significant health problems during the life of the loan. These households would seem to be prime candidates to allow their

properties to run into serious disrepair. In the reverse mortgage market, an initial failure to maintain the home can feed on itself, creating worse incentives for maintenance and an ever-growing problem for the lender. Deterioration in the dwelling combined with the inevitable increase in the size of the outstanding loan balance soon leave the home owner with no financial stake left in their residence. The loan quickly hits the crossover point, and 100 percent of any incremental damage or depreciation to the house is borne by HUD.

- Healthcare, mobility, and precautionary savings

One danger for the borrower in taking out a reverse mortgage is that it may adversely interact with a later health problem. There are several aspects to this complication. The first is that having earlier exhausted a great deal of the equity, the household may enter a period of sickness in a somewhat poorer net asset position. The second and more noteworthy issue concerns the interaction between health status and living arrangements. When an elderly person develops a significant health problem, it may be necessary to leave the home for some time for treatment and convalescence. At such points, there is also an incentive to reconsider the optimal living arrangement; that is, it may be a good idea to move into more appropriate transitional housing. Unfortunately, if the individual's equity has been depleted it may prove difficult to raise enough capital from their existing property to make such a move possible.

- The complex psychology of reverse mortgages

It is often suggested that many elderly households are simply reluctant to take on debt, having spent so much time trying to pay off their initial mortgage. Whatever the psychological origins of this discomfort, it turns out to have a basis in reality in the case of reverse mortgages. After all, the reverse mortgage does involve a commitment to live in the house, and any prolonged period in convalescence would place the household at genuine risk of losing the right to remain in it. The mere prospect of this aversive future possibility may be sufficiently anxiety-inducing to discourage all but the most desperate

- Very high transaction costs

A 75 year old may end up paying roughly US\$6,500 in fees to borrow a net amount of no more than US\$41,000 up front

on a home worth US\$100,000. The household may be better off not taking out a reverse mortgage, consuming somewhat less than they would otherwise desire, and leaving a larger bequest, rather than incurring the costs of entering this market

- A question of supply

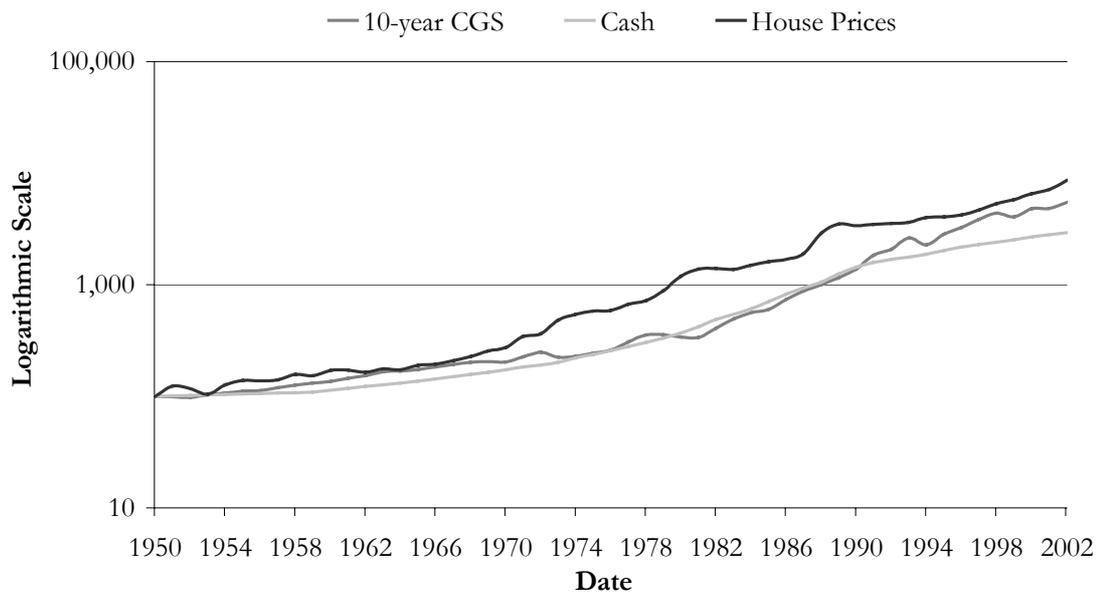
Powerful as they may seem, it is unlikely that the economic and psychological forces outlined above are sufficient to explain the weak demand for US home equity conversion products. The most straightforward supply-side factor that contributes to the low uptake of reverse mortgages is the relatively feeble fees paid by HUD to institutions that issue HECMs. These fees are not sufficiently high to make aggressive marketing of the HECM a worthwhile activity for most banks, keeping the program small, if highly virtuous.

In light of the above, it would seem that the options currently available to those who would like to convert their home equity into cash are burdened by a number of supply and demand side constraints.

### 8.3 Owner-Occupied Property's Risk-Return Profile

**Figure 103**

**Comparison of Real Growth in Sydney House Prices, Long Term Government Bonds, and Cash**



Source: Residex Pty Ltd and Global Financial Data

## 8.4 Kernel density estimation

Kernel density estimation provides an approximation of the probability density function  $f(\cdot)$  of a random variable,  $X$ . Let  $X_1, \dots, X_n$  be a random sample from a  $k$ -variate absolutely continuous distribution with density  $f(x)$  and bounded fourth moments. The (normal kernel) density estimator of  $f(x)$  takes the form (see Bierens (2002)):

$$\hat{f}(x) = \frac{1}{n} \sum_{j=1}^n \hat{f}_{n,j}(x),$$

where

$$\hat{f}_{n,j}(x) = \left( (h_n \sqrt{2\pi})^k \sqrt{\det(\hat{\Sigma})} \right)^{-1} \times \exp \left[ \frac{-1}{2h_n^2} (x - X_j)' \hat{\Sigma}^{-1} (x - X_j) \right],$$

where  $\hat{\Sigma} = (1/n) \sum_{j=1}^n (X_j - \bar{X})(X_j - \bar{X})'$  with  $\bar{X} = (1/n) \sum_{j=1}^n X_j$  and  $h_n$  is the bandwidth. The condition of bounded fourth moments implies that:

$$\hat{\Sigma} = \Sigma + O_p(1/\sqrt{n}),$$

where  $\Sigma$  is the variance matrix of  $X_j$ .

## 8.5 House Trade Data and the Development of a Repeat Sales Proxy

In total, there were 100,296 trades, representing around 30,000 distinct dwelling units. The data was sorted by address and then by date, and ‘trade pairs’ recorded for contiguous sets of transactions relating to the same property. That is, if a house traded four times (e.g., in 1982, 1989, 1993 and 1999) three trade pairs were logged: 1982-1989, 1989-1993 and 1993-1999. Properties with only one trade were ignored. For any given dwelling,  $p_i$  each trade pair can be expressed as  $(p_i, a_i, b_i, Y_i)$ , where  $a_i, b_i \in \{1..q\}$  are respectively the quarters in which the purchase and sale occur, and  $Y_i$  denotes the capital growth during the period. The rejection of multiple trades in the same quarter implies that  $a_i < b_i$ .

Our objective is to design a global index,  $Z(t), t = 1..q$ , for the universe of transactions during any given quarter. Let  $y_i = \log Y_i$  and  $z(t) = \log Z(t)$ . Following Bailey, Muth and Nourse (1963), we assume that any sale of a property,  $p$ , at time,  $t$ , is the product of the index level effect,  $Z(t)$ , a property specific effect,  $A_p$ , reflecting the idiosyncratic features of that unit, and a residual term,  $V_p(t)$ :

$$\text{Price} = Z(t)A_pV_p(t).$$

Or, for any given trade pair  $(p, a, b, Y)$ :

$$Y_i = Z(b_i)V_{p_i}(b_i) / Z(a_i)V_{p_i}(a_i).$$

Taking logarithms of both sides yields:

$$\begin{aligned} y_i &= z(b_i) - z(a_i) + v_{p_i}(b_i) - v_{p_i}(a_i), \\ &= z(b_i) - z(a_i) + u_i, \end{aligned}$$

where  $u_i = v_{p_i}(b_i) - v_{p_i}(a_i) = \log \left( \frac{\text{Sale price} \times Z(a_i)}{\text{Purchase price} \times Z(b_i)} \right)$  is the trade pair residual. The latter may be thought of as the performance of the property relative to the repeat sales index. If  $m$  is the number of trade pairs, and  $q$  the number of quarters, let  $\mathbf{X}$  be an  $m$  by  $q$  matrix where:

$$\begin{aligned} \mathbf{X}_{i,a_i} &= -1 \\ \mathbf{X}_{i,b_i} &= +1 \\ \mathbf{X}_{i,j} &= 0 \quad \text{otherwise} \end{aligned}$$

Also, let  $\mathbf{y} = (y_1, y_2 \dots y_m)^T$  and  $\mathbf{u} = (u_1, \dots u_m)^T$  be column vectors of length  $m$  and  $\mathbf{z} = (z(1), z(2), \dots z(q))^T$  a column vector of length  $q$ . The equation for all  $i$  can then be written as:

$$\mathbf{y} = \mathbf{Xz} + \mathbf{u}.$$

Key assumptions are as follows. First, the property specific effect,  $A_p$ , is held to be constant through time. The residual terms  $V$  account for peculiarities with regard to buyers and sellers, and pricing errors when determining the ideal value of any given transaction. They do not, however, take into account the length of tenure, depreciation, or any price drift in the value of the property. For dwellings with a single trade pair, it is sufficient to suppose that they are independent and identically distributed (i.i.d.) with zero mean. One can therefore solve the expression above as a least squares problem, minimising the variance of  $\mathbf{z}$  according to the standard formula:

$$\hat{\mathbf{z}} = (\mathbf{X}^T \mathbf{X})^{-1} \mathbf{X}^T \mathbf{y}.$$

In the case of houses with multiple trades, we make the stronger assumption that the sale residuals  $V$  are i.i.d. Consequently, the  $u_i$  are also i.i.d. with zero mean, except where they apply to successive trade pairs of the same property, in which event:

$$\text{cov}(u_{i+1}, u_i) = -\text{var}(v) = -\frac{1}{2} \text{cov}(u_{i+1}, u_i).$$

Let  $\mathbf{M}$  be the covariance matrix of  $\mathbf{u}$  (up to a scalar), that is, an  $m$  by  $m$  symmetric matrix where:

$$\begin{array}{ll} \mathbf{M}_{i,i} = 1 & i = 1..m \\ M_{i+1,i} = M_{i,i+1} = -\frac{1}{2} & p_{i+1} \text{ is the same property as } p_i, i = 1..(m-1) \\ \mathbf{M}_{i,j} = 0. & \text{otherwise} \end{array}$$

The least squares (minimum variance) unbiased estimator of  $\mathbf{z}$  is now:

$$\hat{\mathbf{z}} = (X^T M^{-1} X)^{-1} (X^T M^{-1} y).$$

## 8.6 Investor Demand for Equity Finance at a Discount to Par

In this section, we outline methodological approaches to quantifying the demand for, and supply of, equity finance.

One must first make specific assumptions about exactly how the discount is defined. The very simplest is the following. At the time of sale, the institution acquires the rights to a fraction of the future sale proceeds. However, instead of paying full market value for the equity, they only contribute some proportion of the actual price,  $\pi$ , where  $\pi \in (0,1]$ . The rate of return on this new asset has a simple relationship to the house price index, and we will exploit and define that precisely in the computations that follow. Suppose for example that  $\pi$  is equal to 0.75 and the house price index rises over some period of time from 100 to 150. In this case, instead of only receiving a 50 percent return on housing, the investor realises 100 percent. This will, of course, make property a more attractive asset class.

To compute the investor's demand for equity finance at a discount, we begin by assuming that there is a universe of four asset classes: stocks, long-term government bonds, cash and real estate. The parameters for the distribution are estimated from data covering the entire population period. Using a bootstrap technique, a sequence of

$K$  random draws is taken with replacement. This sampling procedure is repeated 1,000 times to generate the distribution of joint asset returns. Subsequently, the price parameter,  $\bar{\pi} \in (0,1]$ , is fixed and a level of risk aversion,  $\bar{\gamma} \geq 0$ , is assumed in the standard CRRA utility function,  $U(W) = W^{1-\gamma}/1-\gamma$ . We then characterize the universe of all possible portfolio shares (with the restriction of no short-sales) as the set of points in the ‘simplex’,  $S^3$ , which is the group of non-negative vectors whose components add to one,  $S^3 = \{x = (x_1, x_2, x_3, x_4) \in \mathbb{R}^4_+ | \sum x_i = 1\}$ . A specific initial portfolio share,  $\bar{x} \in S^3$ , is also fixed. Taking an arbitrary level of initial wealth, we compute the end-period holding that results from the assumed portfolio shares,  $\bar{x}$ , in each of the  $K$  draws of the 10 year returns described above. Note that in doing this we must adjust-up final wealth in a rather mechanical fashion. By way of example, suppose that we were looking at a portfolio in which \$100,000 of the initial investment was used to acquire home equity capital. Assume also that in a particular realization, the price of housing increases twofold over the ten-year period. This means that in the par pricing experiment, the final value of the \$100,000 placed in the property rises to \$200,000. Yet when the investor pays a price,  $\bar{\pi}$ , which is less than par, initial wealth grows by  $\$200,000 / \bar{\pi}$ . Using this adjustment, we can compute the exact level of final wealth for each of the  $K$  draws and any given price parameter.

Now, let  $W_k$  denote the final wealth outcome attributable to the sequence  $k$ . We substitute this into the CRRA function to arrive at the  $K$  different levels of final utility,  $U_k(W_k) = W_k^{1-\gamma}/1-\gamma$ . We then take the simple arithmetic average of these  $K$  utility levels, and call this the expected utility corresponding to a given risk aversion, price parameter and portfolio share,  $EU(\bar{\pi}, \bar{\gamma}, \bar{x}) = \sum U_k/K$ . This process is repeated until the set of all feasible portfolio shares has been completely covered.

The optimal level of final utility, and the corresponding optimal portfolio, is then identified by maximizing across all shares in the grid. We define these as the maximum utility and optimal portfolio attributable to a given risk aversion and pricing parameter: respectively  $V(\bar{\pi}, \bar{\gamma})$  and  $X(\bar{\pi}, \bar{\gamma})$ ,

$$V(\bar{\pi}, \bar{\gamma}) = \max_{x \in S^3} EU(\bar{\pi}, \bar{\gamma}, \bar{x});$$

$$x \in S^3$$

$$X(\bar{\pi}, \bar{\gamma}) = \arg \max_{x \in S^3} EU(\bar{\pi}, \bar{\gamma}, \bar{x});$$

$$x \in S^3$$

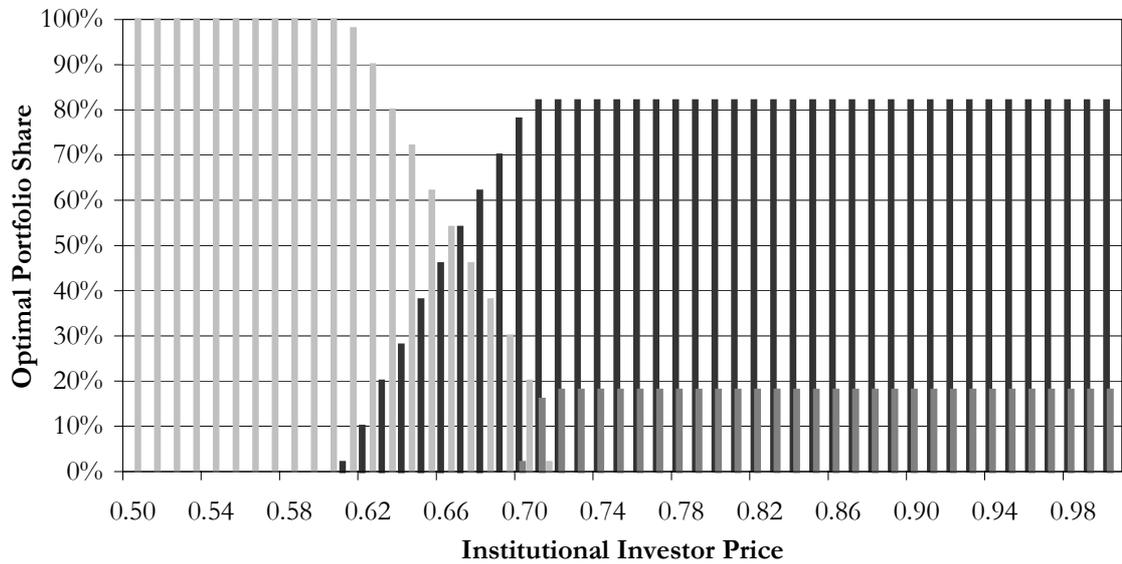
At the end of this process, we will have computed optimal portfolio shares for all possible price and risk aversion parameters. Observe that the actual discount to par is best described in percentage terms as  $100 \cdot (1 - \bar{\pi})$ : if  $\bar{\pi} = 0.75$ , then the investor is paying 75 cents in the dollar for real estate returns, and the discount is therefore 25 percent. And so, what we are actually doing here is constructing the demand curve for equity finance as a function of the discount to par and the general level of risk aversion.

**Figure 104**

**Institutional Investor Demand at a Discount**

Fixed Contract (Untaxed, Risk Aversion = 0.5)

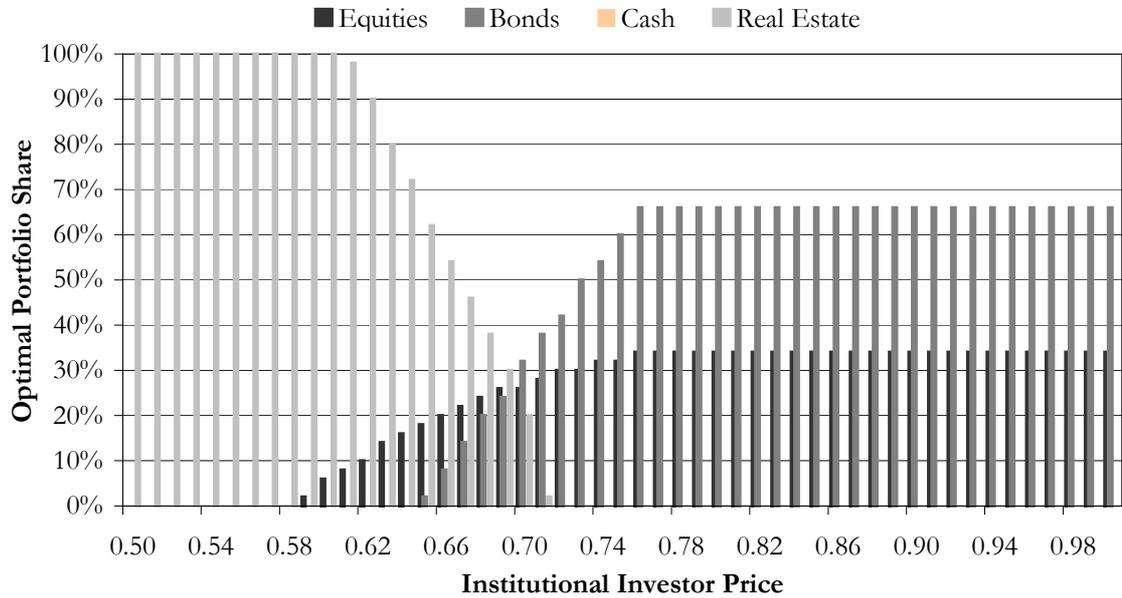
■ Equities ■ Bonds ■ Cash ■ Real Estate



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 105**

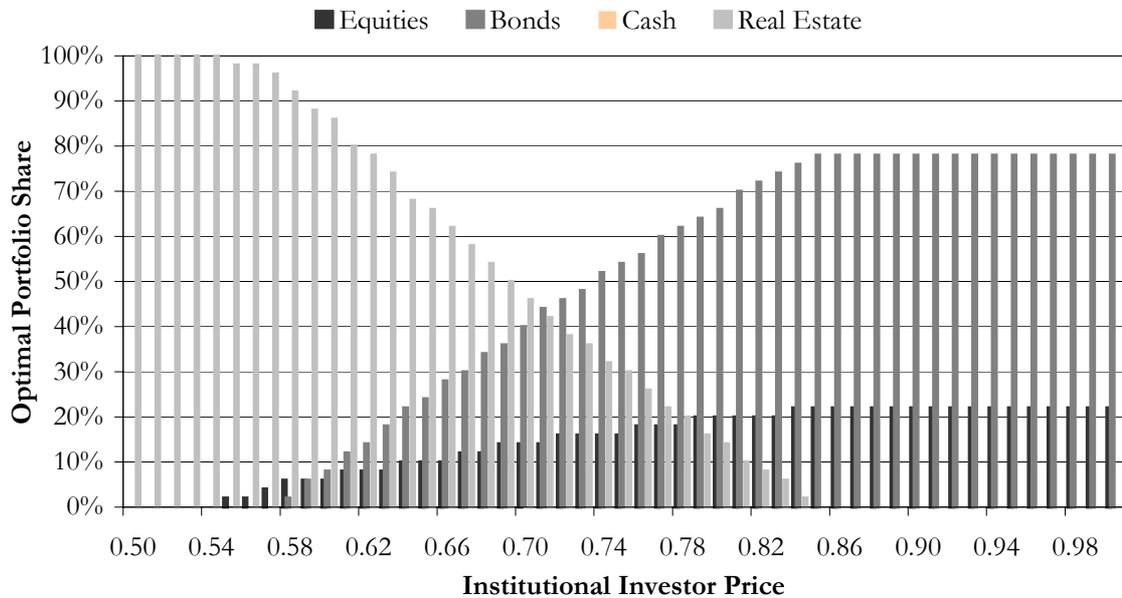
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Untaxed, Risk Aversion = 1.5)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 106**

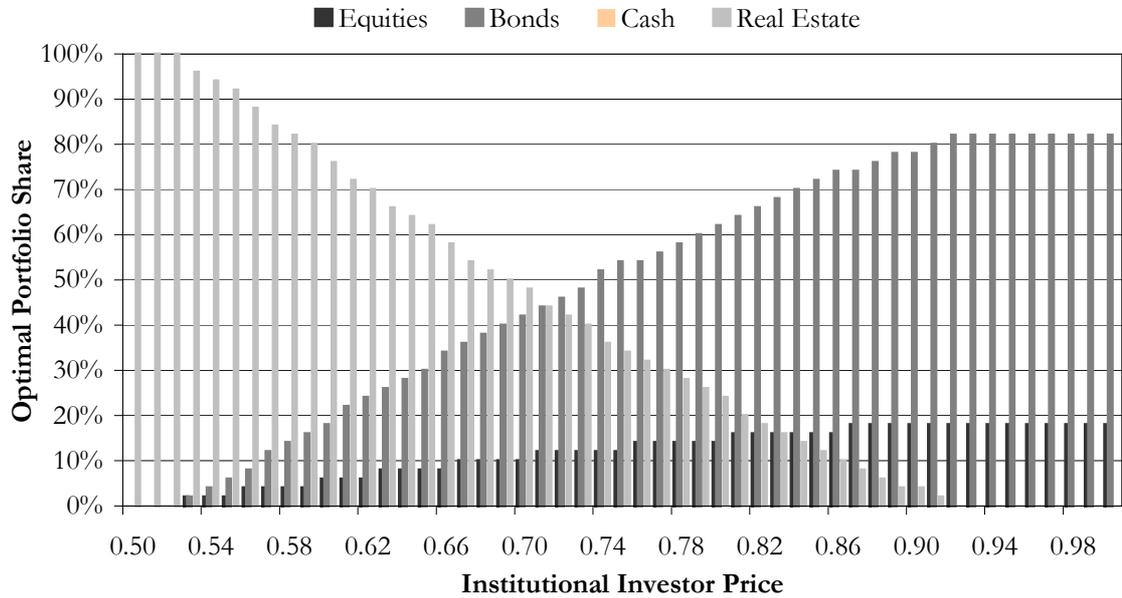
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Untaxed, Risk Aversion = 3.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 107**

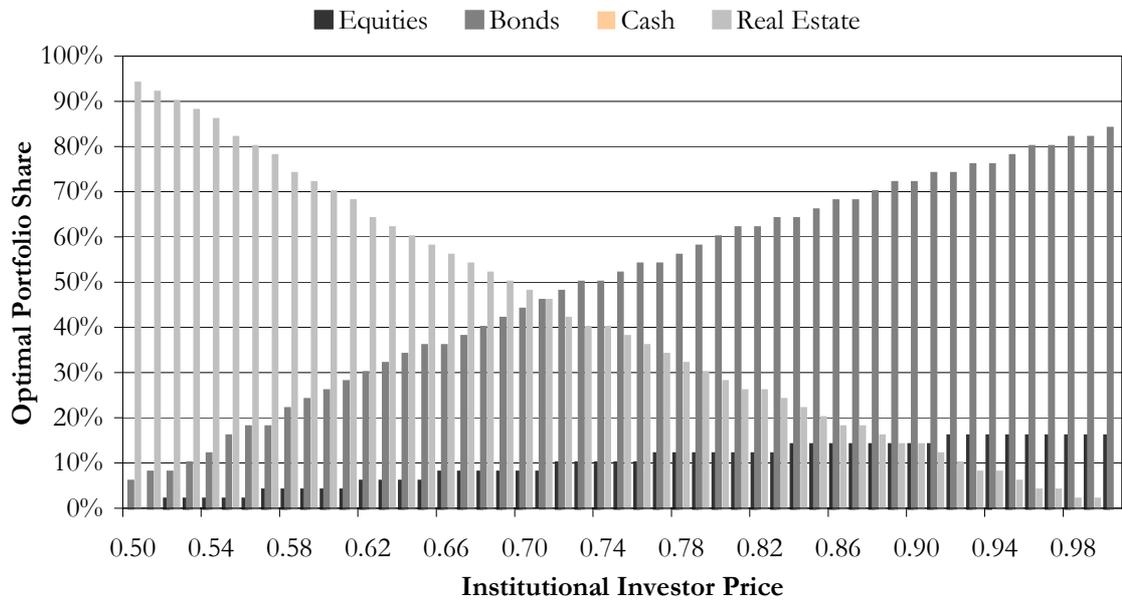
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Untaxed, Risk Aversion = 4.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 108**

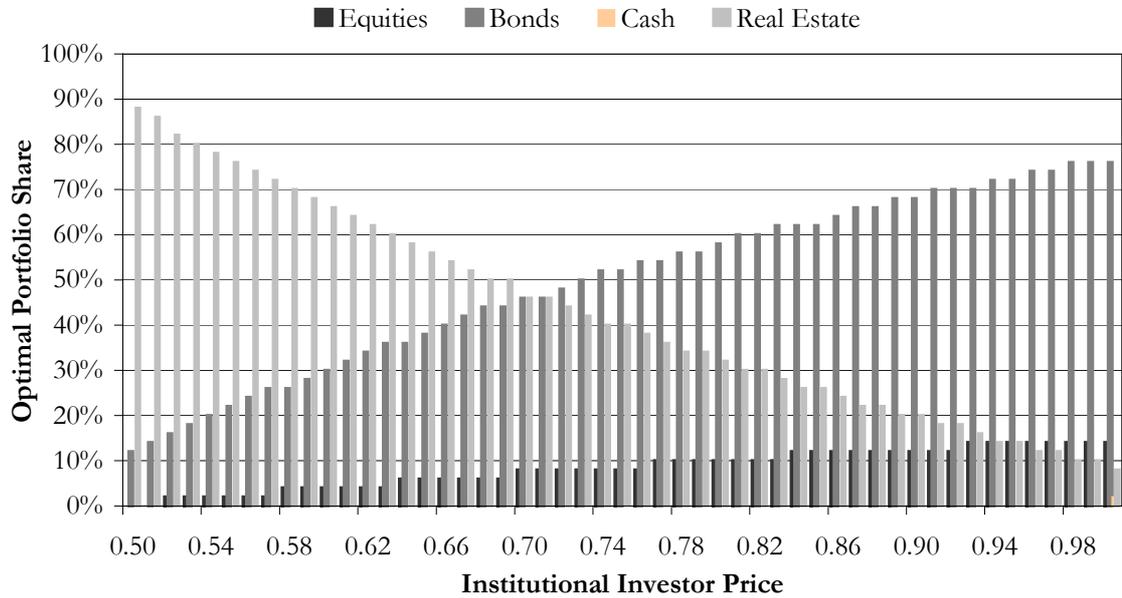
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Untaxed, Risk Aversion = 5.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 109**

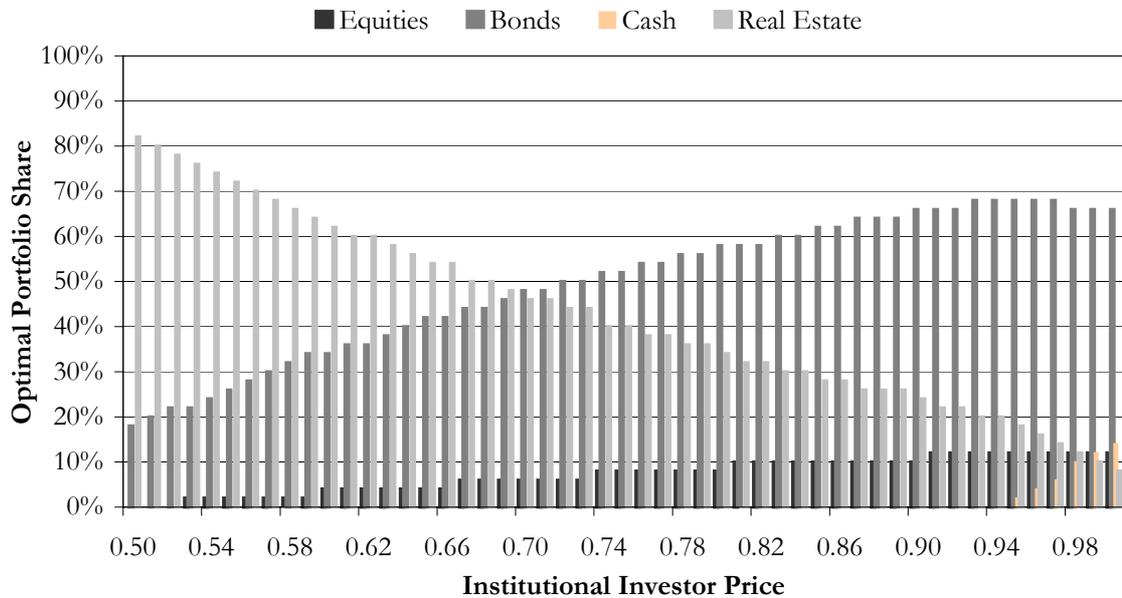
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Untaxed, Risk Aversion = 6.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 110**

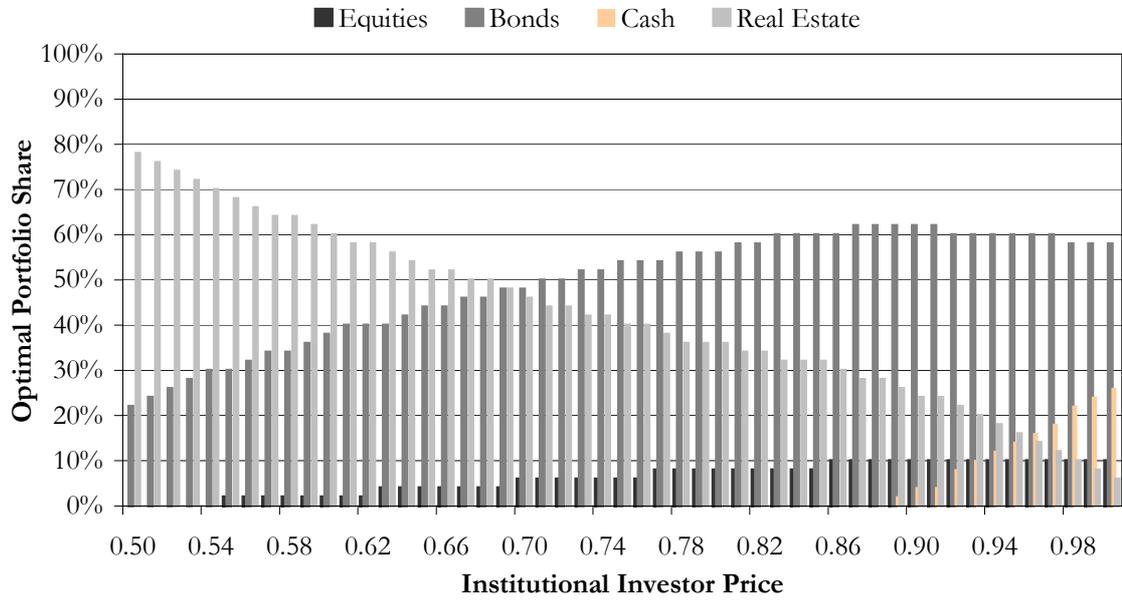
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Untaxed, Risk Aversion = 7.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 111**

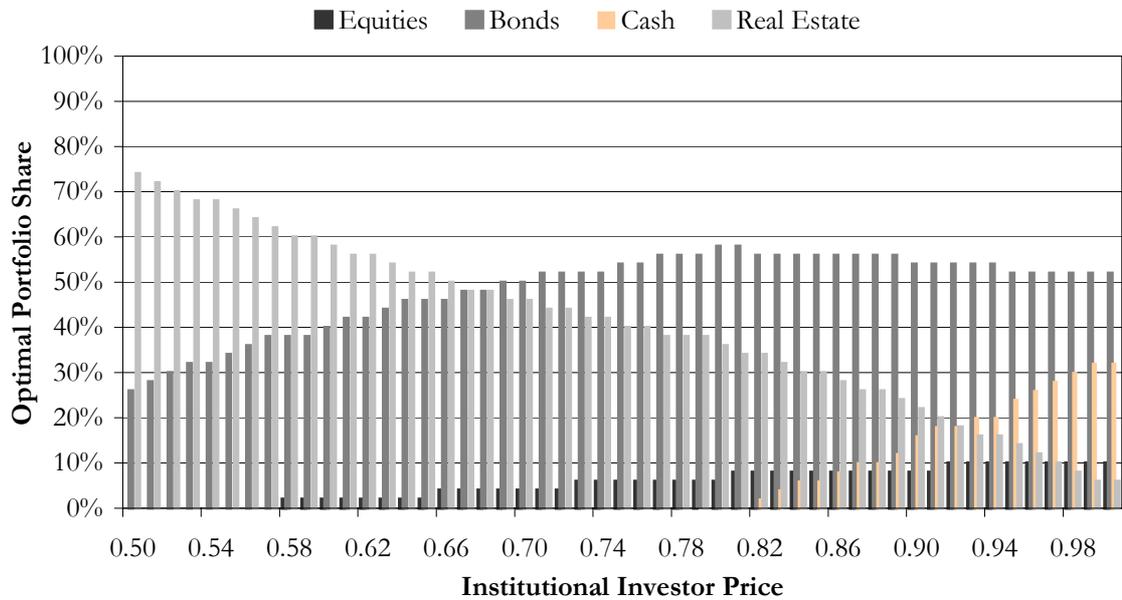
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Untaxed, Risk Aversion = 8.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 112**

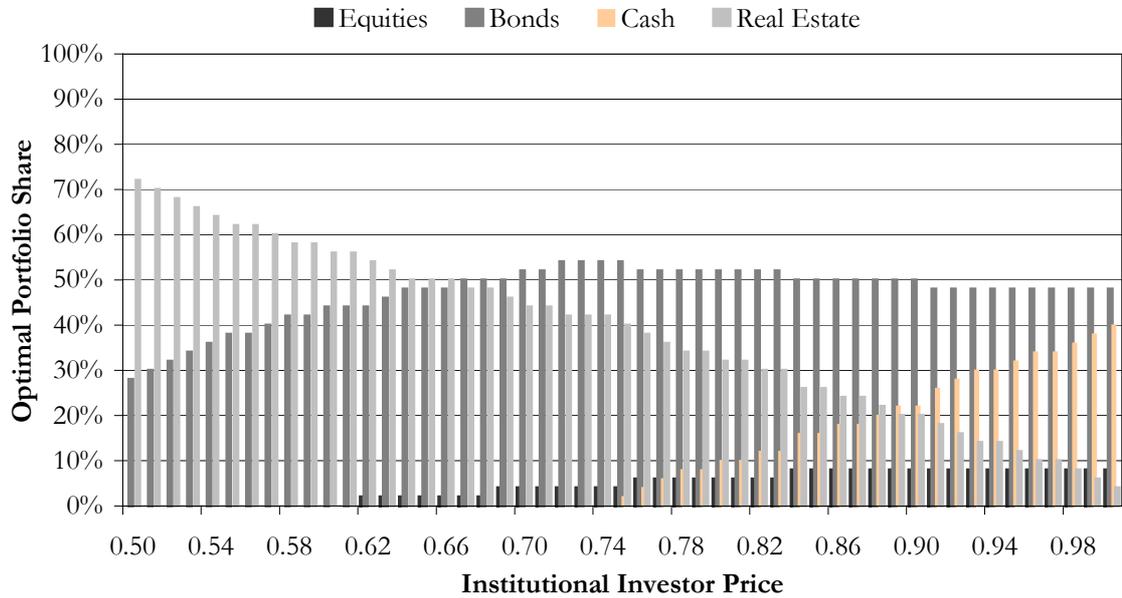
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Untaxed, Risk Aversion = 9.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 113**

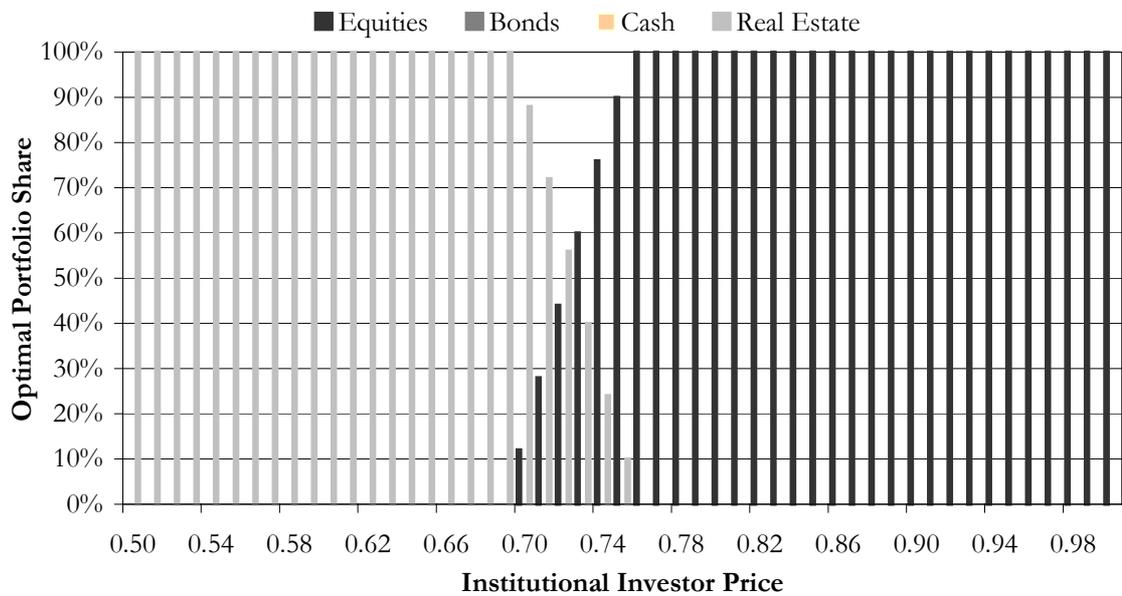
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Untaxed, Risk Aversion = 10.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 114**

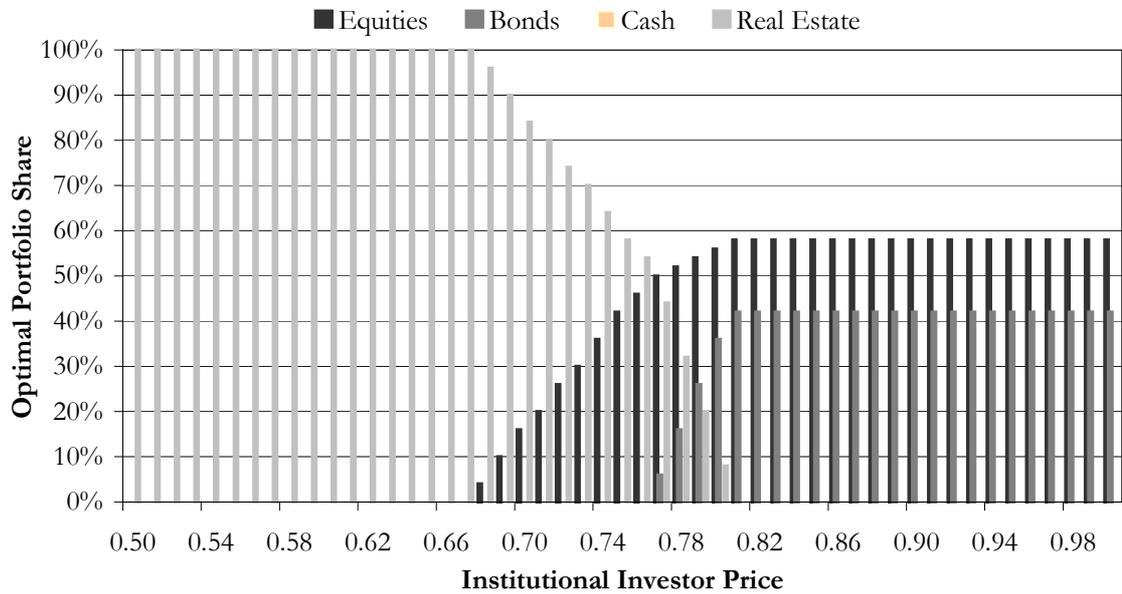
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 0.5)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 115**

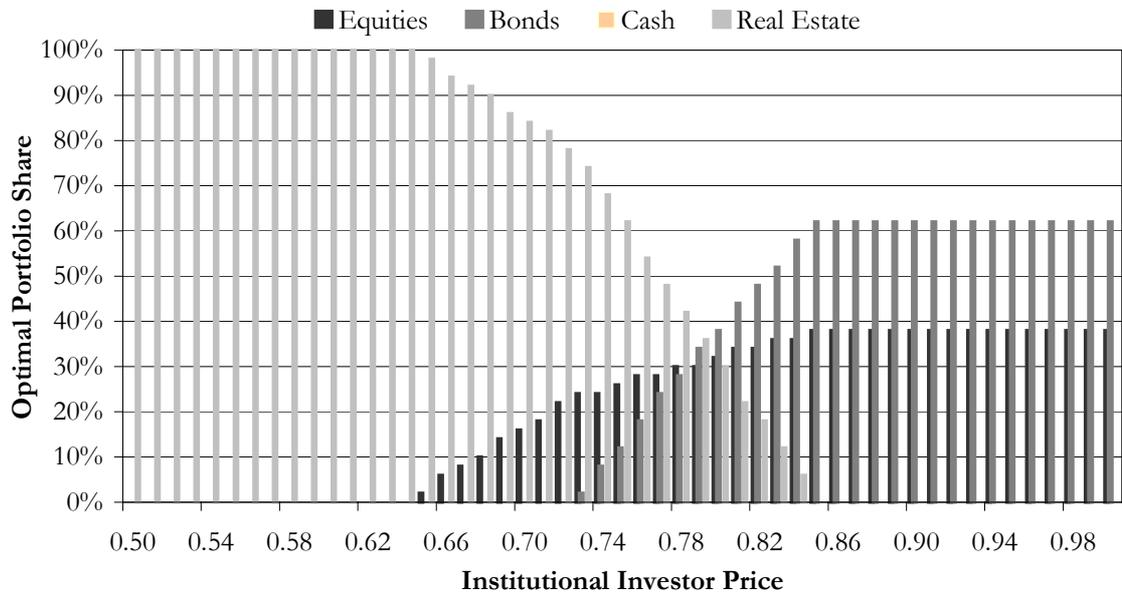
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 1.5)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 116**

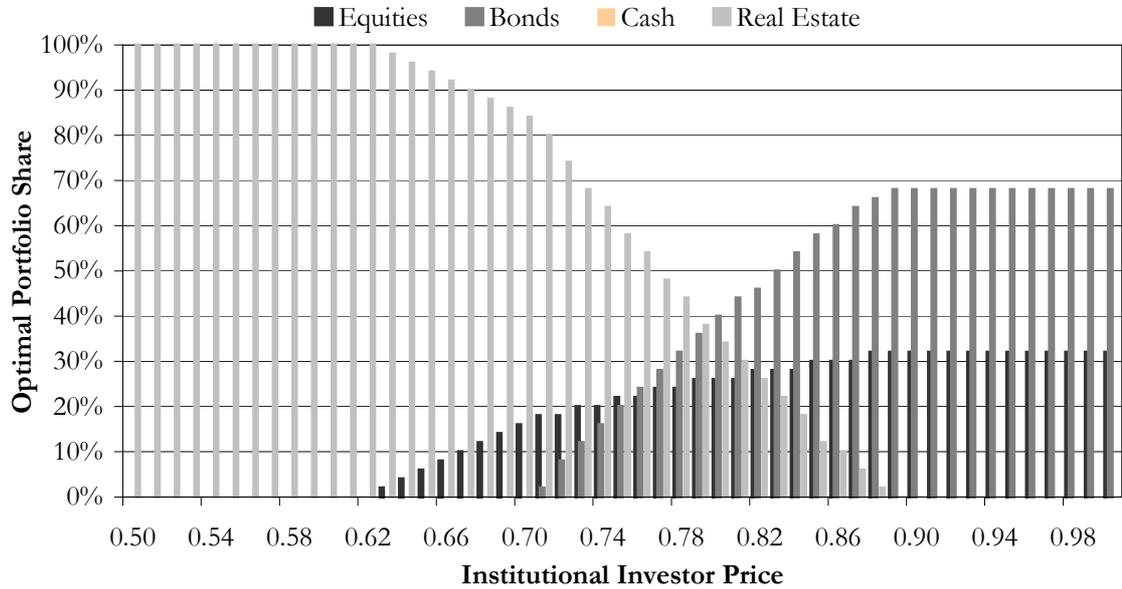
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 3.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 117**

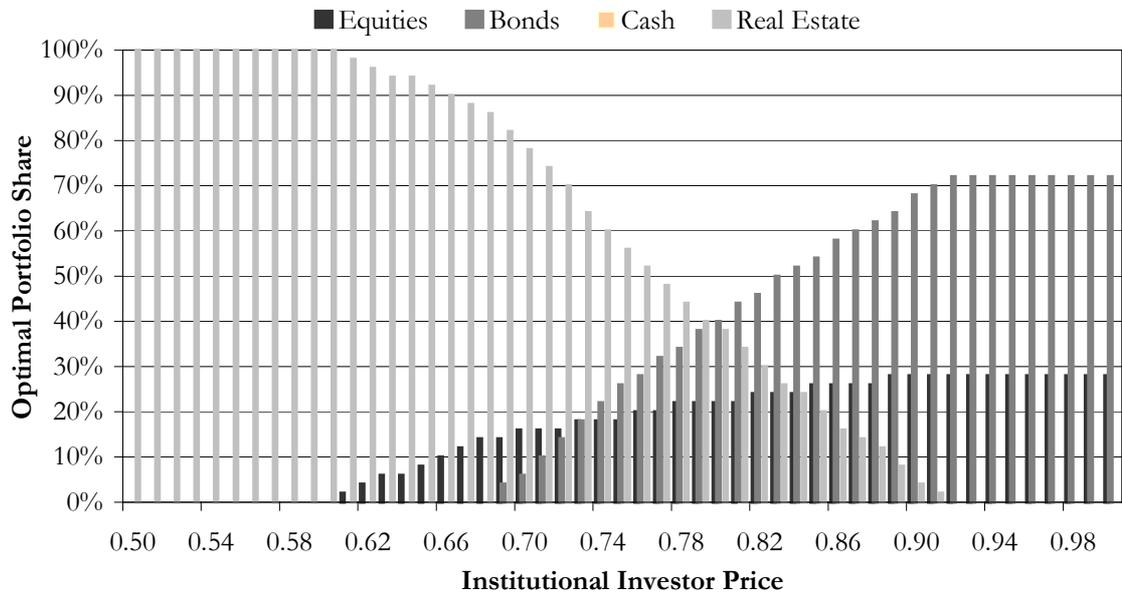
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 4.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 118**

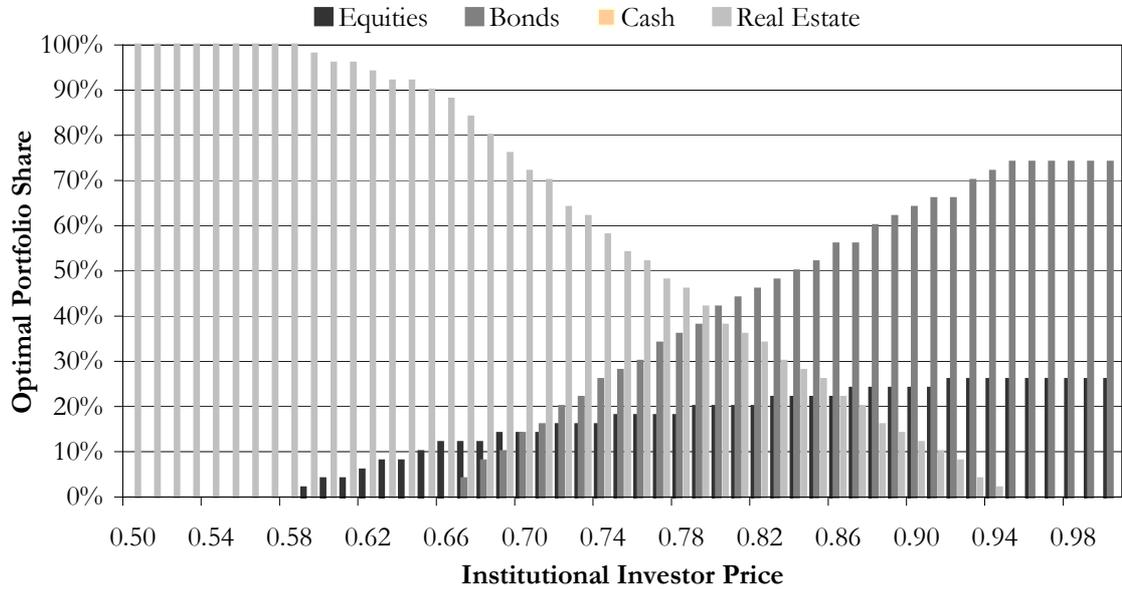
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 5.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 119**

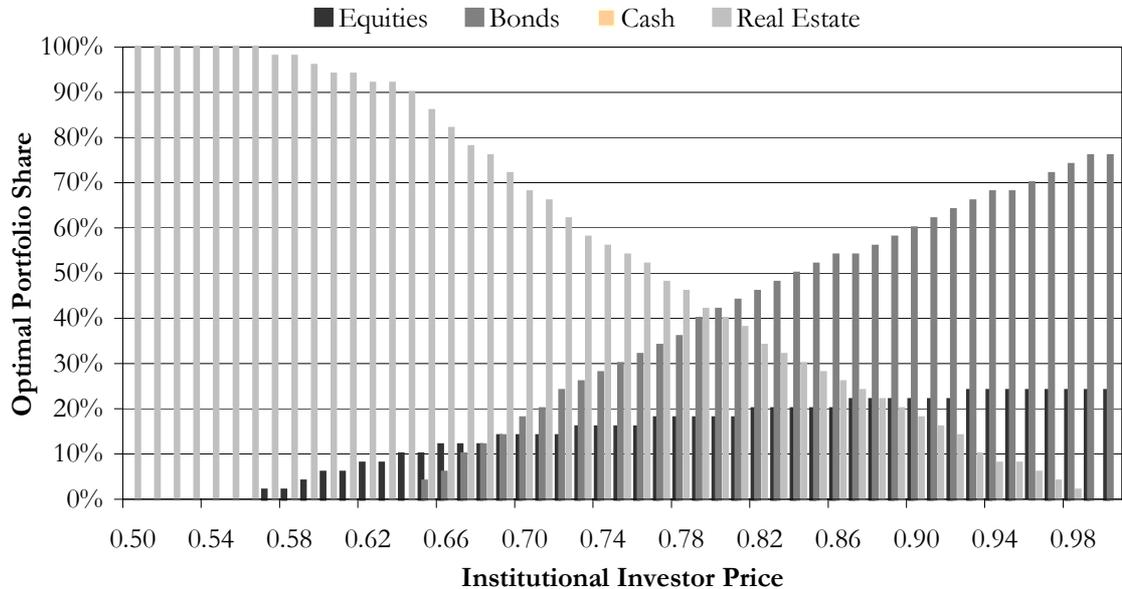
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 6.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 120**

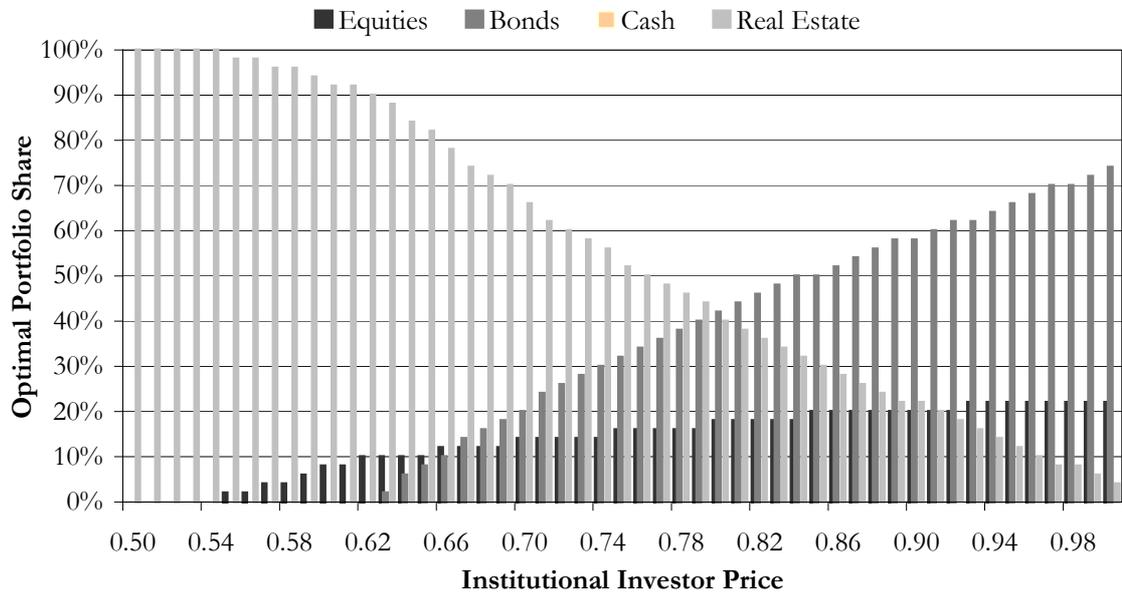
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 7.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 121**

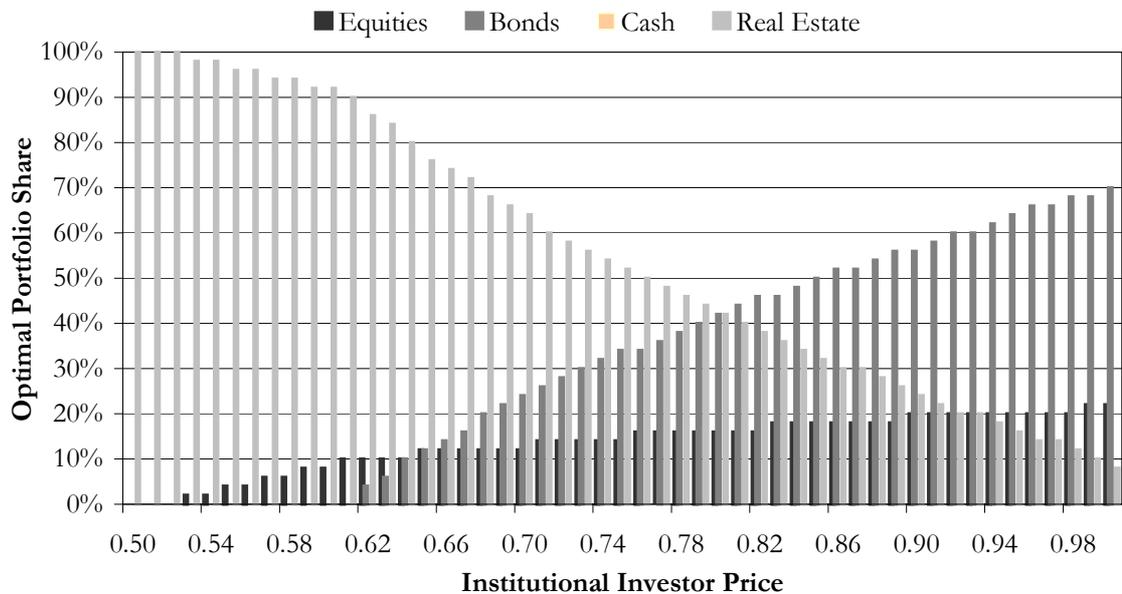
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 8.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 122**

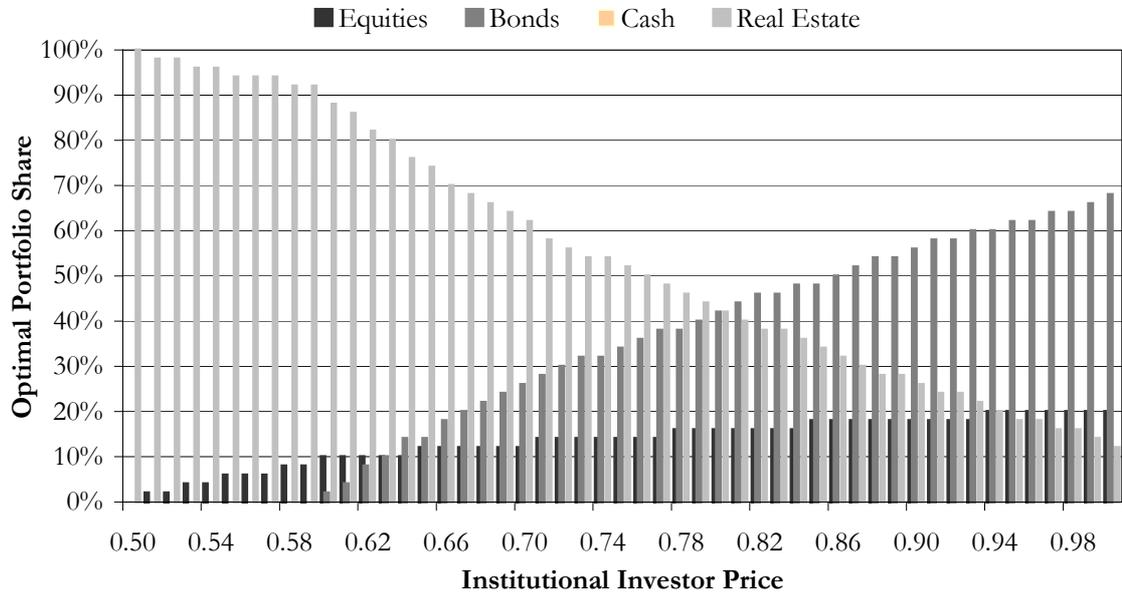
**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 9.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

**Figure 123**

**Institutional Investor Demand at a Discount**  
 Fixed Contract (Taxed, Risk Aversion = 10.0)



Source: Housing Industry Association, Global Financial Data, and authors' analysis

Curiously, cash does not feature anywhere in the investor's optimal portfolio. This might be explained by the introduction of corporate taxes, which reduce the magnitude of price deviations around the mean. When contrasted with the unaffected distributions in Section x, the imposition of taxes appears to have mollified the institution's risk acuity. Were we, for example, to extend the range of risk-aversion parameters, cash would quickly emerge as a key constituent within the idealised holding. In spite of this incongruity, the use of tax-affected rates of return does not alter our basic inferences.

## 8.7 The Home Owner's Valuation of a Residual Stake in the Residence

To estimate the home owner's valuation of a residual stake in their home, the above procedures are adopted with a few crucial changes. In the first place, we need to go from aggregate house price fluctuations to individual house prices. In the second, we wish to look at a portfolio more typical of that held by the median home owner. Given this, our goal is to compute the amount of 'unrestricted' current dollars that would be adequate to compensate the individual for sacrificing precisely one half the final value of the housing asset in all contingencies. This perfectly matches the intuitive notion of the value of the second-half of the house.

To begin with, we assume that there is an investment universe consisting of the previously defined asset classes, with the addition of individual house price realisations. The parameters for the distribution are estimated from data covering the entire population period. Using a bootstrap technique, a sequence of  $K$  random draws is taken with replacement. This sampling procedure is repeated 1,000 times to generate the distribution of joint asset returns. A new restriction is, however, added to the set of possible portfolio shares. This is based on the need to occupy the whole of the house. We parameterise the constraint by specifying a minimum proportion of the portfolio in housing,  $\bar{m} \in (0,1]$ , and characterize the set of all possible portfolio shares,  $S^3(\bar{m}) = \{x = (x_1, x_2, x_3, x_4) \in \mathbb{R}_+^4 \mid \sum x_i = 1 \text{ and } x_1 \geq \bar{m}\}$ . A level of risk aversion,  $\gamma \geq 0$ , is assumed in the standard CRRA utility function,  $U(W) = W^{1-\gamma}/1-\gamma$ , and a specific initial portfolio share,  $\bar{x} \in S^3$ , set. Taking an arbitrary level of initial wealth, we compute the end-period holding that results from the assumed portfolio shares,  $\bar{x}$ , in each of the  $K$  draws of multi-year returns described above.

Now, let  $W_k$  denote the final wealth outcome attributable to the sequence  $k$ . We substitute this into the CRRA function to arrive at the  $K$  different levels of final utility,  $U_k(W_k) = W_k^{1-\gamma}/1-\gamma$ . We then take the simple arithmetic average of these  $K$  utility levels, and call this the expected utility corresponding to a given level of risk aversion, a given initial portfolio share, and the assumed housing constraint  $EU(\gamma, \bar{x}, \bar{m}) = \sum U_k/K$ . This process is repeated until the set of all feasible portfolio shares has been completely covered.

The optimal level of final utility, and the corresponding optimal portfolio, is then identified by maximizing across all shares in the

grid. We define these as the maximum utility and optimal portfolio attributable to a given risk aversion parameter and an assumed housing constraint: respectively  $V(\bar{\gamma}, \bar{m})$  and  $X(\bar{\gamma}, \bar{m})$ ,

$$V(\bar{\gamma}, \bar{m}) = \max_{x \in \mathcal{S}^3} EU(\bar{\gamma}, \bar{x}, \bar{m});$$

$$x \in \mathcal{S}^3$$

$$X(\bar{\gamma}, \bar{m}) = \arg \max_{x \in \mathcal{S}^3} EU(\bar{\gamma}, \bar{x}, \bar{m});$$

$$x \in \mathcal{S}^3$$

Our computations are not, however, finished. First, for any given  $\bar{\gamma}$  and  $\bar{m}$  we need to know the optimal proportion of assets held in forms other than housing. While mechanically this is  $\Sigma(\bar{\gamma}, \bar{m})$ , intuitively it should be  $1 - \bar{m}$ , for realistic values of  $\bar{m}$  in which the constraint on real estate holds. We assume that this constraint does in fact bind in all that follows, such that  $\bar{m} = X_1(\bar{\gamma}, \bar{x})$ .

In our numerical example, multiplying  $NH(\bar{\gamma}, \bar{m})$  by initial wealth gives the amount optimally invested in the non-real estate assets. All of the remaining money is dedicated to the dwelling. In subsequent calculations, we take away half of the final value of the house from each individual, while at the same time providing them with additional resources which they are free to invest in other asset categories. The value of the second half of the home is then that amount of money available for investment in the other assets that precisely compensates the occupier for the loss of the 50 percent equity interest.

Technically speaking, we pick a house price parameter  $\bar{\pi} \in (0,1]$ , and given this, define the proportion of initial wealth free for investment in non-real estate assets,  $NR(\bar{m}, \bar{\pi}) = 1 - \bar{m} + \bar{\pi} \cdot (\bar{m}/2) = 1 - \bar{m} \cdot (1 - \bar{\pi}/2)$ . While this expression obviously releases wealth from the originally enforced proportion in housing,  $\bar{m}$ , it also adds back in the current sale value of the 50 percent interest in the property. We then select some vector of non-real estate wealth proportions,  $\bar{x}^{NR} = (\bar{x}_2^{NR}, \bar{x}_3^{NR}, \bar{x}_4^{NR})$ , which obey the no short sale restriction, in the feasible set  $\bar{x}_{NR} \in \{(\bar{x}_2^{NR}, \bar{x}_3^{NR}, \bar{x}_4^{NR}) \mid x_i \geq 0 \text{ and } \Sigma x_i = NR(\bar{m}, \bar{\pi})\}$ .

We fix initial wealth at an easy to work with amount, say, \$1 million. Using the portfolio shares,  $x^{NR}$ , the contribution of the non-housing assets to final wealth is computed in each of the  $K$  random draws of multi-year returns. Since half of the house has now been sold,  $\bar{m}/2$  defines the contribution of the dwelling to end-period wealth. Ultimately, we once again estimate  $W_k$  and substitute it into the

CRRRA function to arrive at the  $K$  different levels of final utility,  $U_k(W_k) = W_k^{1-\gamma}/1-\gamma$ . We then take the simple arithmetic average of these  $K$  utility levels, and call this the expected utility corresponding to a given level of risk aversion, a given initial portfolio share in non-real estate assets, the constraint on housing, and the pricing parameter,  $EU(\bar{\gamma}, \bar{x}_{NR}, \bar{m}, \bar{\pi}) = \sum U_k/K$ . We repeat this process until the set of all feasible portfolio shares has been completely covered.

The optimal level of final utility, and the corresponding optimal portfolio, is then identified by maximizing across all shares in the grid. We define these as the maximum utility and optimal portfolio attributable to a given risk aversion parameter, wealth constraint, and price: respectively  $V(\bar{\gamma}, \bar{m}, \bar{\pi})$  and  $X(\bar{\gamma}, \bar{m}, \bar{\pi})$ ,

$$V(\bar{\gamma}, \bar{m}, \bar{\pi}) = \max_{x \in S^3} EU(\bar{\gamma}, \bar{x}, \bar{m}, \bar{\pi});$$

$$X(\bar{\gamma}, \bar{m}, \bar{\pi}) = \arg \max_{x \in S^3} EU(\bar{\gamma}, \bar{x}, \bar{m}, \bar{\pi});$$

Note that  $V(\bar{\gamma}, \bar{m}, \bar{\pi})$  is strictly increasing in the price obtained for the second half of the house. Our interest is in searching for a unique value of the price parameter,  $\bar{\pi} \in (0,1]$ , that equates maximized utility,  $V(\bar{\gamma}, \bar{m}, \bar{\pi})$ , with its equivalent in the scenario in which there was no possibility of sale,  $V(\bar{\gamma}, \bar{m})$ .

## 8.8 The Investor’s Valuation of a Residual Stake in the Residence

In this exercise, we first calculate the current outstanding value of residential real estate: call this  $H$  (say in billions of dollars). We then estimate the total amount outstanding of all other asset classes, and refer to this as  $NH$  (in the same units as  $H$ ). In the analysis that follows, we ask what price would investors be willing to pay in order to obtain some fixed proportion,  $\bar{q} \in [0, 0.5]$ , of future returns on residential property, treating as exogenous the actual distribution on all assets.

A level of risk aversion,  $\bar{\gamma} \geq 0$ , is fixed in the standard CRRRA utility function,  $U(W) = W^{1-\gamma}/1-\gamma$ , and a value of  $\bar{q} \in [0, 0.5]$  assumed. Contingent on a given  $\bar{\gamma}$  and  $\bar{q}$ , we hope to identify the price at which the investor willingly purchases a precise share of real estate

assets. For example, if  $\bar{q} = 0.5$ ,  $H = \$1,000$  and  $NH = \$4,000$ , we are trying to determine the price at which the investor would be willing to acquire \$500 worth of residential property.

We begin by fixing a specific level of the price parameter,  $\bar{\pi} \in (0,1]$ , as defined above. Using the computations described in previous sections, we identify the optimal portfolio shares corresponding to a given level of risk aversion and a given price,

$$X(\bar{\pi}, \bar{\gamma}) = \arg \max_{x \in \mathcal{S}^3} EU(\bar{\pi}, \bar{\gamma});$$

Observe that  $X(\bar{\pi}, \bar{\gamma})$  is a vector of all four portfolio shares: specifically we are interested in  $X_1(\bar{\pi}, \bar{\gamma})$ , the optimal share of assets held in real estate (recall the labelling of assets above). We then compute the total value of property assets available for purchase by institutions at the given price,  $S(\bar{q}, \bar{\pi}) = \bar{q} \cdot \bar{\pi} \cdot H$ . For instance, if  $\bar{q} = 0.5$ ,  $H = \$1000$ , and  $\bar{\pi} = 0.8$ , investors would willingly dedicate \$400 of their current portfolio to real estate.

To compute the dollar value demand for partnership assets, we first estimate the value of the total investment opportunity set,  $T(\bar{q}, \bar{\pi}) = \bar{q} \cdot \bar{\pi} \cdot H + NH$ . Referring to our earlier example, where  $\bar{q} = 0.5$ ,  $H = \$1000$ , and  $\bar{\pi} = 0.8$ , we add the \$400 of residential real estate to the \$4,000 of non-housing assets, yielding a total universe of \$4,400. The actual demand for property is simply,  $D(\bar{q}, \bar{\pi}, \bar{\gamma}) = T(\bar{q}, \bar{\pi}) \cdot X_1(\bar{\pi}, \bar{\gamma})$ .

Continuing with the example, suppose that with  $\bar{\pi} = 0.8$  and a fixed level of  $\bar{\gamma}$ , the optimal portfolio share in real estate is 20 percent: i.e.,  $X_1(0.8, \bar{\gamma}) = 0.2$ . In this case, the total dollar value of property demanded is \$880: 20 percent of the total current dollar value of assets available. Comparing  $S(\bar{q}, \bar{\pi})$  and  $D(\bar{q}, \bar{\pi}, \bar{\gamma})$ , we iterate until the equilibrium price is identified. Note that this equilibrium is dependent on risk aversion,  $\bar{\gamma} \geq 0$ , and the relative proportion of real estate assets,  $\bar{q} \in [0, 0.5]$ . The equilibrium price corresponding to these parameters,  $\hat{\pi}(\bar{q}, \bar{\gamma})$ , satisfies the equation,  $S(\bar{q}, \hat{\pi}(\bar{q}, \bar{\gamma})) = D(\bar{q}, \hat{\pi}(\bar{q}, \bar{\gamma}), \bar{\gamma})$ . Since the LHS (supply) is decreasing in the price argument and the RHS (demand) increasing, there is a unique equilibrium and the algorithm converges without any trouble. We repeat the calculations for all different values of  $\bar{\gamma} \geq 0$  and  $\bar{q} \in [0, 0.5]$ .

## 8.9 The State-Dependent Gains from Trade

Let us suppose that the contract dictates that the institution receives  $S_G$  times the ‘par’ share of any nominal profit and  $S_L$  times any loss. In aggregate, it has a portfolio of properties, of which some will be profitable and some unprofitable. Suppose that  $n$  properties were purchased at prices  $b_1, b_2, \dots, b_n$ , and sold at prices  $(X_1+1)b_1, (X_2+1)b_2, \dots, (X_n+1)b_n$  where the  $X_i$  are random variables. Let  $H$  equal the sum of  $b_p$  which is equivalent to the total capital invested. Here we assume that  $n$  is large enough such that we eliminate the idiosyncratic risks and focus on the expected (mean) return. We also assume that the  $X_i$  are independent and identically distributed, and independent of  $b_p$  since this seems to be true for the empirical house price data studied in Section 2.2.1 above. Our challenge is then to compute the expected return:

$$\begin{aligned} E\left(\frac{\text{final \$}}{\text{initial \$}}\right) &= \\ 1 + \frac{E\left(\sum_i S_G X_i h_i | X_i \geq 0\right) \Pr(X_i \geq 0) + E\left(\sum_i S_L X_i h_i | X_i < 0\right) \Pr(X_i < 0)}{H}, \end{aligned}$$

where the expectation is with respect to the random variables  $X_i$ ; that is, it reflects the sum of the individual house returns multiplied by the probability that they will occur. These probabilities can also be thought of as the proportion of properties that are profitable and unprofitable, respectively. The equation above is tautologous, because it is just a standard expansion of the expectation. Since the probabilities sum to one, the above becomes:

$$\begin{aligned} &= 1 + \frac{1}{H} E\left(\sum_i S_G X_i h_i\right) + \frac{1}{H} E\left(\sum_i (S_L - S_G) X_i h_i | X_i < 0\right) \Pr(X_i < 0) \\ &= 1 + \frac{1}{H} \sum_i S_G E(X_i) h_i + \frac{1}{H} E\left(\sum_i (S_L - S_G) X_i h_i | X_i < 0\right) \Pr(X_i < 0) \\ &= 1 + S_G E(X_i) + (S_L - S_G) E(X_i + 1) \times \\ & \quad \cdot E\left(\sum_i \frac{X_i}{E(X_i + 1)} \frac{h_i}{H} \left| \frac{X_i + 1}{E(X_i + 1)} < \frac{1}{E(X_i + 1)} \right.\right) \Pr(X_i < 0) \\ &= 1 + S_G (N - 1) + (S_L - S_G) \left( N \times E\left(\frac{X_i + 1}{N} \left| \frac{X_i + 1}{N} < \frac{1}{N} \right.\right) - 1 \right) \Pr(X_i < 0) \end{aligned}$$

The final step draws on our assumption that the individual returns are independent, so that weighting the expectation by the price has no

effect on the mean. The motivation for all this manipulation is that  $N = E(X_i + 1)$  is the expected nominal untaxed return after 10 years, which we estimate using the CBA/HIA price series,  $R_{4,s}$ . So if  $S_G = S_L$ , this reduces to the formula for equal scaling of profits and losses. Observe that this is not a quarter-by-quarter adjustment. We take as  $N$  the ratio of our simulated property index at the end of ten years to its initial value, and adjust it for the mix of property values we expect to exist once the holding period has expired. The other term of interest,  $(X_i + 1)/N$ , is the performance of a particular property,  $i$ , relative to the index. The i.i.d. distribution of this residual is estimated from the empirical house price data of Section 2.2.1, and does not seem to depend on either the house price or the index  $N$ . We use this distribution to estimate the expectation in the last line of the equation above. Specifically, let  $M$  be the number of houses in the data set, sorted by their residuals,  $R_k$ . For any  $N$ , take all properties from the data where the residual was less than  $1/N$ . Suppose there are  $m$ . Thence we estimate:

$$\Pr(X_i < 0) = m/M$$

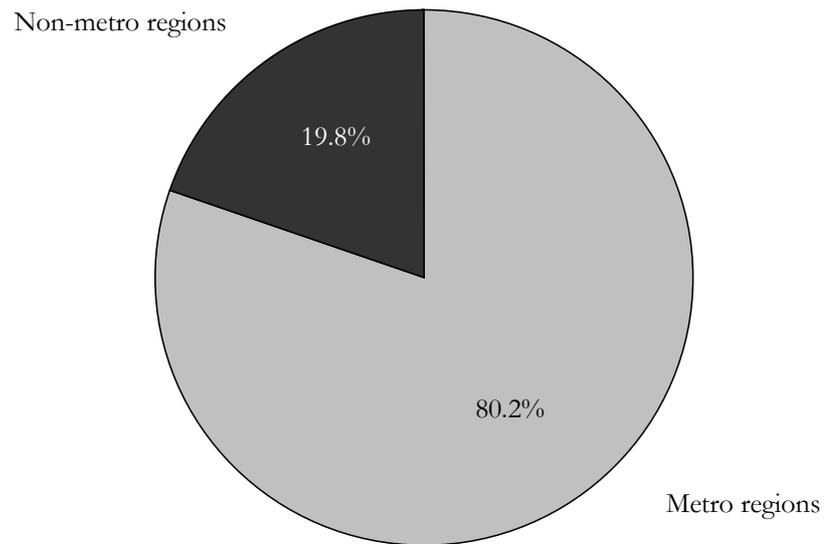
$$E\left(\frac{X_i + 1}{N} \mid \frac{X_i + 1}{N} < \frac{1}{N}\right) = \frac{1}{m} \sum_{k=1}^m R_k$$

So our final estimate of the return the investor realised by way of the state dependent contract is:

$$E\left(\frac{\text{final \$}}{\text{initial \$}}\right) = 1 + S_G(N - 1) + (S_L - S_G)\left(\frac{N}{M} \sum_{k=1}^m R_k - \frac{m}{M}\right)$$

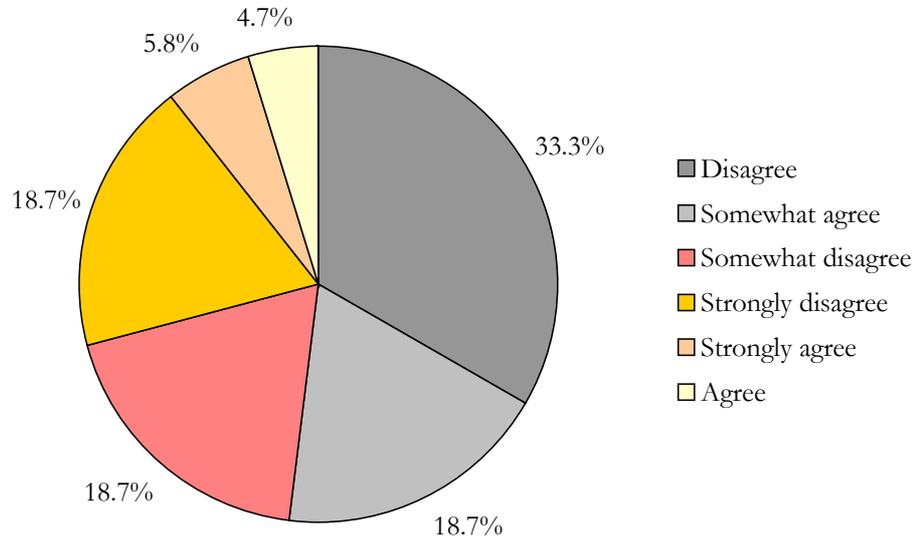
## 8.10 The Gains from Trade: The Human Dimension

**Figure 124**  
**Non-Owning Survey Sample**  
Metropolitan regions



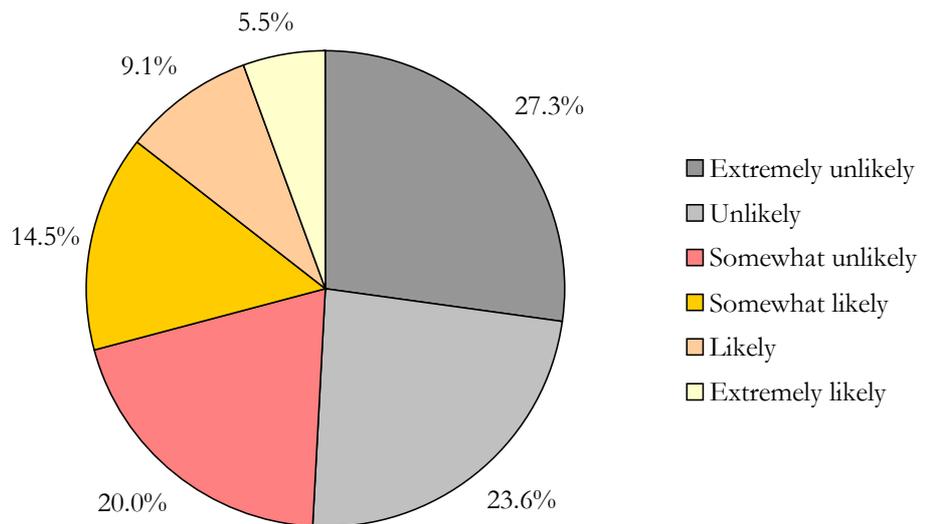
Source: ACNielsen.consult and authors' analysis

**Figure 125**  
**Non-Owning Survey Sample**  
 Owning a home is a very risky investment



Source: ACNielsen.consult and authors' analysis

**Figure 126**  
**Non-Owning Survey Sample**  
 Likelihood of house prices in your suburb falling by 5% or more in any one year over the next 5 years?

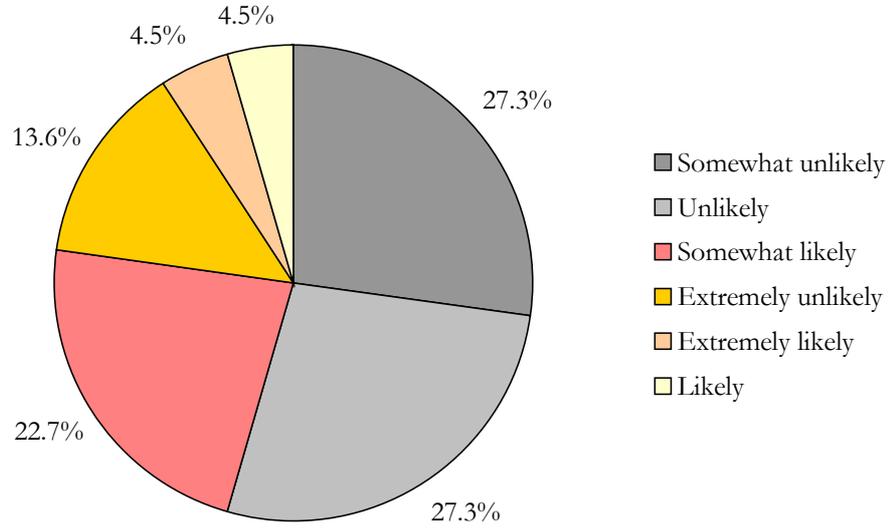


Source: ACNielsen.consult and authors' analysis

**Figure 127**

**Non-Owning Survey Sample**

Likelihood of house prices in your suburb falling by 10% or more in any one year over the next 5 years?

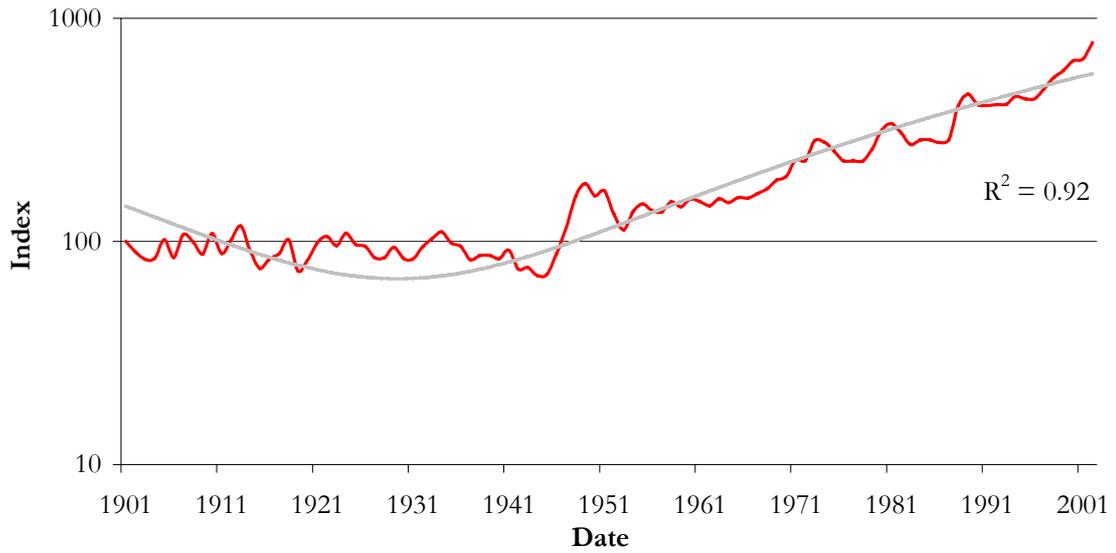


Source: ACNielsen.consult and authors' analysis

## 8.11 The Elasticity of Supply

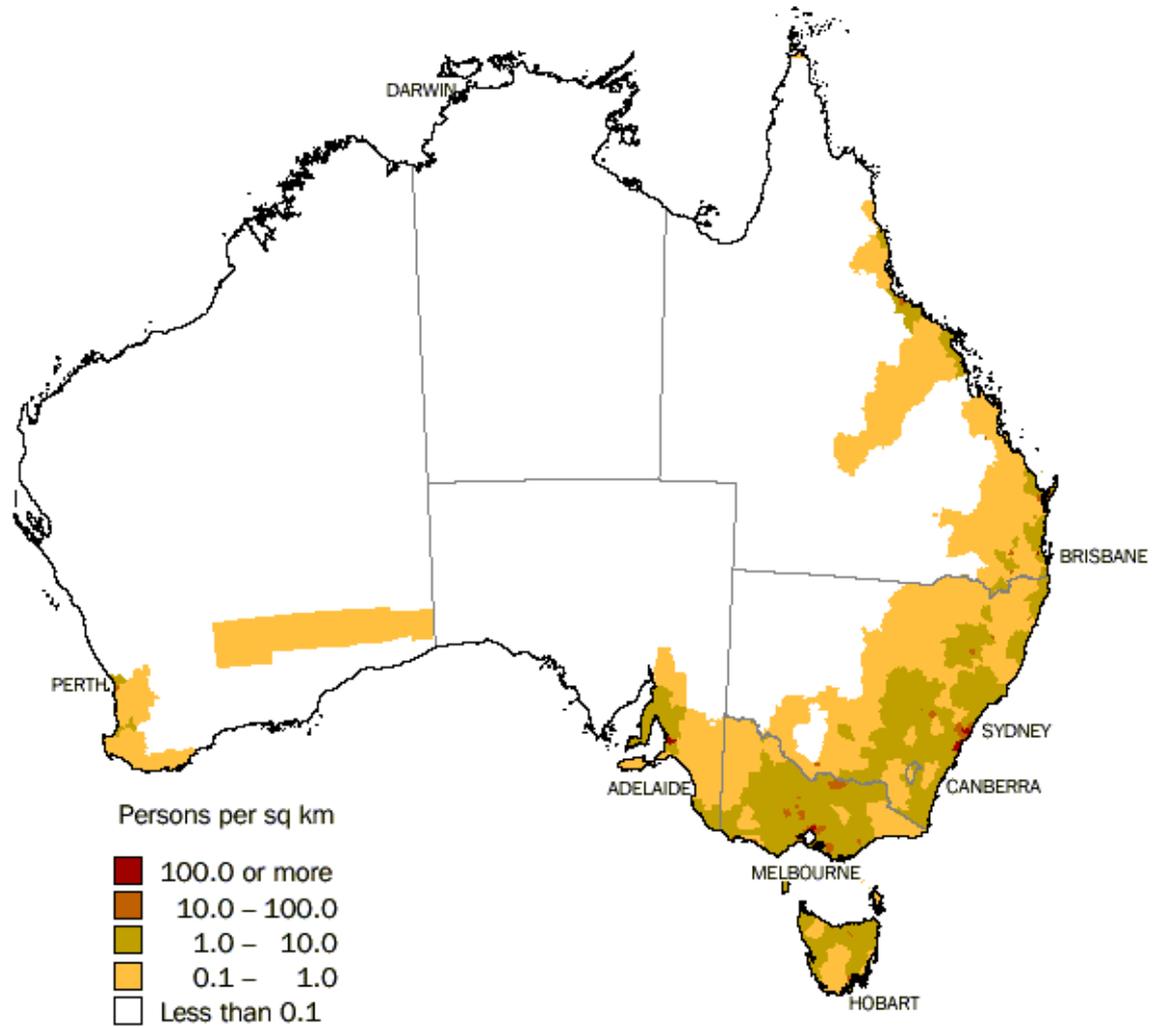
Figure 128

Real Sydney House Prices  
1901 to 2002



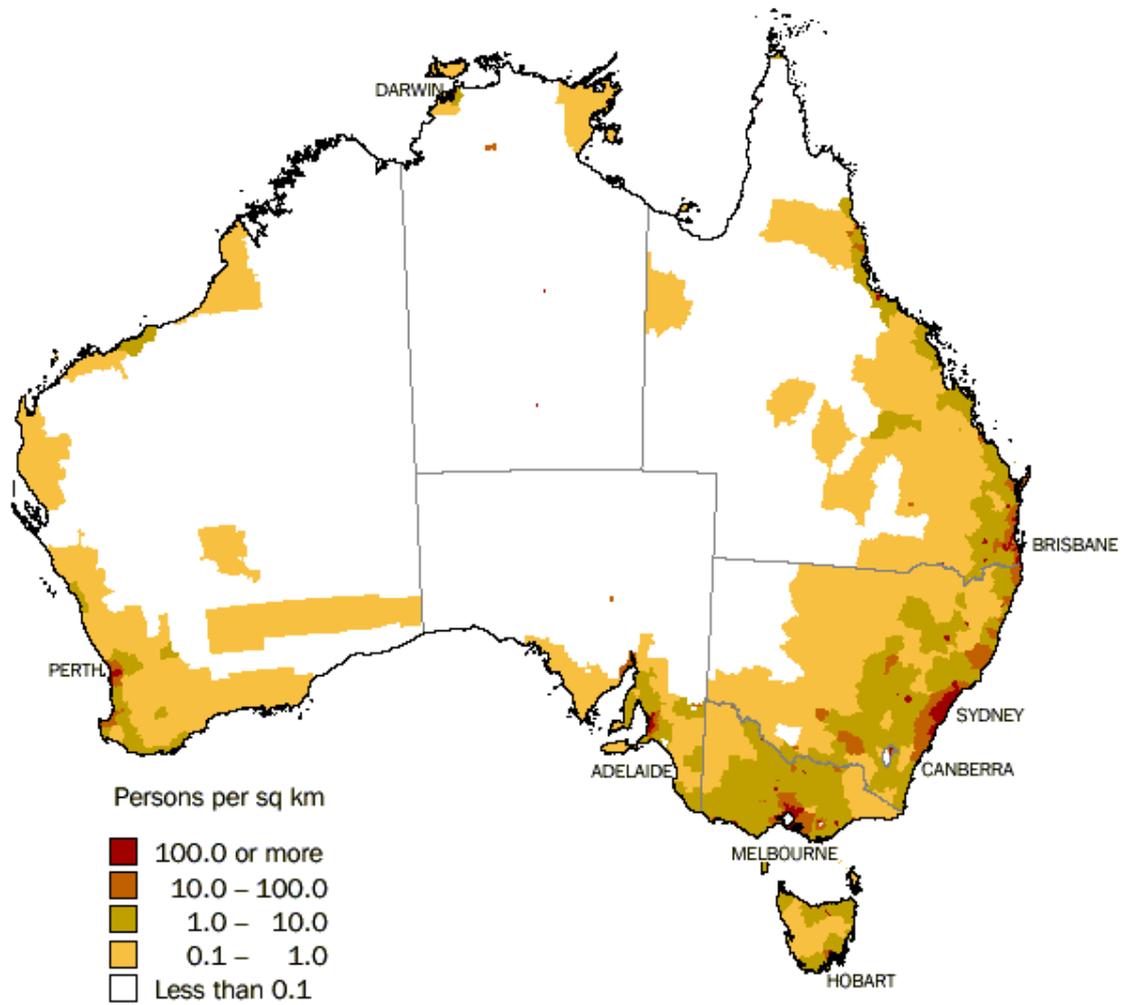
Source: Residex Pty Ltd and authors' analysis

Figure 129  
Population Density: 1901



Source: Australian Bureau of Statistics

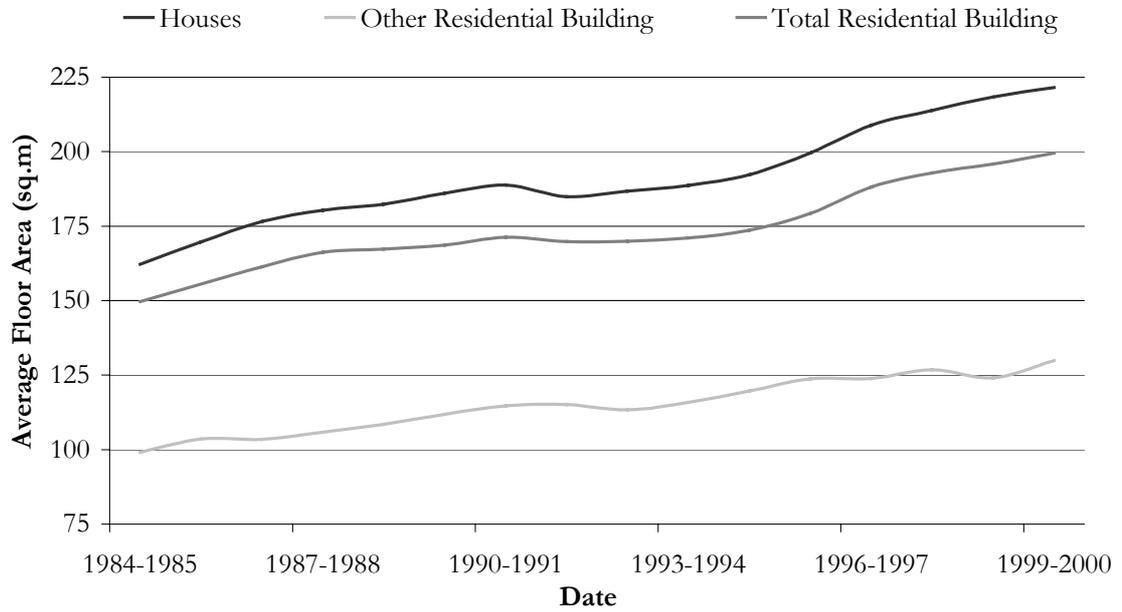
Figure 130  
Population Density: Today



Source: Australian Bureau of Statistics

**Figure 131**

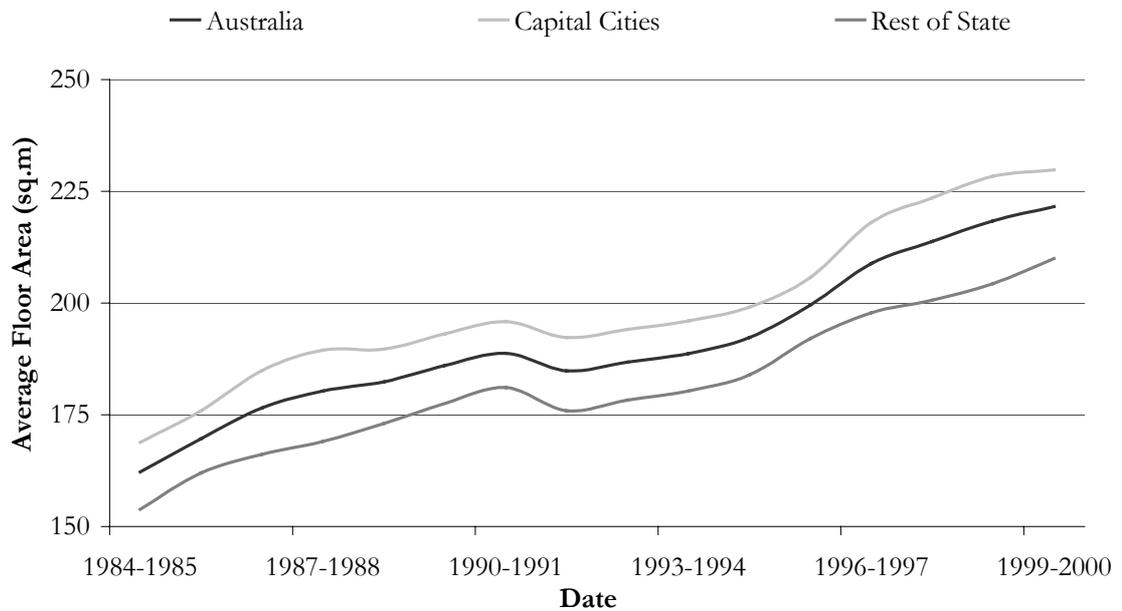
**Average Floor Area of New Residential Building in Australia**



Source: Australian Bureau of Statistics

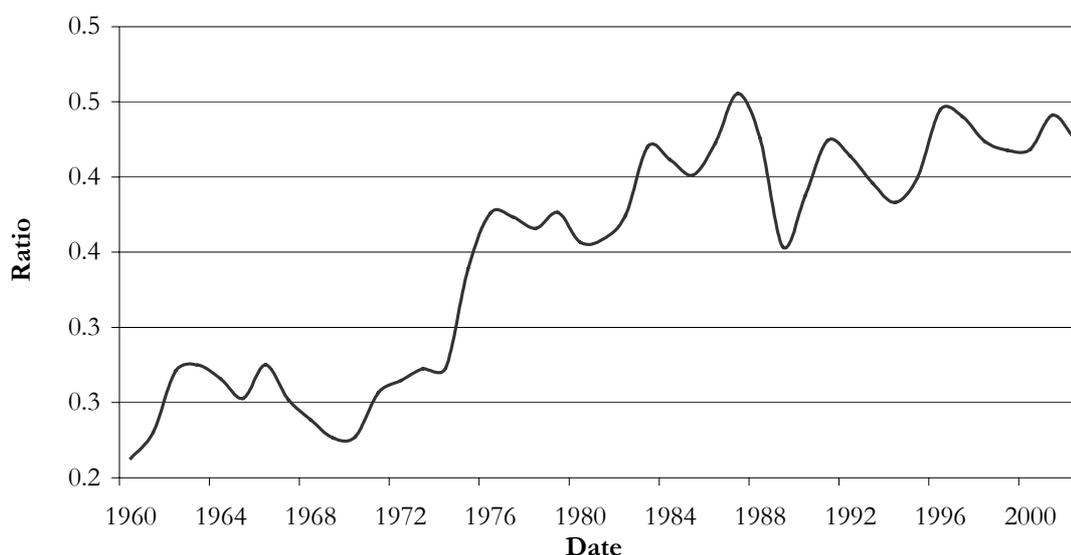
**Figure 132**

**Average Floor Area of New Houses in Australia**



Source: Australian Bureau of Statistics

**Figure 133**  
**Ratio of Real Australian Expenditure on**  
**Alterations and Additions to New and Used Dwellings**



Source: Australian Bureau of Statistics

## 8.12 Open Letter

### **An Open Letter to all Housing Finance Constituents**

We wish to lend our support to the Commonwealth Government's recent decision to establish a high-level taskforce to investigate innovative approaches to reducing the costs of home ownership and the provision of public sector housing assistance. As academics, we believe that this investigation is an important opportunity to stimulate debate and encourage creativity in improving the operation of housing finance in Australia, while protecting the interests of all participants.

The Menzies Research Centre proposal to embark on far-reaching reform to our system of housing finance is the central idea for analysis by this taskforce. A recent study by Andrew Caplin and Christopher Joye recommended relaxing the 'all-or-nothing' constraint on home ownership and furnishing Australian families with the opportunity of using both debt and equity finance when purchasing their property.

Under the Caplin and Joye plan, housing could be financed with both a mortgage and a passive institutional partner who would contribute

equity capital to the dwelling in exchange for a share of the ultimate sale proceeds, with no other monetary payments made between the parties. Households would not then be forced to acquire 100% of the equity in their home nor single-handedly bear the burden of the vast financial responsibilities inherent in owner-occupation. Significantly, they would also retain the majority of the decision making rights, and be able to determine what changes are made to the property and the timing of the date of divestiture.

Caplin and Joye consider that the case for institutional investors is equally attractive. In brief, their analysis indicates that there is a sizeable valuation wedge between the prices placed by occupiers and investors on a residual stake in the residence. They believe that such 'gains from trade' present prospective institutional participants with exceptional wealth creation opportunities. The authors argue that their plan could reduce the costs of home ownership, significantly increase the average family's disposable income and expected wealth at retirement, decrease household debt to equity ratios, and present a panacea of sorts to many of the problems of an ageing population.

While it is still too early to evaluate the potential gains that might arise from such innovative home finance arrangements, we do believe that the case has been made for an appropriate and careful investigation. For this reason alone, the Caplin and Joye proposal is deserving of extremely serious consideration and we look forward to the outcome of their extensive study.

*Professor Robert Shiller (Yale), Professor Barry Nalebuff (Yale), Professor Stephen Brown (NYU), Professor Edward Glaeser (Harvard), Professor Adrian Pagan (ANU), Professor Warwick McKibbin (ANU), Professor John Quiggin (Queensland), Professor Ian Harper (Melbourne), Professor Joshua Gans (Melbourne), Professor Stephen King (Melbourne), Professor Terry Walter (NSW)*

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Published by  
The Menzies Research Centre Limited  
RG Menzies House  
Cnr Blackall and Macquarie Streets  
Barton ACT 2600

PO Box E116  
Kingston ACT 2604

Phone (02) 6273 5608  
Fax (02) 6273 7288

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