External Research Report

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# Green Mortgages

## Financial incentives to design and build high-performance homes

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# Contents

## FIGURES

# 1 Executive summary

The New Zealand Building Code (the Code) sets clear expectations of the standards that buildings should meet. However, these are legal minimums and home owners can exceed these minimums. Previous Building Research Association of New Zealand (BRANZ) research indicates that cost is a major factor prohibiting consumers from designing and building new homes to a standard that is higher than the Code (Jaques, R., Norman, D., & Page, I., 2015). Other factors, such as fragmented, unhelpful, and inaccessible information, are also creating barriers to lift the standard of residential buildings.

This research forms part of BRANZ's *Exceeding the Minimum Programme*. It considers how the New Zealand banking sector can lead the way in financing mortgages and home loan packages that consider building integrated features in high performance homes.

High performance homes are defined in this study as those that are designed and built beyond the standards set out in the Code. The following are integrated features that could lift the standard of residential buildings:

- Thermal/energy efficiency:
  - House orientation – orienting the house living areas to the north
  - Ceiling insulation – upgraded from R3.2
  - Walls with 90 mm framing – upgraded from R2.2
  - Walls with 140 mm framing to allow for insulation with R3.2 or more
  - Structural insulated panels
  - Uninsulated concrete slab floors – upgraded to include an insulated floor slab
  - Windows – upgraded from non-thermally broken aluminium frame double glazing to, at least, thermally-broken aluminium frame double glazing, with appropriate detailing of the window-wall junction
  - Inclusion of a correctly sized heat pump
  - Grid-connected photovoltaic system
- Accessibility:
  - Including universal design features that improve access and functionality
- Ventilation:
  - Balanced ventilation

- Water:
  - Rainwater tank
  - Greywater recycling system.

## 1.1 Key point summary

The research found the following:

- Integrated features are not being accounted for in the value equation by most stakeholders in the banking, valuation and insurance sectors – valuations are holistic overviews largely based on market value, and influenced by benchmarks against similar properties rather than features of individual homes
- However, banks are generally not recording these features in home loan applications as they assume any additional features will be reflected in valuations
- The valuation sector has no mechanism for effectively recording building features that exceed minimum standards – features may be noted in reports but the information is not added to databases. In addition, property valuers are unable to inspect structural features so are limited in what features they can note in these reports
- Whole-of-life cost and future benefits are not considered; aside from Quantity Surveyors, there is little expertise to do so
- The size of the New Zealand home loan market presents a number of challenges around scalability when it comes to developing such specific home loan products – they also believe there is little customer awareness of, or demand for, such features
- A single consistent benchmark or measure, particularly around energy efficiency, defined and mandated by legislation, would create clarity for the banking, insurance, and valuation sectors, and could be easily recorded
- Stakeholders are confident such a measure would drive changes in consumer behaviour and demand, and would raise awareness of the value of integrated features that contribute to energy efficiency
- Banks would then have a clear criteria for developing a green mortgage product
- There is a global move towards green mortgages, particularly in Europe and Australia, closely tied in with green bonds as a funding mechanism
- Developers and the construction sector were outside scope, but were named as controlling forces in whether integrated features are offered in new builds. There is little research on the banking sector in this topic area, but their influence is undeniable.

## 1.2 Aim of research

The aim of this research was to consider if financial incentives, such as increased loan amounts and reduced interest rates, could be used to encourage New Zealand homeowners to build houses with features above a standard Code compliant design. The research focused on the role the banking sector currently plays in the residential housing market, and the opportunities available to this sector to lift the standard of residential buildings in New Zealand through innovative home loan products and services.

Integrated features are defined in this research as features that are not typically included in a dwelling but add to its environmental performance, and the health and wellbeing of its occupiers. Many building integrated features are good practice, and lift the standard of the residential dwelling beyond the Code.

Research questions:

- What are the opportunities for New Zealand banks to consider integrated features that are above the New Zealand Building Code as part of home loan applications, including those revealed by overseas initiatives?
- What whole of life cost and benefit information is used on integrated features, such as thermal/energy efficiency, ventilation and water?
- How readily available is this information and is it used by industry experts, such as residential property valuers or mortgage brokers?
- What role(s) do consumers play in driving change in the industry?

# 2 Methodology

The research was undertaken in three stages. The first stage was a desk-based analysis, with the results of this analysis feeding into the interviews with key stakeholders that were completed in stage two. Stage three considered the themes that emerged from the interviews along with the desk-based analysis, from which a market map was derived.

## 2.1 Stage one – background literature review

The desk-based analysis will build a picture of the current situation in regards to the mortgage market, home loan applications and fees, and the key players in the New Zealand banking sector. An international literature review explored what is happening internationally in regards to home loans and sustainability, and the role(s) that the banking sector plays in encouraging high performance homes.

Data on current practices considered information requirements for home loans, and what sustainable lending looks like in a New Zealand context. The review also considered how significant improvements to the environmental performance of a dwelling could be determined from the point of view of value and risk. Previous research undertaken by BRANZ states that it is difficult to determine value (Jaques, R., Norman, D., & Page, I., 2015). Value in this context is the price consumers are prepared to pay rather than the cost of materials.

## 2.2 Stage two – qualitative stakeholder interviews

Stage two involved a series of in-depth, semi-structured and tailored face-to-face or phone interviews with industry players. Ethics approval was sought for engagement with these stakeholders, and the information sheet was approved by an independent external ethics advisor familiar with BRANZ research (0).

Stakeholder interviews were conducted during 19 March – 18 April 2019 with:

- Financial institutions, including banks, credit unions, and cooperatives, and financial advisors (9)
- Valuation experts, including valuers and quantity surveyors (4)
- Insurance experts (1).

The interviewees were senior representatives of their businesses and organisations, with strategic input and decision making authority within their entities. The focus of the interviews was on the supply of financial products into the market, rather than the demand for these products from consumers. However, this assumption was tested in interviews with financial institutions, with some discussion on consumers and the types of products they seek. These interviews also asked about their organisation's role in educating consumers about sustainability and resilience features that are above the Code. Views from all major players in the home loans market are represented.

Examples of the types of research questions addressed through the interviews include:

- What type of information does your institution seek in ascertaining risk and value in mortgages for new builds?
- How does your bank measure value? How does your bank account for the added value of integrated features that exceed the Code in mortgage products?
- What role does your competitors/international trends/customers/regulation play in developing new home loan products?
- What information do valuers/quantity surveyors use to form a valuation?
- How are features that exceed the Code valued? Do valuers/quantity surveyors have expertise in valuing specialised assets that exceed the Code?

The qualitative data from interviews were analysed using an inductive approach that was driven by the dominant or significant themes in the raw data. Responses are anonymised for the large part, except where they refer to specific products. Three broad themes emerged across stakeholder groups: value, levers, and relationships. These are explored in greater depth in Sections 4-6.

## 2.3 Stage three – market mapping and stakeholder workshop

Stage three considered the themes and relationships that arose from stage two interviews and from the stage one literature review. From interview data and market share, levels of interest and influence were derived, and an illustrative map of the home loan market was shaped. The map is adapted from environmental scanning methodology for stakeholder prioritisation, particularly the power dynamism matrix (Mendelow, 1981).

One advantage of the matrix is that it assists in identifying stakeholders in relation to their influence over a particular issue, which enables more effective engagement and relationship building. However, the map may also be limited by the subjective viewpoints of the interviewees, and market landscapes can change depending on external levers and internal strategy. Ideally mapping is undertaken on a regular basis.

A workshop was held with key stakeholders as part of this stage. The workshop focused on whether there is value and interest in improving the valuation system, and if so, how.

# 3 Background literature review

Climate change is one of the major current challenges and governments, businesses and individuals are increasingly focusing on how the human effect on climate change can be mitigated. The relationship between the houses we live in and the effects on the global climate are also fairly well documented. Living in higher performing houses reduces energy needs and emissions from energy generation, while also providing a healthier and more comfortable home environment.

In New Zealand, many houses have been built to historical building standards that require significant amounts of energy in order to maintain a healthy climate. As New Zealand has developed, building codes have been updated to reflect achievable standards for construction. However, these standards are often used as a target rather than a benchmark, and houses built under old standards are often not improved to newer standards.

Building energy efficient homes, and retrofitting energy efficiency improvements on existing houses, can be an expensive process, and often requires credit from a bank. Because of this relationship, building financial incentives into loans to improve the energy efficiency of homes has been considered around the world as a solution to these challenges. For example, the World Green Building Council's Europe network and their partners in the Energy Efficient Mortgages Initiative, are creating energy efficient mortgages to incentivise borrowers. These incentives include increased loan amounts and reduced interest rates for homeowners who build or buy energy efficient houses.

Banks are able to offer incentives to build high performance buildings by discounting interest rates or providing more credit for green building. The World Green Building Council (WGBC) defines green mortgages as lending where borrowers are offered "preferential terms if they can demonstrate that the property for which they are borrowing meets certain environmental standards". The preferential terms can include reduced borrowing costs or access to larger amounts of credit. In a New Zealand context, green mortgages can be considered as improved lending conditions for houses that meet specified performance standards.

On face value, this is a direct cost to lenders with little benefit. There are a number of market-based advantages for banks in offering special loans for high performing homes and improvements, and a wide range of literature has emerged showing and quantifying these benefits. The benefits of green mortgages to banks can include lower cost of debt, improved public perception, and potentially, Government support.

## 3.1 Barriers to improving New Zealand homes

With climate change being one of the key issues facing the world presently, concepts of energy efficiency and sustainability are becoming increasingly important. Alongside this are a number of challenges facing the construction sector in New Zealand. BRANZ has led a body of research on the New Zealand construction industry, to understand the opportunity and interest in exceeding the minimum building standards.

This research programme has had the purpose of informing consumers of the benefits of higher-performance homes, while reducing the barriers to high-performance homes. The main objectives include that:

- Consumers and industry understand that the Building Code is a minimum standard
- Consumers understand the benefits of exceeding this minimum standard
- The barriers to exceeding the minimum are addressed
- Consumers expect and demand higher-performing buildings
- The industry delivers these homes in a cost-effective way.

In New Zealand, while high performance housing is preferred by home buyers, there are significant difficulties in quantifying the demand for high-performance housing and valuing the high performance features as found by Jaques et al. (2015). Home purchase decisions are made based on a wide range of factors, including the local schools, transport options, proximity to employment and other community and social factors.

Another challenge is the limited exposure to the high performance home technology available. Features such as thermally broken windows and enhanced insulation are not visible to consumers unless they have previously lived in a house with these features.

According to industry surveys by MacGregor and White (2018), the largest barrier to exceeding the minimum standard is the additional cost of building. In this survey, 43 percent of respondents identified this as the most significant barrier.

## 3.2 Magnitude of home lending

In New Zealand, the four Australian-listed trading banks (ANZ, Westpac, BNZ and ASB) dominate the market for residential mortgages. With their market share of 86 percent of lending, any decisions by these four banks will heavily influence the lending space in New Zealand. Kiwibank is the largest New Zealand-owned bank and has total loans and advances of $18 billion as at June 2018[1], approximately 4 percent of lending in New Zealand.

The market for residential mortgages is also constantly changing. Over time, new requirements have been included in applications to adapt to changes in New Zealand.

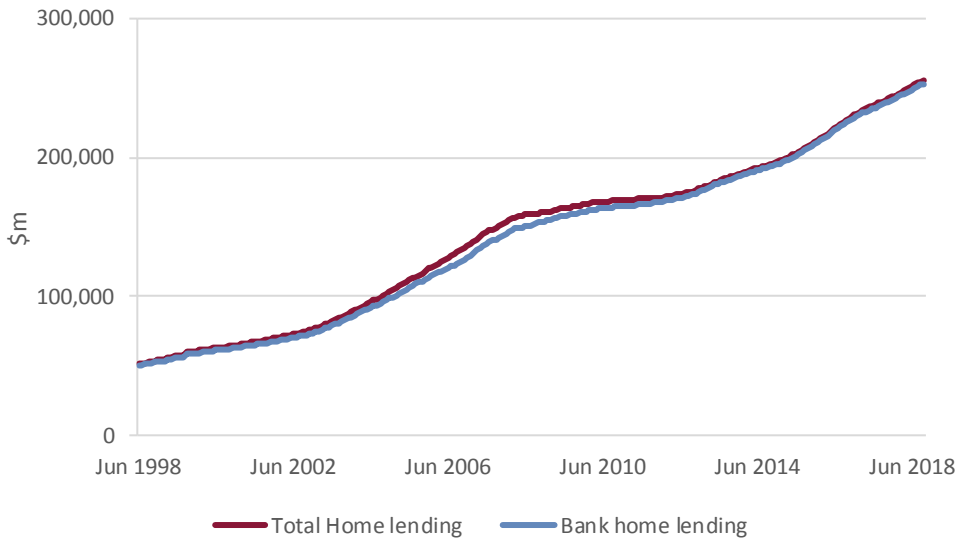
### 3.2.1 Registered banks increasingly dominating lending

In New Zealand, the 26 registered banks[2] lend an increasing proportion of the overall home lending. As at October 2018, New Zealand's banks have current lending of $250 billion in home loans (Figure 3.1). Historically some lending on homes has been through credit unions and building societies, though this is a small proportion of overall lending and has reduced significantly in recent years.

[1] Kiwibank balance sheet as at 30 June 2018
[2] https://www.rbnz.govt.nz/regulation-and-supervision/banks/register

*Figure 3.1 New Zealand home mortgage lending*

**Source: RBNZ**




### 3.2.2 Green mortgages in New Zealand

While green mortgages are not widely available in New Zealand, some major banks are promoting various products to encourage investment in more sustainable products. These products are largely for specific improvements, including sustainable power sources and insulation.

Kiwibank offers a "Sustainable Energy Loan" as an extension of the Kiwibank home loan. Borrowers are offered a $2,000 contribution by Kiwibank for borrowing over $5,000 for investment in solar, wind, hydro or geothermal power generators. After one year, $800 is credited to the outstanding balance and $400 is credited after each of the three subsequent years. This is also available for new builds, provided they have a sustainable energy system.

ANZ is also offering a limited offer of $5,000 in interest-free lending for insulating homes. This is only available to ANZ mortgage customers. ANZ has pledged $100 million to lend interest free for this purpose.

In April 2019, ANZ launched a Healthy Home Loan for customers buying, building or renovating homes which rate Homestar 6 or above, which is a comprehensive, independent tool rating the health, warmth and efficiency of New Zealand houses on a scale of one to 10, though Homestar ratings are not awarded to a home with a rating of less than Homestar 6. The Healthy Home Loan Package includes a 0.70 percent discount off the standard fixed home loan rate, 1.00 percent off the standard floating and flexible home loan rates, and fee waivers across a range of accounts.[3]

[3] Account eligibility, lending, and underwriting criteria, terms, conditions, fees, and exclusions apply.

## 3.3 Value of energy efficient homes

While there are barriers to constructing energy efficient homes and improving energy efficiency of existing homes, there are some substantial benefits that arise from improved energy efficiency. Firstly, the benefits of improved energy efficiency are the direct savings in the costs of energy. These savings can then be factored into the sale price of the house, resulting in higher home value. There are also non-financial benefits, including general health of the occupants, though these are very hard to quantify and value.

Around the world, the energy efficiency of housing is becoming increasingly measured and reported. In most European countries, an Energy Performance Certificate (EPC) is required for new buildings and when existing houses are sold or rented. These certificates rate houses from A (most efficient) to G (least efficient). The requirement for these certificates dates back to 2006, which provides valuable data for researchers. Energy efficient ratings have also become a requirement for houses sold in Australia Central Territory, though the ratings are voluntarily reported in other Australian states.

### 3.3.1 Reduced energy consumption

In New Zealand, the Homestar rating is available. Homestar 6 houses are marketed as saving $4,850 over five years, while Homestar 8 houses save $10,000.[4] However, these figures have been questioned by independent researchers based on a desktop study of 10 case study homes (Ade, R., & Rehm, M., 2019). They found that a more likely saving for Homestar 6 homes, for the case study homes, was $950 (or $190/yr.). In addition, the projected NZGBC savings do not account for accreditation costs or the other associated costs, such as material selection, home management, and other features of Homestar, which are significant.

NZGBC also claims substantial reductions in overall carbon emissions from these higher rated houses. The NZGBC literature quotes a figure of a saving of 380 kg CO2/yr. for Homestar 6 star houses, while the independent study found a median savings of 130 kg CO2/yr. Typical houses in New Zealand would achieve two to three stars, while a new build to the Code would earn up to a 4-star rating.[5]

### 3.3.2 Sale and rental prices of energy efficient houses

The savings in energy, along with other benefits of being energy efficient, are often capitalised into the overall value of the house. Studies in Europe have found that there are some substantial benefits of energy efficient homes. Mandatory EPCs in Europe has resulted in the creation of very large datasets of house prices and characteristics including their energy efficiency rating. With these data, analysis on the effects of the energy rating on sale prices and rental prices has occurred in a number of European countries.

[4] https://www.nzgbc.org.nz/Story?Action=View&Story_id=227
[5] NZGBC Homestar Rating FAQs https://www.nzgbc.org.nz/Category?Action=View&Category_id=359

A relatively early study in the Netherlands analysed the value of 177,000 home sales in 2008 and 2009 (Kok, N., & Brounen, D., 2011). They found that having an A-rating resulted in a 10 percent premium on the sale price. They also found that homes with a higher rating were sold much faster than less efficient houses.

A more recent study, also in the Netherlands corroborates this early finding. The authors compared houses that were similar other than their energy efficient rating, and found that from 18,000 residential house sales, energy efficient homes fetched prices of 2.0 to 6.3 percent higher than their less-efficient counterparts (Chegut, A., Eichholtz, P., & Holtermans, R., 2016).

Variations of the EPC are in place across Europe, though there are differences between countries. Some similar studies have been conducted in other European countries, including in Sweden, Northern Ireland, Spain and the United Kingdom. A meta-analysis on this topic was conducted by Ankamah-Yeboah and Rehdanz (2014). In this study, the results of studies around the world, including the European studies, were compiled and analysed to find the average energy efficiency premium estimates in each country and continent. While they found that there was an average premium of 7.6 percent on energy efficient homes, the rates varied significantly between areas. In Australia, the average premium for energy efficient homes was just 1.4 percent, compared with an average of 9.8 percent in Europe.

## Rental prices

The benefits of improving the performance of residential rental properties is also less responsive to energy prices. The costs of improving a home fall on the landlord, while the savings in electricity are received by tenants. This results in a situation where unless the landlord is able to receive this benefit, or expect to receive this in terms of the total rent received, then the investment is less likely to be made. As the financial savings in an overall sense are the same, asymmetry of information and power imbalance are seen as key factors that drive the continual low-performance of rented properties. This principal-agent problem is highlighted in a New Zealand study by Barton (2012).

Low income and vulnerable families are overrepresented in the rental market. Barton notes that at the time of writing, child poverty rates were three times higher in rented homes. Families in such situations are less able to bargain with landlords, limiting the financial incentive for the landlord to improve properties above minimum standards.

The Healthy Homes Guarantee Act passed in 2017 allowed for the development of standards to improve the quality of rental housing in New Zealand. From 1 July 2021, private landlords must ensure that their rental properties comply with the standards within 90 days of any new tenancy. The Healthy Homes Standards include requirements around ceiling and underfloor insulation, fixed heating devices in living rooms, extractor fans in kitchens and bathrooms, efficient drainage and guttering, and no noticeable draughts. The goal of the healthy homes standards is to ensure tenants are able to live in warm and dry homes, and to improve energy efficiency. While it would be expected that this will result in improvements in the overall rental stock, the rental market does not appear willing to go above these minimum standards.

There is an ongoing challenge around the world regarding the state of rental properties. Rental properties tend to have lower energy efficiency ratings than owner-occupied houses. In England, more than one in ten rental properties is in the lowest two EPC ratings (F or G), which compares to just 2 percent of social houses.

A study released by the World Wildlife Fund (WWF) found that the costs of raising the lowest houses (F or G rating) up to a recommended minimum standard (D) would cost £5,800 and result in savings of £1,200 per year (James, 2015). James also found that loft insulation for as little as £900, could yield annual electricity savings of £190. For houses with the lowest energy ratings, upgrades are very affordable compared to the capital value of the house. In another study, from 3,000 homes surveyed, all were able to achieve an E rating for less than £3,500 (Ambrose, 2015).

### 3.3.3 Health benefits

A number of studies in New Zealand have also shown the health benefits, including by Grimes, et al. (2011). As these benefits are received by the occupants of the property, this is also a challenge for rental properties as it is unlikely that the landlord will receive sufficient financial benefit from the improved health outcomes of tenants to be enticed to make improvements to their rental properties.

### 3.3.4 Global transition towards energy efficient houses

Internationally, with the ongoing challenges of climate change, there are increasing numbers of policies and practices set by governments, businesses and individuals to reduce carbon footprints and improve energy efficiency. The first stages of these policies have included mandatory reporting of energy rating and enforcing all new builds meet certain target standards. One of the benefits of these ratings is that there is an easy identification of where a property sits on the performance scale, and what can be done to a property to increase its position on the scale, above and beyond the minimum required standard.

In Europe Nearly Zero-Energy Buildings (NZEB) status and EPC ratings are the standard for measuring energy efficiency of houses. As they are in line with the European climate change targets, they have been adopted in various methods for Green Mortgages.

#### Nearly-zero-energy buildings

In the European Union, Directive 2010/31/EU, which addresses the Energy Performance of Buildings, requires countries to meet new standards for NZEBs and enforce them in the near future.

Article 9(1) of this directive states:

> "*Member States shall ensure that:*
>
> - *by 31 December 2020, all new buildings are nearly zero-energy buildings; and,*

- *after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings.*

  *Member States shall draw up national plans for increasing the number of nearly zero-energy buildings. These national plans may include targets differentiated according to the category of building."*

As European countries can have wide variation in climate, the directive allows countries to present their own definition for NZEB. These measurements vary from country to country, with common standards being maximum energy consumption per square metre (kWh/m$^2$).

France has adopted a standard of 50 kWh per square metre per year for a home to be considered a NZEB. Germany has opted for a more relative measure focused on KfW efficiency houses (KfW stands for Kreditanstalt für Wiederaufbau, the German Bank for Reconstruction). This rating considers a house to be a NZEB if it uses less than 40 percent of the energy of a standard reference building.

Some other parts of the world have also offered green mortgages. In 2011, the Bank of Montreal in Canada offered a green mortgage called the "Eco Smart Mortgage", which offered a 0.4 percentage point discount in interest rates. In Mexico, one in four homes has been funded by the Instituto del Fondo Nacional de la Vivienda para los Trabajadores (Infonavit).[6] As the largest mortgage lender in the region, Infonavit is the main promoter of high performance homes, with all new homes financed by the Institute having energy efficient integrated features.

## 3.4 Relationship to banking sector

As identified in previous studies, the most significant barrier to building high performing homes and improving existing homes is the cost. As much of this spending is funded through bank loans, creating advantages though the lending process could result in substantial reductions in this barrier, increasing frequency of retrofitting improvements and building higher-quality homes.

While there are benefits to consumers from investing in either improving their house or purchasing a high-performance home in terms of energy efficiency and comfort, there are also potential opportunities for the banking sector from engaging in the high-performance home market.

[6] https://www.gob.mx/epn/prensa/infonavit-is-the-main-mexican-state-institution-for-ensuring-that-families-can-exercise-their-constitutional-right-to-decent-housing-epn

### 3.4.1 Corporate Social Responsibility

Corporate Social Responsibility (CSR) is an interesting space that has been studied extensively for decades. Having CSR as part of business operations has become an essential part of the corporate world, and is a mainstay in corporate marketing. Having a green image, increased levels of social accountability, and a stronger focus on sustainability in corporate strategies are also becoming increasingly important with upcoming climate change targets.

### 3.4.2 Lower default risk

As the objective of banks in lending for mortgages is to make a profit, the risk of default needs to be included in the costs of borrowing so the bank is able to make profits, even with borrowers occasionally defaulting on their loan. This has been a particularly important issue since the subprime-mortgage crisis that sparked the Global Financial Crisis in 2008, resulting in banks implementing more checks on the ability of borrowers to service the loan under minor shocks or unforeseen circumstances. Defaults can occur for any number of reasons, including changes in employment or falling into negative equity. Defaulting on mortgages are relatively uncommon in New Zealand, and are often the result of significant shocks or unforeseen circumstances.

As more energy efficient houses have relatively lower energy costs than other houses, it is hypothesised that energy efficient homes will have a corresponding reduction in mortgage default risk. Very few empirical studies have been conducted to demonstrate and quantify this effect.

One study has considered this link in the United States, finding a large statistically significant reduction in defaults for energy efficient homes (Kaza, N., Quercia, R., & Tian, C., 2014). The authors found that having an energy star rating results in a 32 percent lower likelihood of defaulting on the home loan. This finding does not control for income of borrowers so may be a substantial over estimate of the effect of the rating. They also found that the level of energy efficiency is also important, and having higher energy ratings further reduces the default risk.

### 3.4.3 Green bonds market

The importance of CSR and the public demand for green investments has become evident through the advent of the green bond market. Financial markets are constantly creating new forms of investments. These investments are for any number of reasons, including as a hedge, portfolio diversification, or for speculation. The green bond is one of the latest creations. While having a very large market in the United States, green bonds have also increased in popularity in Europe, Australia and New Zealand.

Bonds are simple debt instruments that companies or governments can use to raise funds. Green bonds are a subset of bonds that have a specific purpose of funding 'green projects' in line with the Climate Bonds Standard (Climate Bonds Initiative, 2016). The first green bond was issued by the World Bank in 2008. Green bonds are a more recent addition to the

New Zealand financial markets, with the first bond issued in August 2017 to finance private sector investments to address climate change in emerging markets.

Investing in green bonds presents opportunities to corporations that are unavailable through traditional bonds. Firstly, investment in green bonds, or having a substantial proportion of investments in green bonds can be very valuable in the overall corporate image of businesses.

#### Green bond yields

As green bonds have very similar structure to traditional bonds, though with a number of advantages, it is unsurprising that the yields of green bonds tend to be lower than other comparable bonds. This indicates that purchasers are willing to accept a lower return for green bonds than other bonds.

This has been the subject of a number of studies. Analysis by Zerbib (2017) found the yields for green bonds were an average of -8.2 basis points (0.082 percent) lower than the other non-green counterparts (0.016 median). This work has been corroborated by further studies including by Baker, et al. (2018) who estimate that green bond yields are six basis points lower than otherwise similar bonds

The appetite for green bonds, and the fact that green bonds are sold at a premium (meaning they are purchased for more than other bonds with the same payments) to otherwise traditional bonds, shows that there are real benefits in having a green bond certification. Research is not available on what drives the decision for purchasing green bonds at a premium, whether it is as part of CSR, or driven by consumer demand.

While there is an association with lower yields, some studies have found that this does not necessarily have a clear association with lower costs of credit for lenders (Zerbib, 2017).

### 3.4.4 What this means for New Zealand banks

New Zealand banks are in a position to generate CSR benefits for facilitating transactions that may not have any effects on the bank's ability to maintain their full margin on lending. Through reduced costs of borrowing through the green bond market, the lower costs can be passed on to borrowers for improved energy efficiency.

This scenario presents a theoretical opportunity to maintain the margins on lending, while also promoting the bank as a contributor to the ongoing effects of climate change and improvement of New Zealand's housing stock.

#### Default risk

Secondly, the risk of loan default is expected to be reduced for green mortgages as a result of reduced energy requirements. This allows banks to lend more to otherwise similar borrowers with the same risk taken by the bank. This has less supporting literature than green bonds, though theoretical benefits remain.

## 3.5 Green mortgages

In this section, the current market for green mortgages is considered, including the international markets of Europe and Australia, and the direct relationship to green bonds. Green mortgages are very similar to green bonds, though they are debt instruments for residential properties rather than larger corporate or government initiatives. These mortgages can take a number of forms, for purchase of high performing homes, or for improving existing homes to make them higher performing.

The WGBC, that provides green mortgage certification, has been focusing on building to meet three goals by 2050:

- Limit global temperature rises to 1.5 degrees Celsius
- Reduce $CO_2$ emissions of building and construction sector by 84 gigatonnes
- Ensure all buildings are net zero emissions.

These objectives are within the target set by the Paris Agreement to keep the increase in global temperature to below 2 degrees above the pre-industrial level. The NZGBC is a member of the WGBC, and developed the previously mentioned Homestar rating, in partnership with BRANZ and Beacon Pathway.

Given the similar nature to green bonds, it would be expected that there should also be a commercial appetite for green mortgages, offering financial incentives to borrowers investing in environmentally friendly properties and improvements. The other benefits of higher performing houses, including increased value of housing and potential decreases in ongoing heating costs can also decrease the default risk for banks.

### 3.5.1 International green mortgages

Over 2018, significant progress was made in green mortgages in Europe. In June 2018, 37 banks across 12 European countries launched a pilot scheme for green mortgages. While green mortgages offer borrowers either larger loans or discounted interest rates, these can vary between banks.

#### Eligibility

For the 37 bank pilot scheme, new builds are required to meet national standards of being a NZEB in the relevant country. For renovations, a 30 percent reduction in energy demand with a new EPC will qualify for green mortgages.

Banks outside this pilot use other methods for identifying high performing homes. As at February 2019, Barclays in the UK offer a 0.1 percent discount for their green mortgages. To qualify for a green mortgage, the mortgage must be for a new-build home with a predicted EPC rating of A or B (SAP score>80).

### 3.5.2 Green finance in Australia

The green banking climate in Australia has been influenced by a number of Government policies, including the creation of the Clean Energy Finance Corporation (CEFC). The CEFC's mission is "to accelerate Australia's transformation towards a more competitive economy in a carbon constrained world, by acting as a catalyst to increase investment in emissions reduction".[7]

In the Australian green finance space, there appears to be more buy-in by the smaller banks and credit unions, with limited participation from major banks. These loans tend to be primarily focused on green renovations to existing houses or for installation of solar panels and wind turbines. One major bank with green mortgages, Westpac Australia, is able to offer green loans through a funding arrangement with the CEFC. This arrangement allows Westpac to offer a 0.70 percent discount on interest rates for loans that meet specified criteria.

### 3.5.3 Funding green mortgages with green bonds

Barclays have utilised the market for green bonds as a funding mechanism for issuing green mortgages. Barclays have issued a €500 million green mortgage bond for this purpose. This allows the green bonds, which are sold at a premium, to pass on the relatively lower rates onto the end consumer.

This is also a very recent development in the Australian mortgage market. In February 2018 National Australia Bank included an A$300 million green tranche of an A$2 billion mortgage-backed securities transaction. In December 2018, Pepper Money, a non-bank lender issued a $245 million (AUD) green bond for mortgage backed securities of energy efficient homes. While this is a substantial quantity of green finance, this remains a very small amount compared to the magnitude of lending. A transaction of this scale in New Zealand would account for just one tenth of a percent of the residential lending market.

## 3.6 Summary

Improving the stock of New Zealand's housing, and improving new building is becoming increasingly important for New Zealand. With the ongoing effects of climate change, reducing New Zealand's carbon footprint and energy consumption is an important component for New Zealand in meeting obligations in international agreements. Many other jurisdictions around the world are also taking up green lending at an increasing rate. There is little literature demonstrating the outcomes of these programmes due to the recent uptake, though the rate of adoption suggests positive effects.

As the banking sector is closely linked to housing due to the very high dependence on mortgage financing for house purchases and development, addressing this challenge through the banking sector can be an effective mechanism to improve housing in New Zealand. While improving housing results in improvements for both New Zealanders and

[7] CEFC Annual report 2018 - https://annualreport2018.cefc.com.au/

the world, banks also have opportunities to gain through green lending too. There are three potential benefits for banks in increasing their lending for higher-performance:

- Improved public perception
- Lower cost of borrowing through green bonds
- Reduced default risk.

If banks are able to receive these three benefits, the green lending market offers banks the ability to increase lending at a lower risk, while also retaining their margins and profitability of lending.

# 4 Residential property value

This section explores the many types and uses of value and valuations. Value has different meaning and use for each of the stakeholder groups (banking, insurance, and valuation), and there are a number of methodologies for establishing the value of a property for different purposes. The information in this section has been obtained from stakeholder interview responses.

## 4.1 Types of value

### 4.1.1 Land value

Land value or the unimproved value is the market value of the piece of land a building may sit on. As it does not include the value of any buildings, or services that may be provisioned, it therefore does not take into account any high performance features. Land value is relevant in considering a mortgage application, as it is usually a major contributor to the total market value of a property.

### 4.1.2 Market value

The market value is defined as the price the property would reach if it were to be sold.

### 4.1.3 Replacement or reinstatement value

Replacement or reinstatement value is the amount it would cost to rebuild the home to the same standard should it suffer damage. This determination of value is increasingly used by the insurance sector as they move to sum insured policies. The quantity surveying sector, who specialise in estimating cost for building materials and services, report that they are encouraging this shift to sum insured type policies.

Under a sum insured policy, the customer must nominate the amount they wish to be insured for. In the event of a claim, the insurer will pay out only up to that limit, or actual reinstatement value if lower.

For owners of existing homes, there are online calculators to assist in calculating the rebuild cost of their home. Online calculators may or may not include high performance features depending on what information is gathered from the user, and the method of calculating the estimate. The onus is on the home owner to allow for the cost of reinstating features or specifications which exceed the Code.

For new builds, the build cost gives the relevant figure. For large constructions, quantity surveyor services will be used to ensure accurate cost expectations, which may include integrated features and specifications above the Code.

### 4.1.4 Government value

Also known as Rateable Value (RV), the primary use of the Government Value (GV) is by local government authorities to calculate the rates payable for that property. The GV is recalculated every three years according to changes to the property of which the council is aware, sales information if the property has changed hands, and the sale prices of other properties in the area.

Because of this regular updating, and the influence of local sales information, the GV is used as a yard stick against which other valuations can be compared.

However, there are many reasons why the GV may not reflect the market value. Primary amongst these is that the process for calculating the GV does not include a property inspection, so it does not take into account the condition or maintenance status of the home, or any improvements apart from those requiring a building consent. Property markets can move quickly, meaning that the GVs of an entire neighbourhood can become significantly out of date in the period between recalculations.

## 4.2 Methods to establish value

Stakeholders reported a variety of methods to predict the value of a property, each with its own strengths and drawbacks. The only exact method is to offer the house for sale and secure a buyer, the below are options which do not require such a drastic action, but by definition they can be estimates only.

### 4.2.1 Automated Valuation Model

Automated Valuation Models (AVM) are owned and operated by property database companies, of which there are two large players in the New Zealand market. The following information comes from interviews with representatives from both of these companies.

To estimate the market valuation of a specific property, an algorithm is applied to a database of property details. Information on the size, age, and basic features of a house can be compared against others with a known sales history, producing a likely price range. Companies offering AVM valuations also provide registered valuer reports, however specific feature information noted during an inspection is not added to the AVM database due to information privacy concerns.

AVM databases are primarily populated with information from local councils, and as such they do not hold a lot of specific information around property features. If a house has a certificate of compliance for building work undertaken, then it is assumed to be at the level of the Code. Data from Trade Me and other sources is also incorporated to track changes in value.

### 4.2.2 Registered valuer reports

Considered to be the gold standard for evaluating a property's market value, a registered valuer report includes a search of legal documents relating to the property, and an inspection performed by a qualified and registered property valuer. Registered valuer reports are conducted according to the Standing Instructions for the Valuation Industry developed by the Residential Valuers Forum.

Valuers spoken to explained that they are evaluating the home's market value, so they only account for integrated features to the same extent that they understand the market will value them. Many passive features, such as insulation, are not visible on inspection, so they will be assumed to be at Code for the age of the building, unless alternative information is supplied. Overall, passive features, even if visible, tend not to increase market value.

Solar panels are more visible and are considered an active feature as their effect can be seen in electricity consumption. Valuers interviewed for this research felt they do not stack up economically, therefore do not contribute positively to the market value. Heat pumps are an exception as they are very active and the occupant can physically feel the heat/cool produced. The valuation sector are of the opinion that these are valued by the market, and have become a mainstream feature that will be reflected in the property's overall value.

### 4.2.3 Replacement or reinstatement value

The insurance sector described four ways to estimate the rebuild cost:

i) Default sum insured ($2-2.5k p/sqm + $30-40k removal, demolition, etc.) - the Insurance Council of New Zealand states that this calculation is already out of date as costs have increased

ii) Insurers website - sum insured calculator, uses details about property (floor area, bathrooms, bedrooms, kitchen, deck, pool, etc.) to calculate the replacement value

iii) Valuer calculates replacement value using a standard template

iv) Replacement cost calculated by a quantity surveyor using specific property information and current building costs.

The insurer and home owner must agree on the sum insured to be used on the policy. This is the maximum amount that the insurer will pay out in the event of a total loss.

## 4.3 How value is used

Home owners and institutions, including the banking and insurance sectors, use the concept of value in different ways to support their decision making.

### 4.3.1 Banking sector

Market value is used by banks to ensure they have adequate security against a loan. On receiving a mortgage application they request information from the customer, but will also

independently ascertain an estimate of market value of the property. They do this by seeking information on market value from either an Automated Valuation Model (AVM) or a registered valuer report. Banks who use AVM estimates said they do so 75 percent of the time, only requiring a registered valuer report if the risk is high, or the customer has different value expectations to the AVM result.

An accurate value estimate is important for banks as they must make a risk assessment for each mortgage application. The value used will be relied on for establishing the loan to value ratio, and feeds into the bank's overall deposit ratios.

Where a registered valuer report is required, this would normally be a panel valuation where the person contracted to conduct the inspection and valuation is chosen independently. The banks interviewed for this project believe a registered valuer report to be the best capture of true market value. Banks 7 and 9 stated they require a registered valuer report for every mortgage application.

Before a mortgage can be issued, the bank must be satisfied that the debt servicing ratio is reasonable, this ensures that the customer can afford the loan repayments. While the banks do require a certificate of insurance before issuing a mortgage, they do not check to see if insurance is ongoing. Banks may not check sum insured to ensure the cover is adequate.

No bank reported that high performance features were awarded any additional value; all banks interviewed said that it is assumed to have been captured in the market value of the property. Bank 7 said that whole of life running cost would only be considered if the customer was marginal on affordability, and they were able to make a strong case that their ability to repay was increased due to reduced running costs of their home. They also reported that any home feature considered to be a chattel could have a maximum listed value of $10,000. This may mean that high performance homes with features above this amount may not have their full value recognised.

### 4.3.2 Insurance

As described above, the current insurance market is moving away from pricing risk according to market value, to sum insured policies based on the estimated rebuild cost. In the event of a loss or damage to the property, the insurer will pay out the actual reinstatement cost or the sum insured, whichever is lower. This gives the insurer more certainty about the risk profile of their portfolio, as the maximum liability for each individual policy is known. The sum insured is also used in the risk calculation which results in setting the premium payable.

### 4.3.3 Home owners

Home owners will tend to be primarily interested in the market value of their property. However, the GV is relevant in the context of determining their expenditure on rates, a significant contributor to running costs. When purchasing or building a new home, determining the market value is key to avoiding overspending. Paying too much to

purchase or build a home can result in inability to secure a mortgage, and increases risk if the market were to fall, resulting in a negative equity situation. Likewise in considering a renovation, a high spend relative to the market value of the property can be a case of over capitalising, resulting in issues securing finance and exposing the owner in the event of a property market downturn.

Home owners play a role in choosing the sum insured for their property, and so they must have an understanding of the replacement value to avoid either under or over insuring. The higher the sum insured, the higher the premium payments will be. In this way the customer can choose the amount of risk they wish to insure, and the amount they wish to carry themselves.

Registered valuers spoken to were of the opinion that home owners do not tend to take running costs into account when purchasing a property. One valuer gave the example of prospective house buyers in Wellington who are unconcerned about rising insurance costs.

## 4.4 Value of integrated features

The cost of installing integrated features such as thermal/energy efficiency, ventilation and water often fall on the owner of the property, while benefits flow to the occupant of the home over the lifetime of these features. This may or may not be the same person if the house is built by a developer, is sold on, or is a rental property.

Because the costs and benefits often flow to different people, owners who do not themselves live in the home have little incentive to improve an existing house or build beyond the required standard. Landlords are unlikely to exceed the Code unless they see that it makes business sense for them to do so, i.e. their tenant demands it and is willing to pay a premium in rent.

Valuers said that integrated features rarely increase the market value of a property, and that this is particularly so if the feature is passive or hidden (inside walls or under the floor). Above Code homes remain relatively rare, and valuers said they do not possess a large amount of expertise in valuing these features, though that will increase if they become more numerous or if the market begins to be more interested in these types of features. The valuers pointed out that the main driver of the value of residential property in New Zealand remains the land value, with the value of improvements contributing a relatively smaller part of the total market value.

# 5 Influences and levers

This section is derived predominantly from stakeholder interview responses with support from desk-based research where relevant. This section considers the role of:

- Consumers, including interest in integrated features
- The banking sector, including competitors and overseas shareholders
- Developers and wider influences.

Stakeholders are anonymised and numbered as Bank 1, Bank 2, etc. Some stakeholders are not banks, rather co-operatives, or credit unions. However, they are labelled as banks for ease of anonymising.

Stakeholder commentary on the role of government regarding banking regulation and building standards is included in Appendix B on the wider banking landscape.

## 5.1 Customers

Customers were largely identified as one of the most important influences on home loan products by banks of all sizes, as well as by mortgage brokers and financial advisors. Smaller institutions generally dealt in the first home buyers' market and higher LVR space.

### 5.1.1 Interest in features that exceed the Code

Bank 1 thought that there was a high customer interest in healthy, sustainable, and cost-efficient homes, but that there was a piece missing around customers understanding the longer-term value and benefits of integrated features. They said customers don't see "Homestar 6" and think a home is worth more than a non-green home at the same price, but from the bank's perspective and international research, these houses have lower defaults and lower energy bills, and the extra capital outlay can be paid back in 5 years. They wondered about demographic influences and whether integrated features just on the radar of high income bracket customers, and other home buyers are prioritising price, location, and just meeting the Code, without thinking about features that exceed the Code. Bank 1 felt there were opportunities for deposit products, better cash contributions, and maybe even paying for assessment of Homestar houses to support growth in this area.

Bank 5 noted homes with improved features, including passive homes, were adding value and reducing operating costs. This led to potential higher equity positions and lower household spend, and these factors are likely what customers interested in high performing homes are motivated by.

Mortgage brokers identified that for consumers, there are different drivers outside of financial consideration. They said people make decisions on integrated features for themselves based on their own efforts and values rather than incentives coming from banks. For instance, the Warmer Kiwi Homes subsidy changed behaviour because people

value comfort, they were supported to achieve that comfort, and there is now a tangible benefit and financial reward with lower heating bills. They felt exceeding the minimum in the Code is a different situation as there was not yet the call to their values.

Bank 4 said they didn't want customers to make short-term decisions, and supported the innovative and efficient energy choices their customers are increasingly showing interest in.

### 5.1.2 Products and services

Bank 3 said all new product development started with the customer in mind, but that in general customers were looking for new propositions rather than new products as too many products in the market adds to the complexity of what is already a stressful process. What this looks like is specific propositions (i.e. Kiwisaver deposit, Kiwibuild), and a tailored and broader process with guidance and advice, as well as tools once the customer has a home loan, for example, paying it down quicker.

Bank 8 also emphasised bespoke arrangements and tailored products. They were aware of Homestar ratings, but see it as a niche market so don't feel they can justify developing and marketing a green mortgage product. Consumer demand is the main driver of new product development for Bank 7. They actively research opportunities, with their recent market focus on supply and demand for different types of houses, e.g. prefabs, and they are keen on building market share there.

Prefabs were also mentioned by Bank 2 as a growth area, although they said they were fighting against consumer perception of prefabs as people identify them with cold boring prefabs from school. They also felt New Zealand consumers were stuck in a "1/4 acre section mind-set" and were challenged as how they could influence that in the current housing market.

Bank 3 said they haven't acted on prefabs to date as they don't feature highly in terms of scale – they considered prefabs niche in supply, an unresolved risk, and more importantly, their customers aren't considering as the bank is unable to lend on property that's sitting in a warehouse. They are supportive of a different model where risk is mitigated. In terms of product development, they look for common themes in requests from customers, and tend to be driven by these themes as well as changes in regulation.

Bank 5 noted that prefabs may be a niche market now but there will be a tipping point as banks are able to provide more legal protection to secure any works in progress. They felt it was a strong emerging category of new build type, looking to Germany as an example (where 20 percent of homes are prefabricated[8]). They agreed with Bank 2 that customer perception is an obstacle to growth, but considered the outdated reputation was the opposite of the high design and quality characteristics of prefabs in 2019.

[8] https://www.forbes.com/sites/sherikoones/2019/02/18/extraordinary-prefab-houses-around-the-world/#59b4498f4386

Bank 9 have one eye firmly on marketplace, but feel restricted by current technology. They said consumers are used to self-service and using technology to tailor what they want, so their strategy is to increase agility and innovation to be able to better tailor products.

For Bank 7 consumer demand is the main driver and they actively research opportunities. A recent market focus has been on different types of houses, and they are actively looking to building market share by offering points of difference.

### 5.1.3 Ownership models

Looking at different ownership models is a focus for Bank 3, particularly shared ownership models with iwi, councils, housing foundations, or other parties taking equity, like two flatmates. They didn't identify this as a specific product, more that it was around aligning credit policy and looking at changes to criteria and processes. Banks 2 and 4 are also looking at shared equity approaches and other home ownership models. Bank 9 agreed there were opportunities to be more creative in thinking in this space, and talked about iwi and social housing ownership models in a broad sense as joint ventures.

### 5.1.4 Types of customers

Bank 2 stated that buyer expectations at entry level are not always realistic, and when people progress in house-buying, i.e. moving from a 1 bedroom apartment to a 2 bedroom townhouse to a 3 bedroom house with section, building features are not necessarily more innovative - homes are just larger. They said these features all come at a cost and question who is prepared to pay that. Rather than customers influencing the mortgage market directly, Bank 2 considered that buyer preferences influenced more what features were valued, i.e. buyers of new apartments used to prefer galley kitchens, now island kitchens are more highly valued.

Bank 3 considers new builds a challenging proposition for many home buyers – buying off a plan or building a bespoke home is a complex process, so the default is to buy existing housing stock. From a bank's financial perspective, whether the house is old or new is the same, but people prefer what is safe and easy. They wondered what the banking sector could do to make it less scary, and felt it was less around financial incentives and more around support and guidance. They did not feel the building or real estate sectors appeared to do this, and it made a fundamental difference to their customer's experience and confidence during the process. In these situations they felt they had more opportunity to discuss additional features that would add to the home's value and efficiency, but they also queried whether they became involved at the right time in the home building process. They said their construction packages for customers were generally for bespoke builds, or high-spec one-offs.

Owners of investment properties were mentioned by Bank 7 and Bank 1 as a customer group. Regulatory changes, such as the Rental Warrant of Fitness and Tenancy Act standards, could drive these customers to seek top up loans to upgrade their properties to meet the new standards.

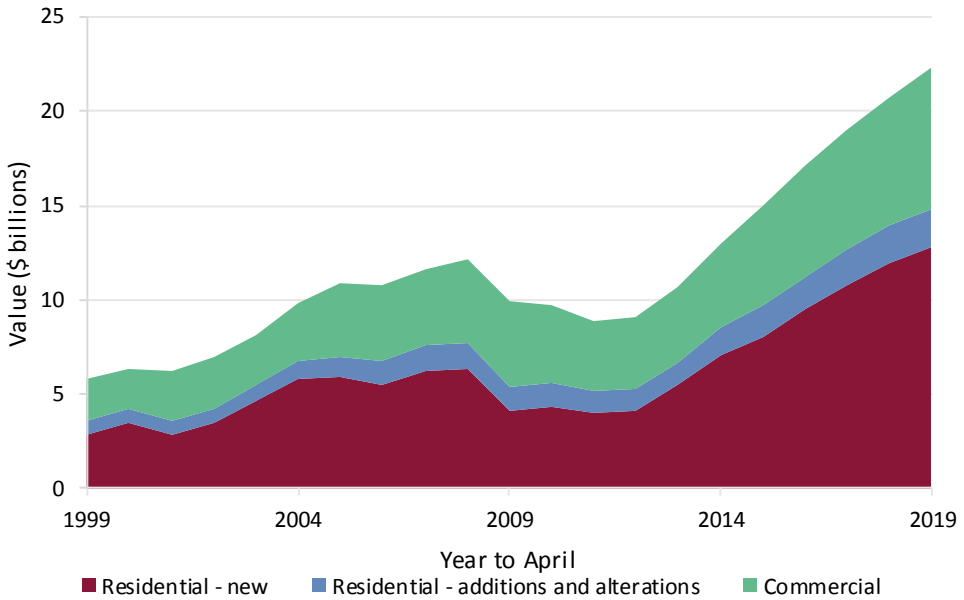
For Bank 4, two of their key markets are first home buyers and the refinancing market, on top of retention of existing customers by converting their regular banking to home loan products. They think in a constricted housing market, customers will increasingly sit on their homes and look to make capital improvements requiring top up mortgages. This would be a space where improved thermal efficiency or alternative energy features could be included.

### Market Segments

Several market segments were identified during stakeholder interviews and through the literature review. These are described in this section.

*Figure 5.1 Building consents – value of consented work (1999-2019)*

**Source: StatsNZ**




The significant majority of building construction in New Zealand is in the residential sector as shown in Figure 5.1. The residential market is 70 percent of the value of consented building work in New Zealand. As a subset of the residential market, there are new builds, renovations, and additions and alterations. Additions and alterations, including underfloor and ceiling insulation, do not always require a building consent though consent is required for insulating external walls.

Options for new builds are largely purchased through developers and may include large scale subdivisions with a choice of plans but with covenants, or smaller subdivisions with kitset homes or builder's spec homes. Anecdotally, only 3-5 percent of homes in New Zealand are designed by architects to buyers' specifications. Home owners may renovate for investment and resale, or to increase the comfort and function of their homes.

Buyer segments described by stakeholders include first home buyers, next step housing buyers, retirees, and investors. First home buyers are looking for their first step on the property ladder, and may have access to buying assistance programmes, such as Kiwibuild, using Kiwisaver as a deposit, or the Welcome Home Loan packages. They may be driven more by available funds and willing to compromise on their "wish list".

Next step housing buyers may be more values driven in their purchases looking for an "improved" house from their first home purchase. They may look for a better area for school zones for example, for more space or functionality (increased ease), or for higher performance (increased warmth or comfort).

Retirees (or empty nesters) on the other hand, may be looking for reverse mortgages or downsizing to smaller relatively high-performance homes with good accessibility. They are considered less likely by banks to want to renovate while living in the property, and want it already up to a low-maintenance standard.

Lastly, investors may be looking for a short-term investment, where they "renovate and flip", most often kitchens, bathrooms, and painted surfaces, rather than invest in the high performance "unseen" features. They may also be looking for a longer-term investment, particularly if they are looking at it for future family use or for capital gain. This group often do not consider investing in higher-performance features as they feel that they will be unable to recover the additional costs through charging higher rents, so are likely leave it as is where possible.

While the market share of residential building has been growing since 2008, the share of this sector in additions and alterations has reduced significantly since a significant peak in 2008. In the year ended April 2019, only 13 percent of the building consents for residential properties were for alterations, down from 24 percent in 2008.

## 5.2 Competitors

There were a variety of responses to how competitor activities and products influence the development of new home loan products. Bank 2 said market share was important and is a driver of their activity. They want to be assured there's a new market when developing new product. Bank 8 was also actively trying to grow, but didn't consider themselves influenced by competitors products. Responding to other bank's work around relocatable or prefab homes was discussed by Bank 7, who was also looking at shared equity schemes and other home ownership models, as well as top up mortgages for features, such as improved thermal efficiency.

However, some banks did not consider competitors in their product development. Bank 4 named their primary influences as regulation and strategy, although they maintained awareness of competitor activity. Bank 3 looked to their own customer base first, and felt market share grew from doing well and differentiating their service. They identified that there was an opportunity to meet in the middle on a joint initiative, not a competitive play, but something available to 100 percent of the market. For Bank 1, competitors also were not a motivator, and along with Bank 3, believed banks could be better advocates for sustainable homes and work more collaboratively. Bank 5 also considered themselves primarily customer focused, but that they sat up and took notice if they liked what their competitors were doing. Bank 9 was not interested in taking competitors "head on", rather focus on tailoring their service.

Most stakeholders felt all banks were working to the same framework and in the same marketplace, with slightly different risk appetites and settings, but with relatively aligned

products. One stakeholder said New Zealand home loan products were pretty homogenous, and the main difference was in service channels and how easy it is for customers, with negligible differences in price.

## 5.3 Overseas influences

This section explores awareness of overseas trends in green mortgages, as well as the influence of parent companies in the case of Australian-listed trading banks.

The large majority of stakeholders were aware of international models and trends, but these didn't influence what they took to the market. One stakeholder said different government levers regarding accessibility of finance and credit meant many models would be difficult to replicate in New Zealand due to the Reserve Bank of New Zealand (RBNZ) requirements. Another said that subsidised interest rates pop up on their radar now and then but agreed that overseas governments provide some of that subsidy or discount, so there were reduced costs for banks offering these lower rates. They also said the small number of properties falling into the "above Code camp" meant a small market share regardless of jurisdiction.

Regarding parent influences, one bank said as a 100 percent shareholder, their parent bank wanted a return on investment. However, they had independent governance and capital, and by and large, the biggest influence was the dual reporting to regulators (RBNZ and APRA) and stock exchanges (ASX and NZX) in both countries.

Another bank agreed they operated independently and did not receive operating instructions from their parent bank. They set their own risk appetite, decide where to grow, and where to develop their own strategy. They acknowledged market differences, predominantly around home lending, where Australian banks have been more relaxed in their home lending, whereas New Zealand's responsible lending regime was more prescriptive.

A third large bank said their parent sets the tone for the whole organisation, and defines their purpose, which includes affordable housing and sustainable communities. They said the parent also sets the appetite to do things that aren't always going to make money, which can include lending to build to higher standards.

An additional large bank stated they work with their equivalent position in the parent company to align on products, but that Australia was more advanced in environmental sustainability in home builds.

## 5.4 Developers and construction sector

A broad range of other influences were mentioned by stakeholders in the course of their interviews, including developers, the construction sector, and to a lesser extent councils, and real estate agents. Other stakeholders with more direct relationships with the banking sector are discussed in Section 7.

Bank 3 said larger developers were looking at key price points, not over-spec homes as there was too much risk for developers and customers aren't demanding these features. Bank 4 said housing development was a tight and competitive market with narrow margins, but that developers probably have more influence on the quality of housing stock than banks. Quantity Surveyors said most developers are still building stock standard homes, and while features that exceed the Code were often not "pretty" things and some are never seen, it could make a huge difference to long-term value.

Several other stakeholders mentioned the construction sector as having tight margins with high levels of risk, particularly for sub-contractors, and that there seems minimal incentive to exceed the Code for large developments. They questioned how the sector could be more competitive with alternative or more cost-effective products able to enter the country. Quantity Surveyors said cost of resources was a big problem, and with New Zealand being so far away from big producers, the addition of transport costs drastically decreases affordability. Bank 8 was interested in how industry could work more with banks to provide solutions to those customers who are interested in exceeding the Code.

Bank 2 said development was a low-return area of their business, so they required higher margins/fees to get the risk and reward equation correct in relation to their broader risk portfolio. They mentioned banks do not generally like "builder's terms" as the bank holds more risk. This is where a developer sells land to an intermediate land developer or house builder, and may not settle when section bought/issued, but rather when the house is bought by a consumer.

Bank 2 also mentioned levels of amenities for developments and how there is not necessarily a benefit to increasing costs on developers unless there was some form of infrastructure, green energy or tech bonds or subsidies from council. For example, in a 300-lot subdivision, they can put in solar panels and subsidise power at gate for that community, or it can become an alternative income stream for the developer.

There were also questions about whether infrastructures were working together, and the implications of council's timing and fees on developments. Mortgage brokers felt real estate agents could promote integrated features more in sales.

# 6 Mapping stakeholder relationships

The matrix map aims to identify stakeholders and locate them in relation to their interest and influence in promoting sustainability and resilience in new residential housing stock through financial incentives. We did not speak to Banks 6, 10, or 11, as they either did not offer home loan products, offered reverse mortgages only (a loan designed to help fund retirement needs by allowing people aged 60 and over to release cash from the value of their home), or declined to participate due to their minimal market share.

The stakeholders include the banking, insurance, and valuation sectors, the Reserve Bank of New Zealand (RBNZ), and the New Zealand Green Building Council (GBC). Each stakeholder has been placed on the map according to the methodology described in Section 2.3. Placement is intended to show relationships between players in the home loans market, and indicate their interest and influence in features that exceed the minimum Code based on their interview responses. We spoke to senior decision makers at each entity, but the home loan market is a dynamic and evolving market, and this map must be taken as indications at a point in time.

That being said, this section will identify the participants in this market and their roles, and how they interact. In viewing Figure 6.1, solid lines indicate direct relationships where there are either reporting or essential information requirements. Dashed lines represent functional relationships where there may also be information requirements, but the relationship is not as strong as with solid lines. Relationship lines in the map are predominantly solid lines, and dashed lines may be found between the GBC and Bank 1, and GBC and the valuation sector, due to strategic collaboration between these parties. They may also be found between mortgage brokers and other stakeholders.

## 6.1 Mortgage brokers

In New Zealand, mortgage brokers may become members of Financial Advice New Zealand as "Lending Advisers", and work towards professional Financial Planner credentials, undertake professional development in Residential Property Lending, as well as adhere to financial advisor practice standards.[9] They are described as mortgage brokers on the map and in this report to differentiate them from lending advisers that work within the banking sector.

Mortgage brokers have relationships with all of the other stakeholders on the map, including the banking, insurance, and valuation sectors, in the sale and purchase of property. Their primary relationship is with their client, and they perform advisory and facilitation services for them. They assist other stakeholders to obtain the information required for and by their client. They may also do some or all of the following:[10]

- Assess whether a client is eligible to borrow money for a house/property

[9] www.financialadvice.nz
[10] https://www.careers.govt.nz/jobs-database/finance-and-property/property-services/mortgage-broker/

- Explain mortgage options and bank offers to the client, and liaise with the bank on the client's behalf
- Advise on the structure of mortgages and calculate repayments
- Liaise with other parties, such as lawyers, the valuation sector and real estate agents, on the client's behalf
- Organise building reports, home valuations, and insurance.

Mortgage brokers are at the low interest end of the spectrum as they did not indicate high interest in products that encouraged exceeding the minimum, and suggested that their role was more to respond to their client's needs, which was primarily seeking the best finance deal. However, they are also in the higher influence end of the spectrum due to their growing prevalence in the market, with 2017 estimates suggesting 40 percent of mortgages arranged with brokers rather than lenders.[11] This trend means that they have considerable influence with their clients and have the ability to advise on financial incentives that enable the purchase of comfortable and energy efficient homes.

## 6.2 Insurance sector

Likewise, the insurance sector is in the lower interest, higher influence quadrant, although higher in influence than mortgage brokers. The sector indicated a growing interest in Homestar, but there were no specific insurance products or no insurance rating system that would reward someone buying a home with features that exceed the Code. Their current focus was more on market challenges around obtaining insurance full stop, as earthquake risks have resulted in some restrictions on the availability of insurance, particularly in Wellington. The sector wants to provide mortgage customers with certainty, but New Zealand is very risky from an insurance perspective. Everyone wants to outsource that risk to insurers but there are legislative and financial limits to how much risk can be carried. What this means is that they are unlikely to be putting energy into developing specific insurance products for a niche market.

However, they are influential as a sector due to being an essential component in obtaining a home loan, and their importance to the market as a sector. They have clear information relationships with the banking sector, providing certificates of insurance for all home loan products.

## 6.3 The Reserve Bank of New Zealand

The Reserve Bank of New Zealand (RBNZ) oversees the banking sector as described in Appendix B. The insurance sector is also administered by the RBNZ under the Insurance (Prudential Supervision) Act 2010.[12] The RBNZ is lower on the interest axis regarding home loan products, but higher than the insurance sector and mortgage brokers. This is due to

[11] https://www.consumer.org.nz/articles/mortgage-brokers
[12] https://www.rbnz.govt.nz/regulation-and-supervision/insurers/regulation

their role in reducing housing and household sector risks through understanding the implications of housing policy on macroeconomic policy. Previous analysis defined housing quality by size and location, but more recent research discusses the quality of the structure in relation to value (Coleman, A., & Landon-Lane, J., 2007)(Armstrong, J., Dunstan, A., & Irrcher, T., 2017). Given their regulatory role, the RBNZ has considerable influence on how the banking sector operates, particularly where it holds risk and how it considers value, and these factors inevitably influence the types of products banks offer.

## 6.4 Valuation sector

The valuation sector consists of valuation agencies, quantity surveyors, and registered valuers. Registered valuers fed back that individual skill levels in valuing integrated features was low or variable at best, the market did not value these features, and that above Code homes were a niche market – they "can't look inside walls, don't climb into the ceiling or go under the house". Therefore, they were placed in the low interest, low influence quadrant. They are not at the lowest end of influence, as they have influence as to how integrated features could be valued by the market.

On the other hand, valuation agencies and quantity surveyors are in the high interest and high influence quadrant. The two agencies dominate the market, and as described in Section 4.2, determine the valuation information sent to banks. There are clear and direct information flow relationships between valuation agencies and the banking sector. Banks subscribe to AVM weekly emails, and use valuation panels provided by the agencies. One valuation agency is actively working with GBC.

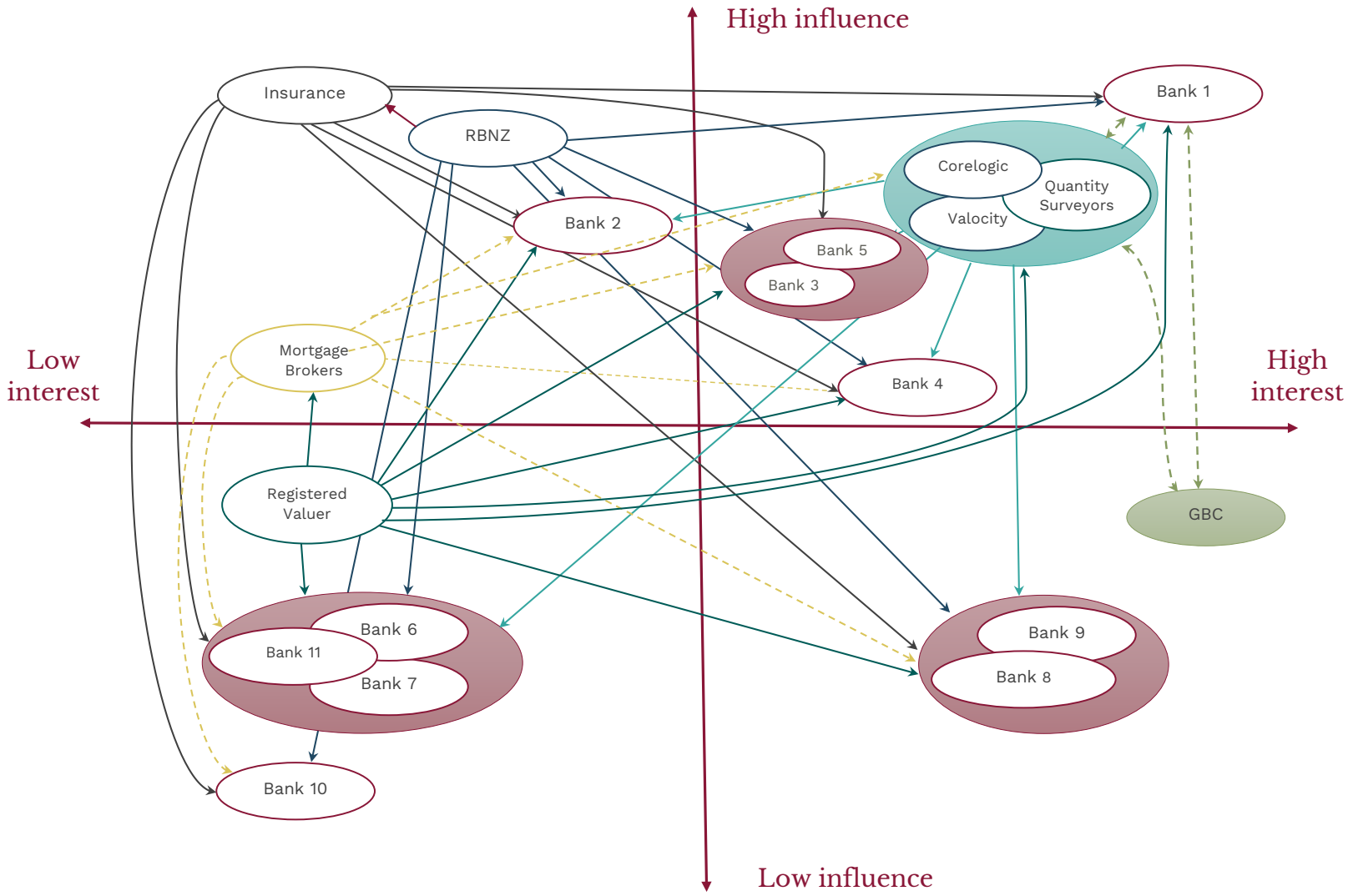
Valuation agencies provide similar information to the insurance sector, plus they have a sum insured product that uses property details and have a cost model that calculates rebuild costs of houses. They also have data about hazards, such as earthquake prone areas and flood zones.

Quantity surveyors help assess the value of projects at milestones where a bank is the major funder, generally new builds and multiple dwellings developments. They are well placed to value integrated features, but in general, the information provided to the bank is around the value of work, the cost and stage, and an equation on how much is left to do so funding can be drawn down. They also work with the insurance sector, and have been active in promoting reinstatement value as opposed to indemnity value for the purposes of re-insurance.

## 6.5 Banking sector

The banking sector in the map includes a variety of entity sizes, ownership models, market share, and product offerings. As a result, banks are placed around the matrix depending on their interview responses as described in Section 5 (interest) and on their market share (influence), and their placement may be interpreted through these lenses. Relationships between other stakeholders have been detailed in preceding subsections.

*Figure 6.1 Map of stakeholder interest and influence*



# 7 Stakeholder workshop

The aim of the research is to identify the opportunities for banks in New Zealand to consider integrated features in home loan applications, including whole of life cost and benefit information. Additionally, the research sought to consider any financial incentives that may be used to encourage home loan customers considering building high performance homes.

In initial stakeholder engagement, a key finding was that integrated features are not recorded consistently at any stage in the valuation chain. Furthermore, banks considered that any such features would have been accounted for in registered property valuer reports or Automated Valuation Models. Information on whole of life costs or benefits is neither accessible for, nor utilised in, home loan applications.

However, the valuation sector currently has no mechanism for effectively recording building features that exceed minimum standards – they may be noted in reports but the information is not added to specific fields in databases. Property valuers are unable to inspect structural features so are also limited in what features they can note in these reports. The lack of a central repository for consistent and comparable data is a challenge.

The findings from the first stage highlighted this role of valuation and the challenge of accounting for integrated features or high performance home characteristics in valuations. In order to understand the wider landscape about where integrated features could be considered, and whether there is value and interest in improving the valuation system, a workshop was held. Representatives from the larger home loan providers, and from the insurance and valuation sectors were invited to attend, and were provided the draft report with the initial key findings.

Stakeholders noted there were a variety of different measures or assessments, such as Homestar, Passive House Standards, Healthy Home Standards, and Rental Warrant of Fitness. Different private and government agencies assess and keep their own records that may not feed into valuation records supplied to banks. Valuers indicated it was possible to have an open text field within their system to capture extra data. However, having the data collected and recorded wouldn't necessarily translate into accounting for these in house valuations.

There is also a challenge around what dollar value could be attributed to any integrated feature. While some banks are currently recording Homestar ratings where applicable, they do not have expertise in placing a value on particular features, beyond recording costs of items, such as solar panels, where they are considered chattels. So the discussion turned from how and where it might be possible to capture data about high performance homes, to how to educate the market about the broader value of integrated features.

As noted in section 5.1.1, stakeholders considered that market awareness of integrated features and external measures is low, and market demand for high performance homes is minimal. In the workshop, bank representatives communicated that it was challenging for banks to look at providing green mortgages without an external measure as criteria. Any external measure would need to have market recognition as to its desirability. Assessments

for current measures, ultimately paid for by home owners, require a consumer to have faith about the value of the measure in the marketplace. They indicated that having a single consistent benchmark or measure, that was defined and mandated by legislation particularly around energy efficiency, would create some clarity for them and for home buyers.

This measure could create a shared understanding of the costs of running a particular home. It could also allow for targeted education of the market, in the same way as promotion of effective insulation has increased market understanding and uptake. As a result, any integrated features that contributed to energy efficiency, would also contribute to their value in the market through increasing consumer demand.

In effect this is what has happened overseas, where regulation giving clear criteria for energy efficient homes has been the driver for changes in consumer behaviour, an improvement in home quality, and an increase in green mortgage provision by banks. In the United Kingdom (UK), Barclay's Bank has partnered with specific home builders who specialise in energy efficient homes and build to Energy Performance Certificate (EPC) ratings of A or B (over 81 percent), and offers green mortgages for those builds. New homes in the UK must also have a Predicted Energy Assessment (PEA), which has been compulsory for all new builds since 2009. PEA and EPC requirements came on the back of 2006 Building Regulation changes, which mandated energy efficiency standards. Developers/builders and banks in the UK responded to regulation rather than market demands. In addition, EPC assessments cost around £60-120, which is affordable enough to be accessible to the wider population.

In Australia, the criteria for Bendigo Bank green mortgages includes selecting one or two items from a specific list (including solar, water storage, insulation), and meeting minimum Nationwide House Energy Rating Scheme (NatHERS) ratings for their state. NatHERS is a home energy efficiency star rating system (out of 10) similar to UK's EPC ratings, as the system is compulsory under building regulations and focused on energy efficiency only. Currently the minimum requirement for new homes in Australia is NatHERS 6. From 2016-2018, 82 percent of houses had NatHERS 6, 16 percent had NatHERS 6.5-6.9 (just above minimum), and only 1.5 percent of houses were built to 7.5+ stars. The average across the states was 6.2 stars. However, the Australian Capital Territory average is 6.9 stars, and they are the only region with mandatory disclosure of the energy rating on sale or lease of property.[13] This means the market can value the relative energy efficiency of buildings, although this market is still maturing in Australia.

Section 3.3.2 notes the potential for premiums on the sale and rental of energy efficient homes. In line with this, banks were open to a measure of improved energy efficiency where it could contribute to their own criteria for loan approval, such as increased serviceability or decreased default risk. Currently, mortgage rates are low and competitive with minimal scope to offer substantial or meaningful discounts. But serviceability takes into account household expenditure, and reduced utility and fuel bills may be a consideration. It is unclear how much lender calculations currently take account of how energy bills vary

[13] https://theconversation.com/australias-still-building-4-in-every-5-new-houses-to-no-more-than-the-minimum-energy-standard-118820

with the property's energy efficiency when considering serviceability. In the UK, the LENDERS project demonstrated that more accurate fuel cost estimates can be used in mortgage lending decisions, resulting in lower energy homes receiving more favourable terms.[14]

Developers were mentioned again as an important part of the puzzle. One stakeholder noted integrated features added cost to a build that could be balanced against floor space, but conceded that currently people were making the choice to prioritise building a larger home over a more energy efficient home. Developers need scale to offer integrated and energy efficient features as part of a normal home product. In Romania, developers and banks have worked together on bilateral deals where entire Green Star rated developments are eligible for green mortgages.[15, 16] This reduces transaction costs and makes marketing and sales of the development easier. There is an opportunity for similarly innovative partnerships here, particularly given constraints in the construction sector.

Stakeholders also noted the role of government procurement and questioned how much social housing was built to above Code standards, and whether there was a place for Kiwibuild to be raising standards. Government has led the way in green building standards as commercial tenants for their own agencies, but there is not a wide awareness of whether sustainable procurement has reached beyond this.

[14] https://www.ukgbc.org/wp-content/uploads/2017/09/Lenders_Core_Report_1.pdf
[15] http://www.rogbc.org/en/projects/green-mortgage
[16] The Green Star programme referred to here is a Romanian residential rating tool, and is not related to the Green Star rating used in New Zealand, which only relates to non-residential typologies.

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# Appendix A Financial incentives research information sheet

## Using financial incentives to design and build homes above a standard Building Code compliant design

### Summary & Action points

- Business and Economic Research Limited (BERL) is completing research on the use of financial incentives to improve the current and future housing stock on behalf of Building Research Association of New Zealand (BRANZ).
- This information sheet will help you decide if you would like to take part. It sets out the purpose of the research, what your participation will involve, any benefits or risks to you, and what happens with the information you give. Your participation is voluntary and you can withdraw your participation by 30 April 2019.

Our request:

- We will seek your advice on the findings and their implications in the first quarter next year, and are inviting participation from key industry players in the banking sector who are willing to be interviewed by phone, or in person if based in Wellington. These interviews should take 30-45 minutes. Ideally interviewees are in decision-making roles with an understanding of their organisation's strategy on home loan products.

### What is the purpose of this project?

BRANZ has, through the Building Research Levy, made an award to BERL to conduct research into the role the banking sector currently plays in the residential housing market, and the opportunities available to this sector to lift the standard of residential buildings in New Zealand through innovative home loan products and services. It is due for completion in June 2019.

In New Zealand, BRANZ research indicates that consumer demand is a major factor in developers and builders designing and building new homes to a standard that is higher than the New Zealand Building Code. This project will therefore consider if financial incentives available to consumers, such as reduced interest rates, or the ability to access loans that favour high performance features in renovations or new builds, could be used to stimulate demand for houses with features above a standard Building Code compliant design.

The key research questions this project will address are:

- What financial incentives (mortgage discounts) do consumers have to build and design new homes that are higher than the New Zealand Building Code?
- How do mortgage lenders capture the added value of building integrated features in new residential houses that exceed the New Zealand Building Code?

- What international models could be applied in the New Zealand banking sector to affect consumer behaviour?

### Interviews

Information will be collected through structured interviews with key people in the banking sector. Our focus is on the supply of financial products into the market, rather than the demand for these products from consumers. Therefore, we will ask you questions on how inclusion of features that increase comfort (e.g. thermal performance), utility (e.g. access) and resilience (e.g. durability) are valued by the market and by the banking sector in home loan applications, and what opportunities there are for the banking sector to offer innovative home loans based on international examples.

Interviews are confidential. Your personal details and opinions will not be disclosed in the final report. Data will be stored on BERL's internal servers in this anonymised form. There are no foreseeable risks to interviewees or companies as a result. As the report will be publicly available through the BRANZ website, there are potential benefits for the banking sector as it will highlight the opportunities available to the banking sector to diversify their product portfolios. The findings and recommendations may also be relevant to the building and insurance industries, as well as consumer groups.

### More questions for the researcher?

The lead researcher for this project is Amanda Reid. You can contact her at 04 931 9214, or amanda.reid@berl.co.nz.

# Appendix B Banking landscape in New Zealand

## Information for mortgages

The information provided to banks for mortgages are typically the ability of an individual to repay, and the value of the house. The documentation differs slightly between banks and depends on whether transactional accounts are held with the same bank.

### Ability to repay

The ability to repay a mortgage is the first calculation made by banks. This test is typically done as part of a pre-approval process, setting a borrowing limit for potential borrowers before they have decided on a home purchase.

The ability to repay is typically a calculation of regular income, less regular expenses and existing loan commitments. There is also an adjustment made to factor in any increases in mortgage rates. Documents to prove this include:

- Bank Statements
- Payslips
- Total debt outstanding.

### Value of the home

The second main component is the valuation of the home. Banks need to be sure that a borrower is not significantly overpaying for a property or they are at risk of losses if the borrower defaults. Banks use a range of valuation techniques, which are further explored in Section 4.

### Additional requirements

From October 2018, document requirements now include proof of residency, as a result of the Overseas Investment Amendment Act 2018 restrictions on who can purchase residential property. Following the Christchurch earthquakes in November 2010 and February 2011, information about the state of damage, and any outstanding EQC claims are also often necessary information though this is not clear from displayed requirements on major bank online sites.

## Loan to Value ratio

New Zealand property lending is subject to Loan to Value Ratio (LVR) restrictions. The Reserve Bank of New Zealand (RBNZ) has set a limit of 20 percent LVR as the benchmark for lending on residential properties. This is seen as a key macro-prudential device that reduces the exposure of property prices on banks. With 20 percent equity in the house, there is expected to be sufficient margin for the bank to recover the costs of mortgages in the event of default.

With the benchmark rate of 20 percent, the RBNZ allows a certain percentage of bank lending to be under this benchmark. As at January 2019, up to 20 percent of bank loans

may be on housing with an LVR of less than 20 percent. The LVR requirement is higher for investment properties, with 30 percent equity required.

The Welcome Home Loan offers some first home buyers the option to purchase homes with a minimum LVR of five percent (as at 1 October 2019).[17] To be eligible for this LVR, the purchase is subject to a regional price cap, and the buyers have to be under a specified level.

## New Zealand bank funding

As the role of banking involves borrowing and lending money, the bank then needs to lend or invest these funds at a higher cost, with the difference between the costs of borrowing and lending being the bank's revenue. Banks offer credit at a range of interest rates depending on the risk that the loans can be repaid. Mortgages are typically the lowest consumer interest rates available as the home is used as collateral for the loan, and its value provides security that the bank can recover the loaned amount.

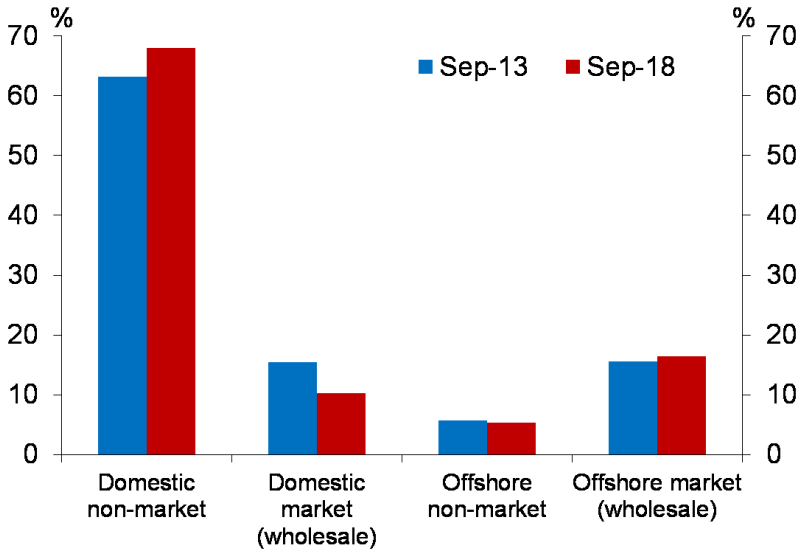
Banks have a wide range of options to receive funds for lending, the first of these being deposits by individuals and businesses. As at October 2018, the New Zealand banks have $500 billion of liabilities, of which a significant majority ($350 billion) are in deposits. $176 billion of these deposits are through New Zealand households, with the remainder being public and private sector organisations, or from overseas.

New Zealand has relatively low rates of domestic savings compared to other developed countries, which means a significant amount of bank funding needs to be sourced internationally. As shown in Figure 8.1, 25 percent of New Zealand bank funding is from international markets, making New Zealand's international investment position a deficit of 50 percent of GDP. This is comparable to Australia, though many European countries are able to fund entirely from domestic deposits while also being able to lend to other countries (including New Zealand).

New Zealand's international investment position is comparable to some eastern European countries (Croatia, Latvia, Hungary and Romania), while the UK is at -8 percent.[18] The only European countries with international investment positions lower than New Zealand as a proportion of GDP, are Ireland, Greece, Spain, Cyprus, and Portugal.

[17] https://www.hud.govt.nz/residential-housing/changes-to-the-government-build-programme/
[18] Eurostat, Net international investment position - quarterly data, % of GDP 2018

*Figure 8.1 Sources of New Zealand bank funding, 2013 and 2018*

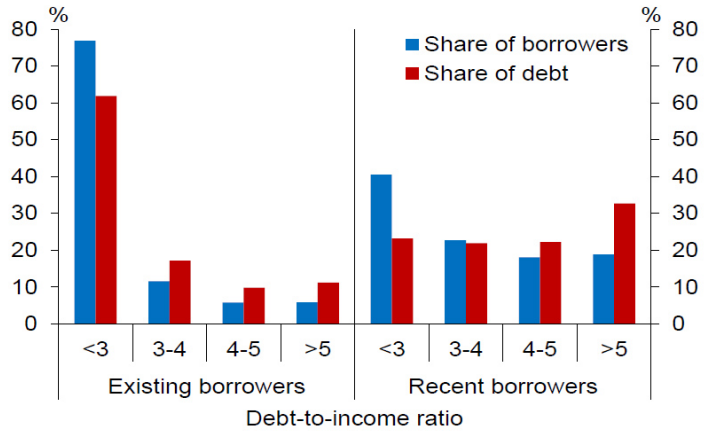



**Source: RBNZ**

## New Zealand debt landscape

Figure 8.2 shows New Zealand has a rapidly expanding amount of household debt, particularly when compared with incomes. This makes New Zealand households vulnerable to future interest rate rises, which may influence lending and borrowing decisions for further expansion of debt.

*Figure 8.2 Debt to gross income ratio of New Zealand borrowers*




**Source: RBNZ**

## Regulation

This section covers stakeholder perspectives on regulatory influences. It will not seek to explore the complex system of prudential requirements to which banks operating in New Zealand may be subject, such as capital, liquidity, and disclosure. Nor will it address other aspects of banking sector regulation and supervision.

The two influences widely named by stakeholders in relation to mortgage lending were the Reserve Bank of New Zealand (RBNZ), and less obviously, the Building Code. They also described "the government" in broader terms, particularly in relation to subsidies for insulation and sustainable energy systems. Several stakeholders said they were only able to offer interest-free loans because they were subsidised.

Two banks mentioned Tenancy Act standards, and how that regulation could drive landlords to seek top up loans to upgrade their properties to meet standards. Kiwibuild was also mentioned as a regulatory lever, with government influence driving both customer ability to purchase a new home and as a tool for improving housing stock. Bank 9 felt first home support, such as Welcome Home packages and the ability to use Kiwisaver as a deposit, needed reworking, with increased incentives for higher standard homes.

Mortgage brokers considered that government was focusing on social housing first, i.e. affordable homes rather than more environmentally friendly ones. They said there were so few properties on the market, that there was a greater need to ensure more housing stock before add-ons into housing market regardless of efficiencies.

### RBNZ regulation

Stakeholders described RBNZ regulation in relation to "speed limits", or capital restrictions. Bank 4 said RBNZ capital requirements have an impact, but not on their risk, more LVR restrictions. Adding to that, Bank 3 talked about their active capacity management of housing with an LVR of less than 20 percent, as the risk of lending too much is a loss of bankers licence. Regulation was seen as a reminder of how "good people" should do banking and as consumer protection by Bank 8, who did not consider regulation a constraint. Bank 9 thought the significant influence of regulators sometimes meant they were restricted by compliance obligations over lending on character and relationships with long-standing customers.

Bank 4 considered New Zealand's valuation strategies, in particular the overreliance on AVMs used on 50 percent of housing market compared to near 0 percent in the US and 15-20 percent in Australia, was not being addressed by regulators. In particular, regulations BS2A (Capital Adequacy Framework) and BS19 (Framework for Restrictions on High-LVR Residential Mortgage Lending) were mentioned. The bank said these regulations rely on the V in LVR, and how banks derived value was left up to individual banks; there is nothing telling banks how to value security. For example, a registered valuer costs a customer $850 and may delay the sale process, but a standard valuation report was around $18 and could be accessed in less than 24 hours. The bank felt there was no incentive to use a superior valuation model.

### Capital lending requirements

In 2016, the RBNZ announced a capital review, and in December 2018 opened public consultation on a proposal to increase the amount of capital banks must hold in order to

withstand economic and financial shocks. They also released a Capital Review Paper outlining the proposed framework and their analysis.[19]

The banking system in New Zealand is dominated by the four Australian-listed trading banks who have a dual regulatory reporting requirement to both Australia's banking regulator Australian Prudential Regulation Authority (APRA) and the RBNZ. Between them, the regulatory bodies determine the rules regarding capital required by banks to limit the risks around bank failure. Capital rules have tightened around the globe, and in 2018 APRA made adjustments to its capital ratio requirements.

The RBNZ proposal suggests capital lift requirements in both capital ratios and higher risk weightings for specific lending, along with restrictions on capital derived from "Tier 1 capital". Generally, analysts have estimated additional common equity capital of between NZ$14bn to NZ$20bn may be required.[20]

The RBNZ recognises the additional capital requirements could lead to an increase in mortgage rates and a decrease in deposit rates as banks look to recover the cost. A suggestion of lower dividends for bank shareholders has not been received well.[21, 22] Bank 2 said RBNZ was looking at covering 1/200yr event, and that the costs will be passed to consumers as their shareholders require returns.

## New Zealand Building Code

Several stakeholders felt the New Zealand Building Code (the Code) was outdated and needed to be reassessed. One bank questioned how the Code fit environments impacted by climate change and susceptibility to natural events. Another bank thought New Zealand should sign up to a worldwide building standard.

[19] https://www.rbnz.govt.nz/regulation-and-supervision/banks/consultations-and-policy-initiatives/active-policy-development/review-of-the-capital-adequacy-framework-registered-banks
[20] https://www.harbourasset.co.nz/research-and-commentary/australian-banks-increased-capital-requirements-to-change-the-landscape/
[21] https://www.interest.co.nz/banking/97716/against-backdrop-rbnzs-review-bank-capital-requirements-gareth-vaughan-details-nitty
[22] http://www.scoop.co.nz/stories/BU1902/S00737/ubs-doubles-down-on-impact-of-rbnz-bank-capital-requirements.htm