

September 2017



# Industry Insight

Residential Building





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**INDUSTRY INSIGHT**  
Residential Building

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## Summary

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This report focuses on the residential building industry, which is concerned with project managing the construction of dwellings, from standalone houses to high-density apartment blocks. After summarising the key characteristics of the industry, the report discusses a range of issues from the legislative and regulatory environment within which it operates to the volatility of demand and obstacles to innovation and productivity growth.

The industry is characterised by a preponderance of very small firms and a few very large firms. The small firms typically employ fewer than five people and operate at a localised level. They typically build one home at a time and are heavily involved in alterations and remedial type work. By contrast, large firms focus on large-scale housing projects, building up to a thousand houses per year. They tend to have a regional focus, although some have national coverage.

All of these firms operate in an environment of extremely variable demand and as a result, residential building activity is far more volatile than the economy in general. A number of factors shape demand for residential building activity.

Some are structural in nature. They are largely predictable and affect demand over a long period of time. Key factors include changes to the size and composition of New Zealand's population, as well as the number and type of households that exist. These factors change not only the level of demand for homes, but also the composition of that demand with a shift towards smaller, medium to high-density housing, as well as more bespoke designs.

Other demand factors are more cyclical in nature. They tend to be volatile factors that affect demand for housing in the short-term. These range from fluctuating migration patterns (which affect near term changes in population size), interest rate movements, changing debt-servicing requirements, and lending rules.

Then there are disruptive factors. These have significant impacts on demand, which can stretch over a long period of time. The most obvious example is the significant re-build that followed the 2011 earthquake in Canterbury.

The industry is able to react relatively quickly to cyclical and disruptive factors because of the ease with which small firms, in particular, are able to enter and exit the industry. By contrast, larger firms do not exhibit the same degree

of flexibility because the barriers to entry and exit they face are considerably higher and because they often have diversified interests in associated industries.

However, while relative ease of entry might make the industry more responsive to changes in demand, it also makes it more vulnerable to exaggerated boom and bust cycles.

In boom times when demand is increasing, small firms enter the industry looking for opportunities. Competition is low, revenues and profitability are good and order books are healthy. Increasingly, the capacity to deliver becomes the key constraint facing firms. This is true for the industry as well as the upstream supply of labour, materials and construction services. However, as long as it is profitable to do so, firms will continue to enter the industry.

In the bust times when demand is falling, the opposite applies. The amount of work available falls, pricing becomes increasingly competitive (sometimes at cost or even below to win business), and profitability drops. Small firms try to hold on, but as margins tighten they start to exit the industry in ever-larger numbers, with negative implications for employment.

This vulnerability to boom and bust cycles has a number of adverse consequences for the industry. It encourages a short-term focus on operational issues, which makes it hard to invest time and money in developing, learning and/or adopting new approaches. This is particularly true for small firms that live a "hand to mouth" existence. A lack of investment discourages innovation and limits the productivity gains needed to improve industry competitiveness and reduce building costs. It also ensures that this inherent vulnerability to boom and bust cycles is self-perpetuating.

**Paul Clark**  
Industry Economist



## Outlook

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Long-term, there is always going to be a need for new homes in New Zealand. A growing population, more households and persistent housing shortages, particularly in Auckland, will underpin this need.

However, from year to year, demand will be cyclical, shaped by factors such as changing interest rates, household debt burdens, net migration flows, etc. This cyclicity as well as the fragmented nature of the industry will ensure that volatility will continue to be a defining feature of the industry.

Small firms will continue to enter and exit the industry as the cycle changes. Large, well-capitalised firms that have diversified operations are likely to be able to withstand the cyclical nature of the industry and so will tend to remain.

Whether they are able to remain will depend on how competitive they are. In part, this will depend on their ability to reduce unit construction costs. Large firms seeking to minimise these costs will innovate by investing in new work organisation methods and developing new products, including off-site prefabrication (which dramatically cuts the time for building homes) and greater use of 3-D printing. This in turn should support productivity gains. However, the overall productivity of the industry will be hampered by a continued lack of innovation by smaller firms.

The ability to compete will also depend on which market segments large firms operate in. Although standalone houses will continue to be the bedrock on which the

industry stands, large firms will increasingly turn their focus towards medium and high-density residential buildings to meet changes in demand. A particular area of growth will be terraced housing and low-level apartment blocks, which currently attract high profit margins (although these should narrow as competition heats up).

Growth is also likely to receive a boost should the government introduce new urban planning legislation. Separate objectives for regulating urban and natural environments should help free up land for building purposes and speed up the development of housing.

Other regulatory changes are likely to be less popular and impose costs on the industry. For example, possible changes to the building code following the Kaikoura earthquake in November 2016 are likely to mean a tightening of standards, which will increase building costs and put pressure on margins. This is particularly relevant for small firms that compete largely on price.

Given how we see the competitive dynamics in the industry playing out into the future, we think that over time, the industry will morph into something more like that of Australia's, where larger residential construction firms predominate. Large firms will increasingly dominate across all market segments, except for alterations, repairs and maintenance work, where a declining number of smaller players will operate. This may reduce levels of volatility over time.

# Introducing the industry

## Defining the industry

The building and construction sector provides the infrastructure that we rely on for housing, education, transport, health and social services. It constructs new buildings and structures as well as undertakes additions, alterations and repairs to those that already exist.

The Australian and New Zealand Standard Industrial Classification (ANZSIC) system provides a convenient way of classifying these activities, differentiating between residential, non-residential and heavy and civil engineering construction activity and the services that support them.

This report focuses only on the activities undertaken by the residential building industry, specifically the:

- Construction of the following residential structures (as defined by Stats NZ):
  - Detached dwellings - a standalone dwelling unit that is not attached to any other dwelling unit; i.e. a typical house on its own section;
  - Townhouses – side by side units; such as terraced housing, townhouses, flats and units;
  - Apartments – any dwelling with another dwelling above or below it or attached to a commercial building; and
  - Retirement units – dwellings specified for retirement purposes, from detached dwellings to apartments and rooms in retirement villages.
- Alterations, additions and/or renovations to these structures;
- Project management and organisation of these various activities; and
- On-site assembly and installation of prefabricated structures.

This report does not focus on the construction services industry which undertakes land development and site preparation, as well as the contracting (and sub-contracting) of structural (such as concreting, bricklaying, roofing, structural steel), installation (such as plumbing and electricity) and completion works (such as plastering, carpentry, decorating).

It also does not focus on activities undertaken by the non-residential and civil construction industries, such as the construction of and/or alterations to hotels, hospitals, prisons, factories, roads, dams and the like.

## Number of Firms

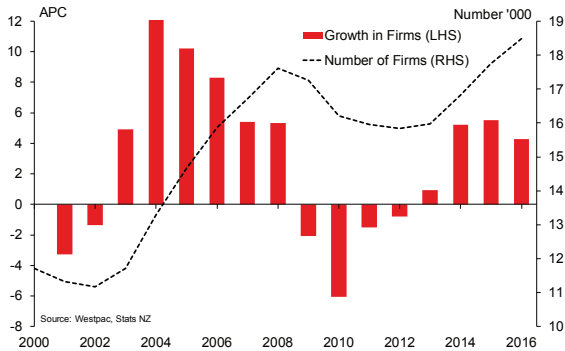
The residential building industry consists of a large number of firms that operate mostly from a single physical location.

Figure 1 shows that at the end of 2016 there were 18,501 firms operating in the residential building industry.

Since 2000, the number of firms operating in the industry has grown by 58%, which equates to an average of 3% per year over the period.

However, growth in firms has not always been positive, with declines for each of four years following the post global financial crisis period.

**Figure 1: Firms operating in the industry**



## Growth in the number of firms in the residential building industry is similar to other industries operating within the building and construction sector.

Collectively, these firms operate at 18,537 sites throughout New Zealand.

**Figure 2: Location of operating units**

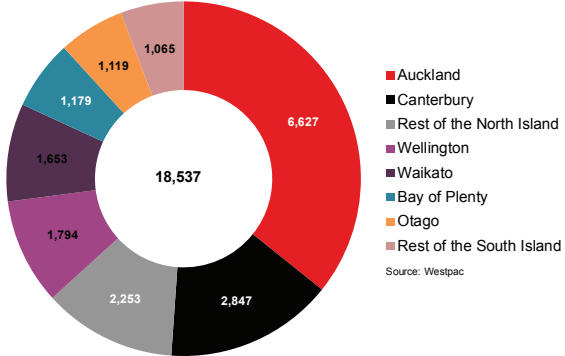


Figure 2 shows that just under 36% of these sites are within the Auckland region, about 15% in Canterbury, 12% in Wellington with large concentrations also evident in the Waikato, Bay of Plenty and Otago regions. Most of these sites are located in areas that have large growing populations. Earthquake recovery works have also led to more firms operating in Canterbury.

### Number of people employed

The residential building industry employs a large number of relatively unskilled and semi-skilled people and relies heavily on upstream contractors to provide trade related expertise. About 20% of people working in the industry have no qualifications, while a further 30% of workers have only a school qualification. The industry also directly employs a large number of technical people such as architects and designers.

Figure 3 shows that by the end of 2016, about 42,000 workers (including the self-employed which account for 45% of all workers) were employed in the residential building industry, accounting for some 20% of the 206,000 workers that work in the building and construction sector. Adjusted for hours worked, this translates into about 40,000 full time equivalents (FTEs).

Figure 3: Employees working in the industry

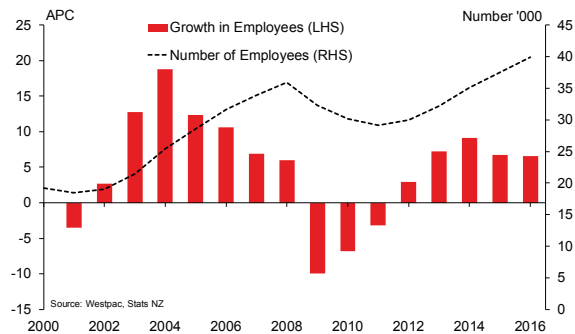
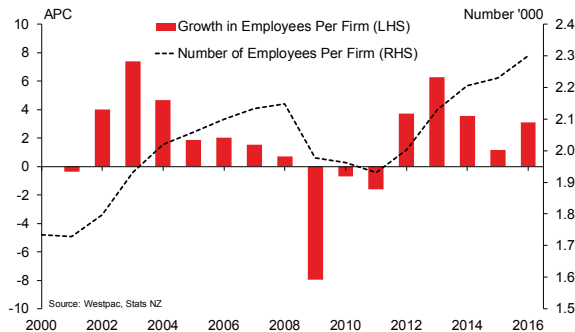


Figure 4: Average number of employees per firm



Since 2000, the number of people employed by the industry has grown by 109%, which equates to an average of 5% per year over the period. Not surprisingly, growth in number of employees shows a similar pattern to firms, with

declines recorded for each of the three years following the global financial crisis.

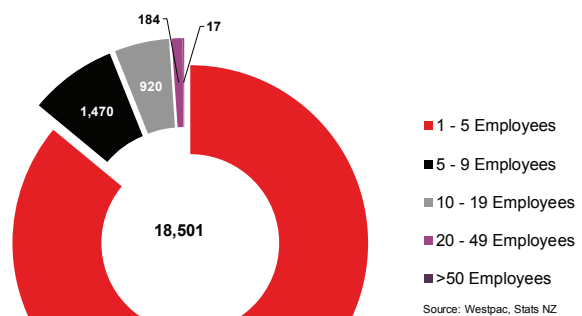
Figure 4 shows that firms in the residential building industry employed an average 2.3 people in 2016, which is just over half the average size of all firms operating in New Zealand. However, this figure is likely to be understated - it is common practice within the industry for firms to contract skills for extended periods rather than directly employing staff and putting them on the payroll.

**People that service these very small firms are self-employed plumbers, electricians, carpet layers. It is not unusual for a plumber to service 5 or 6 of these small firms at the same time, rather than just work exclusively for one.**

### Shape of the industry

The proportion of very small firms operating in the residential building industry in New Zealand is far larger than for its Australian counterpart.

Figure 5: Firms by number of employees



The 18,501 firms that make up the residential building industry come in all different shapes and sizes.

About 86% have five or fewer employees, while a further 8% have between six and nine people working for them. They tend to operate in localised markets, building standalone houses, one at a time, up to two to three a year. About 35% of the work undertaken by these firms is on new housing, 33% on housing alterations and an additional 15% on housing repairs and maintenance.

The ratio of self-employed operators expressed as a share of all builders in New Zealand is about 20% larger than in Australia.

Another 5% of these firms have between 10 and 19 employees. They operate much like their smaller counterparts, but are able to complete more houses in a given year and undertake projects simultaneously. Their focus tends to be on new houses, but still undertake alterations, repairs, and maintenance work.

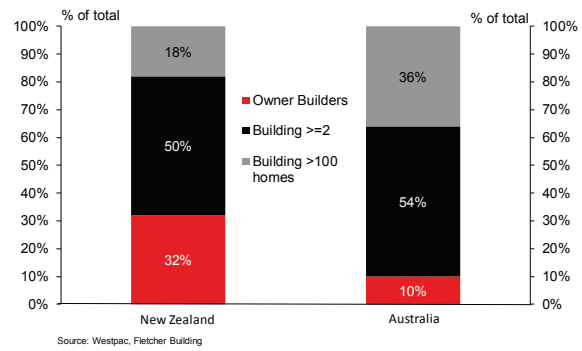
The ratio of firms having less than 19 employees expressed as a share of all builders in New Zealand is about 30% smaller than in Australia.

An additional 1% of these firms have between 20 to 49 employees, focusing on specific regional markets. As shown in Figure 6, they are involved in a broader range of activities, from property development to building standalone houses, terraced housing (detached houses), medium density apartment blocks and associated commercial projects.

The remaining firms, who employ more than 50 people, cover the same activities as their medium sized counterparts (also shown in Figure 6), but do so on a much larger scale, often providing end-to-end solutions (land development, architectural design, building and real estate services) for a range of customers. Most of these group builders will build at least 100 houses per year, with some building close to 1000. Most have a national footprint with a number adopting a franchisee operating structure. These would include standalone home builders such as GJ Gardner Homes, Stonewood Homes, Signature Homes and Jennian Homes. Others, such as Mike Greer Homes, Fletcher Building and Dominion Residential are independent builders with operations in several strategic localities. Fletcher Building, for example, focuses on medium to high-density residential buildings such as apartments, townhouses and terraced housing in Christchurch and Auckland. Unlike others in this sector, Fletcher Building is backwardly integrated, producing its own building material and products for downstream use.

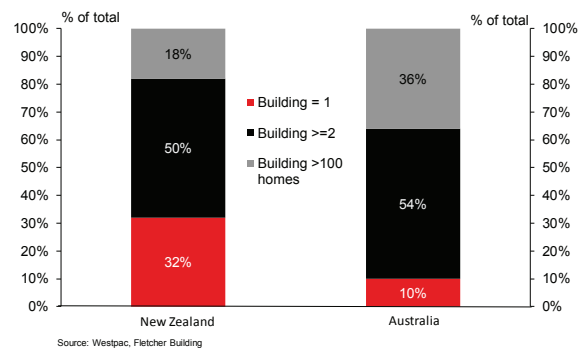
Offshore participation in the domestic residential building industry is limited. Foreign firms are often unfamiliar with local operating conditions and building projects in New Zealand tend to be relatively small.

Figure 6: Firms by type of residential building



As noted the degree of fragmentation evident in New Zealand is higher than that in Australia. Figure 7 compares the number of firms building a single house, more than one house and more than 100 houses. Although there are about 200,000 companies operating in Australia only 10% build only one house compared to 32% in New Zealand. At the other end of the spectrum, only a handful of firms in New Zealand build more than 100 houses a year, compared to over a third of companies in Australia.

Figure 7: Firms by number of residential building



## Contribution to the economy

The residential building industry is a big contributor to New Zealand's economy, but exhibits a high degree of volatility.

The residential building industry contributed about \$3.6bn to the New Zealand economy 2016 - more than the combined value generated by the non-residential and heavy and civil engineering construction industries, but significantly less than the contribution made by the construction services industry, which it depends on for a range of contracting and sub-contracting services.

Of this total, house building is by far the largest activity contributing \$3.2bn. Alterations, repairs and maintenance activities contributed the remainder.

The industry is also fast growing, with net output growing by an average 4.8% per annum between 2000 and 2017. In recent years, it has grown even faster, averaging 6.6% since 2012.

Figure 8 shows that the residential building industry has generally outperformed economy as a whole as well as associated industries in the broader building and construction sector.

**Figure 8: Growth in contribution to the New Zealand economy**

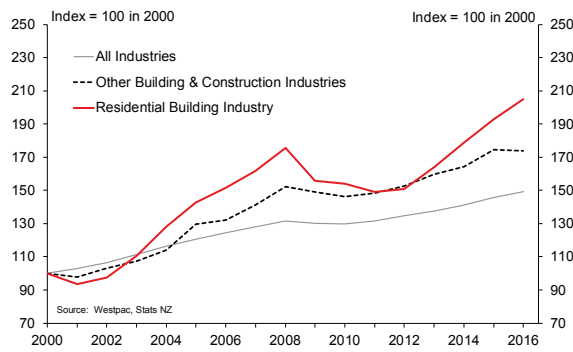
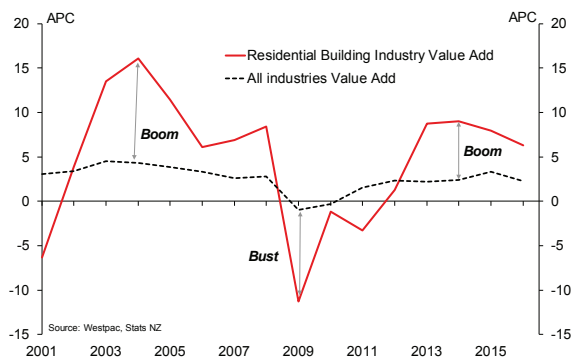


Figure 9 shows that growth in residential building industry output is a lot more volatile than changes in overall economic activity. Since 2000, the industry has regularly posted double-digit increases and decreases in output. By contrast, the growth in the economy as a whole has remained relatively consistent, dipping briefly into negative territory following the global financial crisis.

**Figure 9: Comparative growth in value add**



### Residential investment demand

Investment made in residential building activity is significant – it is also highly volatile.

Figure 10 shows that residential buildings are by far the single largest asset type in New Zealand. Valued at \$336bn in 2016, they account for a massive 44.3% of New Zealand’s net capital stock or physical asset base. By comparison, non-residential buildings, which are the second largest asset type contributed just over 18.2%, while horizontal infrastructure; i.e. civil construction and heavy engineering contributed 17.7%.

**Figure 10: Net capital stock by asset type**

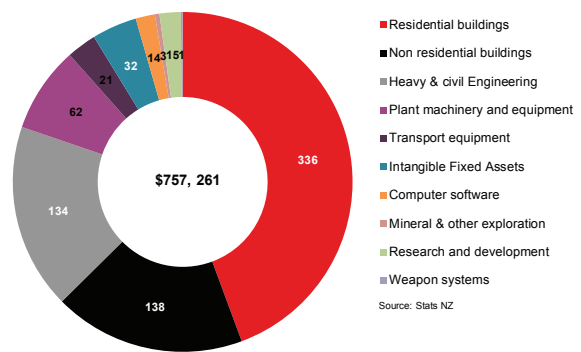
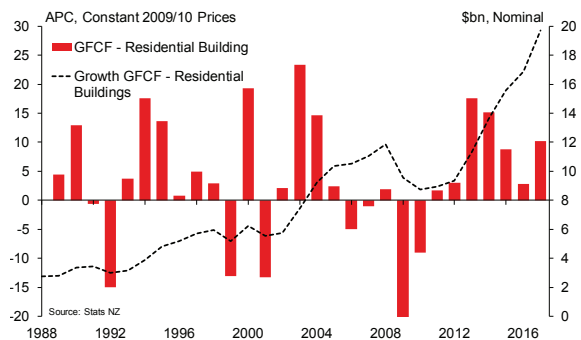


Figure 11 shows how additions to the residential asset base, normally referred to as gross fixed capital formation (GFCF), have tracked since 1988. Growth in GFCF in residential buildings has been impressive, rising by almost 75% between 2010 and 2017 (March year ending), averaging 8.4% over the period.

**Figure 11: Gross fixed capital formation by asset type**



Kiwis have long favoured investing in houses because of tax advantages, notably the absence of a universal capital gains tax and the ability to write off rental losses against personal income tax.

The strong growth in GFCF also shows up in contributions to overall economic activity. Figure 12 shows that GFCF in residential building activity typically contributes 5% to 6% to New Zealand’s GDP. This is higher than for other industries within the broader building and construction sector. GFCF in non-residential building and heavy and civil engineering, which both contribute between 2% and 3% to GDP, have effectively flat-lined in recent years.



**Figure 12: Relative GFCF contributions to GDP**

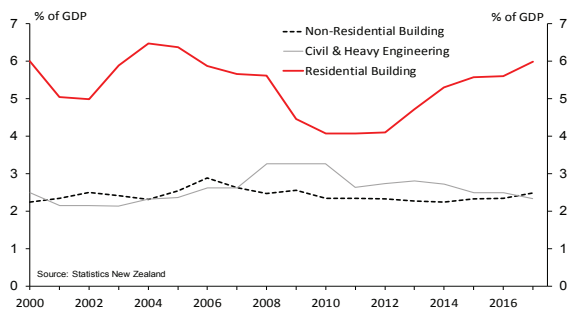
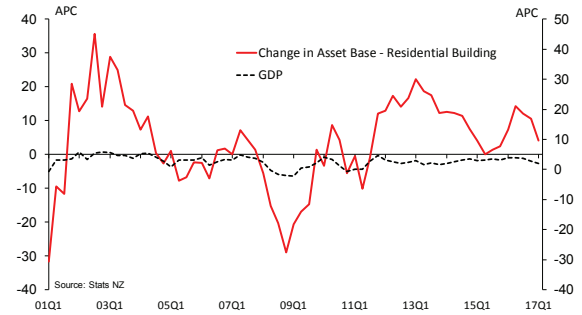


Figure 13 contrasts changes in GFCF in residential building with activity in the economy as a whole. It shows that investment in residential building activity follows the same pattern. This is not surprising considering that economic growth is largely dependent on the capacity to grow.

Figure 13 also shows that GFCF is significantly more volatile than economic activity. This reflects the impact of a number of factors, ranging from changes in borrowing rates and access to funding - most residential building is privately funded - to how quickly the industry is able to adapt to changes in demand.

**Figure 13: Relative growth rates - GFCF versus GDP**



# Mapping the value chain

Figure 14 summarises the value chain of which the residential building industry is a part:

### Inputs

The key inputs used by the industry are services, materials, and labour.

Services are provided by local contractors, their sub-contractors, architectural and engineering consultancies. Figure 15, which details what these services consist of, estimates that they cost the residential building industry about \$4.9bn per year (expressed in basic prices). Of this total, expenditure on contractors and sub-contractors that provide a range of building, installation and finishing services, are the biggest cost item, costing the industry about \$3.8bn. Professional services, which include architectural and engineering consultancy as well as legal, accounting, advertising and marketing services, account for \$0.6bn.

Materials range from non-metallic mineral based products to wood and fabricated wood products. Figure 16 details these manufactured products, which cost the residential building industry \$1.9bn per annum (again expressed in basic prices). Of this total, about \$0.4bn, mostly non-metallic mineral products, such as plastics, glass, ceramics and various articles of concrete and stone and a small quantity of wood and wood products, including panels and boards, are imported into New Zealand annually.

Labour used by the construction companies themselves rather than the contractors and sub-contractors, costs in the region of \$0.8bn per annum.

### Outputs

The key outputs produced by the residential building sector are newly constructed homes and alterations, repairs and maintenance made to existing homes.

The industry builds between 24,000 to 30,000 homes each year (mostly for the upper end of the market) and alters, maintains and repairs about 32,000 houses.

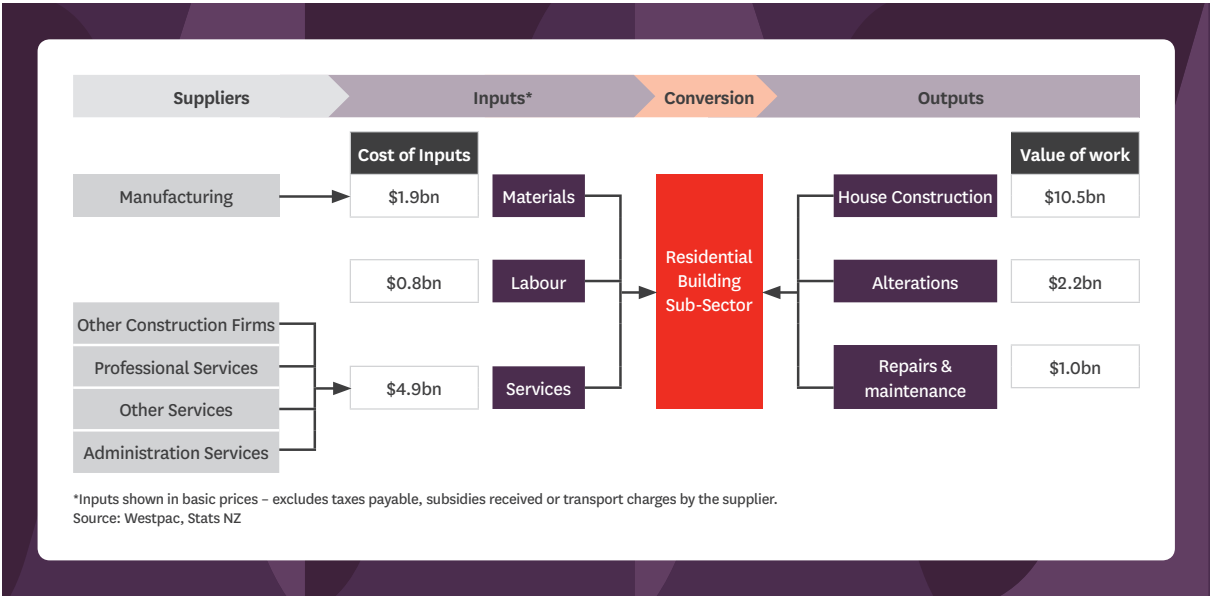
The value of these outputs amounted to just under \$13.7bn in 2016.

- The construction of new homes contributed \$10.5bn to the total. Based on building consent data, we estimate about 96% was funded privately, with individuals accounting for 85% and property developers the remainder. A mixture of local and central government (including public corporations) funded the remaining 4%.
- Alterations made to existing homes contributed an estimated \$2.2bn while repairs and maintenance activities added a further \$1.0bn to the total.

### Conversion

Converting inputs into outputs incorporates a number of inter-related steps involving a range of services provided by different professions, trades (collectively referred to above as construction services) and suppliers (referred to above as materials). This process is shown in Figure 17. The role of a residential building company is to manage this process from procurement to delivery and signoff.

Figure 14: Simplified value chain mapping of the residential building industry



A grossly simplified process might proceed along the following lines.

- A customer or property developer that has purchased a section would enter into discussions with a residential building firm or invite responses to tender (either open to all or closed to a selected few).

A residential building firm could also purchase one or more sections, then develop and build on them themselves using contractors in line in normal practice. Alternatively, they might enter into joint ventures and alliancing agreements to develop the sections.

It is also possible that a customer might contract directly with a property developer to undertake land development and site preparation works and then separately with a residential building firm.

- A residential building firm would be required to provide a detailed design specification and cost breakdown for all phases of the build, from site preparation to finishing

and landscaping. In determining the cost several factors have to be considered, not least of which is the cost of services referred to above; i.e. land development costs, architects, consulting engineers, contractors and sub-contractors etc, materials, labour and profit margins.

- Once appointed the residential building firm project manages the building process, ensuring that work done is in line with design specifications, within budget and on time. In part, this involves the managing and outsourcing of works to contractors, who in turn outsource to many more sub-contractors. It also involves interacting with the authorities to make sure consents are in place and required inspections have been undertaken.
- Once complete, the constructed building would be signed off, subject to final inspections and approvals.
- A residential building firm that has developed and built on sections that it has bought previously may retail these sections directly to end customers.

**Figure 15: Breakdown of services provided to the residential building industry**

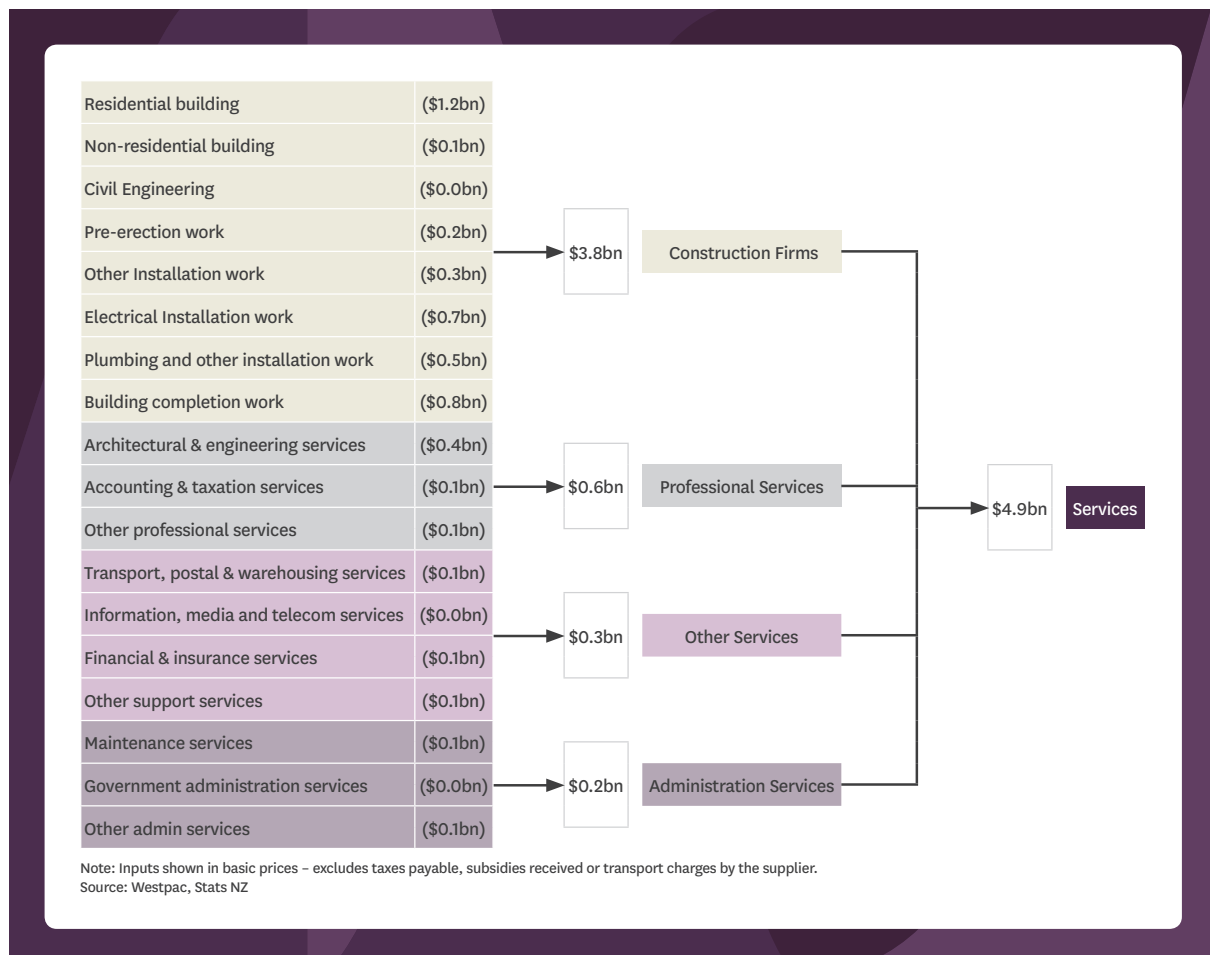


Figure 16: Breakdown of material inputs into the residential building industry

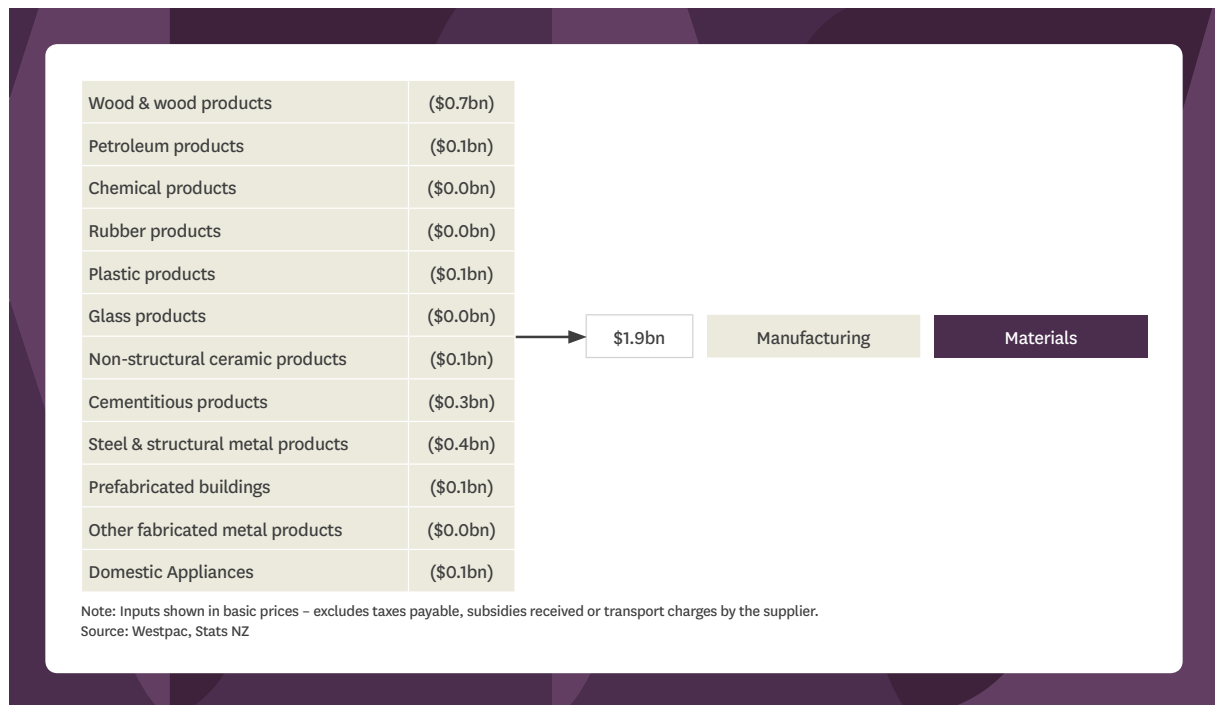
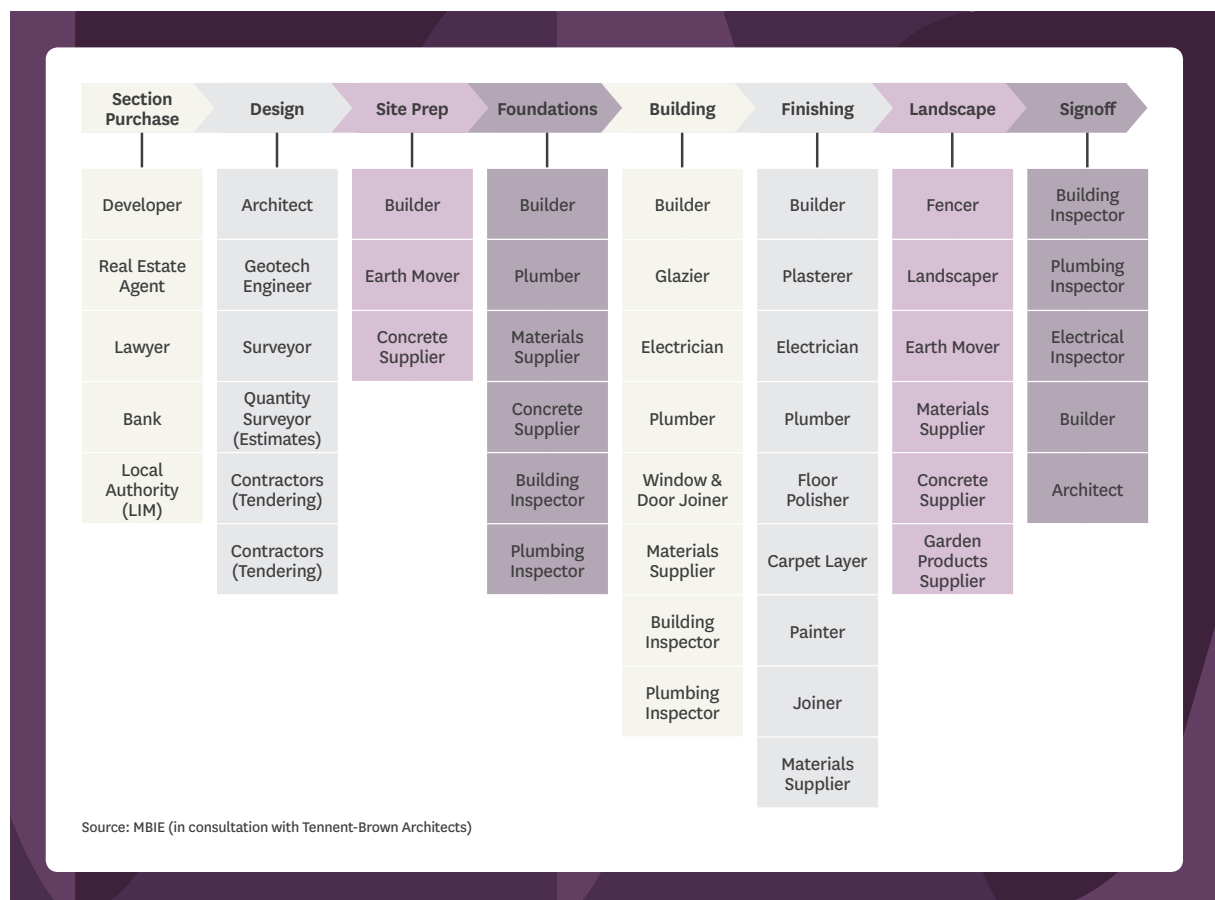


Figure 17: Simplified steps for building a house



# Regulatory environment

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The residential building industry is subject to a legislative and regulatory framework that seeks to ensure an orderly and balanced approach to land use planning, provide protection to customers against unethical practices and ensure a safer working environment for workers. However, this framework has been criticised for stifling supply, resulting in a massive pipeline of building work that the industry will be hard-pressed to address given existing capacity levels.

The following legislative and regulatory provisions apply:

## **Resource Management Act 1991 (RMA)**

The Resource Management Act 1991 (RMA) sets out how New Zealand's physical environment is to be managed. Among other things, it regulates land use and the provision of infrastructure, including residential buildings.

The RMA has proved to be controversial. Businesses in general and land developers in particular have long criticised the RMA's resource consent process as being expensive, overly bureaucratic and time-consuming. Other criticisms relate to differences in interpretation and application by district and regional councils, a disproportionate role played by activist groups and a lack of a proper performance measurement framework of measure its effectiveness

A 2014 report by Motu Economic and Public Policy Research seems to support this view. It concluded that the RMA, through a combination of section and floor size requirements, extended consent processes and other urban design considerations, had added an extra \$30,000 to the cost of apartment in Auckland, and at least an extra \$15,000 to the cost of a home. The report estimated that additional costs, time delays and uncertainties had effectively reduced the housing stock by 40,000 homes and added an extra \$30bn to the cost of building over the last decade.

Recognising these problems the government has introduced a series of incremental reforms to streamline the resource consent process. The latest round of reforms were passed in April 2017.

Since then, the government has announced its intention to develop new planning legislation that is separate to the RMA and dedicated to urban environments. Having separate objectives for regulating urban and natural environments should mean that these new urban planning laws will enable faster development of housing and other urban infrastructure.

## **Building Act 2004**

The primary objective of the Building Act 2004 is to make sure that buildings are designed and built correctly the first time. The Act also seeks to improve the quality of

decisions made throughout the design and building processes by introducing a new framework for regulating building work and by establishing a licensing regime for building practitioners.

Recent amendments to the Act include changes to building consent requirements as well as higher penalties for building without an approved consent. The Act also provides building consenting authorities, normally local councils, with increased authority when restricting access to dangerous sites.

Other amendments include the Building (Earthquake-prone Buildings) Amendment Act 2016, which introduced changes to the way earthquake-prone buildings are identified and managed under the Building Act. A new system for managing these types of buildings, introduced in July 2017, will mean that remedial work will have to be completed within a specified time-frame.

The Building Code, which is contained in regulations that relate to the Act, sets out the minimum standards against which building work in New Zealand must comply – even work that does not require a building consent.

Standards change periodically to keep pace with industry developments and other issues that impact on the integrity of buildings such as the Canterbury and Kaikoura earthquakes. Typically, these are more stringent than those that they replace which has the effect of pushing up building costs.

Importantly, the Code specifies how completed building work must perform rather than how it must be built and so it promotes innovation by encouraging builders to use different products and new approaches to building (perhaps offsetting the rise in building costs associated with the introduction of new standards). However, with most builders focused on day-to-day activities, innovation is not high on the priority list. In the absence of a proper measurement framework it is not clear whether the codes have made any material difference to innovation levels in the industry.

## **Health & Safety at Work Act 2015**

The primary objective of the Health & Safety at Work Act 2015 is to ensure that firms operating in the industry meet workplace health and safety requirements. Work fatalities within the building and construction industry as a whole are more than double the average for all other sectors, with an average 10 deaths per year occurring on sites. On average, there are more than 26,000 workplace injuries, of which more than 3,000 require more than a week off work. This has an adverse impact on the industry productivity and significantly increases the costs incurred by business.

In accordance with the Act, Worksafe New Zealand specifies and enforces a range of rules that cover various

operational aspects of construction from working at heights, with tools, machinery and hazardous materials to public safety, site access and emergency situations.

### **Licensed Building Practitioner Rules 2007**

The primary objective of the Licensed Building Practitioner Rules (LBP) are to ensure that construction work critical to the integrity of a building is done by workers that are able to achieve the required standards set out by the Building Code.

Licences are granted for seven types of restricted construction related activity. These activities focus on site oversight work, design work, carpentry, bricklaying (and block laying), plastering, roofing and laying of foundations.

A key aim of the rules is to lift practitioner performance and productivity. However, with labour productivity in the industry having flat-lined for a number of years and continuing to underperform against the national aggregate, it's not clear what contribution these rules might have made.

They are also supposed to help consumers make informed decisions about the practitioners they engage. However, given the speed at which workers enter and exit the industry, it is likely that most consumers are making the decisions based on price more than the licensed status of their contractors.

### **Construction Contracts Amendment Act 2015**

The Construction Contracts Act 2002 (the Act) regulates payment provisions in commercial construction contracts.

From 31 March 2017 construction companies, developers and property owners that contract work out to sub-contractors will be required to make new provisions regarding retention payments, i.e. monies owing to sub-contractors held back to ensure any required remedial works are completed. Retention payments typically comprise about 5% to 10% of construction company turnover.

There are two ways to safeguard retentions: either set the cash aside (usually in a trust) or purchase an insurance product. However, insurers will typically only provide insurance to construction companies that have good balance sheets. Furthermore, under the amendments sub-contractors will be allowed to inspect building firm's records to see whether they have financial resources to make retention payments and will tend to favour those that do.

The risk is that commercial construction companies that are not well capitalised and/or do not have strong cash flows could go out of business. This could affect large scale builders that focus on non residential buildings but might have interests in the residential building industry.



# Competitive dynamics

When trying to understand the nature of competition within the residential building industry, it is important to understand what factors shape the supply of capacity and the demand for it, how these might have changed over time and how these are likely to change in the future. It is also important to consider regional dimensions when assessing these factors.

## Demand side drivers

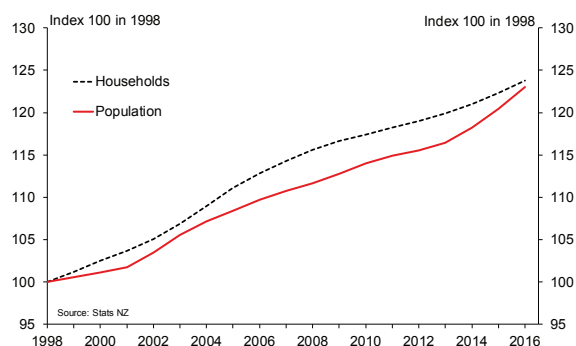
When considering what factors influence the demand for residential buildings it is useful to distinguish between those that have longer-term structural, short-term cyclical and disruptive impacts.

### Long-term structural factors

Simply put, the bigger the population, the more households there will be and as a consequence, the greater the need for residential buildings. Figure 18 shows the trajectory of New Zealand's population and number of houses since 1998. New Zealand's population increased from 3.7m in 1996 to just under 4.7m people in 2016, while the number of households rose from 1.3m to 1.7m over the same period. Both grew by an average 1.2% over the period.

Another important factor shaping demand is household type. Stats NZ defines a household as either a single person who lives alone or two or more people who usually live together. A household may contain one or more families, other people in addition to a family, or no families at all, such as unrelated people living together in a commune type setting.

Figure 18: Growth in population and households



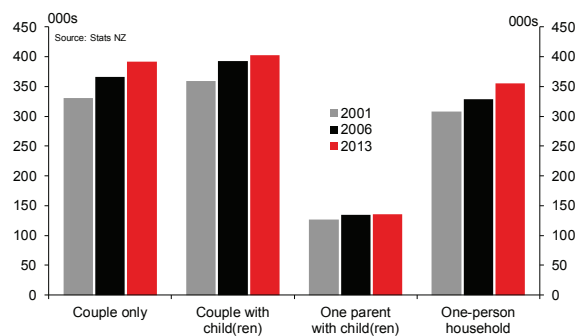
**New living arrangements support demand for different types of housing. Especially, when the number of households is increasing.**

Factors influencing household type include:

**Changes to affordability.** Increasing house prices have reduced affordability, which has encouraged new living arrangements and resulted in larger household sizes. This is particularly evident in Auckland where median price to income ratios have risen from 4.7 in 2002 to 8.8 in early 2017.

High house prices and tax advantages enjoyed by landlords but not by first time home buyers have resulted in declining home ownership rates (currently 64% compared to 75% in the early 1990s). This has been particularly evident in Auckland, where 40% of households now rent.

Figure 19: Growth in household types

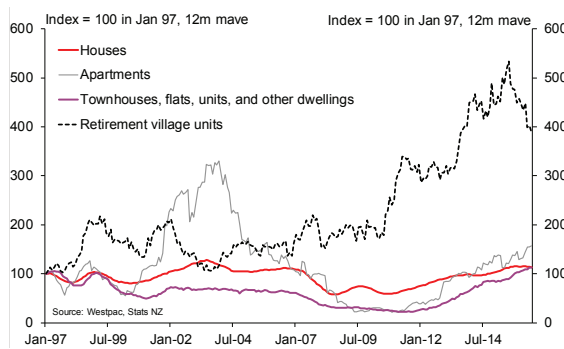


**Changes to the population age profile.** Figure 19 shows that the number of one and two person households (which together account for 57% of all households in New Zealand) have grown more strongly than other household types. The key reason for this is the large increase in the number of people living in New Zealand aged 65 and over – between 1996 and 2016 this cohort increased by 62.4% and now makes up almost 15% of the New Zealand's population. In 2013, about 80% of people living alone (one-person households) were aged 45 years and older, with 44% being older than 65. This trend is likely to continue.

The extent to which changing household types affect demand for building activity depends on whether the different types of housing that exist are able to meet changing needs. For example, a growing but ageing population is likely to mean more dwellings, but a larger proportion of these would need to be able to cater for the needs of the aged. These homes would typically be smaller, single storey and with easier entry and exit. If these homes do not exist, they would have to be built or existing houses, some of which may have become surplus to requirements, be altered.

Changes to the structure of New Zealand's population will increase demand for different types of housing. This will lift levels of building activity over what would have been required if the population had increased but no structural changes had occurred.

Figure 20: Building Consents by Building Type



Demand for smaller homes has been growing for some time. Figure 20 shows that demand for retirement homes has grown strongly over the past 10 years or so, underpinned in no small part by New Zealand's ageing population.

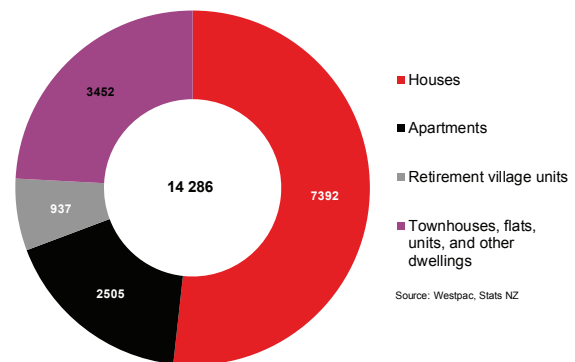
However, growth has not just been limited to retirement homes. Demand for medium and high-density apartments, townhouses and terraced housing has shot up, as surging land prices have brought affordability issues to the fore.

Appreciating land prices have been a key driver of house price inflation in Auckland where they account for about 60% of the cost of a new dwelling (compared with 40% in the rest of New Zealand).

In addition to affordability issues, other factors supporting demand for medium- and high-density apartments, etc. include greater environmental awareness, proximity to work considerations and other design features. Factors working against the shift include perceptions of quality, a historical preference for traditional standalone houses and issues relating to community living, such as a loss of privacy.

Despite the trend towards other types of homes, demand for standalone homes still dominates. They account for just under 80% of building consents for new residential structures. Figure 21 shows the number of building consents by type of new home increased by just under 14,300 building consents between 2009 and 2017. About 52% of these were for new houses.

Figure 21: Growth in building consents between 2009 - 2017



Although demand for other types of housing has increased, the biggest gains are still in standalone housing.

Nonetheless, a growing number of smaller households and higher land prices has resulted in a shift towards smaller homes. According to Stats NZ, the average floor size of all dwellings consented for the 12 months ending June 2017 was 169m<sup>2</sup>. This compares to the peak of 197m<sup>2</sup> recorded in 2010.

This reflects a fall in the average floor size for all new homes, irrespective of type. The average floor size of new standalone houses has shrunk slightly from an average 216m<sup>2</sup> in 2010 to 208m<sup>2</sup> for the 12 months ending June 2017; apartments from 149m<sup>2</sup> to 108m<sup>2</sup>; retirement units from 158m<sup>2</sup> to 119m<sup>2</sup>; and townhouses from 123m<sup>2</sup> to 119m<sup>2</sup>.

Despite these declines, floor sizes in New Zealand remain among the largest in the world. The reasons for this relate to the significant tax advantages that owner-occupied housing has over other forms of consumption and the role of housing as a tax advantaged investment. For most households, their house is their largest single asset, so new owners tend to build with a view to re-selling into what they perceive to be the main market, i.e. Four bedrooms, double garage, and as much floor area as their budget allows. These choices reflect high land and building consent costs, which encourage new owners not to under-capitalise.

For those that can afford new standalone homes, the trend has been towards greater individualisation, either in the form of architecturally developed homes from scratch or off existing standard plans (provided by housing companies such as Signature Homes, GJ Gardner, etc.). As a result, new housing in New Zealand is characterised by a variety of housing forms with little standardisation. A survey of new homeowners by BRANZ found that found that 50% of respondents had altered a selected design from their builder's standard plans, while another 40% had worked with an architect to produce a one off design.



As a rule, individualisation tends to lead to larger average house sizes. It also results in higher costs when compared to standard designs. These range from about 15% from small-scale builders to as much as 25% for larger group builders.

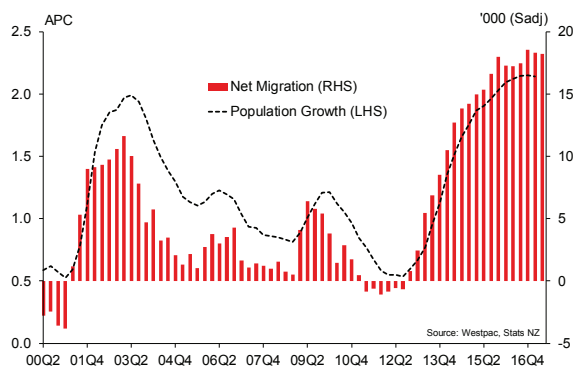
The priority for buyers when purchasing a standalone home is get the best quality, including design features, within their budget. Build time is important for buyers but of a lesser priority.

### Short-term cyclical factors

The long-term factors referred to above support a gradual increase in demand for residential building activity. However, there are also short-term cyclical factors affecting demand that are far more volatile.

**Net migration.** Figure 22 shows that the most recent surge in population numbers in New Zealand was due to record setting net inward migration flows, supported by conducive domestic economic conditions, increased uncertainties abroad, notably in global labour markets, and a lowering of immigration barriers.

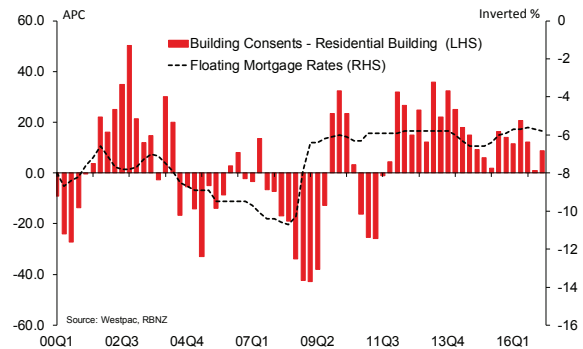
Figure 22: Migration flows and population growth



**Interest rates.** Figure 23 shows a lagged inverse correlation between building consents and interest rates; i.e. as rates rise, growth in building consents falls, and vice-versa.

Strong migration flows have helped grow demand for residential building in Auckland.

Figure 23: Building consents and borrowing rates



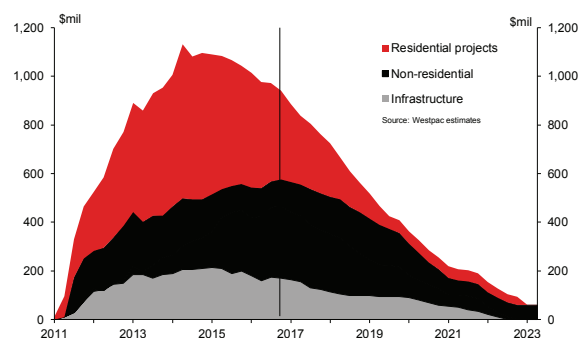
Low interest rates also encourage people to buy already standing homes. However, the extent to which they do reflects a number of factors, not least of which is the ability to pay back any borrowings they might have made to fund their purchase given existing debt burdens and debt servicing requirements.

*Note: Westpac's Economics Team analyses and reports on the factors shaping the residential market on an ongoing basis. Our latest in-depth report on the residential market, titled "A Tale of Three Cities" can be accessed at <https://www.westpac.co.nz/assets/Business/Economic-Updates/2017/Bulletins-2017/A-tale-of-three-cities-April-2017.pdf>. A more summarised view of current developments in the residential market is provided in our latest Economic Overview titled "Throttle Back", published in August 2017. It can be accessed at [https://www.westpac.co.nz/assets/Business/Economic-Updates/2017/Bulletins-2017/Westpac-QEO-Aug-2017\\_EMAIL.pdf](https://www.westpac.co.nz/assets/Business/Economic-Updates/2017/Bulletins-2017/Westpac-QEO-Aug-2017_EMAIL.pdf)*

### Disruptive factors

Other relevant factors include disruptive and unpredictable events, such as the 2011 Canterbury earthquake. Figure 24 shows that in the aftermath of the Canterbury earthquakes, residential building activity – new construction as well as alterations, repairs and maintenance to existing structures – peaked in 2014. Demand has since started to slow from these elevated levels as residential works have been completed. As demand continues to normalise, factors such as changes in the population are likely to become the more dominant drivers of activity in the province.

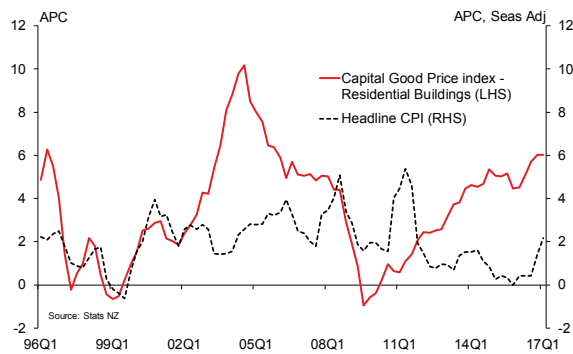
Figure 24: Canterbury rebuild estimates



## Impact on prices

The short-term factors referred to above affect the prices received by firms within the residential building industry. As shown in Figure 25, these can vary dramatically. Recent increases in population size, particularly in our larger cities, and strong growth in household numbers (fuelled in recent years by strong growth in net inward migration), post-earthquake recovery works in Canterbury, attractive interest rates, and shifting customer preferences (driven in part by affordability concerns), have underpinned demand for residential building in recent years. Within an environment characterised by a limited supply of land, particularly in Auckland, as well as costly and often drawn out consenting processes, this has led to a sustained increase in the price of residential buildings that began in 2009 and is only now starting to show signs of easing.

**Figure 25: Residential building price index vs CPI**

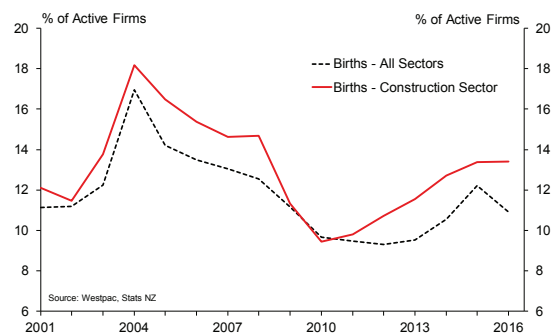


## Supply side drivers

There are a range of factors that affect the supply of capacity.

**Changes in demand.** Strengthening demand and higher prices have encouraged new entrants into the industry in recent years. Figure 26 shows that the number of new firms entering the building and construction sector slightly lags the pickup in prices shown in Figure 25 and the increase in investment in residential buildings shown in Figure 11.

**Figure 26: Birth of new firms**



Although figures are not readily available, it is highly probable that this is even more pronounced for the residential building industry. The opposite situation also applies – subject to a lag, weakening demand and softer

prices typically leads to the exit of firms from the industry. As for entry, the proportion of firms that leave the industry tends to be higher than the national average.

The number of new firms entering the industry also aligns reasonably well to the financial performance of existing companies. Figures 26 and 27 suggest that new firms enter the industry on the expectation of improved profitability associated with higher levels of investment. This would explain what seems to be a 2-year gap between when firms start entering the industry and when profits start to improve. The flattening in the number of firms entering the industry shown in Figure 26 suggests that industry profitability will moderate in 2017/18.

**Figure 27: Surplus before income tax**

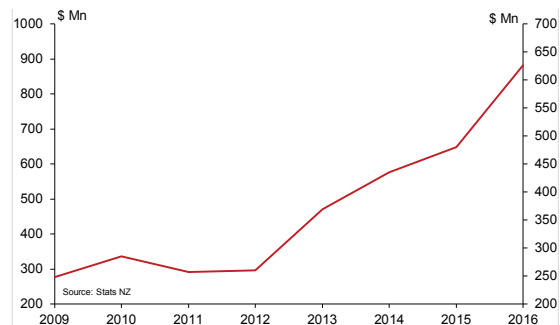
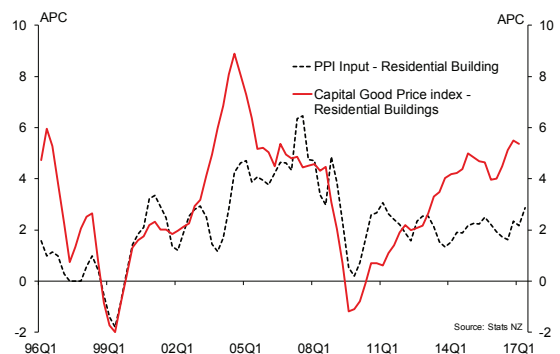


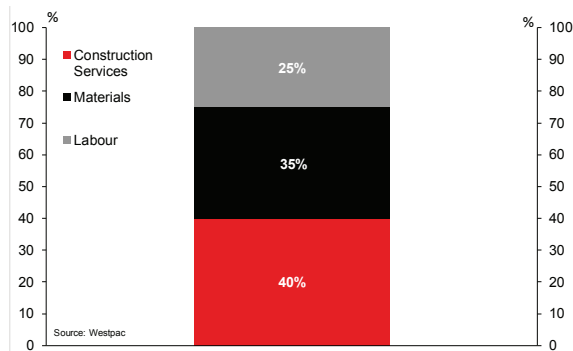
Figure 27 shows that profitability in 2016 was higher than 2015. Industry margins rose from 6.0% to 7.1% in 2016. The main reason for this was a widening in the gap between output and input prices as shown in Figure 28. During this period, residential building prices, supported by strong demand, grew faster than input costs, underpinned by higher prices for construction services.

A different story is beginning to emerge in 2017. As growth in building consents start to slow, competition among existing firms has grown, input costs have increased (because of higher construction services costs, which account for about 40% of total production costs – see Figure 29) and output prices, reflecting a softening in demand conditions, have moved sideways. A resulting narrowing of the gap between input and output prices is likely to have translated into lower profitability, tighter margins and tougher competition.

**Figure 28: Factor input prices**



**Figure 29: Production cost structure**



**Barriers to entry and exit.** The ability of the industry to respond to fluctuations in demand depends on barriers to entry and exit. The lower the barriers, the more responsive the industry is to demand conditions. Low to medium barriers to entry for small firms mean that they are able to easily enter the industry during boom times and leave when cash flows dry up in the more challenging periods. Large, better-capitalised firms are typically able withstand a downturn in fortunes, in part because they are often involved in associated industries, i.e. non-residential and civil engineering and heavy construction.

Larger firms will react to these challenging periods by co-opting smaller firms to provide resources. However, as conditions become more difficult they will start focusing inwardly, restructuring poorly performing units, eliminating areas of non-core competency, and merging, acquiring and/or entering into joint ventures/alliances.

The ease with which firms are able to enter and exit the industry depends on the existence of:

**Economies of scale** – If firms are able to generate cost advantages through economies of scale, it may be more difficult for new firms to enter. Most small firms that characterise the industry do not compete head on with larger players and are unaffected by any cost advantages these companies are able to generate through bulk purchasing agreements, joint ventures and alliances. In boom times, when supply side constraints become more evident, it is common practice for larger firms to purchase capacity from small firms or in the case of labour procure from overseas. For smaller firms, a lack of capacity to follow complicated immigration processes/eligibility rules severely hampers their ability bring in people from abroad.

**Brand loyalty** – If existing firms have high brand loyalty, new entrants might need to invest heavily in their own branding, which can act as a disincentive. Given the one-off nature of home building, brand loyalty is not a significant hurdle for new entrants to overcome. Reputation is more of an issue. Small firms often rely on word-of-mouth recommendations for repeat business within very specific localities.

**Switching costs** – If the costs faced by customers of switching between different products is high, new entrants might find it more difficult to compete. Because building homes is such a lengthy and complicated process (see page 10), the costs of switching from one firm to the other

tends to be high. However, switching costs for alterations, repair and maintenance work, primarily undertaken by small firms, are typically low, which can act as an incentive to new entrants.

**Distribution channels** – If existing firms have already been able to secure distribution channels, it may be difficult for new firms to be able to distribute their own products. The upstream supply chain to the residential building industry is highly fragmented, which can lead to a number of management and logistical issues – especially for new entrants that do not have the relationships that incumbents have already established. While there is little to stop new entrants from accessing these channels, relationships in this industry matter and a lack of a track record may mean that existing firms crowd them out.

**Capital requirements** – If new firms face significant capital expenditure to start-up operations, they may be discouraged from entering the industry. This is not a particular problem for small firms that build a couple of houses a year and/or undertake small-scale renovation, repair and maintenance work. They do not invest heavily in plant and equipment and rely heavily on timely payments for work completed to bolster cash flows. For larger firms focusing on large-scale projects, ranging from property development to the construction of medium density apartment blocks and other large complexes, the start-up capital requirements can be significant.

**Cost advantages independent of scale** – If existing firms have cost advantages that cannot be replicated, it may be difficult for new firms to enter the industry. Small firms may enjoy some advantages because they understand the nature of demand within specific localities and are members of a registered body, such as Registered Master Builders Association (RMBA). The same applies for larger firms, although they also more likely to access to proprietary technology, either directly or through joint ventures and alliances.

**Regulatory Controls** – If government regulations limit entry into an industry then new entrants might be discouraged from entering. The residential building industry is highly regulated and the trend is for further tightening. These include changes to licencing requirements for building practitioners, more stringent workplace health and safety standards, and improvements to the building code. Although subject to reforms, lengthy and costly consenting processes are also a disincentive to new market entrants. Membership of organisations such as the RMBA and New Zealand Certified Builders (NZCB) may help with when providing warranty insurance, which can improve competitiveness when pitching for work.

**Barriers to exit** – If it is too difficult or costly to exit an industry, then new entrants might be discouraged from entering. For smaller players there are few if any barriers to exit. Although larger players may have invested significantly in capital and labour resources, these are often transferable to associated industries.

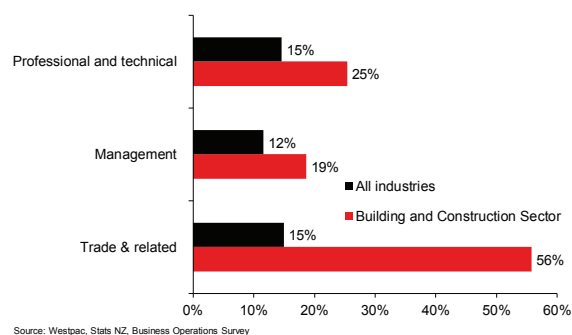
# Industry issues

In boom times where demand is high, the industry benefits from inflated prices, bulging order books and reduced levels of competition, but suffers progressively from increasing capacity constraints, both in terms of labour and raw materials as firms enter the market. However, in the bust times when demand is low, the industry is faced with competitive price setting (sometimes at cost or even below to win business), reduced margins and pressure on work quality, affecting employment levels and firm survival.

**Small firms tend to compete on price, whereas the large companies compete on both price and a differentiated product offering.**

An inherent vulnerability to boom and bust cycles means that the industry tends to have a very short-term focus and as a result is reluctant to invest in people or plant and machinery even in the boom times, relying instead on contractors and other service providers to fill the gap. As a result, trained and experienced people often leave the industry during the bust times, and generally do not return. As Figure 30 suggests, this has the effect of widening the skills gap when boom times return, increasing dependencies on migrant workers, external contractors and other service providers.

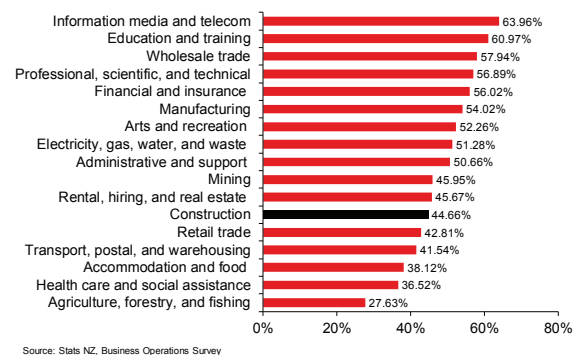
**Figure 30: Difficulty in acquiring skills - 2016**



**Skills shortages are more acute in the residential building industry than in the economy as a whole – this is especially true in the boom times**

A reluctance to invest in people, processes, new technologies and products has contributed to comparatively low rates of innovation in the industry. Figure 31 shows that levels of innovation in the building and construction sector as a whole are low in comparison to other sectors in the New Zealand economy. Although figures for the residential building industry are not readily available, it is likely that the proportion of firms in the industry adopting innovative operational practices will be even lower.

**Figure 31: % of survey respondents adopting innovative operational practices - 2013**



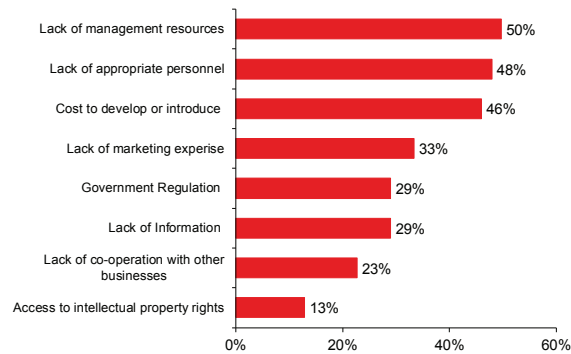
Reasons for the low rates of innovation include:

- The relatively small size of residential building developments in New Zealand, which undermines the ability of firms to generate benefits associated with scale and scope – including standardisation and benefits that come from stability.
- Firms within the residential building industry are generally risk averse, tend to live “hand to mouth”, and so focus heavily on operational issues. It is difficult for these firms to invest time and money in developing, learning and/or adopting new approaches. As a result, they are slow to introduce new products to market and even when introduced, diffusion tends to be sluggish.
- The processes for demonstrating that products are compliant with the Building Code are complex and time-consuming; and
- Slow, costly and often time-consuming resource and building consent processes under the RMA often result in delays which make it difficult to plan larger more complex construction projects.

Figure 32 shows the results of a Stats NZ business operations survey with respect to barriers to innovation within the building and construction sector. The main barriers focus on whether people have the right aptitude, skills, competencies and time to adopt innovative practices. The costs of adopting innovative practices and developing new products are also key constraints.

These barriers explain why the industry does not make more use of new technologies and innovative practices such as 3D printing, pre-fabrication or modular housing, which dramatically reduces the timeframes for construction.

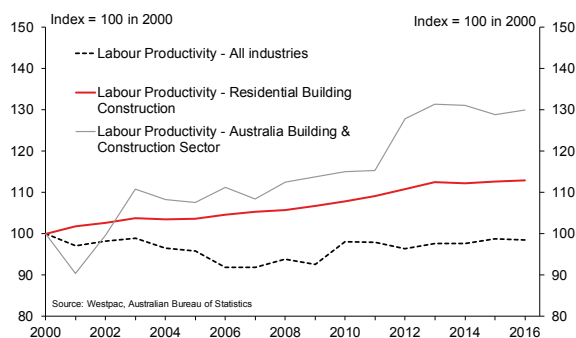
**Figure 32: Main barriers to adopting innovative operational practices - 2013**



Low rates of innovation in the residential building industry are reflected in flat-lining productivity. Figure 33 shows that labour productivity in the residential building industry lags well behind that of other sectors of the economy and performs even more poorly when compared to Australia's construction sector. Furthermore, official statistics for the building and construction sector show a similar picture for both labour and multi-factor productivity.

Low productivity in the industry is associated with a number of other performance issues including budget and timing overruns which are reflected in growing building costs, poor design or layout and lower-quality work, which in the case of new homes, results in higher lifetime costs and an increased requirement for repairs or refits.

**Figure 33: Labour productivity**



Factors contributing to low productivity include:

- A lack of scale. There are not enough firms with the scale and capacity needed to achieve the efficiencies seen in larger overseas markets. Small firms are less able to generate economies of scale while larger group builders, who are able to reduce costs through delivery of standardised housing and offsite prefabrication, only account for a relatively small share of the industry in New Zealand.

- A lack of automation. The greater the level of automation the faster a house can be built and at a lower cost. Some larger players, such as Fletcher Building, are looking at the possibility of operationalising off-site pre-fabrication as a means accelerating the rollout of homes at lower cost.
- A lack of available land in some areas has impeded large-scale development and the potential for generating economies of scale.
- Limited use of the strong technical capabilities that exist within the industry for the purposes of research, innovation and skills training due to poor leadership, low levels of investment, and an uncoordinated approach to planning and delivery.
- A lack of management capabilities and related skills. Low productivity is reflected in remuneration in the sector, with the industry amongst the lowest paid in New Zealand.
- The fragmented nature of the upstream supply chain, which limits the potential for innovation, resulting in lower building quality and increased building costs. Many specialist services are required to build a house and the fragmented nature of supply presents difficulties in the management of the supply chain.
- A lack of informed participation by buyers, who rely on builders, architects and draftsmen to select, source and purchase building materials on their behalf.

A lack of co-ordination and forward planning of central and local government building programmes.

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## The Building & construction Productivity Partnership aims to raise productivity by 20% by 2020 through the adoption of new tools, technologies, construction and procurement systems.

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# Characteristics of successful firms

Figure 34 specifies the various factors that determine success in the residential building industry. In our view, successful firms within the residential building industry, irrespective of their size, typically focus on two key factors – how to minimise costs by maximising the efficiencies of operational processes and how to maximise returns by accurately managing the various risks that they face.

To maximize process efficiencies successful firms in the residential building industry are able to:

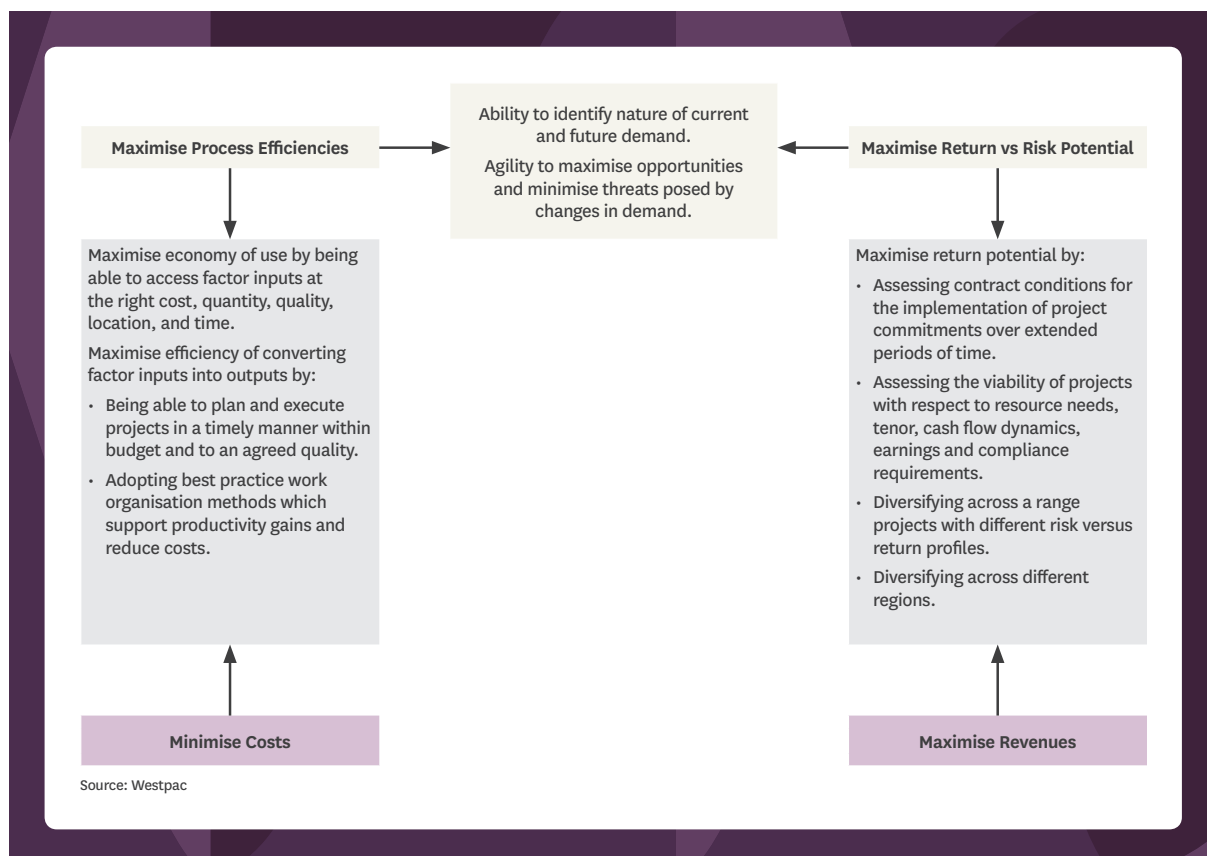
- Access the right quantity and quality of building materials/products, machinery, equipment, and mix of skills and relevant experience at the right time through best practice supply size management and procurement processes.
- Apply appropriate project management disciplines (operational and delivery aspects) to ensure on time delivery against agreed specifications.
- Create organisational structures, performance management systems, work organisation methods and systems (including areas of specialisation and adoption of new technologies) and communication structures that support project delivery at lowest cost. The focus here is

to create a process that makes designing, constructing and building faster, more efficient and more cost effective than before.

To maximize the return versus risk potential successful firms in the residential building industry:

- Assess, understand and communicate the nature of the contractual obligations that they have entered into.
- Assess the feasibility of potential projects by fully understanding scope and scale attributes, costs associated with delivery, associated financial and operational risks, the nature of payments (which affect cash flows) and compliance with regulatory requirements.
- Diversify order books to ensure an optimal split between low risk, low return and high risk, high return projects with and across regions. Smaller players still compete on price while larger players tend to focus on providing a differentiated product offering. In both cases, quality of workmanship, efficiency and timeliness within budget remain critical factors for success. For those providing a differentiated product offering, design capability and the ability to provide financial packages are also important.

Figure 34: A summary of critical success factors for the residential building industry



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