Auckland Economic Quarterly

Chief Economist Unit

Auckland Council
Te Kaunihera o Tāmaki Makaurau

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The Serviceability Affordability Model

Measuring housing affordability

- Traditional measures of housing affordability focus only on incomes, and some consider interest rates.
- These measures often exclude the challenge of accumulating the deposit.
- Our Serviceability Affordability Model (SAM) incorporates all three factors in evaluating changes in affordability across time.
- SAM shows that housing in Auckland was 9.2% less affordable in December 2016 than it was 10 years earlier, even as house prices rose 99%.

In February, we published a paper (repeated in this AEQ) highlighting that, while housing affordability is a major challenge in Auckland, a housing affordability measure that considered only the ratio of median house prices to median incomes is over-simplistic. The approach is limited because it doesn't consider the impact of low interest rates in making bigger mortgages possible, and bidding up house prices in recent years.

In that paper, we showed that, assuming a household can save the required deposit, the affordable ratio between median house prices and median incomes was as high as 6.9 by late 2016.

A median multiple approaching 10 for Auckland is high. But the ability of a household to save the deposit, we pointed out, is a big part of the challenge for many. A 20% deposit for the median house in Auckland in December 2016 was around $168,000, double what it was 10 years earlier, even as median household income rose 40%.

A better measure is clearly needed, that accounts for incomes, interest rates and deposit requirements.

Introducing SAM

Directly in response to the lack of a model that incorporates all three factors, the Chief Economist Unit has developed the Serviceability Affordability Model (SAM).

The model indexes affordability for the median household by considering how much affordability has improved or deteriorated relative to the index year. It shows, for instance, that housing affordability decreased 9.2% between December 2006 and December 2016. Housing in March 2002 was 46% more affordable than in December 2006.

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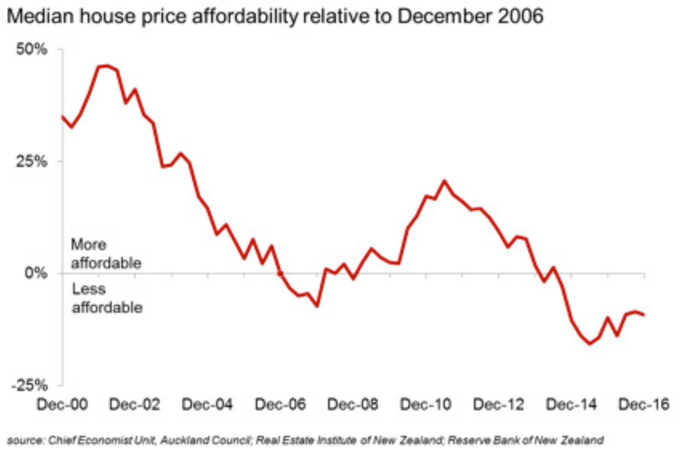
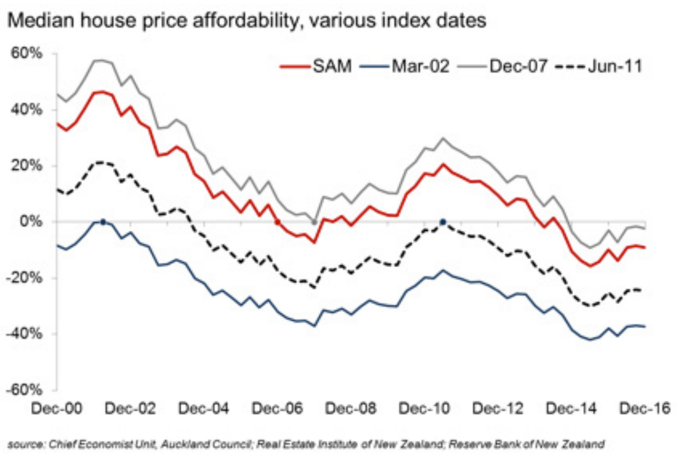


The model is useful in showing how even during the Global Financial Crisis, as house prices flattened and interest rates fell, median dwelling affordability increased sharply. In December 2007, Auckland housing was 7% less affordable than a year earlier, but by June 2011, with effective mortgage rates down to 6.2% from 8.5%, housing was actually 21% more affordable for the median household than in late 2006.

We will be incorporating the model into our reporting on key economic indicators in the Auckland Economic Quarterly.

Nuts and bolts

The model displays as an index. This means all affordability readings are relative to the chosen index date. There was no agenda in picking an index date; we simply chose a point 10 years earlier than the December 2016 quarter data being used in this paper. Shifting the index date does little to change the shape of the graph, as we highlight below.



SAM assumes that in the index quarter, the median household could save the 20% deposit required to purchase the median Auckland dwelling. In December 2006, this was $84,500 for a $422,500 home. The index does not evaluate whether median households could afford that deposit at that time; the model's purpose is to measure changes in affordability over time.

We then use changes in household income over time to proxy the ability of households to save a bigger deposit. If a median household could save a $84,500 deposit for a median house in December 2006, the 40% increase in household income since then would imply that by December 2016, they should be able to save a $118,600 deposit.

But this deposit is only 14% of the median house price by December 2016. The median household could afford a home at a price that was 72% of the median price, at current interest rates.

The model further assumes median households can spend 35% of their gross household incomes on the mortgage, and that the mortgage is for 30 years. A switch from a 20% deposit to a 10% deposit would have a small impact on the shape of the curve, but would mean that the median household could afford a home priced at around 65% of the median, rather than 72% with a 20% deposit.

Finally, like any index measuring something at a point in time, the model does not incorporate higher or lower future interest rates. It applies the current effective mortgage rate as per the Reserve Bank's data, and provides insights on current versus historical affordability.

Looking beyond the median multiple

Measuring housing affordability

Auckland faces a significant housing affordability challenge. Auckland Council has an important, but not unilateral, role in overcoming this problem.

Yet an overly-simplistic approach to comparing housing affordability in Auckland with other cities is not helpful. For instance, recent news coverage has focused on the fact that Auckland has a median house price to median income ratio of around 10 (the median multiple), which one study categorises as severely unaffordable. Auckland Council acknowledges that a ratio of 10 is too high, and in 2015 endorsed a bold target of achieving a median multiple of 5.0 by 2030.

But when you look at the list of the world's least affordable major centres, many of the top 10 are cities much like Auckland – located on the coast, with a good climate, strong service-oriented economy, rapid growth, and also consistently ranked among the most liveable cities in the world. To be blunt, the contrast with many on the list of most affordable cities is stark.

Median multiples stop far short of the full story of housing affordability. Critically, they ignore interest rates.

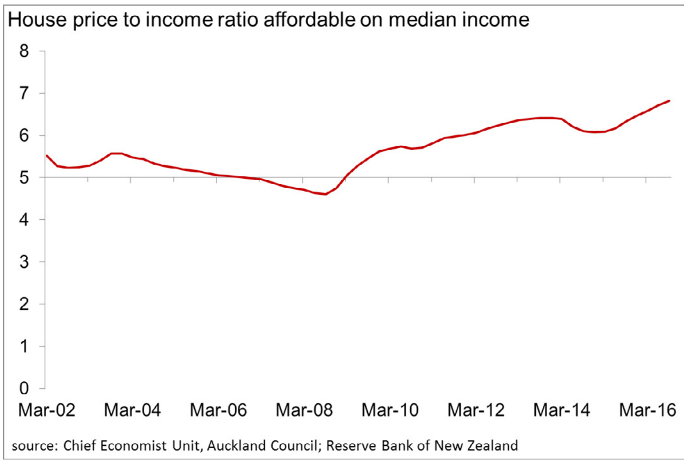
One could argue that the rapid house price increases we have seen over the past few years are largely due to the structural shift of global interest rates to historic lows. When interest rates fall, they increase the size of loan that buyers can service, allowing them to bid up prices of assets such as housing during times of excess demand. We're certainly seeing excess demand, with Auckland adding 90,000 people in two years.

And where not enough new dwellings are being supplied to meet demand, the effects of low interest rates will be exacerbated and dwelling prices will rise faster.

In other words: house prices have surged in Auckland and similar cities beacuase people want to live and invest here, because much lower interest rates have made it easier to service debt, and because supply has not kept pace.

Here's some evidence

In September 2008, when effective mortgage rates peaked according to the Reserve Bank, the median household was able to service a mortgage for a house that cost about 4.6 times its annual income in Auckland, given a 20% deposit, a 30-year loan period, and assuming a household spends 35% of its gross income on loan repayments.



source: Chief Economist Unit, Auckland Council; Reserve Bank of New Zealand

By November 2016 this multiple was almost 6.9. This is a direct consequence of the decline in effective mortgage rates (from around 8.8% in 2006 to about 4.9% in late 2016).

Instead, the real issue for people looking to buy a home at today's prices is that of needing a much larger deposit than when prices were lower. In September 2008, a 20% deposit on the median house in Auckland was $84,000. By November 2016, it needed to be around $170,000.

This deposit requirement is more likely to skew the profile of home ownership in favour of existing homeowners and investors, as it takes much longer for first home buyers to save the deposit. Meanwhile, those who have paid off their primary residence have seen capital gains that have given them the equity needed to buy an investment property.

The Reserve Bank's recent loan to value restrictions on investors may unwind this skewing a little, but there could belong lasting inter-generational impacts on wealth distribution in New Zealand.

But of course, interest rates are also on the way up from historical lows. A median multiple of 5.0, as targeted by Auckland Council, would mean that interest rates could rise to 8% before median income households would struggle to repay their debts. But even if we achieve the ambitious target of reducing the median multiple to 5.0, households will face the challenge of accumulating the money they need for a deposit. And to get to a median multiple of 5.0 will require collective action from central government, the building industry, land owners, banks as well as the council.

Key economic indicators*

Indicator	Latest	Latest quarter	12 mths ago	5-years average	Rest of NZ
Employment					
Annual employment growth (%pa)	7.6%	8.7%	2.9%	3.8%	4.9%
Unemployment rate (%)	5.1%	5.3%	5.1%	6.0%	3.9%
Unemployment rate among 20 to 24 year olds (%)	9.0%	9.2%	7.4%	10.8%	9.5%
Unemployment rate among 15 to 19 year olds (%)	19.4%	23.5%	22.5%	23.7%	22.5%
Earning and affordability					
Annual average wage growth (%pa)	0.7%	1.7%	2.5%	2.3%	2.0%
Annual geometric mean rent growth (%pa) (1)	5.1%	3.4%	3.5%	4.5%	6.9%
Geometric mean rent to median household income ratio (%)	29.3%	28.8%	29.1%	29.4%	26.3%
Annual median house price growth (%pa)	9.1%	7.0%	13.6%	11.6%	11.0%
Mortgage serviceability ratio (relative to Dec-06)	-9.2%	-8.6%	-9.8%	-1.7%	N/A
Construction					
Annual new residential building consents growth (%pa)	7.3%	14.2%	21.2%	21.4%	12.1%
Annual m2 non-residential building consent growth (%pa)	26.8%	68.2%	10.5%	10.3%	-5.4%
International connections					
Annual guest night growth (%)	4.5%	3.3%	2.0%	3.7%	7.0%
Annual net migration (%)	33,916	32,768	29,979	20,341	36,672
Confidence					
Annual retail sales growth (%)	8.0%	8.1%	7.6%	6.2%	3.1%
Quarterly Survey of Business Opinion (net optimists)	23.9%	29.1%	16.2%	27.6%	31.3%
Westpac Consumer Confidence (100+ is net optimistic)	111.8	113.3	113.9	115.7	113.1

Sources: Chief Economist Unit, Auckland Council; Statistics New Zealand; Ministry of Business Innovation and Employment; Real Estate Institute of New Zealand; New Zealand institute of Economic Research; Westpac

** Latest data is for the December 2016 quarter, except for guest nights, which is the November 2016 quarter.*

(1) Rest of New Zealand figures are for all of New Zealand including Auckland.

Data is not seasonally adjusted.

Auckland economic commentary

- Strong population growth is driving GDP increases.
- Construction, tourism and retail are leading the way.
- The housing market is cooling.

Auckland's population looks set to continue strong growth in 2017 fuelled by strong migration. This brings with it positives for businesses through an increase in demand for goods and services, resulting in higher GDP. But it also poses challenges due to the added pressure on infrastructure and housing supply.

Key growth drivers

Auckland's GDP grew at 3.9% for the year ended September 2016, on the back of buoyant construction, tourism and retail activity. We expect to see further strong growth in these sectors.

The seasonally adjusted value of residential and non-residential building work put in place in the September 2016 quarter was more than 30% higher than a year ago. We expect construction to continue to be a key driver of the economy in 2017 with residential building and large commercial and infrastructure projects such as Commercial Bay and City Rail Link leading the way. Tourism growth remains strong. Annual guest nights for international visitors rose 4.5% for the year ended November 2016. We expect tourism growth to continue as disposable incomes rise in countries like China and India, fuelling demand. Events such as the World Masters Games will also provide a boost in 2017. Retail expenditure in Auckland was 7.8% higher in September 2016 than a year ago and commercial vehicle registrations were up 14% as the population grew sharply.

Strong GDP growth has not translated into strong per capita growth. June 2016 GDP per capita was around $52,000, only 0.5% higher than in June 2015. Although businesses have reported difficulties finding labour, some labour shortages have eased, possibly due to strong net migration. Wages have in fact decreased slightly in real terms over the 12 months to December 2016.

Housing

The housing market has slowed, both in terms of sales and median price. The latest round of LVR restrictions, which banks began enforcing in mid-2016 may be cooling the housing market off as investors need to have to have 40% equity to borrow. Mortgage rates are also on their way up gradually, which may dampen demand.

However, strong population growth and relatively low interest rates, coupled with low current rates of building will keep pressure on prices. We expect the housing market to remain relatively subdued in terms of house sales as buyers adopt a wait and watch approach. We expect prices to either stay where they are or fall slightly over the next few months.

Rising interest rates globally with a flow on to retail lending rates locally is the key medium-term risk for buyers.

Employment

Auckland added about 30,000 jobs in the last quarter, reducing the unemployment to 5.1% for the December quarter despite the higher labour participation rate. This is in contrast to the rest of New Zealand, where the increased participation rate has meant an increase in the unemployment rate as well. With economic growth remaining solid in Auckland, we do not expect the unemployment rate to rise over the medium-term.

Business confidence

Business confidence for the whole of New Zealand was high at the end of 2016, as the latest Quarterly Survey of Business Opinion from NZIER shows. The capacity utilisation in the building sector was 93.5% with a strong outlook for orders and strong hiring intentions for the next three months.Hiring intentions overall show that a net 17% of businesses intend to increase headcount, which indicates a high likelihood of solid employment growth over the first half 2017.