

Housing update: A new lens on affordability

Public Analysis Report

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Infometrics

Economics put simply

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Executive summary

Existing housing affordability measures, such as the ratio of house prices to household incomes, or initial debt servicing costs as a percentage of income, fail to fully encapsulate the costs associated with a first-home purchase.

Our analysis instead compares the **payments over the lifetime of the loan** against the value of the asset when the mortgage has been repaid. This approach takes into account a broader range of factors that affect the financial costs and benefits associated with homeownership, including:

- mortgage rates throughout the life of the loan
- consumer price inflation
- income growth over time
- house prices at the time of purchase
- house price changes during the period of ownership

The results from this approach suggest that 2022 is the worst time since 1957 for first-home buyers trying to get into the housing market in New Zealand.

There are two key factors that contribute to 2022 being a bad time to buy a house.

- **The average proportion of a household's income needed to service the loan throughout the mortgage:** people taking on mortgages now are committing to having an average of 33% of their income tied up in mortgage repayments for the next 25 years or longer. At 49% of income, initial debt servicing costs are similar to in 1987, but without the likelihood of the very strong income growth that quickly reduced the debt burden during the 1980s.
- **The increase in the value of the property over the life of the loan:** the scope for house prices to rise rapidly from here, and provide today's purchasers with significant capital gains, appears heavily limited. First-home buyers purchasing after a sustained period of strong house price growth risk buying at the peak of the market and enjoying less capital appreciation than buyers after a period of flat or falling house prices. Judging when the market is at its peak requires considerable foresight, but the reversal in house prices in the first half of 2022 suggests the boom that has persisted since the Global Financial Crisis has finally run out of momentum.

Of course, people's decision to purchase their first home is often determined by their age and stage of life. In this regard, the current housing affordability crisis has significant implications for a whole generation of younger people, who now see homeownership as a far-off dream that might only be attainable with financial assistance from their parents.

Homeownership is seen as a fundamental part of New Zealand society, and people enjoy a range of benefits, both financial and non-financial, from owning their own home. There is a social responsibility for greater political action to ensure that homeownership does not continue to slip further out of reach for more and more Kiwis.

Introduction

A different way to look at housing affordability

One of the seemingly everlasting debates about housing affordability and access to the housing market is who had it harder. Was it the baby boomers buying in 1987, saddled with 20% mortgage rates? Or is it millennials in 2022, wondering how they'll find a \$200,000 deposit and contemplating how long a loan of \$800,000 will take to pay off?

This report examines existing measures of housing affordability, before looking at housing data from the last 70 years in a new way: comparing the payments over the lifetime of the loan against the value of the asset when the mortgage has been repaid. By this measure, 1987 was a relatively bad time to try buying a house – but nowhere near as bad as 2022 or, as it turns out, 1955 or 1975.

Our analysis suggests that 2022 is the worst time since 1957 for first-home buyers trying to get into the housing market in New Zealand. It also suggests there are two key defining features of whether it is a good time to buy a house or not.

- The average proportion of a household's income that will be needed to service the loan throughout the mortgage term
- The increase in the real (inflation-adjusted) value of the property over the life of the loan

Regarding the first factor, current property values mean that house-price-to-income ratios are highly elevated. People taking on large mortgages now are committing to having a sizeable proportion of their income tied up in mortgage repayments for the next 25-30 years, unless income growth accelerates significantly (which historically has only been likely to occur in tandem with high consumer price inflation).

Assessing the second factor, and predicting future house price movements, is trickier. However, history suggests that the potential for real house price rises is considerably lower when prices have already increased rapidly for several years. In other words, people entering the housing market in 2021/22 risk buying close to the peak of the market. Limited house price growth, or price falls, immediately following purchase severely undermine the financial benefits that homeownership otherwise offers.

Our assessment of 2022 as being a particularly bad year to enter the housing market relies on our forecasts of house prices, interest rates, and income growth over the next 25 years. Examining the sensitivity of our results to each of these variables shows that future house price movements have the greatest potential to affect the outcomes.

Finally, we consider the factors that could influence housing affordability in the coming years. These factors include the availability of land and the provision of associated infrastructure, building costs and changes in construction methods, and the role of interest rates in people's borrowing and purchasing decisions. Our report concludes with a discussion of the financial benefits of homeownership, as opposed to renting, given New Zealand's tax and social security settings. These advantages of homeownership highlight the political and social responsibility to address this country's housing affordability crisis and ensure that an ever-increasing proportion of the population is not locked out of owning their own home.

A summary of existing housing affordability measures

Median multiples: The relationship between house prices and income

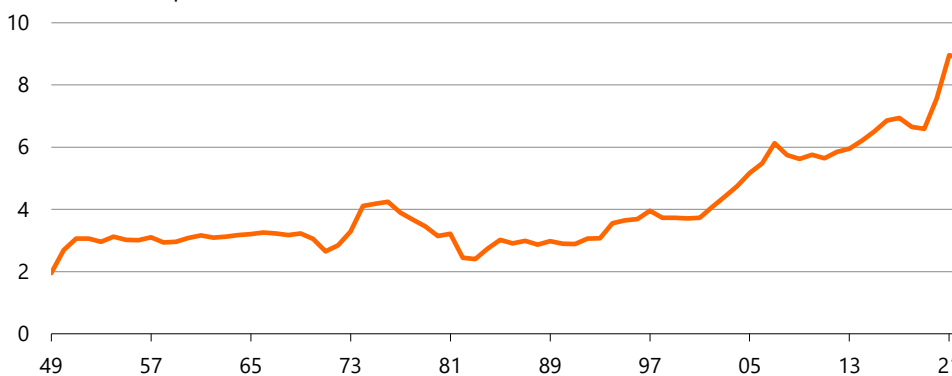
Perhaps the simplest measure of housing affordability is the ratio of house prices to incomes. This measure is based on the premise that people will generally spend a standard proportion of their income during their lifetime on various classes of goods and services, such as housing, food, or transport. The specifics of this spending will vary from person to person and, for any individual, from year to year. Spending behaviour could also shift between generations as living patterns and broader preferences change. Nevertheless, housing is a core necessity of life, so it is reasonable to expect that it has a correlation with people's ability to pay over time.

Over recent years, [Demographia](#) has popularised the theory that house prices should be around three times income, although the rationale for three being the magic number seems to be thin. As Graph 1 shows, the New Zealand house-price-to-income ratio has not been down at three since the early 1990s.¹ A ratio of three would require average house prices of about \$340,000, a decline of around 66% from current levels!

Graph 1

Soaring house prices leave incomes behind

Ratio of house prices to household incomes



¹ Our income and house price data comes from a variety of sources. Income data up to 1973 is the average annual salary from *Economic Trends and Linkages* (Edwards and Holmes, 1994) as published by Stats NZ in its Long Term Data Series – we have made the simplifying assumption that, prior to 1974, a household would generally have only one person earning income. Income data from 1974 onwards comes from Stats NZ's Household Economic Survey, with figures for missing years interpolated using data on hours and wages from the Quarterly Employment Survey. House price data up to 2010 is the average sales price published by Quotable Value NZ (previously Valuation NZ). House price data from 2011 onwards is the average sales price published by the Real Estate Institute of NZ.

Deposit requirements a big consideration

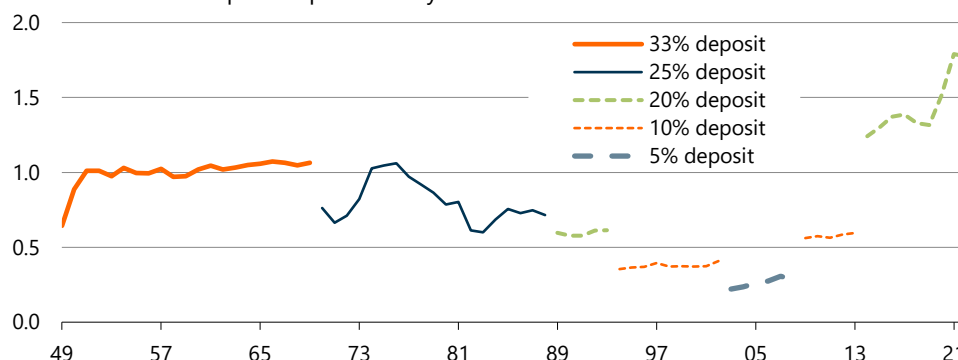
One of the arguments against focusing too closely on the house-price-to-income ratio is that it is effectively only a superficial consideration of people's ability to pay for a property, either in terms of upfront costs or ongoing debt-servicing costs. Changing deposit requirements over time can have a substantial influence on people's ability to cross that initial hurdle of homeownership. For example, a standard 25% deposit in 1984 was equivalent to 68% of annual household income, whereas the normal deposit of just 5% in 2004 represented just 23% of average household income.

Graph 2 shows various deposit levels as a percentage of household income over time. In general, data on "normal" mortgage deposit requirements doesn't exist. However, since loan-to-value restrictions were introduced in 2013, we can use the Reserve Bank's requirements as a proxy for the necessary deposit. For earlier years, we've made a guess at what proportion of a house's value the banks might have required borrowers to put forward as a deposit. Our best guess sits at 33% in the 1950s and 1960s,² easing to 25% up until the economic reforms and deregulation in the second half of the 1980s, and then getting as low as 5% during the 2000s before the Global Financial Crisis struck.³

Graph 2

Saving a lot longer for a deposit

Estimated house deposit expressed as years of household income



There are two key points to take away from Graph 2. Firstly, homeownership became much more attainable for people as deposit requirements were reduced throughout the 1980s and 1990s. Of course, access to finance was significantly more difficult in the 1980s and earlier due to other restrictions on lending as well, although these effects were mitigated for lower-income households by the ability to capitalise their Family Benefit and obtain low-interest mortgages from the government. Nevertheless, the larger deposit requirements from 40 or more years ago should not be underestimated.

² The Home Front Volume II states that "the minimum deposit was often one-third of the purchase price" in May 1942.

³ Our required deposit assumptions are 33% for 1949-1969, 25% for 1970-1988, 20% for 1989-1993, 10% for 1994-2002, 5% for 2003-2008, 10% for 2009-2013, and 20% thereafter. We must stress that these assumptions are based on little more than anecdotes and personal experience, and our assumptions should not be cited as evidence that they accurately reflect the deposit requirements imposed by lenders at any given point in time. We also note that, up until the late 1980s, credit rationing was arguably a more significant hurdle for people looking to obtain a mortgage than saving the deposit. Borrowing often needed to be split across two or more lenders, as noted by Massey University professor of banking David Tripe, with higher interest rates on second and subsequent mortgages.

Secondly, the rapid growth in house prices over the last two decades has meant that deposits have ballooned compared with incomes, to the point that accumulating a 10% deposit now is more onerous than saving for a 20% deposit in 2003. The fact that the mandated deposits are also now four times larger than the prevailing norm in 2003 grossly exacerbates the difficulty for first-home buyers getting into the market.

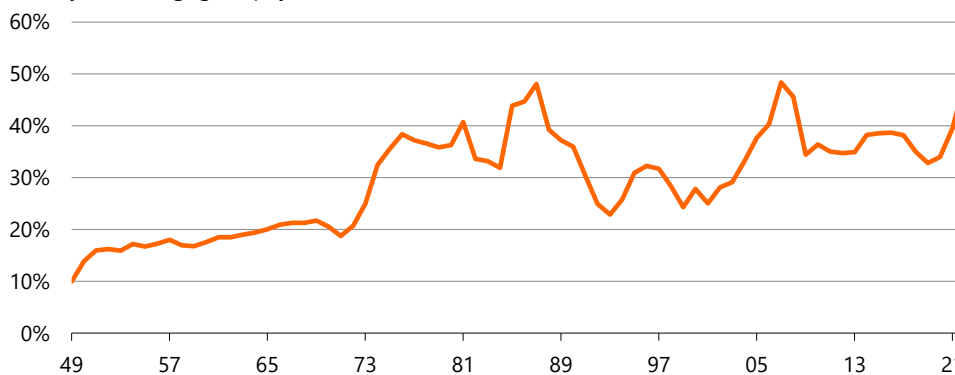
Able, and therefore willing, to service a bigger debt

Putting deposits aside, the biggest counterpoint to the house-price-to-income ratio shown in Graph 1 is mortgage servicing costs, as a proportion of income. Graph 3 shows that in 2020, the initial servicing costs for people with a 20% deposit and a 25-year mortgage were equivalent to 34% of income (assuming an average household income and an average-priced house). This figure was in line with the average for initial servicing costs over the last 50 years. It appeared to back up the baby boomers' case that buying a house in 2020 was considerably easier than in 1987, when the cost of initially servicing the mortgage took up 48% of the household's income.

Graph 3

Low interest rates kept servicing costs down... till now

First-year mortgage repayments as a % of household income



The reason for the relatively moderate debt-servicing costs in 2020 and into the first half of 2021 is obvious: mortgage rates in 2020 were at an all-time low of 2.6% and got as low as 2.2% in mid-2021. Thus, the argument goes, buyers bid up house prices because they were able to service a larger debt with the same overall weekly payments.

This year already looks like a different kettle of fish. Assuming an average mortgage rate of 4.7% for 2022, debt-servicing costs become considerably higher, and people's budgetary constraints will effectively stop them from paying as much when purchasing a property. Given current house prices, mortgage rates of 4.7% mean that initial debt-servicing costs are up at 49% of income, surpassing the 1987 record, and severely stretching the budgets of most people thinking about entering the housing market. If mortgage rates average 5.0% this year, initial debt-servicing costs would incredibly be pushed above 50% of income.

A lifetime of payments, with an asset at the end

The daunting long-term commitment for today's buyers

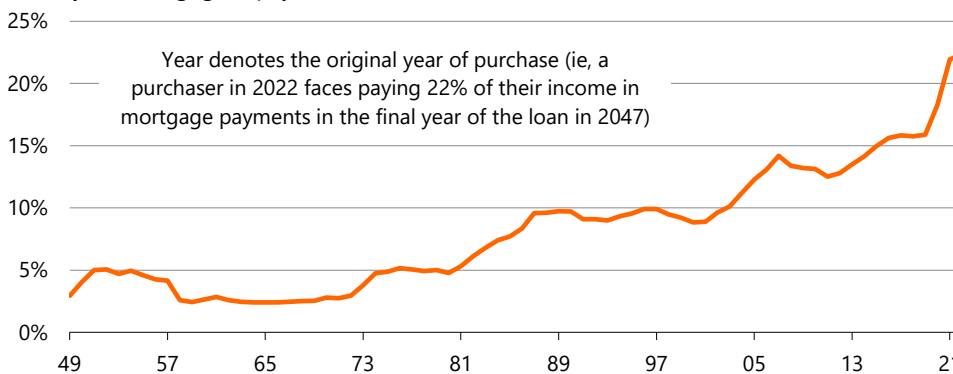
Calculating initial debt-servicing costs when purchasing a property is easy. Working out how onerous those mortgage payments will be 20 years down the track is much more difficult, because it requires predicting what is going to happen to both incomes and interest rates.

Nevertheless, final debt-servicing costs reveal where today's first-home buyers unequivocally have it harder than buyers in previous decades. For example, a buyer in 1974 experienced rampant consumer price inflation of 13%pa over the next 15 years, which was matched by similar growth in incomes. As a result, mortgage payments for this buyer had dropped to just 7.7% of income by 1989, even though mortgage rates had almost doubled from their initial level to over 15%. By the time a 1974 buyer was paying off the last of their mortgage in 1998, Graph 4 shows that payments represented just 4.6% of income.⁴

Graph 4

Still paying a lot in 25 years' time

Final-year mortgage repayments as a % of household income



A buyer in 1987 didn't experience the same prolonged period of high inflation and income growth, but payments had still dropped from 48% of income to a much more manageable 32% by 1989. Continued mortgage rate declines combined with gradual

⁴ We have based our calculations behind Graph 4 on a 20% deposit and 25-year mortgage term. Although these assumptions will differ from the lending conditions in place, particularly prior to the 1990s, they make it easier for comparisons over time. Higher deposit requirements coupled with shorter mortgage terms in the 1950s and 1960s will have opposing effects on the proportion of income needed to meet mortgage repayments.

income growth throughout the 1990s and 2000s meant that payments took up 9.6% of income in 2011, the final year of payments.

Graph 4 shows that final-year payments held between 2.4% and 5.3% of income up until 1981, lifting to about 10% of income for buyers from 1987 to 2003. Having held at between 12% and 16% of income between 2005 and 2019, this figure has now increased to an estimated 22% in 2022.⁵ In other words, for first-home buyers who have somehow accumulated a deposit and are willing to or comfortable taking on huge amounts of debt now to get into the housing market, they face the prospect of still having to devote a significant proportion of their income towards paying their mortgage in 2046. Furthermore, the house price surge of the last couple of years has made the long-term commitment considerably bigger than it was even in 2019.

Weighing up the payments against the gains

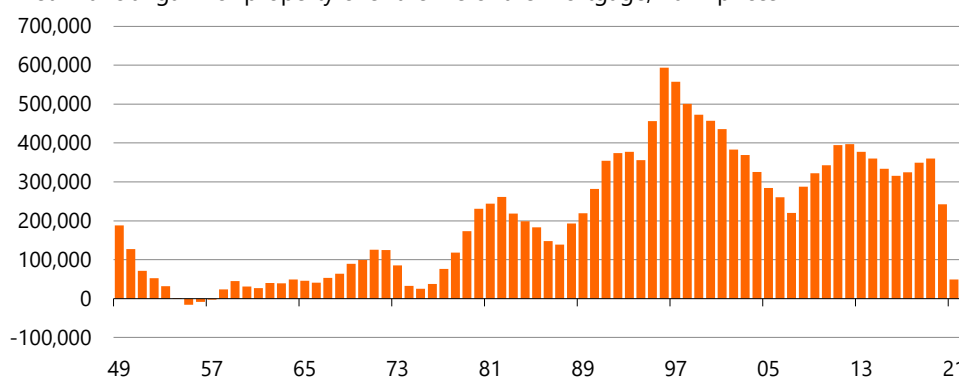
For most people, a house is a place to live, first and foremost. Apart from comparing their weekly rent against possible mortgage payments and trying to ensure they don't pay too much for a house when they first purchase it, people are probably not going to think very hard about the financial costs and benefits associated with the property as an asset over time.

Nevertheless, using the same assumptions as above, we've calculated the total amount of money that people will have put towards repayments over the 25-year span of their mortgage, plus their initial 20% deposit (all adjusted for consumer price inflation). We've compared these outgoings to the value of the property when the mortgage is finally paid off after 25 years.⁶ The net gains, in 2022 prices, are shown in Graph 5.

Graph 5

Housing looks like a big moneymaker

Net financial gain for property over the life of the mortgage, 2022 prices



⁵ Figures from 1998 onwards require projections of interest rates and income growth from 2022 onwards, with figures for more recent buyers needing projections for a greater number of years. We have used our most up-to-date forecasts for these variables between 2022 and 2027, and assumed average income growth of 3.0%pa in subsequent years, with mortgage rates holding at the 4.5% average of the last decade.

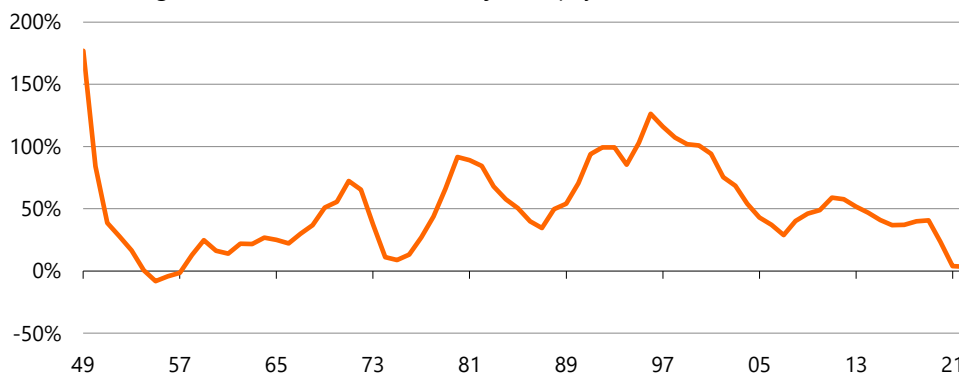
⁶ Our figures only cover mortgage payments, and don't attempt to capture other costs associated with property ownership, such as rates, insurance, and maintenance.

The surge in house prices during 2020 and 2021 means that the estimated returns for a 2022 buyer are much lower than for a buyer two years ago. At first glance, the returns in 2022 don't look too bad compared to anything prior to the mid-1970s. However, this outcome arises because property values are so much higher now than they were 50 years ago. In reality, the \$37,900 return on investment over 25 years from a property bought in 1976 is much better than our forecast 25-year return on investment of \$43,900 from a property bought in 2022. A much more accurate picture is provided by Graph 6, which shows the net gain as a percentage of the total inflation-adjusted payments made by the homeowner during their 25-year mortgage.

Graph 6

Putting the returns from housing in perspective

Net financial gain as a % of total inflation-adjusted payments



Apart from the deposit hurdle faced by first-home buyers, these figures implicitly encapsulate the complex range of variables that determine whether a particular point in time ends up being a good one to get into the housing market or not: mortgage rates throughout the life of the loan, consumer price inflation, income growth over time, house prices at the time of purchase, and house price changes during the period of ownership. Graph 6 enables us to easily see when it was a relatively good time to buy into the housing market, when it was not, and allows us to fairly compare between very different periods in time.

Two years stand out from Graph 6 as the clear “best” times to get into the housing market. Firstly, 1949 blows everything else out of the water, even acknowledging that the older data might be less reliable, and noting that we don't have figures to tell us whether prior years were even better. In today's dollars, a buyer in 1949 faced an average house price of about \$104,000, was earning about \$53,300pa, and had an initial mortgage rate of 4.0%. By the time they'd paid off the mortgage in 1974, they would have paid about \$106,200 in interest and capital to the bank and have an asset worth over \$294,000 (both these latter figures are also after adjusting for inflation). Most of the house price gains occurred in 1949-51 and 1971-74, and a buyer in 1949 would have enjoyed relatively low mortgage rates throughout the life of the loan.

The second-best time to buy a house was 1996. A buyer in 1996 paid an average house price of \$299,600 in today's prices, earned about \$81,100pa, and faced an initial interest rate of 7.6%. By the time the mortgage was repaid in 2021, they would have paid \$470,300 to the bank and had an asset worth \$1,064,000, for a net gain of 126%.

The best of times, the worst of times

Graph 7 picks out 10 of the best and worst years to buy into the housing market based on the results shown in Graph 6. What do these results tell us about trying to judge the good times to get into the market?

Graph 7

Comparing the good and bad years to buy a house

Key financial variables for property purchases for selected years

	Initial debt servicing costs	Average lifetime debt servicing costs	Real house price increase %pa
1949 (Good)	10.0%	6.3%	4.24%
1955 (Bad)	16.7%	11.6%	0.21%
1971 (Good)	18.7%	8.9%	2.02%
1975 (Bad)	35.5%	15.2%	0.51%
1980 (Good)	36.3%	12.4%	3.99%
1987 (Bad)	48.1%	18.0%	3.61%
1996 (Good)	32.2%	18.1%	5.20%
2007 (Bad)	48.4%	24.8%	2.20%
2011 (Good)	35.0%	20.3%	2.92%
2022 (Bad)	48.6%	33.1%	0.97%

Firstly, debt-servicing costs in the initial year of the mortgage are not a defining feature of how attractive things are for first-home buyers. For example, mortgage rates in 1971 were at their highest level in at least 60 years and, although a surge in real incomes meant that initial debt-servicing costs were lower than they had been since 1962, they were still higher than the previous bad time to buy, in 1955.

Similarly, there was little change in initial debt-servicing costs between 1975 and 1980, or between 2011 and the first half of 2021 (which is not shown in Graph 7, but initial debt-servicing costs in the first half of last year were considerably lower than they are for buyers in 2022). Nevertheless, the attractiveness of a property purchase is significantly different within each of these pairs of years. In other words, low mortgage rates or low house prices are useful, but not necessary, conditions for us to characterise the market as being a good time to buy.

Instead, in our view, the two stand-out variables from Graph 7 are the average percentage of income spent on mortgage payments over the lifetime of the loan, and the increase in the real value of the property over the same period. Although the average expenditure on debt-servicing has risen steadily since 1949, each “good” year for getting into the market has a lower average debt-servicing cost than the “bad” year that preceded it (except for 1996). Of course, estimating the average debt-servicing cost

over the next 25 years effectively requires forecasts of incomes and mortgage rates, so needs a substantial level of foresight from a potential property buyer.

Having said that, predicting the increase in the real value of the property over the life of the loan is even harder than judging where incomes or mortgage rates are likely to go over the next 25 years. For example, the differences in cumulative house price inflation between buying in 1949 and 1951⁷ were a 62% increase in real house prices between 1949 and 1951, and a 12% fall in real house prices between 1974 and 1976 – both of which made 1951 a considerably worse time to buy than just two years earlier.

Perhaps the best characterisation we can make about the good and bad years to purchase property, in terms of the information available at the time, is that the best years are typically when real house prices are close to the low point of their cycle, and the worst years are typically when real house prices are close to the high point of their cycle. Put more simply, if real house prices have risen substantially over the last 2-5 years, it's probably a bad time to buy. Conversely, if they've fallen or gone sideways over the last 2-5 years, it's probably a relatively good time to buy.

Of course, picking the exact peak or trough of the market is nearly impossible at the time. A potential buyer in 2010 might have seen the market starting to rebound after the Global Financial Crisis and thought it was time to get back in, when they probably would have been better waiting until 2011 or 2012. Another potential buyer might have looked at the market in 2019 and decided waiting longer was prudent given that house prices seemed to have levelled off. Anyone who did that will have been left horribly behind as house prices soared during 2020 and 2021.

In the real world, housing purchases by owner-occupiers are typically determined by a person's age, stage of life, and financial position, more than whether it might be a "good" time to get into the housing market. For example, a potential first-home buyer's personal financial situation, or broader economic conditions, might have prevented them from purchasing a property in 1955 and delayed their homeownership plans by a couple of years. However, that buyer is unlikely to wait around for 16 years (even if they had perfect foresight) until they judge that they've reached the best time to buy. In this regard, the good and bad years noted in Graph 7 represent some of the generational advantages and disadvantages for first-home buyers. Therefore, our analysis suggests that the millennials wanting to enter the market now face the least attractive housing prognosis since their grandparents in the 1950s, if not longer.

⁷ Buying in 1951 turned out not to be as bad as buying in 1955, but we have used 1951 in this example because the difference in attractiveness from 1949 is quite astounding given the relatively short gap of two years between the two potential purchasing dates.

How sensitive are the results to our forecast assumptions?

Given that our assessment of purchasing conditions for current potential buyers is based on forecasts across a range of variables, it's important to understand how sensitive our modelling is to these forecasts. This section examines to what extent different forecast assumptions could change our results for current buyers, in terms of their net financial gains and their average mortgage payments. We have conducted our sensitivity analysis based on the highs and lows of each variable's 25-year average, as shown by historical data over the last 70 years.

Our sensitivity analysis for house prices, mortgage rates, and income growth has been done independently of each other variable, but in tandem with different consumer price inflation rates. This approach recognises that much of the variation in historical outcomes has been due to changes in the inflation rate, rather than the underlying variables themselves. For example, our high nominal house price growth scenario includes house price inflation of 11.5%pa paired with consumer price inflation of 10.2%pa, implying modest real house price growth of about 1.2%pa. For this scenario, we have kept our real mortgage rates and real income growth in line with our baseline forecast, but in nominal terms, the higher consumer price inflation implies nominal income growth of 11.3%pa and mortgage rates of 12.6%.

Future house price growth is the key determinant

One of the most distinctive features of our baseline forecast is that our expectations of house price growth are relatively muted. Between 2021 and 2046, our baseline forecast includes average house price growth of 3.1%pa, or 0.8%pa in real terms (over and above consumer price inflation). Incredibly, the slowest nominal house price growth in New Zealand historically over a 25-year period has been 6.4%pa (1988-2013), while the fastest growth was 11.5%pa (1971-1996). In real terms, the slowest rate was 0.2%pa (1955-1980), and the fastest rate was 5.2%pa (1996-2021).

Against this backdrop, it becomes difficult to construct a scenario whereby house price movements over the next 25 years result in even less favourable outcomes for current buyers. Nevertheless, if we take things to their extreme and assume average consumer price inflation of 2.0%pa and house price growth of 2.2%pa, then Graph 8 shows that 2022 becomes the worst time financially on record to purchase property, surpassing even 1955's unfavourable outcomes.

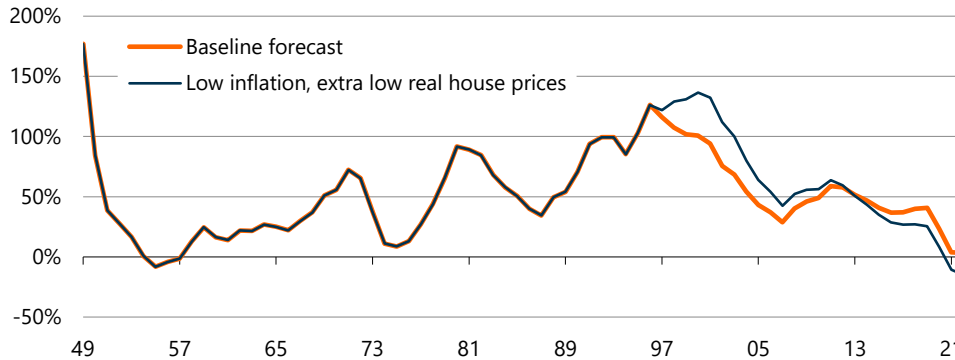
Our analysis in Graph 9 shows that our results are highly sensitive to future house price movements, and, on balance, there is a risk that buying in 2022 might not be as unfavourable as we have made it out to be. Intuitively, this outcome is perhaps best demonstrated by the possibility that the current declines in house prices end up being smaller and less sustained than are currently expected, with more of a rebound in prices during 2024 and 2025. Today's buyers would then be suffering less of a loss, and banking more gains sooner, on their initial purchase. Although a quick turnaround in the

market might seem far-fetched, we would have thought the same in the early 2010s about such a prolonged housing boom during the last decade, given how overvalued housing had looked when the Global Financial Crisis hit in 2008. It's worthwhile noting that the most "positive" scenario in Graph 9, with low inflation and high real house price growth implies that house prices would have risen to an eye-watering 26 times household income by 2047, which seems to stretch the bounds of credibility.

Graph 8

Buying now even worse if house prices stay very weak

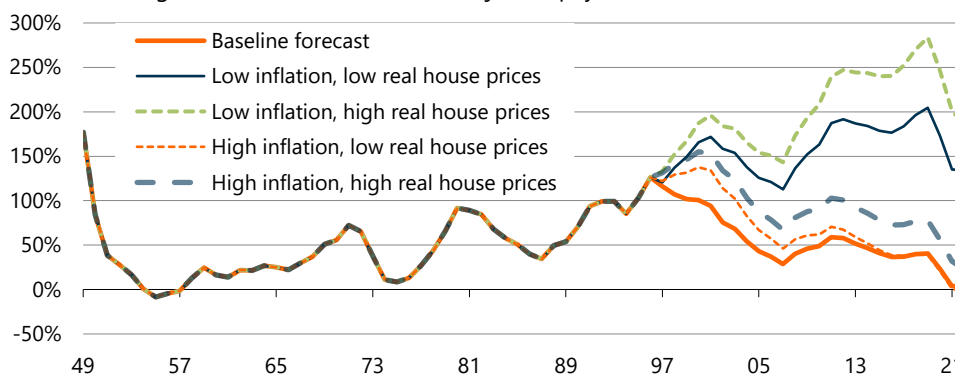
Net financial gain as a % of total inflation-adjusted payments



Graph 9

Future house price movements have a huge effect

Net financial gain as a % of total inflation-adjusted payments



Our analysis also suggests that future low consumer price inflation is better for current buyers, in terms of the net financial outcome, than a high-inflation environment. Given that house prices rarely fall in New Zealand, a low-inflation environment provides little scope for a correction in the real value of property. In contrast, higher consumer price inflation means that homeowners still feel wealthier when selling their property as house prices rise, even if house prices are failing to keep pace with the broader price level. Looking back at history, the 1974-80 period is notable for average house price inflation of 5.9%pa being overwhelmed by consumer price inflation of 14.8%pa, significantly eroding the real value of housing.

Our estimates of the average mortgage repayment over the life of the loan are not affected by our house price forecasts because the repayments are only determined by the initial price paid for the property.

Upside risks to mortgage rates make current purchases less attractive

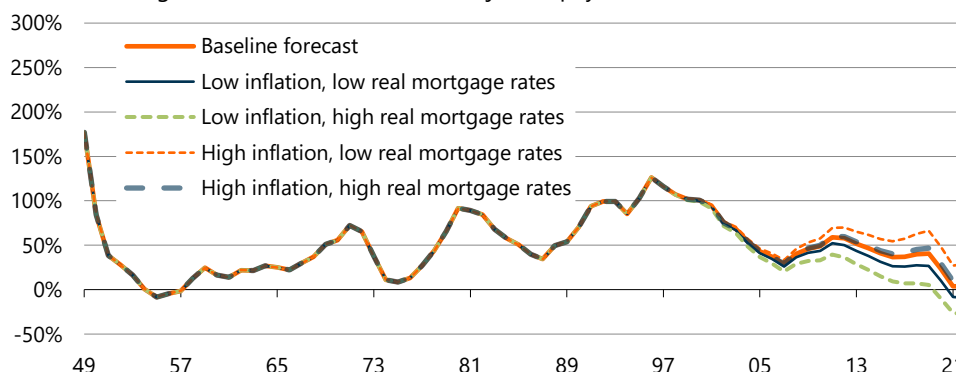
If our forecasts of limited house price growth risk exaggerating how unfavourable current conditions appear to be for potential buyers, our forecasts of mortgage rates might do the opposite. As noted earlier, our assumption for mortgage rates beyond 2027 is for rates to be in line with the 4.5% average of the last decade. The implied real interest rate of 2.5% is not out of line with historical norms, but the lowest 25-year average for nominal mortgage rates since 1949 is 5.8% (from 1949 to 1974).

It's theoretically possible to construct a scenario with mortgage rates averaging just 2.2%, with just under two percentage points originating from consumer price inflation and 0.2 percentage points being the real mortgage rate component. Both these figures are in line with the lowest 25-year averages shown in our historical data. This scenario (not shown in Graph 10) results in a situation whereby the financial decision to purchase a house in 2021 was "only" the worst it has been in 45 years, rather than the 64 years calculated in our baseline forecast.

Graph 10

Low mortgage rates help a bit

Net financial gain as a % of total inflation-adjusted payments



However, mortgage rates of 2.2% on a sustained basis seem far-fetched, so Graph 10 shows a range of more plausible interest rate scenarios. On balance, low mortgage rates are better for buyers because they pay less in interest over the life of loan. But Graph 11 shows that, even under the best-case scenario of high inflation and low real mortgage rates, a buyer today would still end up devoting an average of 28% of their income to mortgage repayments over the next 25 years – a record high, and a long way above the 16% average that a buyer in 2000 looks like they will end up paying.

Graph 10 and Graph 11 suggest that high-inflation scenarios are more favourable for buyers because they increase the likelihood of real mortgage rates being lower over the life of the loan, reducing the real value of the interest costs. On balance though, the results from our previous section suggest that these gains could easily be outweighed by the risks associated with house prices failing to keep up with consumer price inflation, leading to a decline in the real value of property over the medium term.

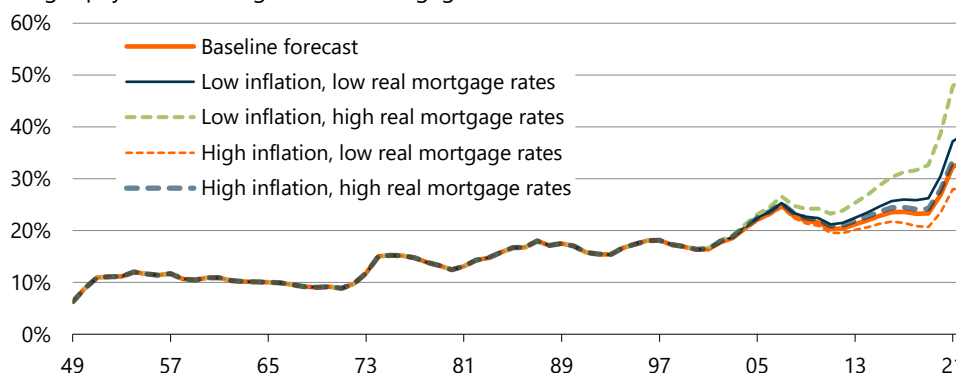
With the current balance of risks slanted towards higher, rather than lower, mortgage rates, it is also possible that buyers now will end up devoting an even larger share of their income to repayments over the next 25 years than they are bargaining for. At its

most extreme, as shown in Graph 11, a sustained period of low inflation and high real mortgage rates, equating to mortgage rates of about 8.4%, would mean current buyers face devoting an average of 50% of their income to repay the mortgage over its 25-year lifespan. Even in the final year of repayments, the cost would still represent a massive 34% of their income.

Graph 11

Inflation can help to shrink the mortgage burden

Avg repayments throughout the mortgage as a % of household income



Although this scenario seems extreme, it highlights the folly of purchasing decisions that are only based on current mortgage rates. The ability to pay overinflated prices for housing in 2021 because you could service the debt when mortgage rates were 2.2% means that people could be trapped in a lifetime of financial constraint as they have to continue making large mortgage repayments, with little room for discretionary spending or changes in personal circumstances.

Incomes won't grow fast enough to improve things

The most stable of the three variables we need to forecast for our model of housing affordability is income growth. Although the 25-year average of household income growth since 1949 has ranged between 3.2% and 11.6%pa, the bulk of that variation has been in line with broader inflationary pressures. If we look at growth in real incomes, the 25-year average has held in a very tight range between 0.0% and 2.0%pa.

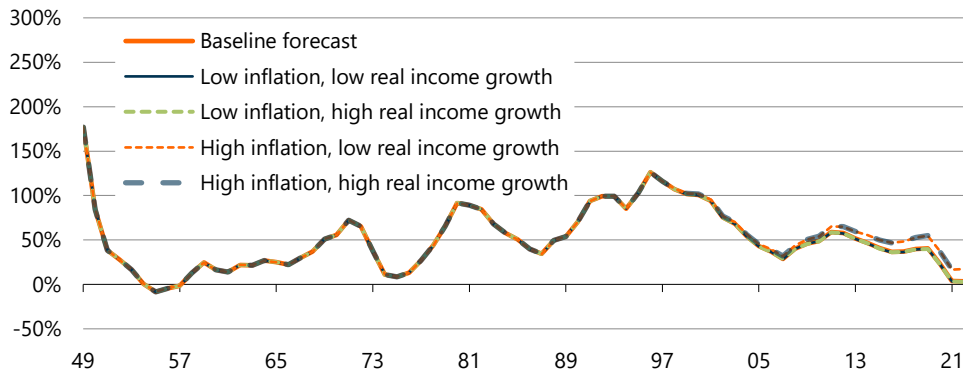
Consequently, any sensitivity of our results to different rates of income growth arises from our assumption about consumer price inflation, rather than income growth itself. Graph 12 and Graph 13 show that the variations caused by different rates of income growth are almost indiscernible compared to the effects of different assumptions about future house price inflation shown in Graph 9.

A high-inflation environment tends to produce better outcomes for homeowners over the longer-term in terms of their net financial gain from the house, as well as the proportion of their income that needs to go towards servicing the mortgage. As with other high-inflation scenarios, the real value of the original debt gets significantly eroded over time. With consumer price inflation of 10%pa, debt-servicing costs by the end of the 25-year mortgage have shrunk to about 6-9% of income.

Graph 12

Income growth makes almost no difference at all

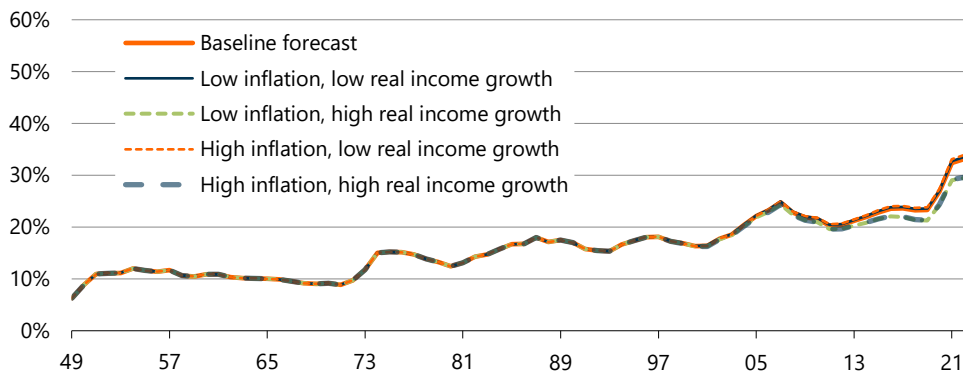
Net financial gain as a % of total inflation-adjusted payments



Graph 13

Almost no variation caused by income growth

Avg repayments throughout the mortgage as a % of household income



Addressing the affordability crisis – where to from here?

The progressive deterioration in the affordability of housing over the last 30 years has had a complex range of contributing factors that has made it difficult to understand the importance of each of the drivers to the situation. However, the surge in house prices in the wake of the COVID-19 pandemic has highlighted the extent of the housing crisis and demanded a greater political response than has been evident in the “hands off” government policies of the last few decades.

Enabling densification: less land, less house, less money

Arguably the most significant changes to date have been aimed at improving the supply of land or reducing zoning regulations and restrictions about the type of residential construction on that land. PricewaterhouseCoopers estimates that the introduction of the National Policy Statement on Urban Development (NPS-UD) to replace the Resource Management Act will facilitate an additional 72,000 new homes being built by 2043 than would otherwise have occurred. The bipartisan agreement between Labour and National on the new Medium Density Residential Standards (MDRS) is even more momentous, with central estimates showing the policy will facilitate about 75,000 additional homes across the country’s five largest urban areas by the end of this decade.

In theory, the MDRS should allow virtually unfettered construction of three storey residential buildings with up to three units per site across almost all residential areas in Auckland, Hamilton, Tauranga, Greater Wellington, and Christchurch. This intensification follows on from the adoption of Auckland’s Unitary Plan in late 2016, which has seen townhouse consent numbers in the city surge from 2,050pa in September 2017 to 11,232pa by April this year.

High land prices have increasingly pushed buyers towards smaller amounts of land per dwelling, which typically lends itself to the development of townhouses and terraced housing. The nationwide effects are evident in the fact that, outside Auckland, townhouse consents have risen between September 2017 and April 2022 from 2,644 to 7,649pa. Whereas owner-occupiers would previously veer away from attached dwellings in favour of traditional standalone houses, people are now more open to the more affordable options offered by townhouses and terraced housing. Their smaller floor area and significantly smaller section sizes mean the overall cost for potential buyers is much lower than for a standalone house.

Nevertheless, this shift in demand has been accelerated by the zoning changes in Auckland. The role of planning regulations in influencing the make-up of residential construction activity is clearly demonstrated by the outsized growth in Auckland townhouse numbers over the last five years.

Despite the role that zoning changes are playing in changing the mix of new housing, it’s unlikely that these regulatory changes will prove to be a silver bullet for the housing affordability crisis. Modelling by PricewaterhouseCoopers suggested that by 2043, with

the implementation of the NPS-UD, house prices would be between 1.9% and 7.6% lower across the five main centres than they would otherwise have been. Add in the MDRS, and the total estimated effect on house prices is between 12% and 20% lower than in the absence of the policy changes. Even so, after adjusting for consumer price inflation, real property values in 2043 were still expected to be between 5% and 45% higher than in 2021. In other words, the policies might limit real house price inflation to 1.2%pa instead of the baseline forecast of 2.0%pa.

More homes aren't much use without the infrastructure

Infrastructure poses a significant potential obstacle to the political plans to boost the housing supply throughout the rest of this decade and beyond. The rapid population growth in the second half of last decade placed major strains on various facets of infrastructure, with the increase in demand at times stretching the capacity of parts of the roading network, public transport, electricity supply, and water and wastewater networks.

Over the last 20 years, local councils have progressively moved towards a "development contributions" mechanism to fund some of the additional infrastructure associated with new housing. This shift has meant that the marginal costs of providing infrastructure to service new homes has been partly met by the new property owners, with final section prices rising to reflect the additional fees that need to be paid during the subdivision process. This approach is arguably fairer than existing ratepayers being asked to foot the bill associated with the population growth of a town or city.

In reality, though, the development contributions are unlikely to meet the full costs. For example, costs associated with water and wastewater networks are probably the easiest to identify and factor into development contributions. In contrast, costs associated with additional demand on roads are less easily identifiable. But the current funding mechanism really falls down when the demand generated by additional households requires a significant expansion of the network, such as a new wastewater processing plant or a new reservoir, because current facilities have reached their capacity.

There is major tension about how funding is sourced for the provision of this, and other, bulk infrastructure. In theory, local councils pay for new infrastructure through a mixture of debt funding (particularly for expansions to infrastructure networks) and cash reserves built up over time as existing assets have depreciated. However, the drama around the government's Three Waters proposal has highlighted the disparities between different councils, with some having well-managed balance sheets, while others are in a much less robust position. Some councils have scope to issue debt to fund infrastructure upgrades, replacements, or expansions, if necessary, while other councils are struggling to even keep their existing networks functioning properly.

Both the current and previous governments have looked to circumvent some of these issues by providing financial assistance to councils for infrastructure expansions. In 2016, National announced the Housing Infrastructure Fund, providing interest-free loans to high-growth councils. In 2021, Labour introduced the Infrastructure Acceleration Fund, providing grants for infrastructure investment associated with new housing development. However, both packages are relatively ad hoc, and fail to address the underlying systemic issues around infrastructure funding that threaten to limit increases in the housing supply over coming years.

Densification creates particularly significant issues for existing parts of infrastructure networks. For example, existing water and wastewater networks will not have been designed with the potential tripling of household numbers in mind that could occur under the government's new MDRS. In our view, significant government assistance could be required in coming years to ensure that infrastructure facilities are fit for purpose and able to cope with the changing nature of demand. Alternatively, more innovation in funding models is required to enable local councils to get around the debt constraints that some of them are running up against. Public-private partnerships, with a revenue stream coming from a dedicated portion of a property's rates bills, are one option that has been suggested regularly.

What role do expensive materials play?

The Commerce Commission is currently undertaking a year-long study looking at competition in the residential building supplies industry. A draft report with preliminary findings is due to be published in July, with a final report expected before the end of this year.

Depending which side of the fence you sit on, the timing of the review either couldn't be better, or is unfortunate, given the very strong cost increases currently occurring in the construction industry. Residential construction cost inflation is at a 40-year high of 18%pa, while cost increases for both non-residential and civil construction are at 35-year highs of 10%pa – intensifying the current focus on construction costs.

The reality is that the construction industry is presently facing the same pressures as businesses across the rest of the economy, with disrupted supply chains, high international shipping and domestic transport costs, shortages of materials, and rising wage costs in a very tight labour market. For construction, and residential construction in particular, the strength of demand conditions is that much more intense. Given this situation, the replacement cost for housing, which has an indirect influence on existing house prices, is currently only heading upwards.

The outcomes from Commerce Commission investigations into the fuel retailing and supermarket sectors over the last couple of years have been, in general, underwhelming. Consequently, it seems unlikely that the Commission's current study will have any significant effect on residential building costs and, therefore, housing affordability in New Zealand. There could be incremental improvements made around the competitive environment for certain specific products in the construction process, and we also see scope for a less costly and bureaucratic system around the approval and certification of new products and materials. However, in our view, any improvements to competition or efficiencies gained in terms of building supplies and materials will be minor compared with the affordability improvements that could be achieved by addressing the land supply constraints that have driven up housing costs over the last 60 years.

The income side of the equation

Our sensitivity analysis showed that the results of our modelling were not greatly affected by assumptions about future income growth. However, this result does not mean that incomes do not have a potential long-term role to play in improving New Zealand's housing affordability.

New Zealand's relatively low incomes, compared to most other developed economies, and poor productivity performance over an extended period are well known. At the moment, the housing affordability crisis, rising cost of living, and income differential are combining to drive an increasing outflow of young people to Australia. This exodus is occurring even though New Zealand's labour market conditions are theoretically more favourable, with our unemployment rate of 3.2% comfortably below Australia's 3.9% rate.

A key to effectively lifting incomes and making New Zealand a more attractive place for people to live and work is raising productivity. Achieving these improvements would be a medium-term result arising from better capital investment decisions and outcomes by both government and businesses. Appropriate training is also important to ensure that people have the skills to meet employers' needs as jobs and roles evolve.

Improved productivity would facilitate higher real incomes over time and an improved standard of living in New Zealand. However, we also note that the lift in real incomes would make New Zealand a more attractive place to live, potentially leading to higher net migration and increased demand for housing. As a result, we retain our view that measures to alleviate the constraints around the supply of land or new housing are critical to any lasting improvement in the affordability of housing.

Nevertheless, productivity improvements within the building sector itself could have a positive effect on construction costs and the affordability of new housing. Although New Zealand seems to lack the market size or infrastructure to effectively support the complete offsite construction of new homes, increased prefabrication of components and modules could help bring new homes to market at a more affordable price. More streamlined certification processes and standards are important to facilitate this change in construction methods, as well as greater consistency in the building consent and inspection process, which currently can vary widely between different local councils. These are issues that the government has already been working to address and improve over recent years.

Adjusting back towards more “normal” mortgage rates

Although improved productivity growth is a slow burner that might, in the end, only have a limited effect on house prices, interest rate changes over the last year are already having a significant effect on people's ability and willingness to pay such inflated values for property.

Graph 14 shows the size of mortgage that can be serviced for \$1,600 per fortnight at different interest rates, along with the lowest available mortgage rate for selected months since early 2020. The graph implies that the decline in mortgage rates between February 2020 and June 2021 effectively enabled buyers to pay an extra 14% for housing without any increase in their immediate debt-servicing costs. The effect of this interest rate drop on people's borrowing ability will have been further amplified between May 2020 and March 2021 by the removal of loan-to-value restrictions, meaning that people were able to borrow more with a smaller deposit.

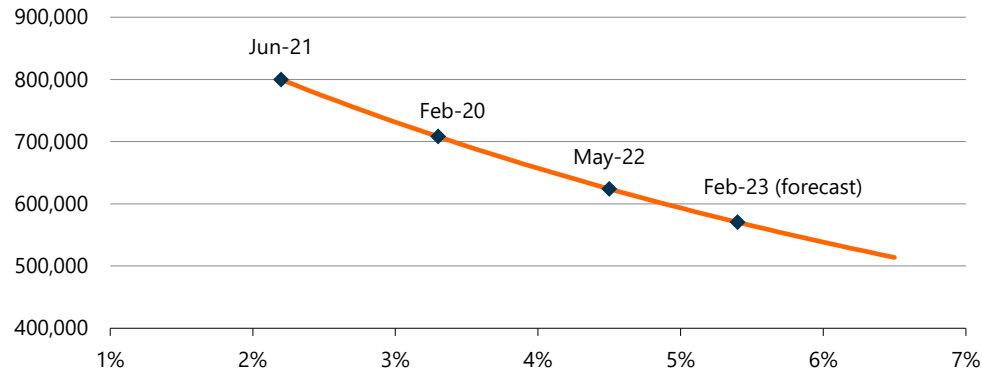
Even more confronting than the effect of falling interest rates on people's borrowing ability is the reverse effect as mortgage rates have risen since mid-2021. For \$1,600 per fortnight, a buyer in May this year could now only service a mortgage 22% smaller than

in June last year. With mortgage rates pushing towards 5.5%, that serviceability decrease will push up to about 29% by early next year, and further unexpected rises in interest rates to 6.5% would see the serviceability drop hit 36%.

Graph 14

Servicing a mortgage at \$1,600 per fortnight

Mortgage size able to be serviced at different mortgage rates



Graph 14 probably exaggerates the effect of mortgage rate changes on people's willingness to take on debt, because borrowing decisions will generally be made based on interest rate expectations, rather than simply the current interest rate. And despite expectations in late 2020 and early 2021 that mortgage rates would remain near historic lows for several years, borrowers will not have been counting on such extremely low rates persisting forever. In other words, in our view, factors other than interest rates will also have contributed to the house price surge that occurred during 2020 and 2021. As a result, we would not expect the rise in mortgage rates since mid-2021 to result in house price falls of 30%. Nevertheless, the figures are important to provide context to the house price falls that are currently occurring, and they point towards a likely improvement in house-price-to-income ratios compared with the blowout in 2020 and 2021.

Of course, in terms of affordability, the lift in mortgage rates currently occurring is cold comfort for anybody looking to get into the housing market now, because affordability has to get worse (through higher interest rates) before it can get better (through lower house prices). And, in reality, the cyclical nature of interest rate movements means that they tend to only have temporary effects on the long-term affordability of housing. More lasting affordability improvements are still largely reliant on rectifying the housing market's supply-side issues.

Housing's correlation with broader positive socioeconomic outcomes

Implicitly, our analysis and discussion of the housing affordability crisis has assumed that people being able to buy their own home at an affordable price is inherently a good thing. For example, studies have shown that higher homeownership rates lead to better community outcomes because homeowners are, on average, more invested and more positively involved in their neighbourhoods. Security of tenure is also a major benefit for homeowners compared to renters, as is the ability to make improvements to their living

situation – particularly given the lower average quality of rental housing and the potential flow-on effects for other outcomes such as health.

The government has moved to address some of these concerns about rental housing over the last few years, including introducing Healthy Homes Standards, limiting the frequency of rent reviews to one per year, and making a range of changes to improve security of tenure for tenants. Even then, the structure of New Zealand’s rental market remains much more heavily tilted in favour of the landlord rather than the tenant, particularly in comparison to the market’s structure in many European countries, such as Germany.

Arguably, however, the greatest reason for ensuring that homeownership is a realistically achievable goal for people is the financial benefit that it offers. Although there has been considerable debate in recent years about the possible introduction of a capital gains tax, this discussion has always excluded the family home. As a result, any increase in your home’s value over time represents a tax-free windfall that is not available to people stuck renting.⁸ In terms of the return on investment, these gains are further amplified for people who have a mortgage and, therefore, have much less of their own money tied up in the property.

The financial benefits of homeownership become even more obvious when a person has paid off their mortgage. Having met their mortgage repayments for 25 or 30 years, a person’s accommodation costs then effectively get reduced to paying the rates, insurance, and maintenance costs associated with their home. These costs represent a small portion of the total accommodation costs they will have faced while servicing their mortgage and, more crucially, are likely to be significantly less than the accommodation costs faced by renters, especially for a comparable house.

These lower accommodation costs become particularly important when people reach retirement age. Few people would argue that the current weekly NZ Super rates of about \$463 per person or \$712 per couple (after tax) are enough for people to live on if they face accommodation costs of any significant magnitude. Additional assistance is available to people through the Accommodation Supplement, but it is clear that the government’s superannuation support is largely based on the premise that people in retirement are homeowners.

In essence, homeownership and mortgage repayments are a form of “forced” saving. By paying higher accommodation costs while they are in their peak earning years, homeowners are then able to enjoy the benefits of lower accommodation costs in retirement when their income has also reduced. Furthermore, a shortage of rental accommodation has meant that, in recent years, people have found that renting is sometimes even more expensive than their mortgage payments would be. In this situation, buying your first home becomes something of a no-brainer – as long as you’ve been able to save a deposit.

One of the concerning aspects of the steep escalation in house prices over the last 20-30 years is that worsening housing affordability seems to have pushed homeownership out of reach for an increasing proportion of the population. And with tougher loan-to-value ratio requirements coming on top of rapid house price rises, potential first-home buyers will have been struggling to increase their savings as quickly as the necessary deposit

⁸ The benefit of tax-free capital gains assumes that house prices rise, in nominal terms, over time. Given the historical performance of house prices in New Zealand, this assumption does not seem to be a particularly bold one.

has been climbing. For many young people, a loan or gift from the “bank of mum and dad” seems like the only realistic way they might ever achieve homeownership.

This perspective hints at outcomes that strike at the heart of New Zealand’s egalitarian foundations: people largely only being able to realise homeownership because of their socioeconomic background, and a growing systemic divide between people who are able to grow and accumulate wealth and people who cannot. One of the key drivers for early British settlers in New Zealand was the possibility of escaping the class system that defined so much of people’s lives and opportunities in the UK. Yet, as Thomas Piketty explored in his book *Capital in the Twenty-First Century*, the trend has been for wealth to become increasingly concentrated in the hands of a few people over time, particularly in the period since World War 2. In this context, New Zealand’s housing market appears to be contributing towards such a trend in this country. Indeed, a look at broader wellbeing measures hints at some of the intergenerational effects of poor socioeconomic outcomes in New Zealand. Some provincial parts of the North Island fare poorly across a wide range of **wellbeing indicators**, with the negative side-effects of the economic reforms and urbanisation of the 1980s having long-lasting implications for some people and their families over subsequent generations.

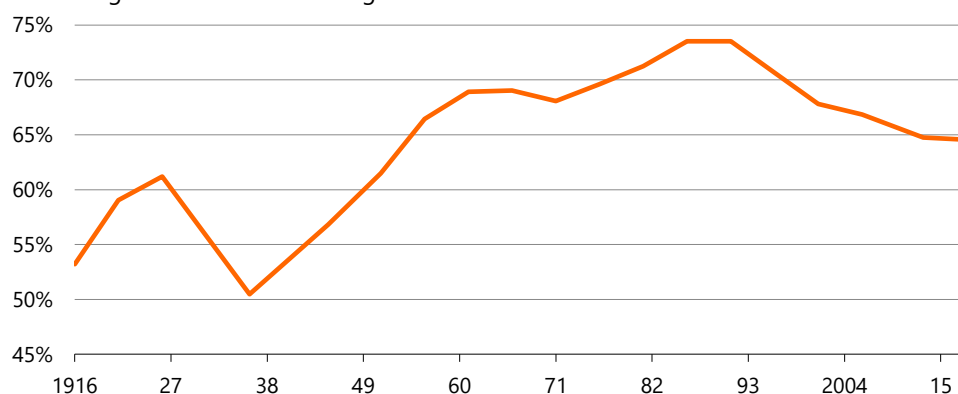
Twenty years ago, we viewed the emerging downward trend in New Zealand’s homeownership rate as possibly being driven by lifestyle choices. Compared with the 1960s and 1970s, young people were less likely to get married, have a family, or settle down until later in life, and they valued flexibility in terms of their work situation and location much more. In this regard, owning a property creates more impediments to moving, so it is easy to see why renting might be a more favoured option.

But, as Graph 15 shows, the homeownership rate has continued to decline and, in 2018, was at its lowest level since the 1951 census. The hurdles to homeownership, in terms of both property prices and deposit requirements, have become increasingly prohibitive throughout the property cycles of the last 20 years. The excuse of changing preferences and lifestyle choices no longer stands up.

Graph 15

Well past peak homeownership

Percentage of households owning their own home



The escalation of the housing booms throughout the last two decades into a housing crisis demonstrates that the market can’t be allowed to continue evolving the way it has been indefinitely. Some of the intense pressures on housing affordability in the last couple of years have been cyclical, and they will therefore ease over the next few years.

But many of the pressures are much more structural. The government has a responsibility to ensure the supply of new land and housing is functioning as smoothly as possible, as well as considering what measures might be necessary to assist lower-income families and the current generation of young people towards homeownership.