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money



HOW WILL AUSTRALIANS RETIRE?

**Investigating retirement income outcomes in
a low-return world**

An independent report prepared for National Australia Bank by the
Australian Centre for Financial Studies and Monash Business School.

This report is authored by Amy Auster and Martin Foo from the Australian
Centre for Financial Studies.

DISCLAIMER

This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Social Services (DSS) and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The findings and views reported in this paper, however, are those of the authors and should not be attributed to either DSS or the Melbourne Institute.

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ACKNOWLEDGEMENTS

This paper benefitted from research assistance by Eliana Maddock and Jessica Chen.

EXECUTIVE SUMMARY

The ability of Australia's financial system to provide a sufficient standard of living for retirees is the subject of ever-increasing debate. Australia's superannuation system – the envy of pension practitioners the world over – is halfway to maturity. But much of the current retiree population remains partly or wholly reliant on the Age Pension, the cost of which continues to escalate in a time of fiscal pressure. Australia's demographic bulge will see 'baby boomer' retirements reach their zenith in 2025, heralding the age of decumulation for a large segment of the population. Meanwhile, low rates of return characterise financial markets both within and beyond Australia, leading to concerns about the ability of private pensions to provide sufficient retirement income in the years to come.

This report seeks to inform the debate about retirement income by examining the current and potential future pool of retirement wealth of Australian households. We do this by utilising a unique dataset – the Household, Income and Labour Dynamics in Australia (HILDA) survey – to analyse trends in household wealth and income by age cohort. In an extension of recent work by Drew et al. (2015), we then undertake a simulation exercise to examine the influence of asset allocation on the projected balance of household wealth by age 65 (the typical retirement age).¹ The results of this simulation provide estimates of potential wealth at retirement for households that are currently in the age range of 40 to 65.

The HILDA data offer insights into the behaviour of Australian households that are not commonly available in other datasets. HILDA is a survey-based, longitudinal study of some 9,500 households in Australia, with household wealth data collected every four years since 2002. Obtaining the same information from the same respondents over time allows for the examination of household wealth patterns on a like-for-like basis. The HILDA data are far more granular than other datasets – specifically, they offer an estimate of allocations across property, superannuation, trusts, life insurance, cash and other assets. Finally, the detailed nature of the survey allows for analysis of trends within age cohorts, such as the comparison of median and mean values – which can vary significantly, as this report discusses.

We employ a bootstrap sampling simulation approach, utilising historic asset returns, to estimate the likely accumulation of wealth in each cohort under a set of basic assumptions about wages, taxation, inflation, transaction costs and policy settings. The simulations include three scenarios for portfolio allocation of investable assets (superannuation plus other liquid financial assets) so as to consider the impact of different asset classes on wealth accumulation.

For the purposes of this analysis, we have divided households into two main categories. The first is those that are close to retirement, in the age range of 55 to 64. The second is households aged 40 to 54 who are still in the accumulation phase of their working lives, but with retirement on the horizon.

Several findings emerge from this study.

The first is that Australian households are, on average, increasing their net wealth over time. However, the expansion of wealth shows huge variation across age cohorts. Households in their 70s have nearly doubled their wealth relative to households of the same age in 2002, while younger cohorts in their 40s and 50s have seen smaller growth. Households in the youngest surveyed age range of 25 to 29 have the dubious distinction of having gone backward in net wealth, on average, with a stagnation in superannuation balances and an increase in mortgage debt.

There is also significant variation within age cohorts. The data show that the median wealth in each age cohort is significantly lower than the mean, suggesting that very wealthy households tend to skew the mean upwards. As such, analysis and commentary from other studies that rely on 'average' household figures may not capture the full picture of wealth accumulation in Australia.

The second finding is that superannuation is a growing store of wealth for most Australian households. Although the owner-occupied home remains the largest asset by value amongst Australian households aged 40 to 65, superannuation is easily the second-largest asset class and accounts for around 20 per cent of household wealth, on average.

The third finding is that near-retired households in Australia may be carrying an undue level of risk in their investment portfolios, because of their relatively high proportions of equity holdings. Here we focus on households that are in the age range of 55 to 64, or the 'retirement risk zone' – representing the 10 years prior to retirement during which a severe market downturn would reduce household wealth to such an extent that portfolios, and the income they generate, may not recover over the course of retirement.

An examination of HILDA data reveals that households in the 55-64 age bracket hold roughly 54 per cent of their wealth in property, 27 per cent in superannuation and 19 per cent in other assets. Their liquid financial assets stand at an estimated \$980 billion, of which \$670 billion is superannuation and \$310 billion is other financial assets (such as bank accounts, cash investments, equity investments, trust funds and life insurance).

¹ Drew, M.E., Walk, A.N. and West, J.M. (2015), 'The Role of Asset Allocation in Navigating the Retirement Risk Zone', Finsia, April.

This nearly \$1 trillion in liquid assets is an important source of income for future retirees. With 10 years or fewer until retirement, the potential for negative returns and capital losses in the short term represents a major risk to longer-term income generation. The aggregated data on APRA-regulated funds suggests that as of March 2016, roughly half of all superannuation assets were invested in equities. Equity holdings put capital at risk, whereas principal is much less likely to decline for the 25-35 per cent of superannuation assets that are invested in fixed-income products or cash.

The question is whether the risk of capital loss is adequately compensated for by the potential for capital gains and/or dividend yield in the final 10 years until retirement. When we apply our simulations to the retirement risk zone population, we observe that it is challenging for these households to materially improve their financial wealth by the age of 65 from their current starting points. But households that do invest 100 per cent in equities carry the risk that equity prices may decline and investment capital may be lost.

For younger households that have a longer investing time horizon, the potential gains in wealth from sound saving and investment decisions are more substantial. While younger households have experienced only moderate rises in wealth over the past decade, our simulations suggest that many appear on track to achieve a comfortable standard of retirement. The simulations project that a median household in the 40-44 age category – with median financial assets of around \$146,000 – might reasonably anticipate retiring with more than \$1 million in liquid financial assets on an inflation-adjusted basis.

However, the choice of asset allocation by that household may not, in fact, have a very large impact on its accumulation of wealth.

Our study simulated the returns over a 20-25 year horizon for three hypothetical simple investment portfolios – 100 per cent equities, 100 per cent fixed-income, or a 50/50 split. These simulations were applied to the ‘median’ household in each age cohort, representing a typical Australian household for that age group.

What the simulations suggest is that wealth accumulation is primarily driven by Superannuation Guarantee contributions and long-run compounding effects, rather than by the differences in returns between equities and bonds. In other words, the flow effect of 9.5 per cent of household income saved and compounded over 25 years tends to dominate the return effect of capital growth and yield, irrespective of the portfolio choice. (A caveat, as always, is that the modelling exercises utilise a 20 year history of asset returns that may not reflect future returns.)

This is perhaps an obvious, but often overlooked, outcome in a low-return world: the growth in wealth resulting from guaranteed contributions has a greater impact on retirement balances than does investment returns. The current debate about whether the Australian equity risk premium sits at 3 per cent or 6 per cent may not materially change this outcome. As such, policy settings like the future rate of the Superannuation Guarantee (and caps on concessional contributions) may become a primary determinant of Australian household financial wealth and retirement income for future generations.

This report is structured as follows:

1. Introduction
2. Household wealth in Australia
3. The role of superannuation in the Australian retirement system
4. Asset allocations
5. Portfolio size effect and sequencing risk
6. Product impediments to the dynamic asset allocation approach
7. Modelling investment outcomes for Australian households
8. Projections of future household financial wealth – the simulation approach
9. Overall results
10. Results of portfolio allocation simulations
11. Implications for retirement risk zone households
12. Implications for younger households
13. A note on return expectations
14. Conclusion

1. INTRODUCTION

The debate about funding retirement in Australia continues to rage – from questions about defining the purpose of the superannuation system, to approaches to asset allocation in a low-return environment. The imminent retirement of the demographic bulge known as the ‘baby boomer’ generation suggests that the tempo of public discussion is unlikely to diminish any time soon. This report seeks to inform the debate by directly examining the potential impact of different asset allocation choices on household wealth portfolios in the years preceding retirement.

In so doing, this report extends work undertaken by Michael Drew, Adam Walk and others in a series of papers that analyse asset allocation in retirement and in earlier phases of the lifecycle.

In an initial study of portfolio allocation for retired households, Doran et. al (2012) utilised a bootstrap simulation technique and found that the sequence of returns impacted on the terminal wealth of retirees and the risk of portfolio ruin (which occurs when savings are depleted while the retiree is still alive).²

A subsequent study with similar analytical techniques viewed the sustainability (or otherwise) of retirement income as being primarily a function of asset allocation. It found that under certain conditions, ‘dynamic’ asset allocation strategies – which see portfolio allocations altered over time depending on actual market performance or relative valuations – can outperform simple ‘glide path’ strategies in which allocations change according to predetermined rules. In other words, because markets are dynamic, asset allocations should also be dynamic rather than prescriptive. However, the study concluded by noting that uncertainties are pervasive and financial outcomes cannot be assured.³

Finally, a third piece of work provided evidence of a potential decline in the equity risk premium in Australia – an important consideration for those looking to maximise the return on their household savings. The research pointed to potential changes in global and local equity markets that suggest that the identified premium decline may be structural in nature, and not a cyclical phenomenon related to the current post-global financial crisis environment.⁴

This report extends the work of Drew, Walk et al. by applying the bootstrap simulation technique to known quantities of household wealth and income for different age cohorts as identified in the Household, Income and Labour Dynamics in Australia (HILDA) dataset. Through this analysis, we can better identify and estimate the likely impacts of different approaches to asset allocation on household wealth at the point of retirement. This report is primarily focused on the period leading up to retirement – the accumulation phase – rather than the whole-of-life approach of some of the later studies by Drew, Walk et al.

The HILDA dataset is the most comprehensive longitudinal study of household behaviour in Australia. Thanks to the granularity of the data, we are able to segment households according to their age cohort and determine the mean and median wealth of each. Additionally, we are able to identify the apportionment of household wealth according to holdings in owner-occupied housing, superannuation, and other financial assets such as trusts, bank deposits and equity investments.

In this report, we consider two major groups of Australian households. The first is those that are in the ‘retirement risk zone’ of ages 55 to 64, and the second is households aged 40 to 54 who are still in their working lives but where retirement is on the horizon. In each group we consider three basic, hypothetical portfolios comprising Australian equities and bonds. Using the bootstrap simulation technique, we consider how compulsory superannuation contributions and likely asset returns affect the pool of financial assets available at retirement. Our findings substantiate the work of Drew, Walk et al., and help to illuminate both the opportunities and challenges of ensuring sustainable retirement incomes through the build-up and investment of household savings.

This report is prepared for NAB as part of its longstanding partnership with the Australian Centre for Financial Studies (ACFS). It follows on from the six-part Australian Debt Securities and Corporate Bonds series.

² Doran, B., Drew, M.E. and Walk, A.N. (2012), ‘The Retirement Risk Zone: A Baseline Study’, JASSA: The Finsia Journal of Applied Finance, Issue 1.

³ Drew, M.E., Walk, A.N. and West, J.M. (2015), ‘The Role of Asset Allocation in Navigating the Retirement Risk Zone’, Finsia, April.

⁴ Bianchi, R.J., Drew, M.E. and Walk, A.N. (2015), ‘The (un)Predictable Equity Risk Premium’, Challenger Limited, November.

2. HOUSEHOLD WEALTH IN AUSTRALIA

Australian households had, on average, total wealth of around \$740,000 in 2014. According to analysis by the Reserve Bank of Australia (RBA), average household wealth in Australia has increased modestly since 2010. Most of the increase came from growth in the value of non-housing assets, predominantly superannuation, contrasting with earlier periods when growth was mainly driven by housing value increases. Other data from the Australian Bureau of Statistics (ABS) indicate that real growth in superannuation assets was due to both positive valuation effects (i.e. an increase in the value of stocks of assets, particularly as a result of the post-crisis recovery in markets) and an increase in new inflows.⁵

The HILDA survey provides us with deeper insight into the nature of household wealth in Australia and its performance over the past decade. HILDA is a nationally-representative longitudinal study of Australian households. An important distinguishing feature is that the same households and individuals are interviewed every year, allowing researchers to track their lives over time. Longitudinal data, sometimes known as panel data, provide a more complete picture than cross-sectional data (such as that available from the ABS) because they document the life course that an actual person or household takes.⁶ Further detail on the HILDA survey can be found in **Appendix A**.

A household wealth module was first incorporated into the questionnaire in Wave 2, taking place in 2002. The wealth survey has been undertaken every four years since, with the latest data point being 2014. The 2014 panel data were made available in early 2016.⁷ The wealth module currently tracks 9,538 households. In this report, we disaggregate households into age groupings based on the age of the 'reference person', i.e. the household member who responds to the HILDA wealth questionnaire. (In other words, every household is allocated a single age.)

Furthermore, in the HILDA data a statistical weighting is attributed to each household, which determines how representative that household is of the general Australian population. We apply these weightings to study the income and wealth characteristics of the Australian population as a whole.

In this report we focus on liquid 'financial assets', which include superannuation, bank accounts, cash investments, equity investments, trust funds and life insurance. When assessing net household wealth, we also consider the family home (given its role as the largest repository of household wealth), other real assets (such as business assets, vehicles and collectibles), and debts relating to the acquisition of these assets.

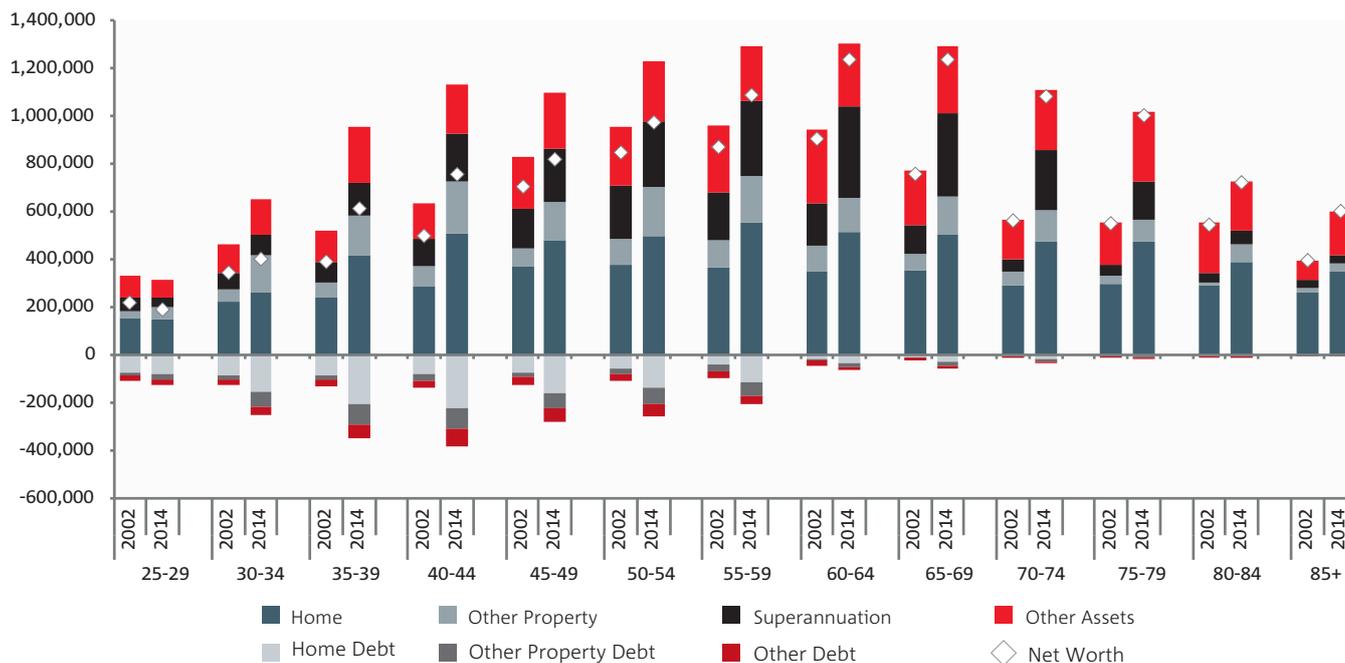
When we assess the data over the period 2002 to 2014, the first observation is that average (mean) household wealth has grown across almost all age cohorts. The nationwide average figure of \$740,000 cited by the RBA is not reached until households are in their 40s. However, there are significant variations in the rate of growth in wealth across age cohorts over the past 12 years. **Figure 1** charts the changes in household wealth by age cohort from 2002 to 2014.

⁵ Ryan, P. and Stone, T. (2016), 'Household Wealth in Australia: Evidence from the 2014 HILDA Survey', Bulletin, Reserve Bank of Australia, June.

⁶ Wilkins, R. (2015), 'The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 12', Melbourne Institute for Applied Economic and Social Research.

⁷ Melbourne Institute for Applied Economic and Social Research (2016), 'HILDA User Manual – Release 14', last modified 17 March, p. 76.

Figure 1: Mean household assets, debts and net worth by age cohort, 2002 and 2014



Source: DSS, ACFS calculations. 'Net Worth' is assets minus debts. 'Other Assets' includes financial assets (bank accounts, cash investments, equity investments, trust funds and life insurance) as well as business assets, vehicles and collectibles. Figures from 2002 are presented in 2014 dollars.

The chart highlights how older households (mostly in the 55 to 79 age range) have, on average, seen the biggest absolute gains in net wealth since 2002. For instance, those in the 70-74 age cohort are almost twice as wealthy, on average, as their counterparts from 2002. By comparison, those in the 30-34 age cohort are only 18 per cent wealthier. Meanwhile, the net wealth of households aged 25 to 29 has gone backwards.

These figures largely accord with other known studies of household wealth, which find that the wealth of generations has diverged and that older households have tended to benefit disproportionately from the nationwide boom in housing prices, higher income growth and government transfers.⁸ Portfolio size effects and contribution size effects may have also played a part, as have superannuation tax concessions.

We can observe from these data that the owner-occupied home remains the largest asset by value across all age cohorts. There is a clear deleveraging that takes place in the stages just before retirement, with negative equity falling. Housing costs for retirees who do not own their own home are significant (representing about 40 per cent of total household expenditure for renters) – but the vast majority of retirees surveyed in the HILDA data do own their own homes.⁹

After the owner-occupied home, superannuation is now the largest store of household wealth across most age cohorts. In fact, the growth of superannuation holdings has appeared to outpace growth in the value of equity held in home property across many cohorts. This growth has been most pronounced amongst older Australian households, to the point where those in their early 60s now have roughly 30 per cent of gross household assets (not accounting for debts) held in superannuation.

While there is significant variation in household wealth across age cohorts, there are also large variations within cohorts. **Figure 2** exhibits the median household wealth across the same age groups and asset classes as in **Figure 1**.

⁸ See, for instance: Daley, J. and Woods, D. (2014), 'The Wealth of Generations', Grattan Institute, December. The Grattan Institute report finds that household wealth has gone backwards for all households aged under 35. Our HILDA analysis indicates this is only true for the youngest cohort, under the age of 29.

⁹ Auster, A. and Maddock, E. (2016), 'Expenditure Patterns in Retirement', Australian Centre for Financial Studies, report for the Australian Institute of Superannuation Trustees (AIST).

Figure 2: Median¹⁰ household assets, debts and net worth by age cohort, 2002 and 2014



Source: DSS, ACFS calculations. 'Net Worth' is assets minus debts. 'Other Assets' includes financial assets (bank accounts, cash investments, equity investments, trust funds and life insurance) as well as business assets, vehicles and collectibles. Figures from 2002 are presented in 2014 dollars.

What we see here is a range of median values for household wealth that are far below the means. For instance, in 2014 the mean household in the 40-44 age cohort had net worth of \$753,500, but the median household's wealth in the same cohort was just half of this: \$376,467. In the 60-64 age cohort, the mean household net worth was \$1.24 million, while the median was just \$738,065. These figures suggest that a small number of very wealthy households are dragging up the mean.

At the younger end of the age spectrum, households in the 25-29 age range have again gone backwards relative to their 2002 counterparts, while households in the 30-34 age range have seen their wealth stagnate – with higher property values but higher accompanying debt. One pattern that is consistent with the picture of 'average' household wealth is that it is older households – those 65 and above – who have seen the greatest increases in net wealth from 2002 to 2014.

Finally, **Figure 3** shows the dispersion of wealth and income across all households aged 40 to 65. Breaking down wealth by decile illuminates how very wealthy households skew the mean upwards. Among households in the age range 40 to 65, wealth in the 60th percentile is \$639,000 with annual income at \$119,000. In the 80th percentile, average wealth rises to \$1.2 million and average income rises to \$180,000. Wealth in the top 10 per cent of this population averages \$4.1 million, more than double the average wealth of the next decile.

Figure 3: Household net wealth and income by decile, ages 40 to 65 (2014).



Source: DSS, ACFS calculations.

¹⁰ In this chart, we show the mean asset and debt values of the median five households in each age cohort. This attempts to remove some of the distortion that may occur if the median household happens to have an unusual asset/debt distribution that is not representative of the sample.

3. THE ROLE OF SUPERANNUATION IN THE AUSTRALIAN RETIREMENT SYSTEM

At a basic level, the retirement income system aims to ensure that people who can no longer support themselves by working can still maintain a level of financial security and dignity in retirement. Australia has, for the last two decades, pursued a three-pillar approach to the provision of income to retirees, comprising:

- the means-tested and publicly-funded Age Pension;
- compulsory private savings through the Superannuation Guarantee, for which the minimum is currently 9.5 per cent of ordinary time earnings; and
- voluntary private savings.¹¹

Australia's population is ageing. The number of Australians aged 65 and over is projected to more than double by 2054-55. The number of people of working age (i.e. 15 to 64) for every person aged 65 and over has fallen from 7.3 people in 1975 to an estimated 4.5 people in 2015, and is projected to nearly halve again, to 2.7 people, by 2054-55.¹² Population ageing will have major ramifications for the sustainability of the Australian retirement income system. Many 'baby boomers' are expected to enter retirement in the coming years, with the peak of baby boomer retirement projected to occur around 2025.

The Australian government has announced that the objective of the superannuation system is to provide income in retirement to substitute for or supplement the Age Pension. Australian government expenditure on pensions is projected to rise, as a percentage of GDP, from 2.9 per cent in 2014-15 to 3.6 per cent in 2054-55 (\$165 billion in today's dollars).¹³ The objective of growing superannuation assets is not just a matter of household wealth and prosperity, but also a key plank in reducing fiscal pressures on the government and the burden of aged care costs on future taxpayers. Currently, total assets under management in the Australian superannuation system sit at just over \$2 trillion, the fourth largest pool of assets under management in the world.

The growth of superannuation assets has three main drivers: contributions through the legislated 9.5 per cent Superannuation Guarantee for labour force participants, additional voluntary contributions made by some households, and the added return that is derived from investing these assets. Investment returns represent an important component of potential total wealth accumulated at the point of retirement. There is an extensive body of literature providing evidence that, among all investment decisions, portfolio allocation is one of the primary drivers of returns over the medium and long term. We now briefly review the available evidence on asset allocation within the superannuation system.

¹¹ 'A Super Charter: Fewer Changes, Better Outcomes' (2013), Chapter 4.

¹² Intergenerational Report (2015), Chapter 1.

¹³ Australian Government, 'Intergenerational Report: Australia in 2055', March, p. 69.

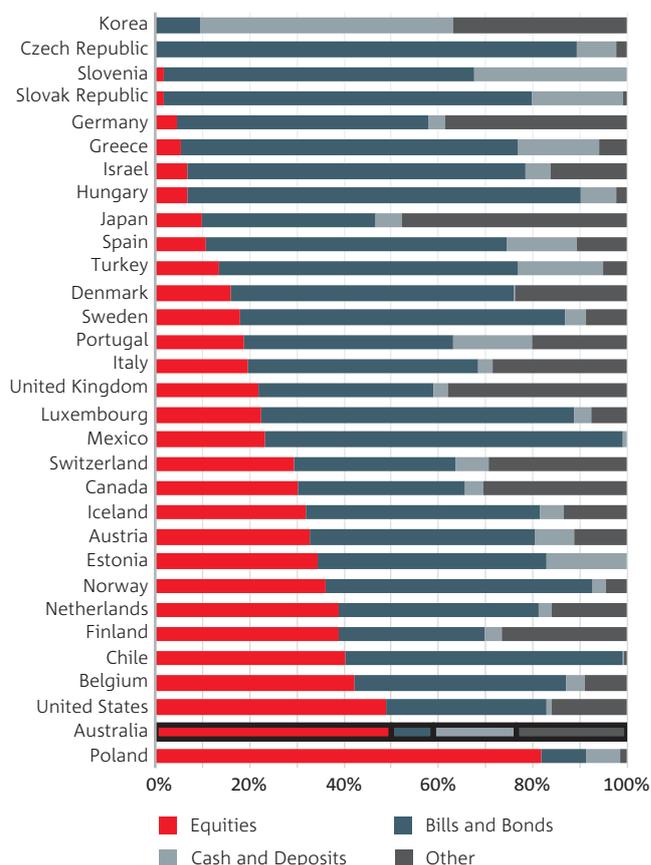
4. ASSET ALLOCATIONS

Around the world, private and public pension funds are invested in a variety of assets, ranging from cash and short-term securities through bonds and equities to alternative assets such as property, venture capital and infrastructure. The Melbourne Mercer Global Pension Index, which in its latest iteration (in 2015) surveys 25 countries, found significant variation in the approach to pension fund portfolio allocation across the countries surveyed. Allocations to ‘growth’ assets (including equities and property) – that usually carry a higher rate of return with a higher degree of risk – range from virtually zero in Singapore to approximately 70 per cent in Australia and South Africa. Eleven of the 25 countries surveyed have an exposure between 40 and 60 per cent to growth assets. India, Korea and Singapore have very low exposures to growth assets.¹⁴

Australia has one of the smallest aggregate allocations to bills and bonds – or fixed-income products – of any developed nation for which data is collected by the Organisation for Economic Cooperation and Development (OECD). In contrast, Australia has one of the highest allocations to equities (both domestic and international), second only to Poland (Figure 4).

Among Public Pension Reserve Funds (PPRFs), there is also a wide mix of asset allocations. Some funds, such as those in Belgium and the United States, have statutory limits requiring them to invest only in government bonds. Others, such as the Future Fund in Australia, have much lower allocations to fixed-income and higher allocations to return-seeking assets such as equities and alternative investments.¹⁵

Figure 4: Pension fund asset allocations for selected OECD countries, 2014.



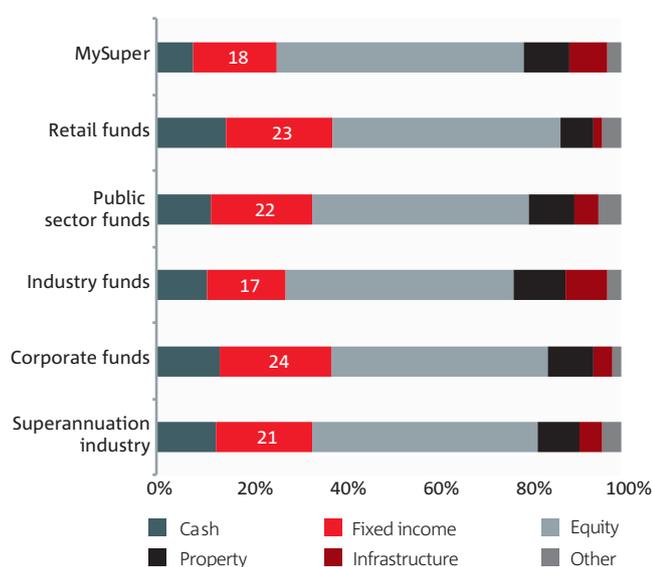
Source: OECD Global Pension Statistics. The ‘Other’ category includes loans, land and buildings, unallocated insurance contracts, hedge funds, private equity funds, structured products, other mutual funds, and other investments. The high value of the ‘Other’ category for Australia is driven mainly by net equity of pension funds (i.e. superannuation funds) in life office reserves (14 per cent of total investment).

¹⁴ Australian Centre for Financial Studies and Mercer (2015), ‘Melbourne Mercer Global Pension Index’.

¹⁵ Organisation for Economic Cooperation and Development (2015), ‘Annual Survey of Large Pension Funds and Public Pension Reserve Funds: Report on Pension Funds’ Long-term Investments’, p. 41

Domestically, APRA provides high-level data on the portfolio holdings of APRA-regulated superannuation funds. These comprise around three-quarters of total assets in the system, or \$1.5 trillion. As we can see in **Figure 5**, funds typically hold close to 50 per cent of their assets in equities (domestic and international), with low-cost MySuper products having the largest average equity allocations, at 53 per cent, as of March 2016. On average, APRA-regulated funds hold 21 per cent of assets in fixed-income and a further 12 per cent of assets in cash.

Figure 5: Aggregate asset allocations of APRA-regulated superannuation funds.



Source: APRA Quarterly Superannuation Performance, March 2016. The data do not include self-managed superannuation funds (SMSFs), which report to the Australian Taxation Office. Definitions of asset classes may vary from the OECD definitions in the preceding figure.

Translating these percentages into actual numbers, superannuation funds' domestic holdings of Australian listed equities amount to around \$302 billion, while holdings in Australian fixed-income are around \$184 billion. International listed equities add a further \$284 billion while international fixed-income adds a further \$96 billion.

The alternative to APRA-regulated funds for Australian households is the self-managed superannuation fund (SMSF). There are currently approximately 570,000 SMSF accounts with a total of about \$600 billion in assets under management. Though data on SMSF portfolio allocation are not frequently released, we know that as of 2014 SMSFs held the vast majority of their portfolios in Australian domestic equities. SMSFs invested just 1.2 per cent of assets into debt securities as of 30 June 2014.¹⁶

Taken together, these data suggest that Australian investors and superannuation fund trustees allocate a higher share of their portfolios towards growth assets than peers around the world. (For a discussion of the reasons why, see **Appendix B**.)

Whether Australians' high exposure to growth assets is appropriate is a question that is open to debate, however. As people age, theory suggests that weighting portfolios more heavily towards cash and fixed-income investments would reduce the risk of suffering a major loss of capital that cannot be recovered before or over retirement.

Fixed-income products can supply investors with regular income streams, and securities of different maturities provide investors with the ability to tailor a portfolio to meet their future needs and liabilities. ('Fixed-income', however, is a broad term that can encompass both highly-liquid government bonds as well as sub-investment grade or unrated products that also carry substantial credit risk.)

It is generally accepted that fixed-income products represent less risk than equities. While Australian equities and property were the best performing asset classes in the years leading up to the global financial crisis, their performance in the post-crisis period has been more mixed. Fixed-income has tended to perform well and smoothed portfolio returns during periods of equity market volatility.¹⁷

¹⁶ Australian Taxation Office (2014), 'Table 15: SMSF Asset Allocations', Self Managed Superannuation Funds – A Statistical Overview 2013-14. Note: there may be further allocations to fixed-income in the asset categories 'listed trusts', 'unlisted trusts', 'other managed investments', and 'overseas managed investments'.

¹⁷ NAB (2013), 'An Investor's Guide to Debt Securities', December.

5. PORTFOLIO SIZE EFFECT AND SEQUENCING RISK

In their 2012 paper, Doran et al. provided a baseline study demonstrating the impacts of portfolio size risk and sequencing risk on the wealth of superannuants. Here, the portfolio size effect refers to the acceleration in growth of household assets in the later stages of life due to the compounding effect of lifetime savings, higher wages and returns.

The HILDA data provide some evidence for the portfolio size effect in Australia, with an acceleration of household wealth accumulation in the cohorts of households aged 50 and above.

Australians who retired during or immediately after the global financial crisis would be familiar with sequencing risk, as diminished investment portfolios forced many to consider delaying retirement. The nature of sequencing risk is perhaps best summed up by former Secretary of the Treasury, and current NAB chairman, Dr Ken Henry AC, who has noted that:

“It might be tempting to think that so-called ‘growth’ strategies serve the interests of fund members in the accumulation phase, with more ‘conservative’ strategies serving the interests of those who have already retired; that is, those who are in the drawdown phase. The latter is probably true. The former might also be true. Then again, it might not be.”

And:

“What should be a key concern for super fund members is ‘sequence risk’. ...

“Even over periods as long as 20 years, it has not always been the case that equities outperform fixed interest, though it has generally been the case. The more important point, though, is that timing – specifically, the sequencing of variable returns – is everything.”¹⁸

In a subsequent study, Drew et al. found that a dynamic approach to asset allocation could mitigate sequencing risk, particularly over the course of retirement. Their paper identifies the weaknesses in three dominant portfolio allocation approaches seen in practice today. The first is a static allocation (which is arguably where the majority of superannuation fund members currently sit) with an equity allocation of 40-60 per cent and a fixed-income allocation of 15-25 per cent. The second is a declining equity ‘glide path’ where holdings of growth assets reduce as members age, which is typical of ‘lifecycle investment’ products.¹⁹

The third is a rising equity glide path, where the allocation to growth assets increases over the course of retirement in an attempt to minimise the probability of ruin during retirement.

Drew et al. propose a new ‘layered’ approach to asset allocation based on a strategy that identifies the investment goal and horizon (such as retirement date and target amount), and dynamically adjusts portfolio allocation based on sequencing risk (or market event risk) that is observed by tracking the market’s valuation. In other words, investors remain prepared as they approach retirement to actively switch their portfolios from equities to fixed-income and back again depending upon the likelihood of a significant equities market downturn or upturn.

While Drew et al. were able to demonstrate the merits of considering this approach, there are challenges to putting it into practice. One is the lack of sufficient financial literacy for investors to select the ‘right’ targets for their retirement and to regularly recalibrate their portfolio allocations in a dynamic way. Successful implementation would also be contingent on investors’ access to professional advice and market data, and the supply of appropriate financial products.

At the institutional level, the use of pooling in superannuation funds creates further challenges. MySuper is currently required to offer either a diversified single investment strategy or a lifecycle investment strategy.²⁰ The average MySuper lifecycle product glide path (as of June 2014) sees allocation to fixed-income rise from 19 per cent for members who are just entering the workforce to 30 per cent at age 75+.²¹ Some analysis suggests that lifecycle products lower expected returns by about 1 per cent per annum (after investment fees and taxes), while providing room for investment fee reductions of around 10 basis points, compared to remaining invested in a ‘balanced’ fund with 70 per cent growth assets over a person’s entire working life. In short, lifecycle funds increase the surety of retirement balances but decrease their expected value.²²

²⁰ A lifecycle investment strategy is one that varies the asset allocation typically based on the member’s age, with the possible inclusion of other prescribed factors such as account balance, contribution rate, current salary, gender and expected time remaining to retirement.

²¹ Australian Prudential Regulation Authority (2014), ‘MySuper Statistics Selected Feature’, June, Table F.

²² Chant, W., Mohankumar, M. and Warren, G. (2014), ‘MySuper: A New Landscape for Default Superannuation Funds’, Centre for International Finance and Regulation, April.

¹⁸ Ken Henry’s speech to the ASFA Investment Interchange, in: ASFA (2012), ‘Developing Australia’s Fixed Income Markets’, Discussion Paper, June.

¹⁹ Rice Warner (2012), ‘Investing in the Retirement Years’, July.

6. PRODUCT IMPEDIMENTS TO THE DYNAMIC ASSET ALLOCATION APPROACH

Another challenge to implementing a true dynamic asset allocation approach is the availability of financial products to meet potential demand. As noted earlier, the current pool of superannuation assets under management has reached \$2 trillion. If Australian superannuation funds were to have similar aggregate asset allocations to fixed-income as, say, Israel or Mexico, demand for these products could run in the order of \$1.6 trillion. By comparison, the stock of all Australian bonds outstanding was just \$1.5 trillion as of December 2013.²³

Focusing only on those households approaching retirement still suggests a shortage of fixed-income supply. Applying the household weights in the HILDA data allows us to estimate the total liquid financial wealth held by Australian households in the 55-59 and 60-64 age cohorts. The estimates suggest that approximately \$982.8 billion (comprising \$669.3 billion in superannuation and \$313 billion in other financial assets) is held by households in the retirement risk zone as of 2014.

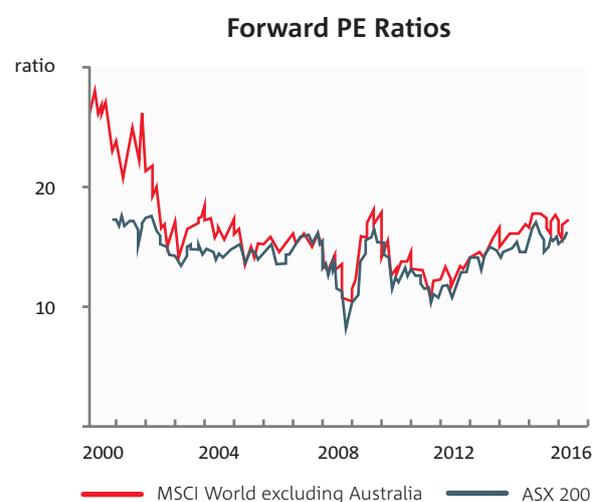
If these households switched their portfolios to, say, an allocation of 80 per cent to fixed-income products and cash, this would represent aggregate demand of \$785 billion.

Access to the stock of fixed-income products for retail investors is a further challenge. In the listed sphere, Australian Securities Exchange (ASX)-quoted bonds include government bonds (Treasury bonds and Treasury-indexed bonds) and corporate bonds (both fixed and floating rate). Only 53 bonds were available to retail investors as of 2014-15. Australian banks and non-financial corporates tend to prefer issuing offshore, with much of that issuance being US dollar-denominated.²⁴

The majority of secondary trading in corporate bonds is done via over-the-counter (OTC) markets. These markets are typically less transparent and less liquid than listed markets, making them the domain of institutional investors. Large minimum parcel sizes of OTC bonds make it difficult for retail investors to diversify their bond portfolios. Retail investors seeking exposure to fixed-income would typically invest via an exchange traded fund (ETF) or managed fund. Such funds usually offer exposure to a wide range of fixed-income securities, including treasuries, semi-government and government bonds, corporate bonds and securitised products.²⁵

The challenges of accessing low-risk, income generating assets in the current market environment may be approaching a crucial phase. As seen in Figure 6, the forward price-earnings ratio for the benchmark ASX 200 index shows Australian equity prices approaching highs last seen seven years ago in the recovery immediately following the 2008-09 crash.

Figure 6: Forward price-earnings ratios for the ASX 200 and MSCI World excluding Australia.



Source: Reserve Bank of Australia.

The dynamic asset allocation or declining equity glide path approaches might suggest that households currently in, or entering, the retirement risk zone reduce their holdings of growth assets at this time in order to reduce their sequencing risk. However, the lack of access to fixed-income products may inhibit households reallocating their portfolios away from equities.

²³ Debelles, G. (2014), 'The Australian Bond Market', speech to the Economic Society of Australia, Canberra, 15 April.

²⁴ Australian Financial Markets Association (2015), '2015 Australian Financial Markets Report'.

²⁵ Davis, K. and Jenkinson, M. (2013), 'Australian Debt Securities and Corporate Bonds: How to Add Australian Debt Securities and Corporate Bonds to a Portfolio', Australian Centre for Financial Studies, report prepared for NAB, October.

7. MODELLING INVESTMENT OUTCOMES FOR AUSTRALIAN HOUSEHOLDS

To extend the work of Drew et al. in an Australian context, we apply a similar simulation technique to the wealth portfolios of existing households in Australia at different stages of their lifecycle.

We look at five household age cohorts: ages 40-44, 45-49, 50-54, 55-59, and 60-64. For the purposes of this exercise, the retirement age is assumed to be fixed at 65. Generally, households aged 55 to 64 are considered to be in the retirement risk zone, while households aged 40 to 54 are in the pre-retirement phase.

To identify the starting point for wealth and income, we select the median household in the HILDA data for each age cohort. (We chose the median rather than the mean given the significant upward skew of the latter, as discussed in Section 2.) The component of wealth that we are interested in is financial wealth, which we separate into superannuation and 'other financial assets' (bank accounts, cash investments, equities, trust funds and life insurance). In order to best simulate a 'typical' household, the medians for these assets were identified separately and then added together. The starting point for household financial wealth therefore may not represent an actual household in the HILDA data, but rather a constructed household with median values for each asset.²⁶

The median household financial wealth figures used for the purposes of our simulations are summarised in **Figure 7**.

Figure 7: Median household financial wealth by age cohort, 2002 and 2014.



Source: DSS, ACFS calculations. Note: figures do not correspond to actual households, but are instead sums of the medians for each separate financial asset class.

²⁶ We also eliminated some outliers from each age cohort.

Our simulations incorporate both returns on invested assets and mandatory contributions to superannuation.

For asset returns, we make a simplified assumption that portfolios are 100 per cent allocated to the domestic market, with no international allocation. We assume that all returns are reinvested. To model fixed-income returns, we sample from the past two decades of historical returns using the 10-year Government Bond Return Index. Given that corporate bonds tend to have higher yields than government bonds, the 10 year Government Bond Return Index is a conservative sample. (Note, however, that corporate bond spreads and interest rates have declined in recent times.) We use the past two decades of the S&P/ASX 200 Accumulation Index for equities returns, with both datasets sourced from Global Financial Data.

The 20-year sample period is shorter than the 100 years of returns utilised in other studies. Our choice of this time period was in part due to the literature indicating structural changes in financial markets, where future returns are unlikely to match the long-run history of past returns.

In Australia, interest rates and government bond yields are at historic lows. As noted earlier, there is also emerging evidence of a potential enduring decline in the equity risk premium in Australia. In light of current market dynamics and this report's 20-year investment horizon, we chose to simulate future returns that would most closely align with the experience of the recent past.

In terms of superannuation contributions, we assume that household after-tax wages/salaries grow at a rate of 3.47 per cent each year, equal to the average rate of wage inflation since 1997.²⁷ We assume that households initially contribute to superannuation at a flat rate of 9.5 per cent of wages/salaries, equivalent to the current rate of the Superannuation Guarantee, and otherwise do not save any of their income. In other words, households do not make voluntary contributions to superannuation and household expenses are exactly equal to post-contribution income. The Superannuation Guarantee rate is assumed to increase in line with current government policy.²⁸

We ignore taxes, such as those on superannuation contributions or capital gains. We assume there are no changes in household composition, as might occur through marriages or deaths. We also assume that there are no investment management or transaction costs. These are simplistic assumptions that we use to examine the effect of different portfolio allocations. Most figures are presented in nominal terms, although we adjust for inflation in the final table.

²⁷ Based on the quarterly index of total hourly rates of pay excluding bonuses in ABS Catalogue 6345.0 – Wage Price Index, Australia, March 2016.

²⁸ The Superannuation Guarantee rate rises to 10 per cent in 2021-22, 10.5 per cent in 2022-23, 11 per cent in 2023-24, 11.5 per cent in 2024-25, and 12 per cent in 2025-26

8. PROJECTIONS OF FUTURE HOUSEHOLD FINANCIAL WEALTH – THE SIMULATION APPROACH

In this simulation, we test three hypothetical and simplistic portfolio allocations. We investigate what happens if each household chooses to invest their entire financial wealth (i.e. superannuation plus other financial wealth) in one of three portfolios:

1. 100 per cent Australian equities
2. 100 per cent Australian bonds
3. 50 per cent Australian equities and 50 per cent Australian bonds²⁹

To do this, we employ a bootstrap sampling simulation approach, using a methodology similar in nature to Drew et al. (2015).³⁰ In this approach, nominal simulated portfolio returns are randomly sampled off a distribution of historical returns data on a month-by-month basis. The historical distribution accounts for the fact that some rates of return are more likely than others – for instance, the simulation is much more likely to generate a monthly equities return of 1 per cent (the long-run average, equivalent to an annualised return of 12.7 per cent) than, say, 3 per cent or negative 3 per cent (which have historically occurred much less frequently).³¹

One thousand return simulations were generated for each month and for each portfolio allocation choice. The simulated return at each month is added to the previous month's wealth total, plus the additional wealth from compulsory contributions to superannuation, to generate a long-run path of household financial wealth. After this, the medians of the simulation paths were taken. The starting point for each simulation is December 2014, the date of the most recent HILDA wealth module. The timeframe we examine is 65 minus the household's starting age – that is, the number of years to retirement.

A discrete time representation of simulated household financial wealth over time is as follows:

$$V_t = W \times \prod_{i=1}^t (1 + r_i) + \sum_{j=1}^t (C_j \times \prod_{i=j}^t (1 + r_i))$$

where

- V_t is the portfolio value at time t ,
- W is the value of the household's financial assets in December 2014,
- r_i is the portfolio return for period i , and
- C_j is the superannuation contribution amount at time t , factoring in wage inflation and Superannuation Guarantee rate increases in the future.

²⁹ We assume deep and liquid markets, so that there is adequate supply of financial products and increased demand does not drive up prices.

³⁰ Drew, M.E., Walk, A.N. and West, J.M. (2015) 'The Role of Asset Allocation in Navigating the Retirement Risk Zone', Finsia, April.

³¹ The model can accommodate correlations between bond returns and equities returns, which theory suggests are (weakly) inversely related over the long run. However, the model does not account for inter-temporal correlations in returns.

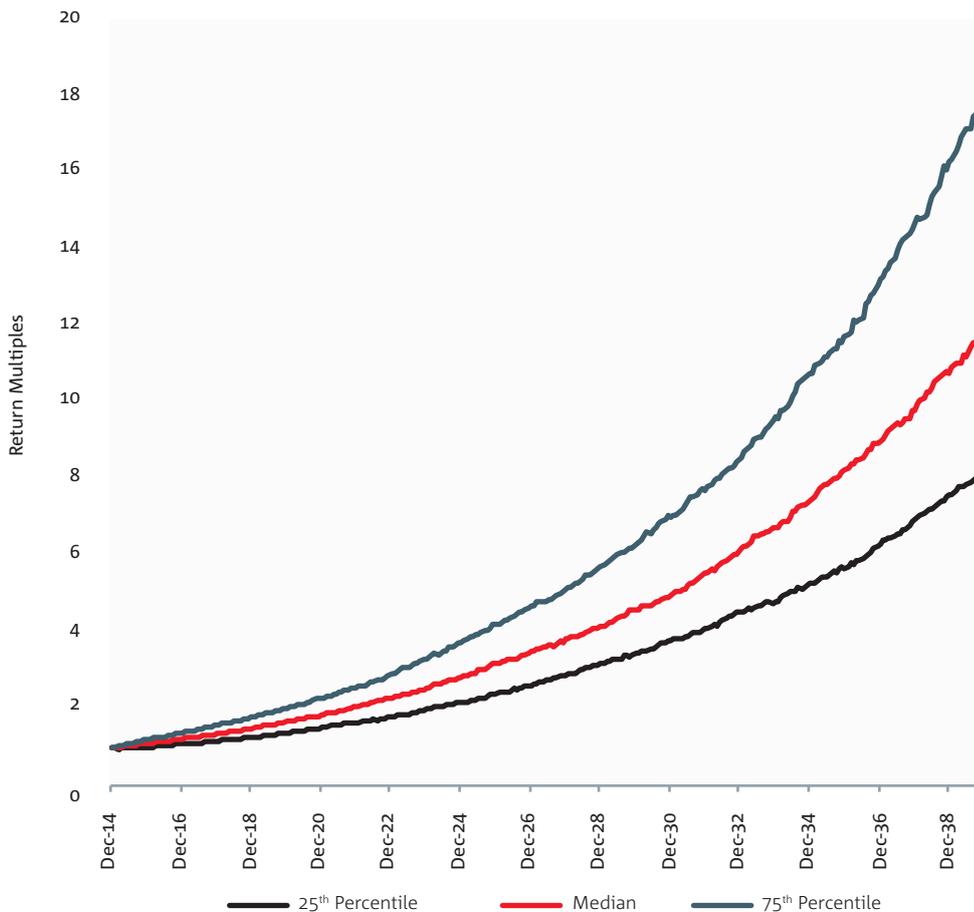
9. OVERALL RESULTS

Our focus is not on the return on assets in and of themselves, but rather how asset returns interact with baseline wealth and ongoing contribution rates to arrive at the terminal wealth at the point of retirement. **Figure 8** charts household financial wealth over time for a median household invested 100 per cent in equities.

The rate of growth in wealth appears smooth. This is not due to a lack of volatility in returns and asset prices, but rather the approach of taking only the median result of the simulation at each month. If asset returns turn out to be higher or lower than the median, this has a significant impact on terminal wealth.

Figure 8 shows the range of possible outcomes for a household that achieves investment returns at the median, 25th and 75th percentiles. What the results indicate is that a household could reasonably expect a median retirement balance that is 12 times its initial financial wealth over a 25 year period (unadjusted for inflation). But this multiple could be just 8 times (or less) if future returns are equivalent to the bottom quartile of historical returns, or it could be 18 times (or more) if future returns are equivalent to the top quartile of historical returns. In other words, stronger-than-expected asset returns would result in a retirement balance that is more than twice as large as that achieved with weaker-than-expected returns.

Figure 8: Simulated paths of household financial wealth, as multiples of initial wealth, in a 100 per cent equities portfolio.



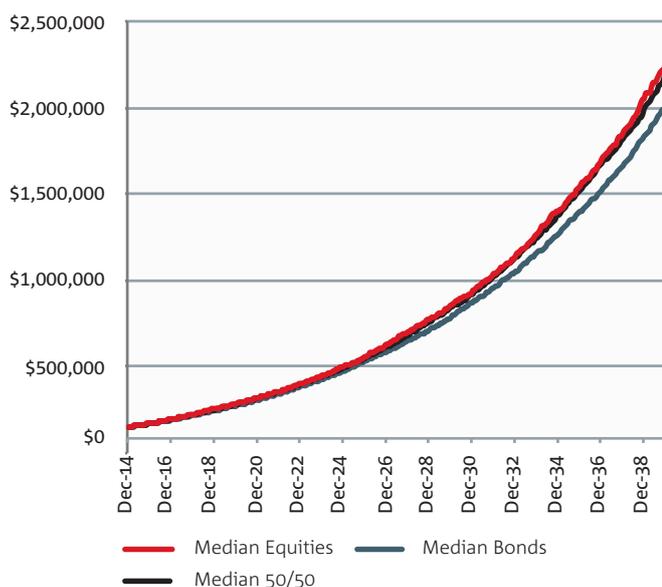
Source: DSS, ACFS calculations. Figures are not adjusted for inflation.

10. RESULTS OF PORTFOLIO ALLOCATION SIMULATIONS

One of the objectives of these simulations was to examine the impact of portfolio allocation. In a simplified approach, we examined three possible portfolios: 100 per cent equities allocation, 100 per cent fixed-income allocation, and a 50/50 split between the two.

The difference in outcomes of these three portfolio choices, held static over 25 years, can be seen in Figure 9. As expected, equities outperform bonds over the long term, and a diversified portfolio achieves a result somewhere between. The median household starting at age 40 with \$145,917 in financial wealth in December 2014 achieves a \$2.19 million retirement balance (unadjusted for inflation) if invested in a 50-50 portfolio.

Figure 9: Median household financial wealth paths (for the 40-44 age cohort) under three different portfolios, from December 2014.



Source: DSS, ACFS calculations. Figures are not adjusted for inflation.

One of the key findings is that outcomes arising from different portfolio allocation choices do not vary significantly, even over a 25-year horizon. The portfolio that is 100 per cent invested in equities achieves terminal wealth of \$2.25 million, while the portfolio that is 100 per cent invested in fixed-income reaches \$2.0 million. The reason for this lack of divergence is that outcomes appear to be largely dictated by contributions rather than asset returns. In other words, the flow effect of ongoing, regular contributions at 9.5 per cent (or higher) of ordinary wages/salaries, and subsequent compounding, tends to dominate the return effect from investment – even the higher rate of return that should result from the equity risk premium.

Table 1 summarises the simulation results for terminal financial wealth at retirement, for each age cohort and each portfolio allocation. Households here are ranked by their initial financial wealth and income, so the ‘25th percentile’ column shows the terminal outcomes for households that begin with financial wealth and income at the 25th percentile (and likewise for the 75th percentile).

Table 1: Simulated household financial wealth at retirement by age cohort and portfolio construction, ranked by 25th, 50th and 75th percentiles for initial wealth and income as at December 2014.³²

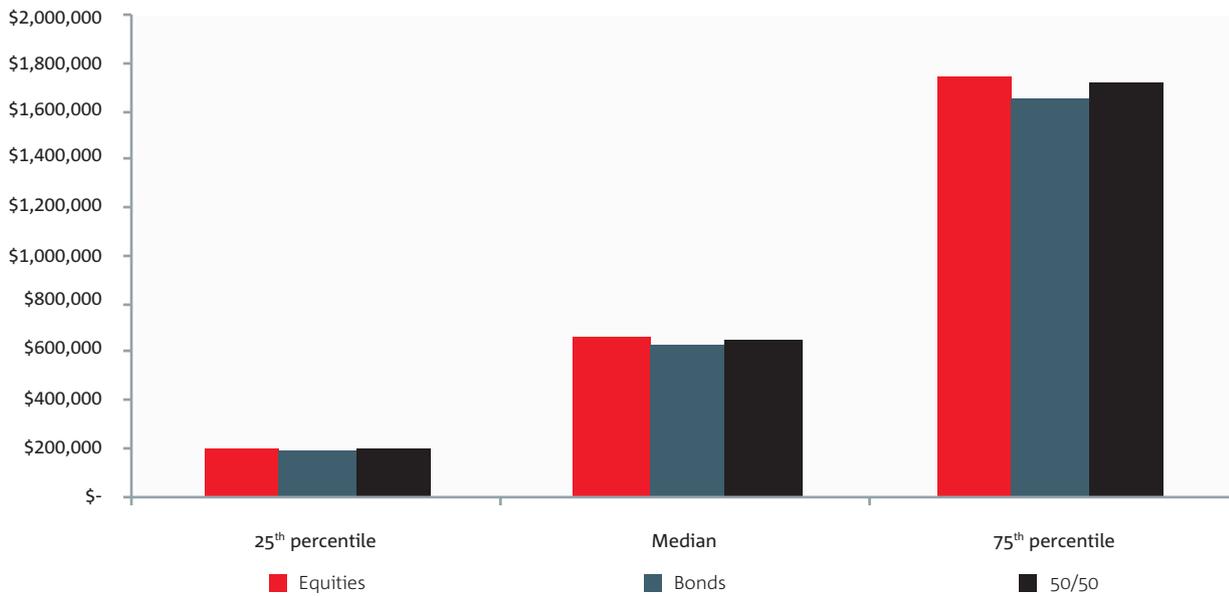
	25 th percentile	Median	75 th percentile
Equities			
40-44	\$909,756	\$2,249,680	\$4,593,226
45-49	\$628,080	\$1,530,516	\$3,283,017
50-54	\$380,169	\$1,064,576	\$2,587,191
55-59	\$201,882	\$658,720	\$1,742,429
60-64	\$46,996	\$358,677	\$1,129,785
Bonds			
40-44	\$814,437	\$2,007,381	\$4,080,200
45-49	\$570,511	\$1,385,551	\$2,961,264
50-54	\$349,525	\$974,369	\$2,358,100
55-59	\$191,618	\$624,669	\$1,649,694
60-64	\$44,606	\$341,075	\$1,073,678
50/50			
40-44	\$885,211	\$2,190,521	\$4,476,710
45-49	\$616,057	\$1,504,669	\$3,235,528
50-54	\$372,809	\$1,044,060	\$2,537,547
55-59	\$199,860	\$652,043	\$1,724,391
60-64	\$46,602	\$355,579	\$1,120,120

Source: DSS, ACFS calculations. Figures are not adjusted for inflation.

³² Note on methodology: In each age category, we construct a median household with median initial financial wealth and median income for that age category; a household at the 25th percentile with initial financial wealth and initial income at the 25th percentile for that age category; and a household at the 75th percentile with initial financial wealth and initial income at the 75th percentile for that age category. Households face the same simulated future returns.

11. IMPLICATIONS FOR RETIREMENT RISK ZONE HOUSEHOLDS

Figure 10: Projected financial wealth at retirement for a household in the 55-59 age group, under different portfolio allocations.



Source: DSS, ACFS calculations. Households are ranked by initial wealth and income. Figures are not adjusted for inflation.

The outcomes for households in the retirement risk zone demonstrate the challenges of significantly altering the path of wealth accumulation later in life through portfolio allocation. **Figure 10** presents some of the results from **Table 1** in a slightly different way.

For households with a median starting point in financial wealth and income, the difference between holding a 100 per cent equities portfolio versus a 100 per cent fixed-income portfolio over a 5-10 year horizon is small – with projected terminal financial wealth of \$658,720 for a household holding equities, versus \$624,669 for the same household holding only bonds.

Table 2 presents the same results of our simulation exercise, but adjusted for inflation. Here we assume a flat inflation rate of 2.54 per cent per annum, equal to the historical rate of consumer price index (CPI) inflation over the past two decades.

Table 2: Inflation-adjusted simulated household financial wealth at retirement by age cohort and portfolio construction, ranked by 25th, 50th and 75th percentiles for initial wealth and income as at December 2014.

	25 th percentile	Median	75 th percentile
Equities			
40-44	\$485,417	\$1,200,358	\$2,450,799
45-49	\$379,985	\$925,955	\$1,986,210
50-54	\$260,790	\$730,282	\$1,774,772
55-59	\$157,027	\$512,362	\$1,355,287
60-64	\$41,448	\$316,331	\$996,400
Bonds			
40-44	\$434,557	\$1,071,074	\$2,177,065
45-49	\$345,157	\$838,252	\$1,791,550
50-54	\$239,768	\$668,402	\$1,617,619
55-59	\$149,043	\$485,876	\$1,283,155
60-64	\$39,340	\$300,807	\$946,917
50/50			
40-44	\$472,321	\$1,168,792	\$2,388,630
45-49	\$372,712	\$910,318	\$1,957,479
50-54	\$255,741	\$716,209	\$1,740,717
55-59	\$155,454	\$507,168	\$1,341,256
60-64	\$41,100	\$313,599	\$987,876

Source: DSS, ACFS calculations.

For a couple to have a ‘comfortable’ retirement – allowing retirees to own a reasonable car, regularly eat out at restaurants, purchase good clothes, hold private health insurance and take occasional international holidays – MLC estimates that they would need a lump sum of around \$510,000 (or \$255,000 each) in addition to owning a home.³³ The widely-used Association of Superannuation Funds of Australia (ASFA) standard suggests a ‘modest’ retirement currently requires expenditure of \$34,000 per annum for a couple aged 65 to 85 and living in their own home. ASFA suggests \$59,000 per annum is required for a ‘comfortable’ standard of living in retirement.

Table 2 indicates that the median household currently aged 55 to 59 – having just entered the retirement risk zone – can reasonably expect to retire with a lump sum close to the suggested \$510,000. But households above the age of 60 who, like current retirees, have not had the benefit of contributing to superannuation for most of their working lives, will struggle to achieve this retirement balance within the next five years without other sources of savings. Across the 40-64 age range, all households in the bottom quartile (ranked by initial financial wealth and income) appear similarly unable to achieve a comfortable retirement, and will likely remain dependent on various forms of government support to maintain a modest standard of living in retirement.

³³ MLC (2015), ‘What Does a Comfortable Retirement Cost?’, News & Insights, 15 April.

12. IMPLICATIONS FOR YOUNGER HOUSEHOLDS

The projections in **Table 2** show that, regardless of initial financial wealth and income, and regardless of portfolio allocation, younger households are much more likely than older ones to achieve what are currently considered to be comfortable levels of retirement. This result demonstrates the power of regular contributions and compounding in building retirement wealth, even for households of modest means.

Even at the 25th percentile, a couple in the 40-44 age bracket invested entirely in equities could expect to retire with an inflation-adjusted sum of \$485,417, bringing them close to the comfortable retirement lump sum threshold. The difference in outcomes between the equities and 50/50 portfolios is not large, and households with 20 to 25 years until retirement are more likely to have the opportunity to recover from portfolio losses resulting from any negative event in the equities markets.

It was noted earlier that the pool of financial assets currently in the retirement risk zone is approximately \$982.8 billion. In 15 years' time, households currently in the 40-49 age range will lie in this zone. Applying the HILDA weightings, we estimate that the pool of financial assets in the retirement risk zone at that time will range between \$995.4 billion and \$1.11 trillion, depending on investment decisions made today. This investable pool of assets appears unlikely to decline even though the demographic bulge of the baby boomers will be on the wane. As such, demand for an appropriate suite of financial products to cater for various risk appetites appears likely to remain strong well into the future.

13. A NOTE ON RETURN EXPECTATIONS

The simulations in this report sample from asset returns from the past 20 years of financial market performance. This period has seen the technology boom and bust of the 1990s/2000s, the stellar returns of the early noughties – particularly in Australia – and an extraordinary post-crisis environment that witnessed the strongest performance of fixed-income observed in decades. While recent history is volatile, there is no way to predict the future. We cannot know if the future will be more of the same or different.

At the same time, we believe it is realistic to remain conservative in the assumptions around future returns. Recent research suggests that across 21 countries over the past century, there was roughly a one-in-five chance that a 20-year historical equity return would be lower than the risk-free return for that period. Even more sobering is the prediction that the equity risk premium will be lower in the future, in the range of 3-4.5 per cent.

Technological and regulatory advancements in traded markets, together with increasing levels of stock market liquidity and economic stability more generally, have contributed to lower equity risk premium expectations for the future.³⁴

For households seeking to build or maintain a retirement nest egg, avoiding the pitfalls of negative market events may be just as important as achieving higher rates of return over given periods of time.

³⁴ Bianchi, R.J., Drew, M.E. and Walk, A.N. (2015), 'The (un)Predictable Equity Risk Premium', Challenger Limited, November.

14. CONCLUSION

There is no ‘right’ investment portfolio for all Australians. Households need to take into account a wide range of factors, including the lengths of their expected working lives and risk tolerance levels, in determining the most appropriate asset allocations for their needs. These needs may evolve over a household’s lifecycle.

The results of this study indicate that, while portfolio allocation has an impact on the terminal wealth at retirement for Australian households, this impact may be more muted than is broadly appreciated. Our simulation outcomes suggest that ongoing superannuation contributions and their compounding effect may be the primary driver of household wealth accumulation, and importantly may enable even households with modest means to enjoy what is considered to be a comfortable standard of living in retirement when the superannuation system matures in 20 years.

The inability of Australian equities to generate significantly superior returns to a fixed-income portfolio in our simulations is largely due to the chosen 20-year historical sample. A longer historical sample period would likely lead to higher equity returns in our simulations. We cannot know what the next 20 years will bring. However, the risks of an equities market downturn for households that are now nearing retirement cannot be discounted.

Our findings also suggest that the majority of younger households in Australia are on track to retire comfortably, as a result of the extra years that they have in front of them to contribute to superannuation accounts and benefit from compounding returns. But it cannot be assumed that passive investors in equities will be significantly better off at retirement than investors in fixed-income, even over a 25-year horizon.

Given these findings, it is notable that the available data on portfolio allocation within the superannuation system suggests that Australians maintain a much higher exposure to equities than is the international norm. There are a number of behavioural and economic reasons for this preference, including the income streams arising from dividend imputation. There have been a number of recent changes (for example, new investment structures and digital access channels as well as regulatory change) which are paving the way for a deeper, more accessible Australian fixed-income market. However, at this stage the market remains relatively small and further development is required to deliver products and access, especially for retail investors. Our simulations allow us to project the total pool of future financial wealth associated with younger cohorts, and our findings suggest that demand for investment products – both equities and fixed-income – will only grow in the years to come.

APPENDIX A: ABOUT THE HILDA SURVEY

The Household, Income and Labour Dynamics in Australia (HILDA) survey (also known as the Living in Australia survey) is a household-based panel study which began in 2001. It has the following key features:

- It collects information about economic and subjective well-being, labour market dynamics and family dynamics.
- Special questionnaire modules are included in each wave.
- The wave 1 panel consisted of 7,682 households and 19,914 individuals. In wave 11 this was topped up with an additional 2,153 households and 5,477 individuals.
- Interviews are conducted annually with all adult members of each household.
- The panel members are followed over time.
- The funding has been guaranteed for 18 waves, though the survey is designed to continue for longer than this.
- Academic and other researchers can apply to use the General Release datasets for their research.

Release 14 of the HILDA data became available from 9 December 2015.

A wealth module has been incorporated into the questionnaires every fourth wave since wave 2. The Household Questionnaire contains the majority of the wealth questions and the interviewers endeavour to ask these of the person knowing the most about the household finances. These questions cover the following topics:

- Cash and equity investments, trust funds, life insurance;
- Home and other property assets and debts;
- Business assets and debts;
- Children's bank accounts;
- Collectables and vehicles; and
- Overdue household bills (from wave 6 only).

Also, each respondent was asked some questions about their personal wealth in the Person Questionnaire, including:

- Bank accounts and credit card debt;
- Superannuation;
- HECS debt; and
- Other personal debts

APPENDIX B: UPTAKE OF FIXED-INCOME PRODUCTS

One oft-quoted reason for the low volumes of corporate bond issuance and trading is Australians' historic preference for equity over fixed-income investments, which is supported by the tax advantages of dividend payments.³⁵ Interest income from bank deposits and fixed-income securities is taxed relatively heavily, making them less attractive vehicles for saving. Dividend imputation creates a bias for domestic investors, including superannuation funds, to invest in domestic equities.³⁶ The Financial System Inquiry noted that a deeper and more liquid corporate bond market would provide diversification benefits to both issuers and investors.³⁷

In recent years, one consequence of low interest rates and quantitative easing (QE) has been a decline in corporate bond yields and spreads over government rates. Investors are often able to obtain better returns on term deposits (which also benefit from a government guarantee). Whether returns on corporate bonds are adequate compensation for taking on corporate credit risk is open to question.³⁸

Other factors that may skew asset allocation in Australia away from fixed-income products include:

- Australian households have a relatively high level of direct share ownership, partly arising from past de-mutualisations.
- The relatively immature Australian superannuation system means that most superannuation fund members still face long investment time horizons, and thus demand growth assets.
- The safety net of the means-tested Age Pension may encourage more exposure to growth assets, such as equities, than an ordinary risk-neutral or risk-adverse investor might otherwise assume.
- The relative importance of defined benefit schemes has steadily reduced in Australia, and there are few defined benefit schemes paying pensions, meaning that pressures to match assets with pension liabilities are largely absent.
- The long-term growth prospects of the Australian economy may render exposure to growth assets more desirable.³⁹

³⁵ International Monetary Fund (2012), 'Australia: IOSCO Objectives and Principles of Securities Regulation – Detailed Assessment of Implementation', IMF Country Report No. 12/314, November, p. 14.

³⁶ Financial System Inquiry (2014), 'Final Report', Appendix 2: Tax Summary.

³⁷ Financial System Inquiry (2014), 'Interim Report', Chapter 3.

³⁸ Davis, K. and Jenkinson, M. (2015), 'Australian Debt Securities and Corporate Bonds: Improving Access to the Corporate Bond Market for Retail Investors', Australian Centre for Financial Studies, report prepared for NAB, June.

³⁹ Mercer and Financial Services Council (2014), 'Asset Allocation of Pension Funds Around the World', February.

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Contact

Professor Rodney Maddock
Interim Executive Director
Australian Centre for
Financial Studies
Level 46, Rialto South Tower,
525 Collins St,
Melbourne VIC 3000
T: +61 3 9666 1050
australiancentre.com.au

National Australia Bank

Contact

Steve Lambert
Executive General Manager
Capital Financing
T: +61 2 9237 1150
E: steve.lambert@nab.com.au
nab.com.au

John McClusky
General Manager
NAB Income and Investment Solutions
T: +61 3 8641 5238
E: john.m.mcclusky@nab.com.au

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