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Business Models: A Unit of Analysis for Company Performance

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Executive Summary

Business models have been popularised in recent practitioner literature as a tool for summarising and representing how a company generates value. But academic consensus remains absent with a multitude of different definitions and typologies generally structured for application within a single focal business.

There remains an opportunity to use the business model beyond *intra* application and act as a unit of analysis for *inter-enterprise* comparison. Weill et al (2006) have created a typology titled the MIT Business Model Archetypes. This research applies the MIT typology to New Zealand's publically listed companies to generate a business model landscape. Several financial metrics are used to compare the performance and patterns of different business models.

Interesting patterns emerge such as 33% annual compound growth for gross shareholder returns exhibited by one archetype, and a total of six out of nine that exhibit higher returns than the S&P/NZX50 index.

The two research questions proposed are; can a business model be used as a unit of analysis? And, do some business models perform differently than others? The results of this analysis evidence a positive response to both questions.

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1. Introduction

Every organisation has a business model (Casadesus-Masanell & Ricart, 2010). It is a natural consequence of trade and economics (Teece, 2010). The concept of the 'business model' has stimulated interest among both academics and practitioners over the past decade. Despite this, the literature does not achieve a consensus of definition or consistent typology that would permit a deeper understanding of the effects and impacts of various business models upon commerce.

This paper canvasses the epistemology of the business model concept. It highlights the limitations of the existing body of research and, in particular, the lack of cohesion and consistency in the various definitions and typologies; which limits the possibility to aggregate data for a useful comparative analysis.

This paper endeavours to map the unchartered terrain of New Zealand's business model landscape with a focus on business models represented by 151 publically listed New Zealand companies. In order to do so, it attempts to answer the following questions: can a business model be used as a unit of analysis? And, do some business models perform differently than others?

It is argued that a business model can be used as a unit of analysis and draws on a relatively unique typology, namely the MIT Business Model Archetypes (BMA)

to evidence this. This typology effectively allows for the classification of companies by business model archetypes and a comparative *inter-enterprise* empirical analysis. In addition, and in answer to the second question posed, results demonstrate a variation in performance between business models.

The scope of this paper is to inspire curiosity and highlight the need and opportunity for further research in this area. Indeed, it is argued that aggregate empirical or positivist research would be of great benefit as it would add a new dimension in the way business performance is perceived and can be measured.

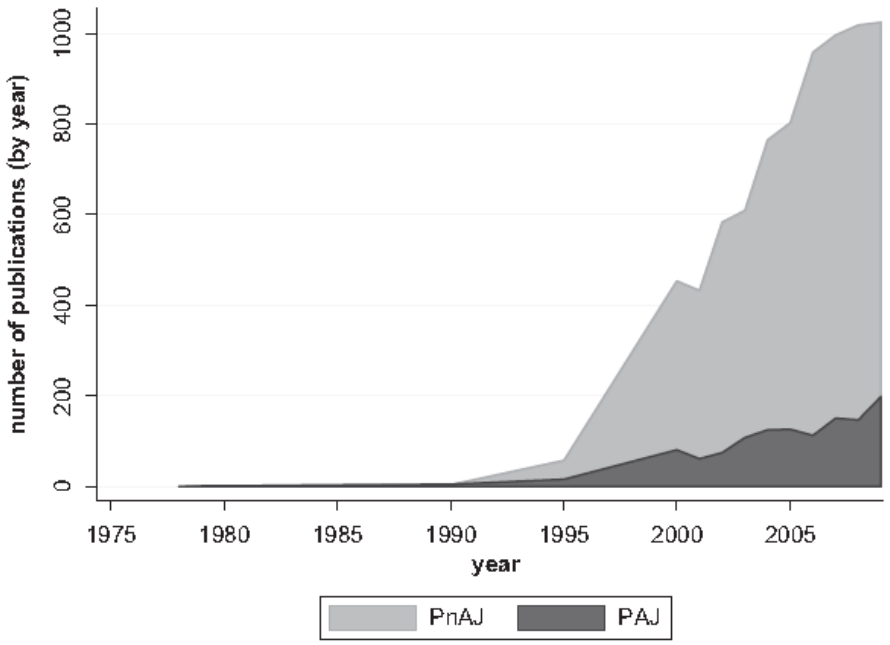
2. Literature Review

2.1 History

Despite having been coined in 1957 (Bellman et al., 1957), the ubiquitous term 'business model' only gained prominence in conjunction with the rise of the internet (1990s) (Amit & Zott, 2001) and the new business model archetypes that emerged with it. The disruptive nature of this innovation (Christensen, 1997) precipitated a new platform and channel for information communication technologies to create and deliver value. These non-traditional models generated interest due to their rapid commercial success resulting in a rise of both academic and practitioner interest. Zott et al. (2011) suggest that the noteworthy difference between the number of academic and non- academic articles published (as seen below) indicates a lag in academic recognition behind practice.

The early majority of studies have been devoted to e-commerce business models (Timmers, 1998; Amit & Zott, 2001, Chesbrough & Rosenbloom, 2002; Magretta, 2002; Morris et at., 2005; Osterwalder et al., 2002). Analysis applicable to this industry has depth which is yet to extend and cater to the multitude of more traditional business models common to other industries and global stock markets.

Business Model Articles in the Business/Management Field



Note: This area graph shows trends in the number of business model articles. PnAJ = articles published in nonacademic journals; PAJ = articles published in academic journals.
Source: Business Source Complete, EBSCOhost database, January 1975–December 2009.

Figure 1. Business Model Article Summary: Amit & Zott, 2001

This section includes an analysis of existing definitions and typologies, consistencies and inconsistencies evident in the definitions and typologies, a summary clarifying the challenges that limit further development and application

of this concept, and the approach selected for assessing New Zealand's business model landscape.

2.2. Definitions

Despite the surge in practitioner application and academic analysis, the subject of business models is yet to develop a common language for consistent examination of the various permutations of model constructs. This lack of a consistent body of thought gives rise to confusion and a diffusion, rather than convergence, of progressive research. An in-depth multifaceted review conducted by Zott et al. (2011) proffers overarching insights which expedite the consolidation and centralise the body of existing and siloed interpretations. Insights include:

- No single definition of what a business model incorporates has been agreed.
- Topic analysis is centralised around areas of researcher interest:
    - E-commerce and the application of information technology (IT);
    - Strategic elements such as competitive advantage and firm performance; and
    - Innovation management.
- Emergent themes are surfacing which include:
    - Implicit and explicit recognition that the business model is a new and distinct unit of analysis;
    - Business models emphasise a systems level approach describing how a firm does business; and
    - The value creation, value capture and activities of a focal firm.

Timmers (1998) submits that the business model is “an architecture of the product, service and information flows, including a description of the various business actors; a description of the sources of revenues” (p.2). Further requirement for a marketing strategy to accomplish a company’s objectives is also recognised.

Amit & Zott (2001) describe the model in a highly network-centered framework. “The content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities” (Amit & Zott, 2001. P. 511). Extended, they propose an ‘activity system perspective’ defining a business model as “a system of interdependent activities that transcends the focal firm and spans it boundaries” (Zott & Amit, 2010. P. 216).

Chesbrough & Rosenbloom (2002) identify the business model as “heuristic logic that connects technical potential with the realisation of economic value” (Chesbrough & Rosenbloom, 2002. p. 529)

Magretta (2002) takes a broad approach identifying a business model as the “story that explains how enterprises work” (p. 4). This responds to questions identified by Peter Drucker as necessary for any business to answer:

- Who is the customer?; and

- What is the underlying economic logic that explains how we can deliver value to the customer at the appropriate cost?

Osterwalder & Pigneur (2002) note “a business is nothing else than the architecture of a firm and its network of partners for creating, marketing and delivering value and relationship capital to one or several segments of customers in order to generate profitable and sustainable revenue streams” (p. 2). Their future publication “Business Model Generation” (2009) was a significant milestone which presented enterprise with a single page framework for mapping and exploring their current and future business model states.

Morris et al. (2005) and Johnson, Christensen, & Kagermann (2008) identify ‘fundamental components’ and interlocking elements’ that, when combined, deliver value. Examples include: Value proposition, key resources and processes, profit formulas and external positioning.

Casadesus-Masanell & Ricart (2010) state “a business model… is a *reflection* of the firm’s *realised* strategy” (p.195). Further value is added with the important delineation between strategy and a business model; “every organisation has a business model… [it] makes some choices, which have consequences. [But] not every organisation has a strategy” (p.200). The strategy is said to determine the business model, and Tactics are “the residual choices open to a firm after choosing its business model” (p.202).

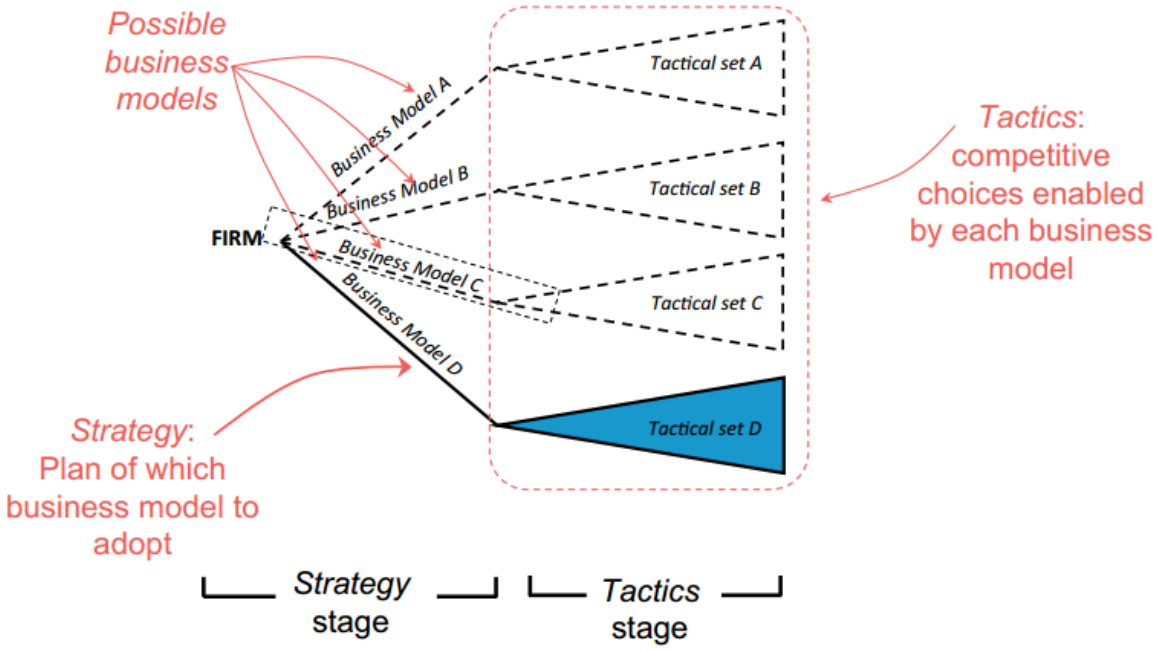


Figure 2. Clarification of Strategy and Business Models: Casadesus-Masanell, 2010

Baden-Fuller & Morgan (2010) set out with a question 'Are Business Models Useful?' It is noted that a business model provides means to classify business and act as "recipes for creative managers" (p. 156). It ultimately leads to their definition which is "the logic of the firm, the way it operates and how it creates value for its stakeholders".

2.3.1 Definitions: Summary

Several definitions share overlapping themes. References are made to an *architecture* (Timmers, 1998; Osterwalder & Pignuer, 2002), a *logic* (Chesbrough & Rosenbloom, 2002; Magretta, 2002; Baden-Fuller & Morgan, 2010), *creating* or *delivering value* (Amit & Zott, 2001; Chesbrough & Rosenbloom, 2002; Magretta,

2002; Osterwalder & Pignuer, 2002; Morris et al. 2005; Johson et al, 2008; Baden Fuller et al, 2010). Two points should be noted here:

1. Almost every definition recognises the element of identifying how value is created or delivered; and
2. Each definition includes multiple other elements (in addition to point 1), but lack consensus.

Several other definitions exist within the literature which contributes descriptive and conceptual value, but as noted, these lack the necessary consistency or metrics to achieve greater precision in analysis. Returning to Zott & Amitt's (2011) summary, it can be confirmed that:

- definitions incorporate system level or holistic approach to how firms do business.
- definitions identify a focal firm and emphasise *intra* analysis of its method of value creation and capture; and
- that a single definition remains unclear.

In recognising this, (1) the absence of consensus and precision is understandable and (2) the business model as a unit of analysis requires further exploration.

Weill et al. (2006) conduct an empirical analysis on 1000 of the largest US firms and the financial performance of the business models these companies represent.

By doing so, they create a simplistic operational definition recognising the heart of any business is what it sells (p.5). A business model is based on two fundamental dimensions:

- What the business does with focus on the types of rights that are being sold; and
- Secondly, the type of asset that is involved.

Some definitions also recognise this focus upon the nature of the transaction (Amit & Zott, 2001), but fail to couple this with the nature of the asset. Through Weill et al's (2006) definition, a typology can be constructed to form the units of analysis for business model comparison. (p.2).

2.4 Typology

Casadesus-Masanell & Ricart (2010) state that the complexity of a single business model is too unwieldy for analysis. Simplification is required and can be achieved by aggregation and decomposition.

Aggregation can be considered as 'zooming out' and by selecting the appropriate depth of field (or the right distance), detailed choices and consequences can grouped together into more relevant clusters. *Decomposition* can take place as some elements within a business model do not interact. Therefore some components can be assessed in isolation.

To explore the determinants of performance of a business model, it is suggested that the appropriate altitude is one that does not consist of multiple facets. For

example, Johnson, Christensen, & Kagermann (2008) posit four interlocking elements: customer value, profit formula, key resources and key processes. It is suggested that comparing one value proposition against another requires a level of interpritism and judgement-dependant analysis. Decomposition of these four elements may result in novel insights but would then limit the analysis to a specific niche. It is the aggregation of these elements that truly determines the outcome. Therefore, in order to progress the evidential foundation of this topic, it is suggested that aggregate empirical or positivist research would add greater clarity and value to the academic community.

To systematically analyse a business model they must first be distinguishable. (Zott & Amit, 2002). In pursuit of measuring performance implications of a business model, configuration theory is applied to suitably examine the relationship and impact of a business model on firm performance. Zott & Amitt (2002) suggest two potential methods of configuration:

1. One option is to construct ideal archetypes and measure the level of deviation from the ideal and relate this to the variation in performance (e.g Doty, Glick, and Huber, 1993; Drazin and Van de Ven, 1985).
2. Secondly, Miller (1996) states “configuration… can be defined as the degree to which an organisation’s elements are orchestrated and connected by a single theme” (p.509).

The following typologies fall into one of two configuration categories with differing results.

Timmers (1998) was the first to introduce distinguishable and generic templates for e-business models. Two criteria are used including (1) functional integration (from single function to multiple functions) and (2) the degree of innovation (from low to high) (Fielt, 2014. p.97). The resulting 11 models include e-shops, e-procurement, e-auction, e-mall and various others.

Weill and Vitale (2001) identify eight atomic business models described and defined by the different ways of conducting business. These act as building blocks for more complex compositions. Examples include: content provider, direct to customer, full service provider and intermediary. Four elements are used to determine the accurate archetype. Strategic objectives & value proposition, sources of revenue, critical success factors and core competencies.

Osterwalder and Pigneur (2010) extend beyond e-commerce with five models. These include: unbundling, long tail, multi-sided platforms, free (bait and hook), and open. Classification is based on the nine elements as seen in the BMC which include: customer segments, customer relationships, communication, value propositions, key resources, key activities, key partnerships, revenue streams and cost structure.

Zott & Amit (2002) adapt earlier research (Amit & Zott, 2000) to a transaction-based perspective capturing the economic exchanges enabled by a business model. This produces three variables for assessment including:

1. *transaction structure*, and the parties involved in the exchanges, the relationships between these active parties and the sequence within which they happen;
2. *transaction content*, identifying the goods or information traded and the resources and capabilities required to process them; and
3. *transaction governance,* which refer to the information flow, and resources controlled by the relevant parties.

Afuah & Tucci's (2001) archetypes are based on dominant revenue models. Archetypes include: commission, advertising, mark-up, production, referral, subscription and free-for-service models. Relating mainly to internet-based companies, these remain isolated from wider industry models. That said, they generate a succinct group of archetypes defined by revenue streams that allow for financial performance to be attributable to a specific model based upon the type of transaction employed.

2.4.1 Typology: Summary

Just as Descartes could weather any sceptical debate when equipped with the infallible maxim 'cogito ergo sum' (I think therefore I am), so too must the growing body of business model literature embrace an unshakable maxim. Similar to Zott & Amit (2002), Weill et al. (2006) distil the transaction-based logic to the most fundamental aspect of "what a business sells [and] what kind of legal rights they are selling" (Weill et al. 2005.p. 7). As an example, customers who pay for the

right of *ownership* have the freedom to use the asset in any way conceivable (within the bounds of law). Thus, the variable of 'rights sold' collapses the *transaction structure* and *transaction governance* into a single thread for categorisation. Other archetypes mentioned above provide valuable constructs for ideal templates, but:

1. introduce detail and, in turn, complexity through the number of elements considered; or
2. suggest elements that are open to broader subjective interpretation.

Weill et al (2006) developed four transaction-based models recognising the *rights that are sold* (*transaction structure and governance*). And similar to Zott & Amitt's (2002) *transaction content,* this is then coupled with the *type of assets* involved. Companies can be then clearly defined into one of these groups based upon the type of asset being sold and the rights distributed in the process.

The rights being sold are categorised into four groups which include:

- The right of asset *ownership*: Creator or Distributor
- The right to asset *use*: Landlord; and
- The right to be *matched* with potential buyers or seller: Broker

		How much does the business transform the asset?	
		Significant	Limited
What rights are being sold?	Ownership of Asset	**Creator**	**Distributor**
	Use of Asset	**Landlord**	
	Matching of buyer and seller	**Broker**	

Figure 3. Rights being sold: Weill et.al, 2006

Four main asset categories are also developed to then represent both the legal right that is being sold, as well as the object. This includes: physical, financial, intangible and human assets. Having added this, a matrix of 16 archetypes is created referred to as the MIT *Business Model Archetypes* (BMA). (Weill. p.7.).

		What type of asset is involved?			
		Financial	Physical	Intangible	Human
What rights are being sold?	Creator	**Entrepreneur**	**Manufacturer**	**Inventor**	**Human Creator***
	Distributor	**Financial Trader**	**Wholesaler/ Retailer**	**IP Trader**	**Human Distributor***
	Landlord	**Financial Landlord**	**Physical Landlord**	**Intellectual Landlord**	**Contractor**
	Broker	**Financial Broker**	**Physical Broker**	**IP Broker**	**HR Broker**

* These models are illegal in the US and most places today because they involve selling human beings. They are included here for logical completeness.

Figure 4. Business Model Archetype Matrix: Weill et.al, 2006

2.5 Measuring performance through a business model

Analysing and interpreting frameworks or typologies provide a multitude of potential elements that influence performance. Common groupings of these further highlight the importance these elements play. For example:

1. Innovation and novelty (Timmers, 1998; Osterwalder & Pigneur, 2002);
2. Value proposition or the way in which value is created and delivered (Amit & Zott, 2001; Chesbrough & Rosenbloom, 2002; Magretta, 2002; Osterwalder & Pignuer, 2002; Morris et al. 2005; Johson et al, 2008; Baden Fuller et al, 2010); and
3. Revenue Streams (Afah & Tucci, 2001; Rappa, 2001' Alt & Zimmerman, 2001; Osterwalder & Pigneur, 2002 etc.).

Several more can be added to this summary including: Customers, Costs, Channels, Partners, Networks and Capabilties.

There are a wide range of measures for assessing the performance of a company and it is suggested that the examples nominated above require subjective analysis or interpretation. It is suggested that objective elements such as *market valuation* and *profit* will provide objective measures.

Weill et al. (2006) conduct an extensive analysis using financial performance measures. This incorporates Ketchen et al's (1993) six categories of performance: Sales, Equity and Investment, Assets, Margins and Profit, Market share and Overall (perceptual measures). From amongst Ketchen's categories, objective measures are selected with data publically available from listed companies. The resulting measures selected are *market valuation* (or market capitalisation) defined as the total number of shares (of common stock outstanding) multiplied by the share price. The second metric is *Operating Income Before Depreciation* (OIBD). This is selected to reduce the effects of financial manipulation which may skew results following tax, depreciation or amortisation adjustments. It should be noted here that other metrics have been used in addition to these in the following research.

2.6 Literature review: Overall Summary

We began with Zott & Amit's (2011) overarching insights which have been validated through the literature analysis. Practitioners have widely accepted Osterwalder et al's (2010) Business Model Canvas to help "understand, communicate and share, change, measure, simulate and learn more about the different aspects of business in their firm" (Osterwalder et. al. p.1). Definitions still remain unclear whilst the volume of non-academic literature reflects perceived value through practitioner interest and application.

This leads to an important distinction when defining what a business model is. Most commonly, definitions are used for (1) the internal application of the concept or framework (*intra-enterprise*). By incorporating multiple elements, the definition becomes too complex for (2) aggregate business model analysis (*inter-enterprise*). "The challenge is that the concept [of the business model] must be simple, relevant, and intuitively understandable, while not oversimplifying the complexities of how enterprises function. (Osterwalder et. al. 2010. P. 15). Osterwalder et al. (2010) suitably note that a business model must accurately capture an organisations operation for it to remain relevant for application.

There are a wide range of definitions that have focused upon (1) *intra-enterprise* framework definitions and very few that distil the concept sufficiently for objective

(2) *inter-enterprise* analysis. Accordingly, this paper applies Weill et al's. (2006) definition along with the MIT Business Model Archetypes.

A business model is based on two fundamental dimensions:

- First, what the business does in terms of the types of rights that are being sold; and
- Secondly, the type of asset involved.

3. Research Design

Business models provide a frame for agnostic cross-industry analysis by representing the architecture or structure of a firm and the nature in which it transacts with consumers.

An important distinction highlighted by the research is the absence of *inter-enterprise* empirical research that objectively compares different business models. By 'zooming out' to the appropriate level of detail for aggregate analysis, archetypes begin to surface based upon clustered fundamental characteristics.

This paper utilises the MIT BMA and identifies whether correlations exist between BMAs and financial performance. An example of Weill et als (2009) research can be found below, where market performance is benchmarked against the S&P 500.

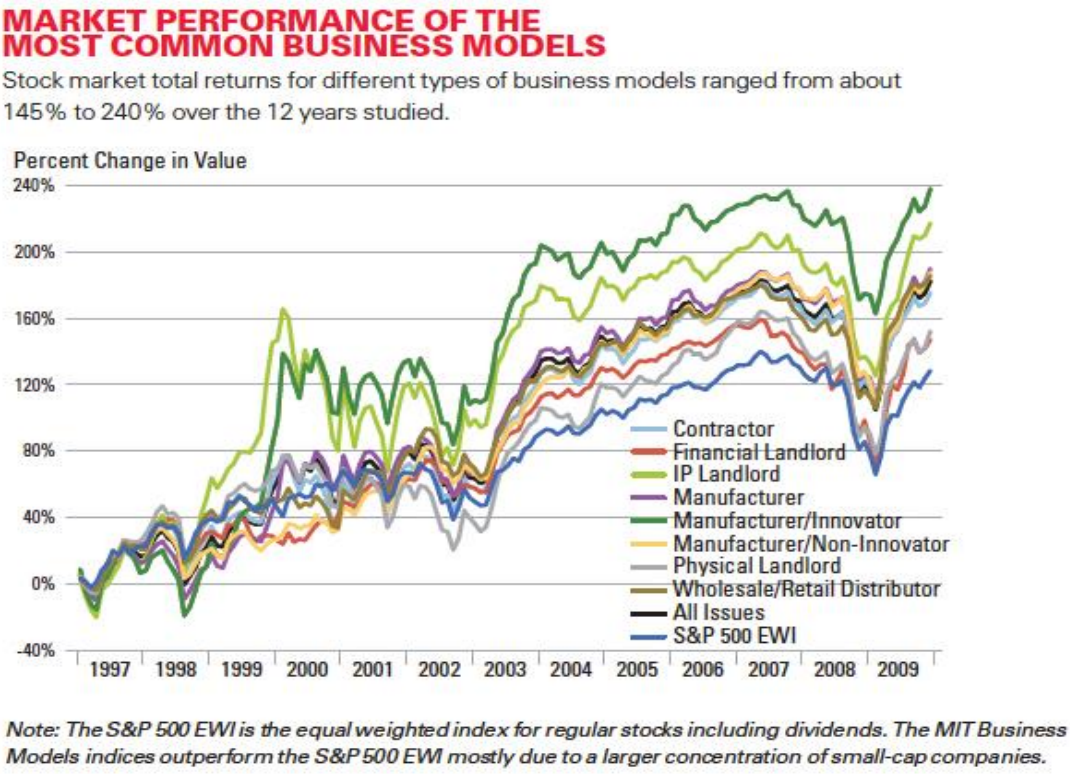


Figure 5. Business Model Market Performance: Weill et.al, 2010

This research will produce a summary of New Zealand's publically listed companies categorised using the MIT BMAs. Following this, the performance of the BMA groups will be assessed using several financial metrics such as profitability and gross shareholder returns.

In addition, linear correlations will be analysed between two variables:

- The business model archetype; and
- Financial performance.

Insights extracted will enable deeper analysis into patterns that emerge as a result of effective business model categorisation.

This section details the method for data collection, methodology used for categorising companies into their respective BMAs, the metrics or measures used to assess performance and the limitations of this approach.

3.1 Methodology:

3.1.1 The MIT Business Model Archetypes Defined:

Weill et al (2006) defines 16 transaction-based models recognising two major criteria. Companies can be grouped into one of these models based upon the type of asset being sold and the rights distributed in the process. The two fundamental dimensions include:

- The types of *legal rights* that are being sold; and secondly
- The *type of asset* involved in the transaction

The rights being sold are categorised into four groups which include the legal right of asset *ownership* with a sale transferring ongoing rights to use the asset in any preferred manner. An important distinction is made for companies that sell something in this manner. This legal right is split in two groups identified as:

- A *Creator*: Those that significantly transform an asset from its raw or original state; and
- A *Distributor*: Those that buy and sell assets with minimal or no transformation

The other categories of rights sold are:

- A *Landlord*: The right of asset *use* considers a temporary sale or loan of an asset with restrictions applied to the usage whilst the origin of the asset retains ownership; and
- A *Broker*: The right to be *matched* with potential buyers or seller.

		How much does the business transform the asset?	
		Significant	Limited
What rights are being sold?	Ownership of Asset	**Creator**	**Distributor**
	Use of Asset	**Landlord**	
	Matching of buyer and seller	**Broker**	

Figure 6. Rights being sold: Weill et.al, 2006

In conjunction with the *legal rights* sold, four main *asset types* are identified and defined by the nature of the object exchanged. This includes:

- *Physical* assets are durable and perishable goods such as cars, tools, toys and food;
- *Financial* assets include cash, stock, bonds and insurance giving owner the right to potential future cash flows;
- *Intangible* assets include intellectual property (IP) as well as knowledge, goodwill and brand identity; and
- *Human* assets capture peoples time and effort.

		What type of asset is involved?			
		Financial	Physical	Intangible	Human
What rights are being sold?	Creator	**Entrepreneur**	**Manufacturer**	**Inventor**	**Human Creator***
	Distributor	**Financial Trader**	**Wholesaler/ Retailer**	**IP Trader**	**Human Distributor***
	Landlord	**Financial Landlord**	**Physical Landlord**	**Intellectual Landlord**	**Contractor**
	Broker	**Financial Broker**	**Physical Broker**	**IP Broker**	**HR Broker**

* These models are illegal in the US and most places today because they involve selling human beings. They are included here for logical completeness.

Figure 7. Business Model Archetype Matrix: Weill et.al, 2006

This matrix of 16 archetypes referred to as the MIT *Business Model Archetypes* (BMA). (Weill. p.7.). These 16 business models and their classification are described in greater detail in Appendix 1.

3.2 Method:

3.2.1 Data Collection and Classification

The method will involve selecting a sample of firms, classifying them into their relevant BMAs and analysing their financial performance to identify any patterns that emerge.

A positivist approach is employed with priority on objective metrics for analysis where possible. A degree of interpretism is required when classifying companies into business models. Complexities and resulting risk of inaccurate classification can increase with firms that represent more than one model.

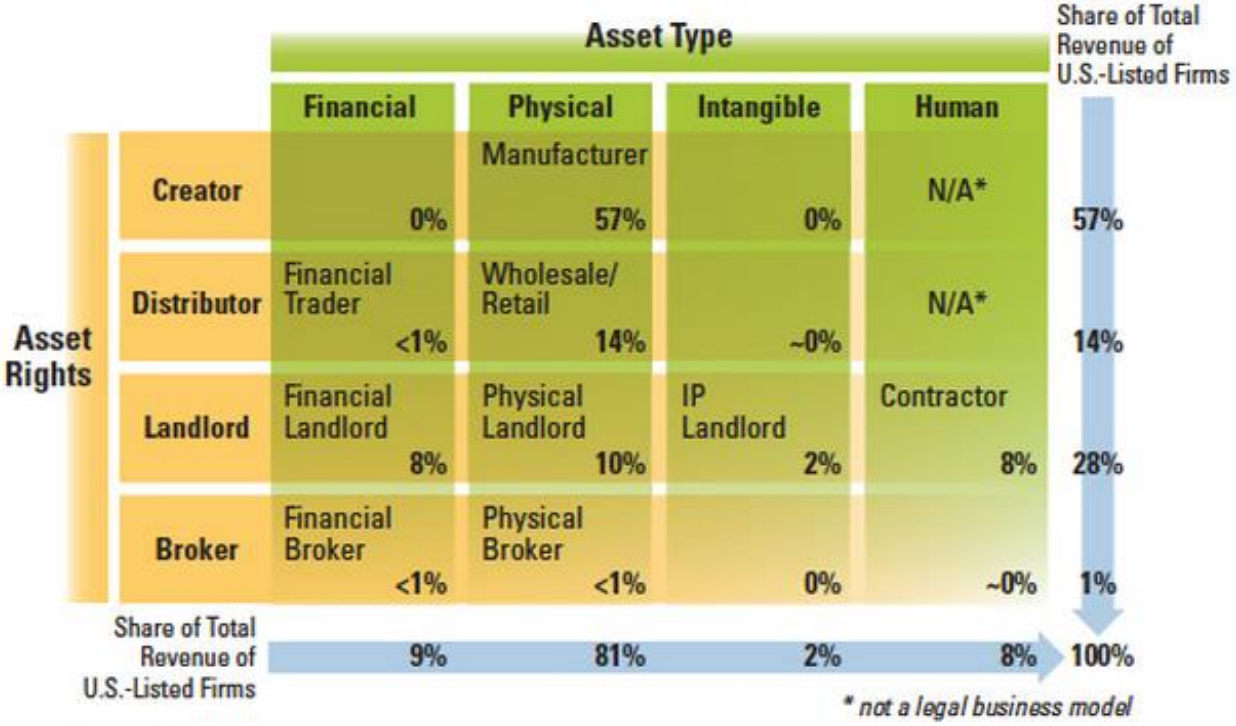


Figure 8. Business Model Distribution: Weill et.al, 2010

Sample of firms

There are 170 listed securities in the New Zealand stock exchange. These publically traded firms will represent an initial sample set with financial data extracted from the 'NZX Data Company Research' database. Data from this has been consolidated from publically available financial statements. Various timeframes have been used for each measure. For example, gross shareholder data is readily available for the previous 10 years. For other metrics, such as total assets or net profit, this data is only available for the previous 5 years. Where possible as much information has been included to fully represent each BMA explanation captured in detail below for each measure of analysis.

Classification of Business Model Archetypes

The following examples are provided to showcase the process for classification. The Briscoe Group is a well-known household brand operating 90 stores throughout New Zealand (including Rebel Sports). The following questions are asked to ensure accurate BMA classification:

- What is the type of asset that is exchanged? *Physical*
- Is there significant asset transformation? *No*
- What is the legal right that is exchanged? *Ownership*

Resulting from this, Briscoe Group is captured as a *Wholesaler / Retailer.*

In some cases, an organisation may represent more than one business model as there may be a multitude of legal rights or types of assets exchanged. Classification will review revenue from segment reports to define the different

models represented. This introduces subjective analysis which would require verification if seeking an authoritative claim based on results.

An example of multi-model representation is Trade Me, commonly known for brokering classified 'customer-to-customer' (C2C) sales. Trade Me's revenue streams are more complex than Briscoes' *Wholesaler / Retailer* model. The segment report consists of three main revenue streams:
1) General Items, 2) Classifieds and 3) Other. Questions applied to The Briscoe Group are repeated for each revenue stream. General Items:

- What is the type of asset that is exchanged? *Physical*
- Is there significant asset transformation? *No*
- What is the legal right that is exchanged? *Matched*

Resulting from this, Trade Me's General Items revenue stream is captured as a *Physical Broker.*

An important distinction is required when reviewing the Classifieds as this is broken up into three sub categories in the reported Segments. These are Motors, Property and Jobs. Motors and Property would both fall into the category of *physical* asset transfer whereby Jobs is a *human* asset. A certain percentage of the classified revenue segment will then be attributed as *Human Resource Broker.*

Supporting information will be sought to approximate the percentage of revenue applicable to the asset type. In the event this cannot be accurately identified

options will then be considered including 1) a pro rata split or 2) bundling the revenue stream into the major BMA represented by the firm.

3.2.2 Assessing Performance and Behaviour of BMAs

There are a multitude of measures or organisational factors for assessing financial performance. Weill et al (2006) utilise four categories for measuring financial performance. This includes *market value* and *growth*, *profitability* and *efficiency*. Several controls are included to ensure the results are robust. This includes examples such as the Fama-French alpha and Carharts UMD (Up minus down).

The resulting measures selected will not achieve the same level of robust results required for a seminal publication, but rather identify potential avenues for future academic investigation. The following metrics are proposed:

- *2015 Net Profitability* compared with total Revenue as well as Net Profit margin
- *New Zealand and USA BMA comparison* of percentage of firms and percentage of revenues represented by each BMA category
- *2006-2015 Gross Shareholder Returns* including dividend and capital gains published by the NZX Research Database
- *Market valuation* (or market capitalisation) is defined as the total number of shares (of common stock outstanding) multiplied by the share price.
- *Operating Profitability* is captured as Earnings Before Interest, Taxes, Depreciation or Amortisation (EBITDA).

- *Efficiency* is measured as Return on Assets (ROA) defined as the ratio of net income to total assets. This is used to determine the efficient use of assets in pursuit of profit.
- *2012-2015 Daily Share Price Change* captured as a percentage and averaged over time

3.2.3 Limitations

For assessing financial performance the aforementioned metrics will produce charts from which patterns will emerge. Due to the simplified level of analysis the ability to compare the New Zealand results with those of American analysis will be limited so the majority of analysis will be on behaviour of New Zealand BMAs.

During the analysis several limitations arose reducing the total number of securities used in the sample. These considerations would need to be considered if conducting an in depth quantitative analysis:

- Certain companies have more than one listing for ordinary and preference shares or warrants listings (E.g. Aorere Resource Limited, Barramundi Limited etc.). Given that these two listings represent the same company and transacting business model, the ordinary share listing was only assessed to prevent duplication.
- Twelve of 14 unit trusts (E.g. Aus Property Units, Aus Resource Units, Aus Dividend Units etc.) had no financial data available and were excluded overall. These would have been captured as a ‘Financial Broker’ model.

- Investment funds (E.g. SmartTENZ, SmartMIDZ, SmartMOZY etc.) also represented as ‘Financial Broker’ were included as five years (or more) financial data was readily available. It could be argued that these are not companies and therefore do not transact.
- Several companies (E.g ANZ, AMP, Diligent etc.) capture their finances in foreign currencies. In some cases also trading on other stock exchanges. To reduce the complexity of processing several years of financial information across four different currencies this has not been converted.
- The ‘Physical Landlord’ category captures capital gains as a source of increased value. Classifying by transaction makes this income difficult to capture and has remained as revenue generated through the legal exchange of asset *use* although is not technically accurate.
- The above also applies to ‘interest income’. Based upon an accruing asset rather than a transaction represents a flaw in the MIT BMAs. It should be noted that accounting for interest income significantly alters the results of some business models. For example, ANZ total revenue equates to approximately $35b AUD excluding interest income. By comparison, Westpac total revenue figures are $2t AUD as they capture interest income.
- Some companies (E.g ANZ) represent several business models. The attribution from segment reporting for various measures (such as revenue or EBITDA) was not always transparent.

- New Zealand is a much smaller market with the NZX hosting 172 listed securities. Sample size is limited by comparison to the NASDAQ which represents 3090 companies (NASDAQ, 2015). The result is that outliers influence the results produced.

As a result of these limitations, the output of this analysis will be a diluted conclusion. Weill et al's academic team consisted of several research teams validating each step across multiples years of analysis. The commendable result would benefit from further exploration and hopefully this research, if anything, will inspire further contributions to exploring their theory.

4. Results

Inconsistencies in both definition and comparable typologies have limited the application of the business model as an *inter-enterprise* unit of analysis. More commonly we see Global Industry Classification Standards (1999) or the Industry Classification Benchmark (2005) grouping major public companies based on Sector and Industry Group.

It is suggested that the MIT Business Model Archetypes (BMAs) provide a new methodology for categorising and analysing the performance of companies, representing the nature in which a company transacts with consumers.

The following results represent the first attempt to classify New Zealand's publically listed companies into business model archetypes and identify any

trends in their behaviour. All securities have been classified into a business model with several metrics used to surface behaviour patterns.

This section will summarise the results of BMA classification and present New Zealand's business model landscape. Once categorised, company data will be plotted by BMA for Net profitability, gross shareholder returns, market valuation, EBITDA, ROA and daily share price change. By plotting results across several metrics patterns will emerge that will (hopefully) inspire curiosity for further academic investigation. ***NOTE: Sample data included in Appendix 3***

4.1 The New Zealand Business Model Landscape 2015

The following table summarises the distribution of New Zealand's business model landscape. Before delving in to look for which models are most common, it is useful to summarise the two elements used to categorise each company. That is the *legal rights* sold and the *type of asset*.

The highest number of companies is represented by the Landlord category where the transaction is for the *legal right* of asset *use*. This includes 63 companies (42%) balanced across the different asset type categories. In contrast to this, the concentration of the Creator includes 44 companies representing 29% of New Zealand's listed companies in a single asset type.

LEGAL RIGHTS SOLD		TYPE OF ASSET SOLD				2015
	REV ($'000)	FINANCIAL	PHYSICAL	INTANGIBLE	HUMAN	TOTAL
	CREATOR	Entrepreneur	Manufacturer	Inventor	Human Creator	
	Total Revenue	0	25,797,095	0	0	25,797,095
	% of Tot. Rev.	0	0.56%	0	0	0.56%
	# firms	0	44	0	0	44
	DISTRIBUTOR	Financial Trader	Wholesale/Retail	IP Trader	Human Distributor	
	Total Revenue	2,293,260,968	16,695,640	0	0	2,309,956,608
	% of Tot. Rev.	49.50%	0.36%	0	0	49.86%
	# firms	9	17	0	0	26
	LANDLORD (LL)	Financial LL	Physical LL	Intellectual LL	Contractor	
	Total Revenue	855,331,466	39,672,236	2,427,055	1,376,177,261	2,273,608,018
	% of Tot. Rev.	18.46%	0.86%	0.05%	29.71%	49.08%
	# firms	4	24	15	20	63
	BROKER	Financial Broker	Physical Broker	IP Broker	HR Broker	
	Total Revenue	23,096,818	234,872	19,037	33,211	23,383,938
	% of Tot. Rev.	0.50%	0.01%	0.00%	0.00%	0.50%
	# firms	12	4	1	1	18
2015	Total Revenue	3,171,689,252	82,399,843	2,446,092	1,376,210,472	4,632,745,659
	% of Tot. Rev.	68.46%	1.78%	0.05%	29.71%	100%
	# firms	25	89	16	21	151

Figure 9. Business Model Distribution: By Company #, Total Revenue and % of Total Revenue

Total revenue is balanced between the Distributor and Landlord categories although in both cases, it is a small number of companies generating high income that skews revenue results (ANZ $35B, Westpac $2T, AMP $2.4T).

Switching to analyse *asset type* results, *physical* assets dominate New Zealand's listings with 89 companies (59%) included in this category. Intangible assets score the lowest with 10% of the all listed securities. This is poignant given New

Zealand's focus on developing a weightless economy as an opportunity to overcome geographic isolation and dependency on commodity based exports.

Although *financial* assets only represent 17% of the number of companies, 68% of all income generated by listed companies in New Zealand is evidenced. It should be noted that several of these companies are dual-listed and Australian owned. Large outliers as noted above influence the results significantly with only the Contractor model (represented by a part of AMP) comparative in scale.

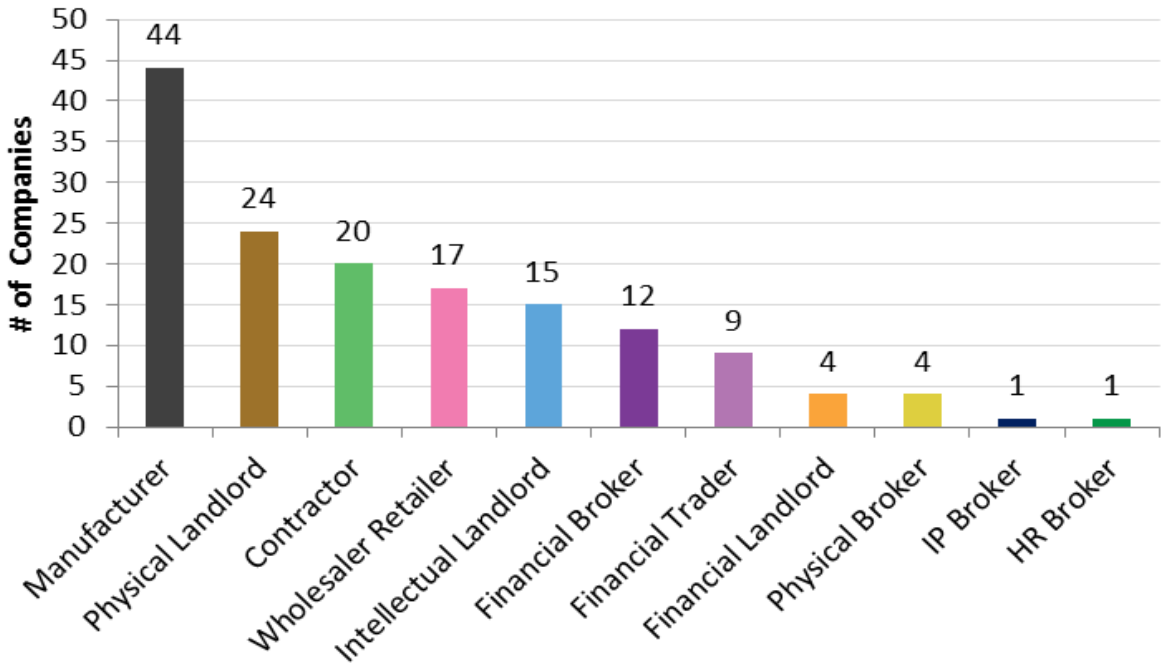


Figure 10. Business Model Distribution by # of companies

The most common business model is the *Creator* of *Physical* assets. The *Manufacturer* represents 44 companies and 29% of all listed securities. Surprisingly, it only represents 0.56% of income generated for New Zealand. Companies represented by this model include Moa, Comvita and Fisher and

Paykel Healthcare. It is the transformation of raw materials assembled or processed into a consumer product which identifies companies in this category.

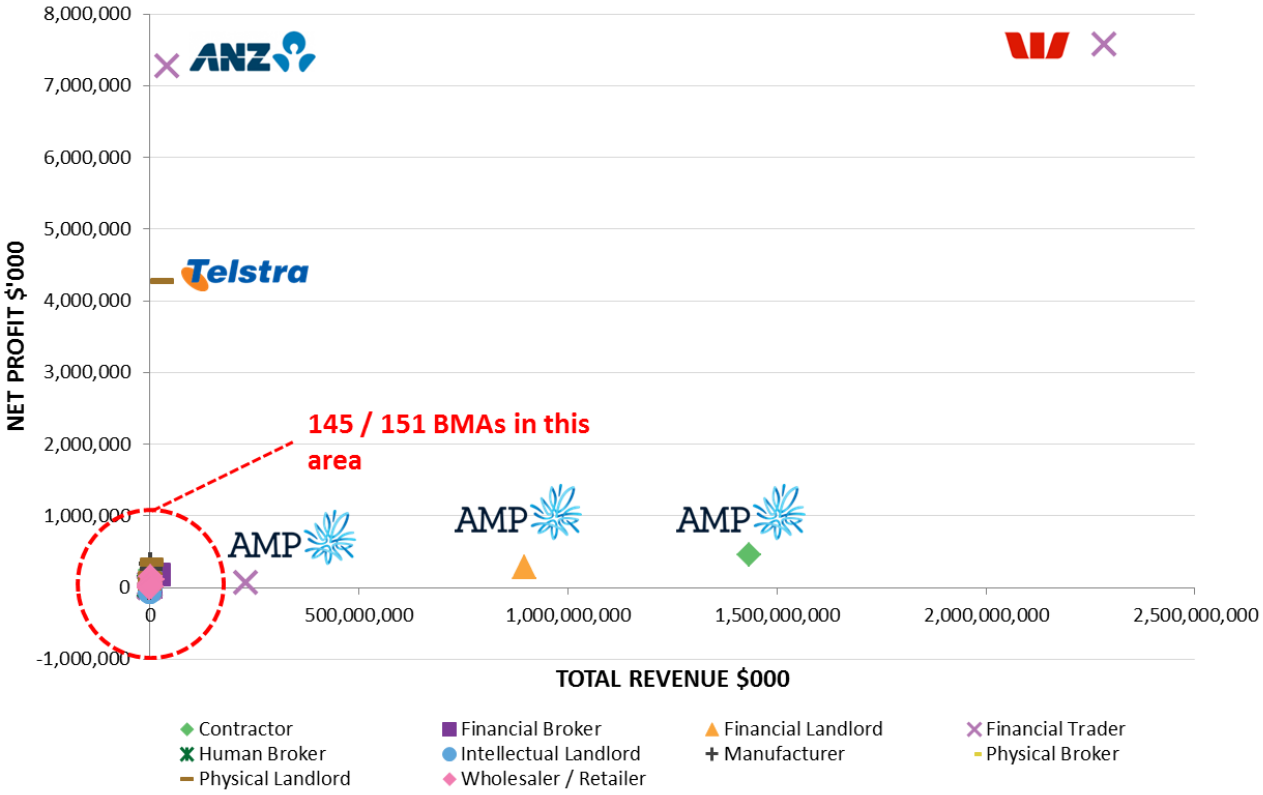
Skycity, Tourism Holdings, Port of Tauranga, Infratil and Auckland International Airport are examples of companies represented by the Physical Landlord model. This is a useful example of how a business models can span industries for analysis. Each company noted above operates a business model where usage of large assets, often cornerstone to the business, is utilised to generate income. Telstra Corp can also be considered a physical landlord which skews the top-line revenue by a large dual-listed Australian company. It contributes 88% of the Physical Landlord total revenue.

Financial Traders stand apart with several banks including Westpac accounting for over $2,000,000,000,000 (2 trillion) in interest income. Other examples include ANZ ($35B) and apportion of AMP's revenue generated ($219B).

4.2 New Zealand Business Model Revenue and Net Profit 2015

The following scatterplot chart maps the diversity of income and profitability of New Zealand's publically listed companies. When presented by Net Profit and Revenue six outliers operate on a different scale to the remaining 145 companies. Two of these are represented by large financial institutions (or financial traders). Westpac's high income levels significantly affect the scale and despite generating $35b in revenue, ANZ appears low by comparison.

Figure 11. Business Models plotted by Net Profit and Total Revenue

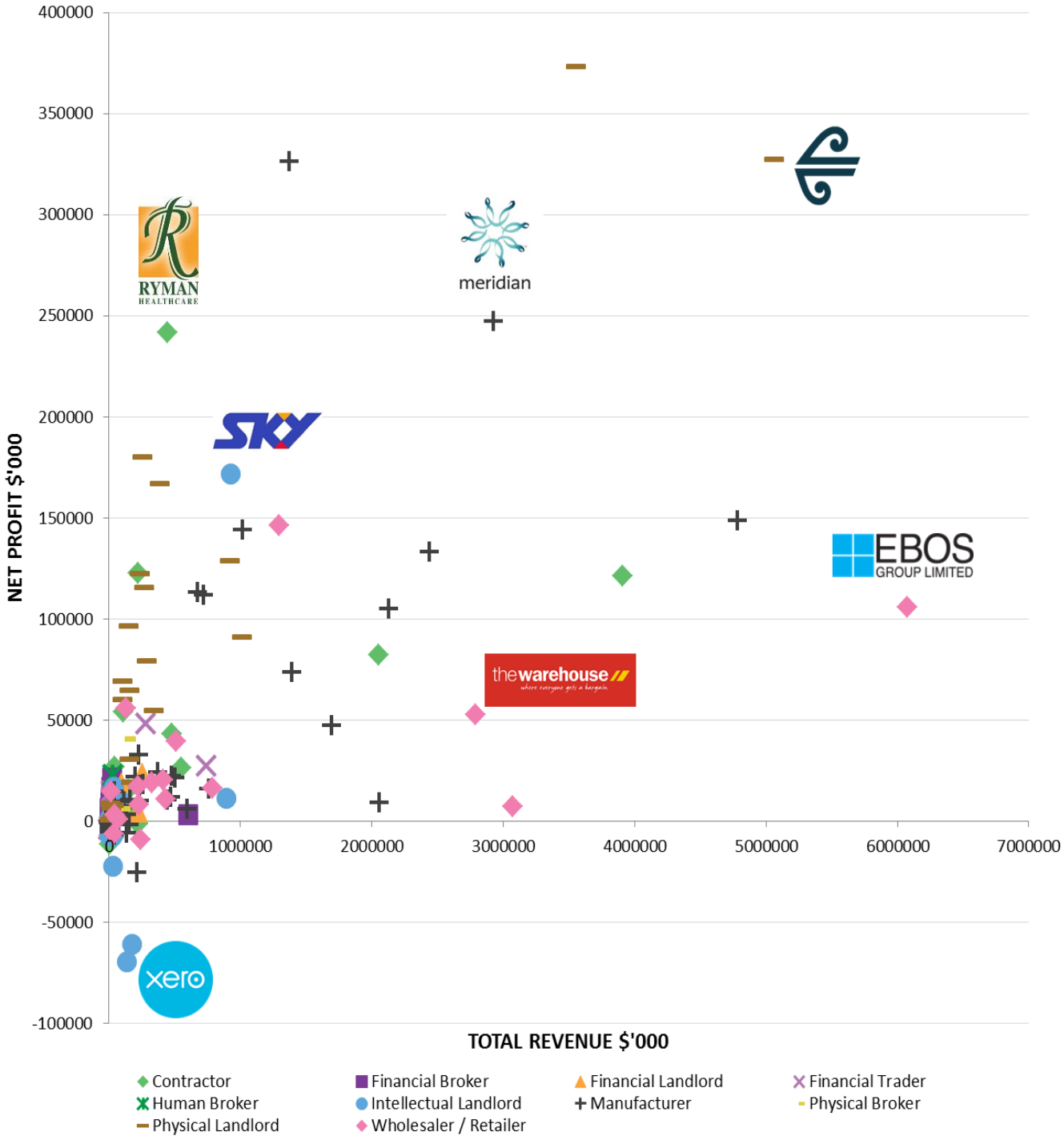


AMP's income is split into three BMAs, 1: Insurance (Financial Landlord); 2: Financial Services (Contractor) and Investments and Superannuation (Financial Trader); all of which have high incomes at low profit margins. Lastly, Telstra (Physical Landlord) appears to have lower comparative income ($26b) whilst recording significant profits over $4b.

Clustered in the circled area are the majority of the listed companies. By removing some of the outliers, this denser population of 145 companies is made visible. By magnifying the view (in figure 12) new patterns become visible. For example, the seventeen companies represented by the Wholesaler-Retailer BMA

generally represent lower income and net profit generation. Physical Landlords stand out for generating higher profit levels on comparative revenue amounts.

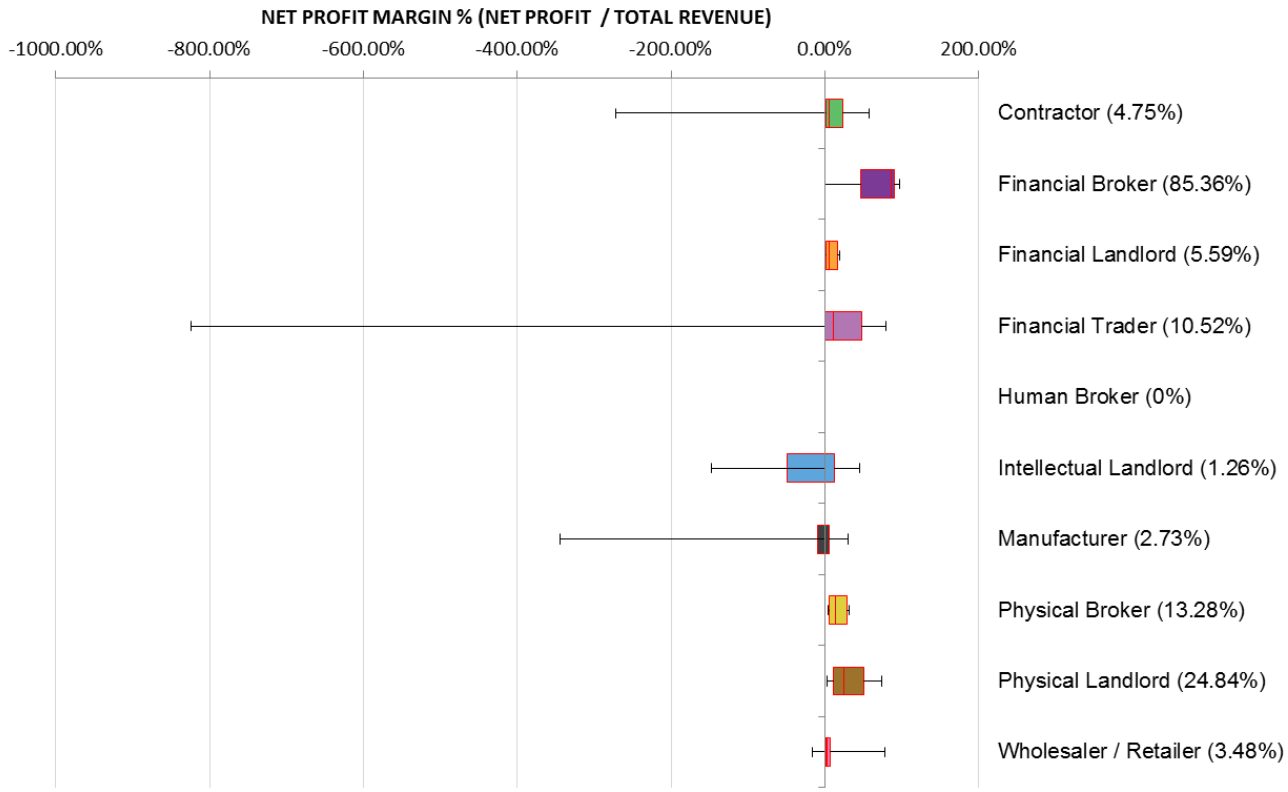
Figure 12. Business Models plotted by Net Profit and Total Revenue (Outliers Removed)



Both Orion Health and Xero represent a model that more often operates at a deficit, and here we can see the Intellectual Landlords stand out due to these losses. Manufacturers overall have a greater number of companies operating at a loss (14 compared to 6) although represent a lower average deficit.

The maximum, minimum, median and upper and lower quartiles provide further insights into the profitability each BMA represents. As can be seen below, the Financial Trader represents the widest spectrum of Net Profit Margin, whilst the Financial Broker has the highest median of 85.36% followed by the Physical Landlord at 24.84%.

Figure 13. Business Models plotted by Net Profit Ratio. Median noted as part of BMA title.



4.3 New Zealand and US comparison:

The initial study undertaken by Weill et al. consisted of 1000 publically listed firms in the US. Several interesting patterns emerge when comparing the results. These include:

- Both in New Zealand and in the US, Manufacturing BMAs represent approximately 30% of all listed companies
- The Landlord category is closely matched with 42% New Zealand and 43% US companies transacting *legal rights* of asset *use*

Figure 14. Business Models Distribution: NZ and US comparison. (Weil' et al, 2006)

	FINANCIAL		PHYSICAL		INTANGIBLE		HUMAN		TOTAL	
	NZ	USA	NZ	USA	NZ	USA	NZ	USA	NZ	USA
CREATOR	Entrepreneur		Manufacturer		Inventor		Human Creator			
% of firms	0	0	29.1%	34.3%	0	0	N/A	N/A	29%	34%
% of Revenue	0	0	0.6%	57.0%	0	0	N/A	N/A	0.6%	57%
DISTRIBUTOR	Financial Trader		Wholesale / Retail		IP Trader		Human Distributor			
% of firms	6%	2%	11.3%	15.7%	0	0	N/A	N/A	17%	18%
% of Revenue	50%	0	0.4%	14.0%	0	0	N/A	N/A	50%	14%
LANDLORD (LL)	Financial LL		Physical LL		Intellectual LL		Contractor			
% of firms	2.6%	11%	15.9%	8%	9.9%	5%	13.2%	19%	42%	43%
% of Revenue	18.5%	8.0%	0.9%	10%	0.1%	2%	29.7%	8%	49%	28%
BROKER	Financial Broker		Physical Broker		IP Broker		HR Broker			
% of firms	7.9%	3.3%	2.6%	0.9%	0.7%	0.1%	0.7%	0.3%	12%	5%
% of Revenue	0.5%	<1%	0.0%	<1%	0.0%	0.0%	0.0%	0.0%	0.5%	0%
% of firms	17%	17%	59%	59%	11%	5%	14%	19%	100.00%	100.00%
% of Revenue	68%	8%	2%	81%	0%	2%	30%	8%		

- 60% of all transactions represented in both markets are for *physical* assets
- Despite this alignment in number of firms, the income generated by the *physical asset* category is significantly disparate with 81% compared to 2%
- 17% of all transactions represented in both markets are for *financial* assets
- In New Zealand, the Financial Trader dominates income generated
- In both markets, Intangible assets represent the lowest number of companies as well as income generated

4.4 Business Model Behaviour

The review conducted thus far has assessed data for 2015 results. Several metrics have been selected to provide patterns and insights into how BMAs over time. These are as follows:

4.4.1 Gross Shareholder Returns:

Gross shareholder returns includes both dividend and capital gains for an investor. This is particularly of interest as the S&P/NZX50 has also been included as a benchmark for comparison representing New Zealand's largest stocks traded on the market. Points of interest that arise include:

Figure 15. Gross Shareholder Return by Business Model Archetype

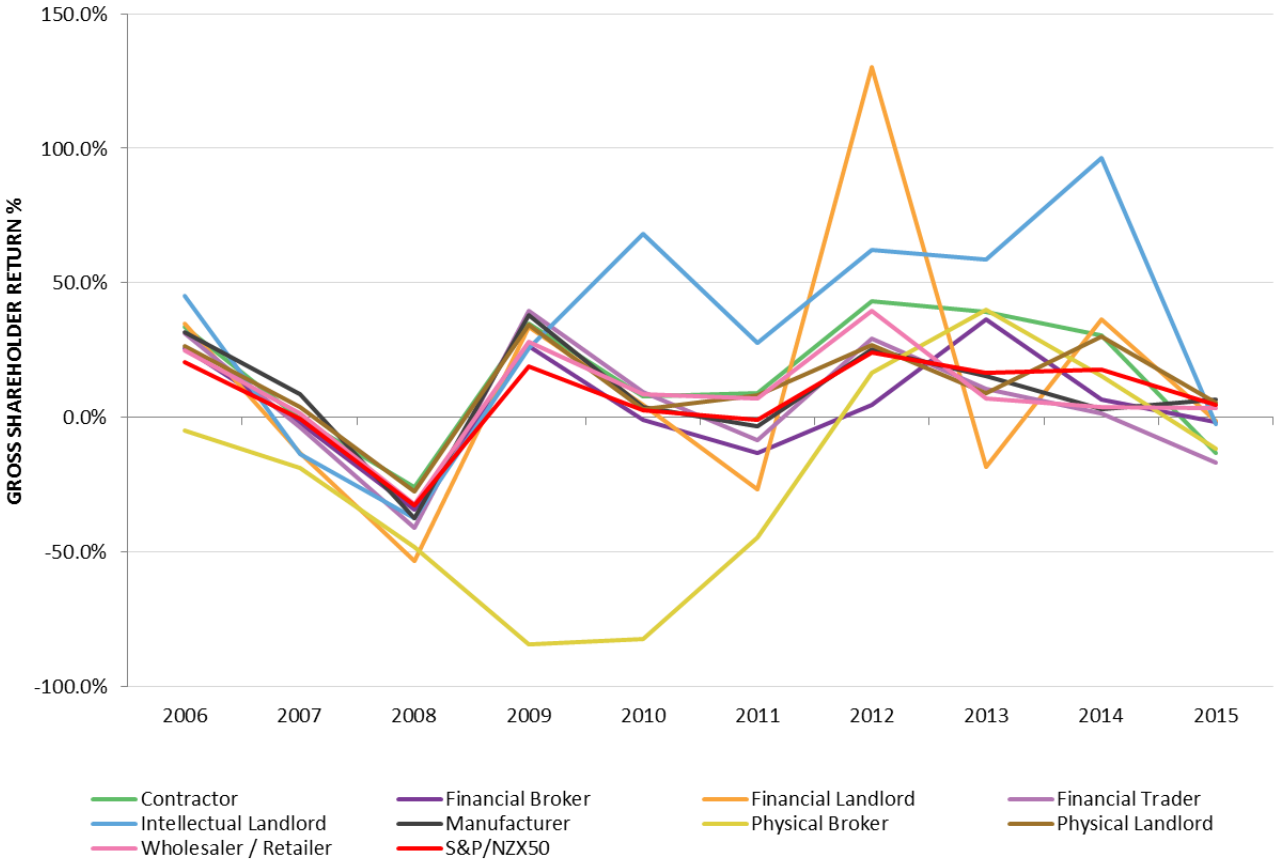


Figure 16. Ten Year Summary of Gross Shareholder Return by Business Model Archetype

10 YR SUMMARY OF AVERAGE, MAXIMUM AND MINIMUM CHANGE IN %					
10YR	CONTRACTOR	FIN. BROKER	FIN. LANDLORD	FIN. TRADER	INT. LANDLORD
MEAN:	15.86%	4.78%	12.69%	5.12%	33.05%
MAX:	43.20%	36.29%	130.37%	39.49%	96.56%
MIN:	-25.88%	-34.20%	-53.53%	-41.21%	-37.66%
	MANFACTURER	PHYSICAL. BROKER	PHYS. LANDLORD	WHOLSALER / RETAILER	S&P/NZX50
MEAN:	9.15%	-22.33%	11.96%	9.14%	7.03%
MAX:	37.91%	39.86%	34.58%	39.40%	24.18%
MIN:	-37.33%	-84.31%	-27.43%	-32.22%	-32.79%

- Physical Broker experiences significant losses throughout 2008-1012. This category only represents 2 firms, Allied Farmers and Trade Me (which started trading in 2010), which causes the volatility of this group.

- Despite having many companies that are not profitable, the capital gains experienced for Intellectual Landlords averages 33% CAGR over the last decade. Xero, SKYTV, Orion Health, Diligent and Finzsoft are all examples of companies included in this BMA.
- Financial Landlord is a small group accounting for only 2.6% of listed firms. Tower Insurance, Turners and AMP are examples of companies that operate in this segment. It is the most volatile BMA group.
- All models trend downwards consistently tracking the S&P/NZX50 in 2008, reflecting GFC impacts as well as tightening back towards 0% growth in 2015.
- General decline in 2010 is likely a result of the Canterbury earthquake
- Physical Landlord and Contractor groups trend slightly higher than the S&P/NZX50 over the decade.
- The majority of BMAs are in decline in 2015. Contractors as an example have a 2015 average of -13.24% loss in shareholder returns. Comparatively, Physical Landlords in 2015 had only three companies producing a loss and produced an average gain of 5.6%.
- Highest average gross shareholder returns over 10 years are achieved by the Intellectual Landlord category
- Lowest average gross shareholder returns over 10 years are achieved by the Physical Broker

4.4.2 Market Valuation

Market valuation equates to the number of shares multiplied by the share price at a specified date. It provides an indication as to how the asset is perceived by investors. It is also subject to macroeconomic movements such as the GFC or a recession. Once again the outliers create a diverse scale which clusters the majority in a way that is difficult to observe. Key findings are as follows:

- The top three models valued by investors are Financial Traders, Financial Landlords and Physical Landlords.
- The two large banks, ANZ and Westpac are the main influencers with share prices over $30 p/share and volumes traded in the billions
- Contractors exhibit the most volatile percentage change over time. A similar pattern is reflected in the Gross Shareholder Returns with highs of up to 50% growth and a sharp decline in 2015

Figure 17. Market Valuation by Business Model Archetype

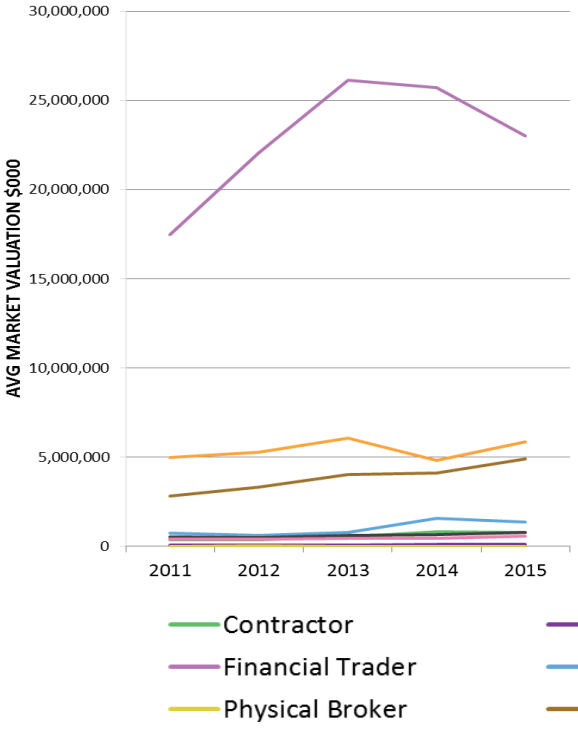
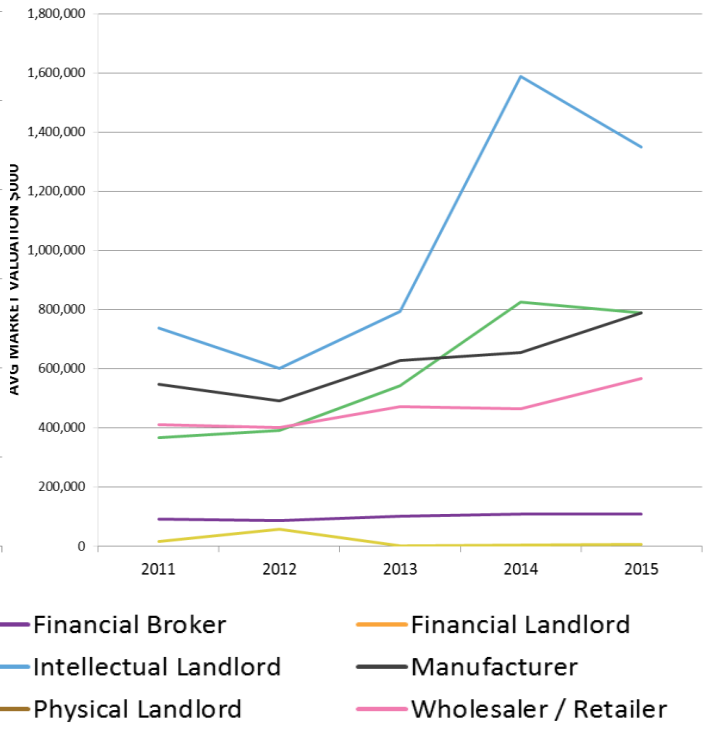
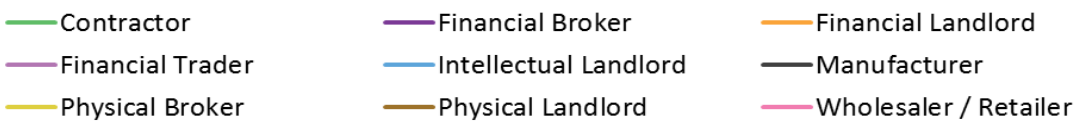


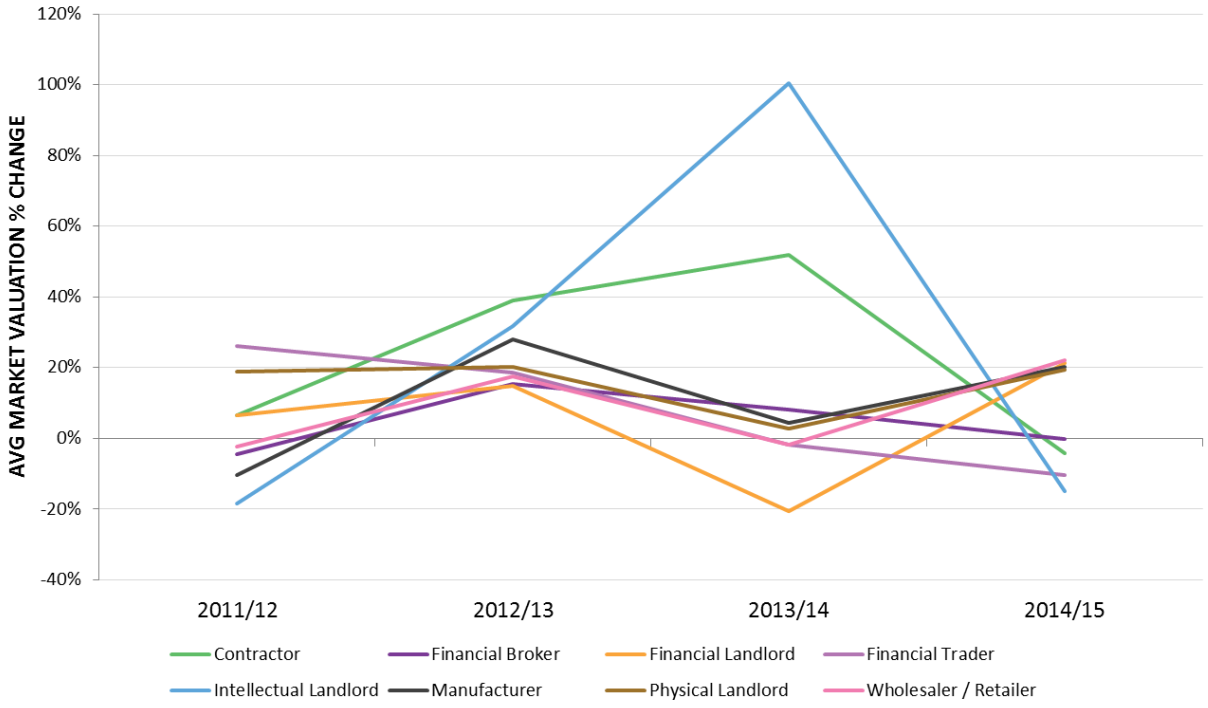
Figure 17.1. Market Valuation by Business Model Archetype: Excluding outliers





- The average market valuation for all business models (excluding the top three) is under $1b
- Only the Physical landlord exhibits consistently positive growth in market valuation although Wholesaler / Retailers also have low variance and exhibit consistent growth
- Some similarities exist in patterns emerging between Gross Shareholder Return and Market Valuation

Figure 18. Five Year Average Market Valuation Change by Business Model Archetype



4.4.3 EBITDA

EBITDA is a measure used to assess operating performance or profitability. Companies, especially those with large assets, can leverage tax deductions or asset depreciation to adjust the overall bottom line or net profit which is why this is used in place of Net Profit over time.

Key findings include:

- Financial Trader, Financial Landlord and Physical Landlord appear in the top 3 places reflecting the pattern in Market Valuation. It is likely this reflects the size of the organisations that are captured by these BMAs.
- Physical Landlord, in the EBITDA Ratio analysis, is the most consistently positive generator of operating profit averaging 48.2%.
- Comparatively, the Financial Broker is more volatile but has a higher average operating return of 52.9%
- The lowest is the Intellectual Landlord which averages only 5.5% growth in EBITDA over the 5 years. This reflects the Net Profits results as seen in the earlier scatterplot graphs.

Figure 19. EBITDA by Business Model Archetype

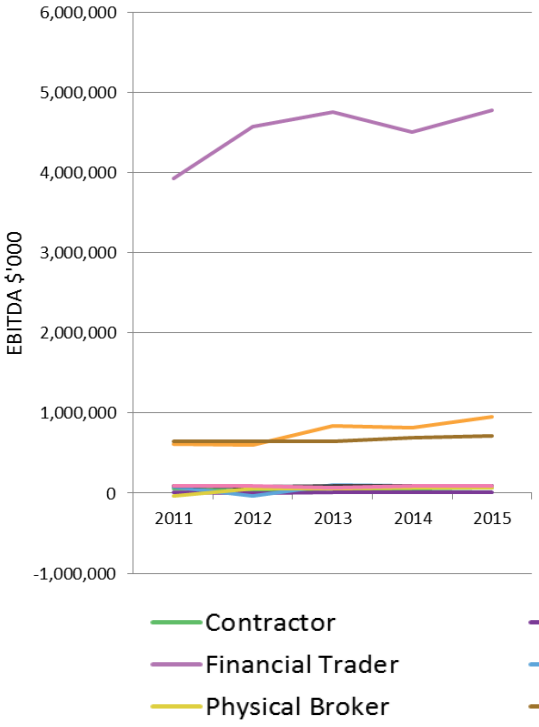
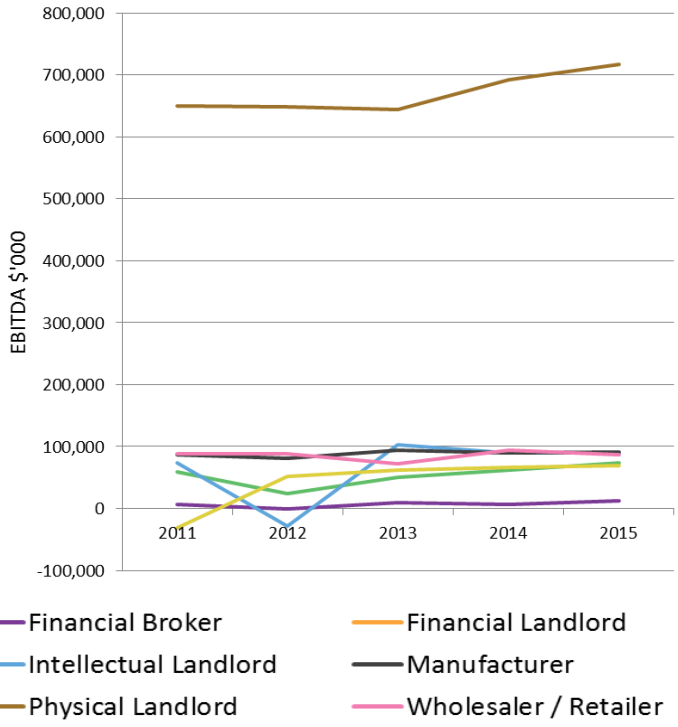
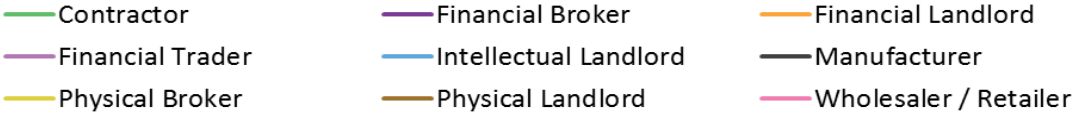


Figure 19.1. EBITDA by Business Model Archetype: Excluding outliers





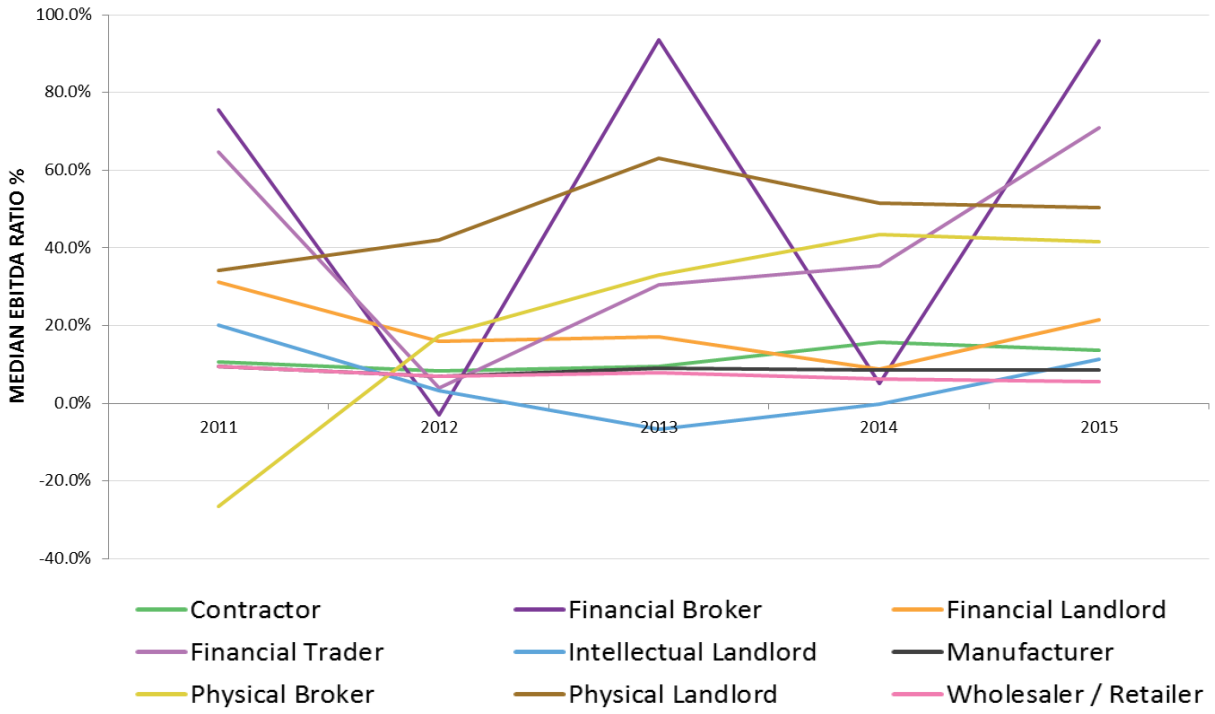


Figure 20. Median EBIT Ration by Business Model Archetype

4.4.4 ROA

Return on assets (ROA) provide an indication of how efficient a company is at using its assets to generate net income. The assets of a company are made up of debt and equity applied and converted into income generation. It represents an organisations choice of resource allocation. Only securities with 4 years (or more) of trading were included in this measure to reduce the distortion resulting from securities added to a BMA category.

Key insights identified include:

- All BMAs except the Physical Broker, Intellectual Landlord and Financial Broker have consistently positive growth in ROA over the 5 year term.
- Intellectual Landlords, such as Xero, and Financial Brokers exhibit a more dynamic and volatile ROA.

- Physical Broker creates an outlier effect with significant losses in 2011-13. This is due to the low number of companies representing by this BMA (Allied Farmers, Trade Me), one of which was operating at a loss from 2011 - 2013.
- Intellectual Landlord, Financial Broker and Wholesaler /Retailer groups average the highest 6% growth in ROA

Figure 21. ROA by Business Model Archetype

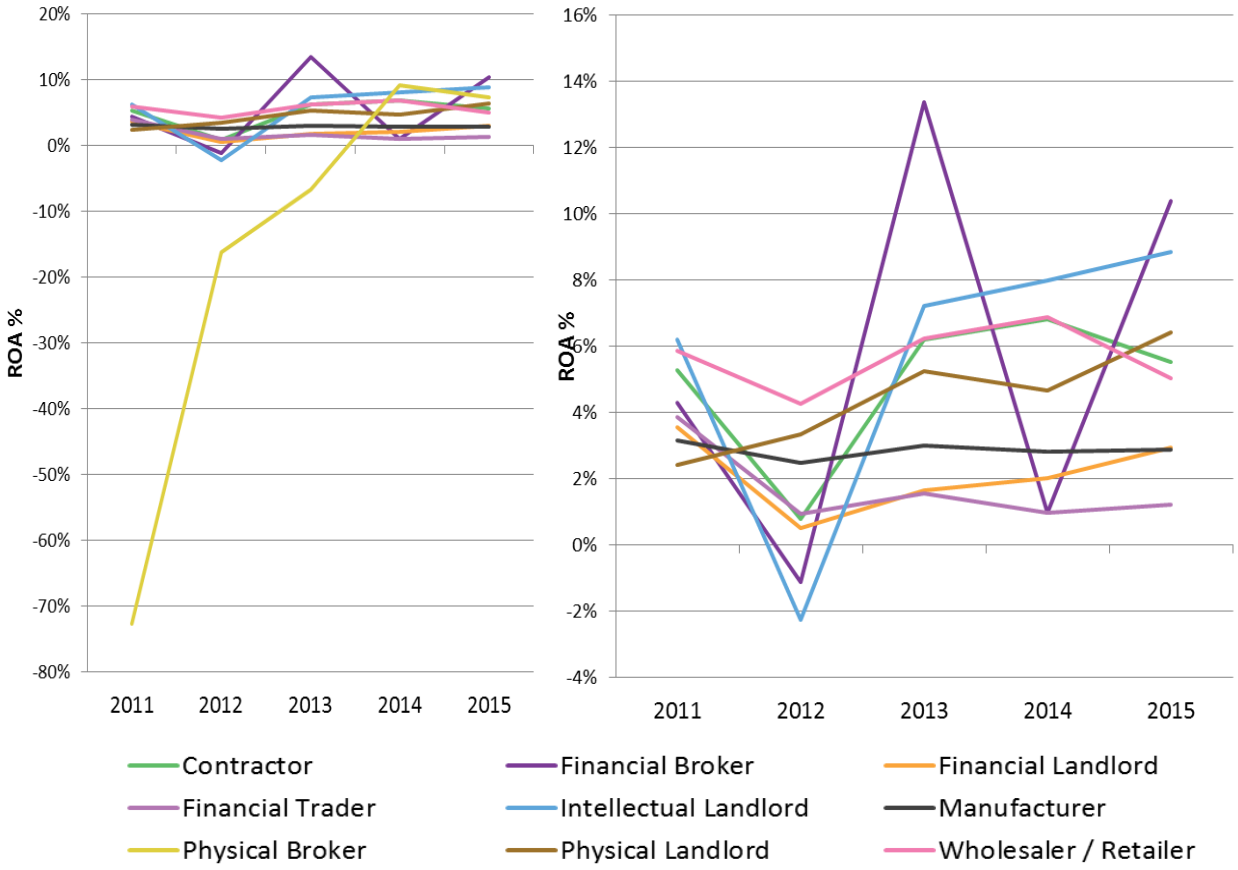


Figure 21.1. ROA by Business Model Archetype: Excluding outliers

4.4.5 Daily Share Price Change (%)

The share price is mapped below on a daily average change (%) over the span of one year. The data has been smoothed by weighted averages, and the

S&P/NZX50 is added as a performance benchmark. This captures the capital gains or losses for each share but does not include dividends. Insights include:

- Financial Trader and Physical Broker are the two most volatile BMA groups.
- Four out of nine BMAs have a positive daily average for 2015 share price compound growth: Fin.Landlord / Int. Landlord / Manf. / Phys. Landlord

Figure 22. Daily Share Price Change (%) by Business Model Archetype

- The S&P/NZX50 has a daily increase of 0.0027%
- Financial Trader has the lowest daily average price change of -0.0541%
- Physical Landlord also exhibits the least variance throughout 2015

Figure 22. Daily Share Price Change (%) by Business Model Archetype

INT. LANDLORD

MEAN:	0.0046%
MAX:	1.6295%
MEDIAN:	-0.0332%
MIN:	-1.3500%

MANUFACTURER

MEAN:	0.0169%
MAX:	0.9879%
MEDIAN:	-0.0105%
MIN:	-1.0995%

PHYSICAL BROKER

MEAN:	-0.0473%
MAX:	4.3806%
MEDIAN:	-0.1281%
MIN:	-3.2791%

PHYSICAL LANDLORD

MEAN:	0.0351%
MAX:	0.6641%
MEDIAN:	0.0280%
MIN:	-0.6085%

WHOLESALER / RETAIL

MEAN:	-0.0053%
MAX:	0.7697%
MEDIAN:	-0.0004%
MIN:	-0.9142%

Analysis was also undertaken on a three year review to provide long term context. This has been summarised in the table below with key findings as follows:

3YR	CONTRACTOR	FIN. BROKER	FIN. LANDLORD	FIN. TRADER	INT. LANDLORD
MEAN:	0.17%	0.09%	0.05%	0.01%	0.12%
MAX:	10.98%	6.04%	1.46%	1.47%	2.89%
MIN:	-0.94%	-0.83%	-1.07%	-2.09%	-0.92%
	MANUFACTURER	PHYS. BROKER	PHYS. LANDLORD	WHOLSALER / RETAILER	AVG. SUMMARY
MEAN:	0.04%	0.18%	0.05%	0.18%	0.10%
MAX:	0.70%	5.03%	0.58%	17.85%	5.22%
MIN:	-0.53%	-3.50%	-0.38%	-0.48%	-1.19%

Figure 23. Three Year Summary of Share Price Change (%) by Business Model Archetype

- Over three years, all BMAs represent a positive daily average share price change
- The Physical Landlord category remains steady in a positive state at 0.05%. Where it held the highest positive average change in 2015, it drops to 6th of 9 when assessing the last 3 years.
- The highest daily average share price change in 2015 (0.18%) is represented by Wholesaler / Retailers and Physical Brokers.
- Human assets represent the highest growth average (0.17%) contrasting to financial assets as the lowest category averaging 0.05% daily share price growth.

5. Key Findings and Discussion

Each of the above metrics has exposed different patterns. Beginning with the New Zealand business model landscape, it is noted that New Zealand is a small

market with a sample size of 151 listed securities. As a result, outliers have greater influence over certain results such as revenue and profit volumes. Irrespective, several patterns still emerged including:

- Sixty percent of companies listed represent transactions exchanging *physical assets* whilst representing only 1.78% of total revenues. The Manufacturer archetype stands out with the highest number of companies (44) but produces only 0.5% of total revenues. Financial assets on the other hand make up nearly 70% of income listed from only 25 companies.
- A cluster of physical landlords show high net profitability in the scatterplot and is further evidenced in the net profit margin.
- Famous Intellectual Landlords such as Xero and Orion health also stand out due to profit deficits and, despite media attention, are still small when scaled by total revenue.

Comparison with the US analysis had some surprising parallels that would require further validation. High level patterns include:

- A similar distribution of companies exists in several categories including the Landlords (40%), physical assets (60%) and financial assets (17%).

Gross shareholder returns was interesting as the 10 year analysis evidenced macro impact on the full market. Examples include the GFC and Canterbury earthquakes.

- Several models (6/9) perform better than the S&P/NZX50 index with the Intellectual Landlord category growing at 10 year CAGR of 33% and Contractor growing at 15.86%

Market valuation is subject to the challenges of scale with Financial Traders and Financial Landlords creating an outlier effect due to large share volumes traded.

- Physical landlords stand out as the only BMA to exhibit consistent positive market growth and high share prices.

EBITDA follows a similar pattern with the top three placements held by Financial Trader, Financial Landlord and Physical Landlord. The Financial Broker has the highest average gains on operating income followed closely by the Physical Landlord.

Efficient application of assets and resources is challenging for Wholesaler / Retailers as margins are commonly low.

- In New Zealand this category performs well achieving the 6% average growth over 5 years.
- Six of nine BMA groups remain positive over all 5 years assessed.

Daily share price deviation produced differing results when assessing 2015 against a three year term.

- Only four out of nine BMAs exhibited positive growth in 2015 whereas all categories showed growth over the longer term review.

6. Conclusion

Throughout the literature review it was identified that there existed a multitude of definitions and typologies for developing and categorising business models. The rise in practitioner interest indicated value of conceptual application of business models whilst lacking the means for consistent application of theory.

Definitions became complex as they attempted to cover a range of elements considered when mapping an organisations business model. This *intra-enterprise* perspective led to an oversight of the potential for *inter-enterprise* analysis. The exception to this being Weill et al's (2006) study.

Utilising the MIT Business Model Archetype (BMA) typology, a simplified version of Weill et al's (2006) typology was applied and a first attempt was made at categorising New Zealand's business model landscape.

The results of this, albeit inconclusive, certainly indicate patterns of interest. Physical landlords remain one of the least volatile BMA categories and evidences high levels of consistent net profitability. Does the performance of the Physical Landlord category reflect those of Physical Landlords in other markets?

Similarities between the US business model landscape distribution of companies and New Zealand's call for further investigation. Are patterns around Landlord and Physical Asset categories reflected in other markets such as the ASX? Is there a consistent pattern of distribution?

The intellectual Landlord group exhibits over 33% gross shareholder return year-on-year. Are these high returns on investment reflected in other markets?

Returning to the original questions: can a business model be used as a unit of analysis for investment consideration? And, do some business models represented by NZ companies perform differently than others?

Although New Zealand only represents a small sample size and is subject to skewed affects from outliers, there is sufficient evidence to indicate:

- Yes, the MIT BMA categorisation methodology provides a framework to compare business models; and
- Yes, different business models perform differently from one another.

In their 2006 research Weill et al. evidence that a company's business model is "substantially better [at] predicting its operating income than its industry classification" (p.21). Although this analysis is a simplified version of its predecessor, the results indicate an opportunity for academics and practitioners to further explore the performance patterns of different business models and the companies they represent.

APPENDIX 1: Business Model Reference

(1) An Entrepreneur creates and sells financial assets often creating and selling firms. Examples:serial entrepreneurs, “incubator” firms, other active investors in very early stage firms like Kleiner, Perkins, Caufield & Byers.

(2) A Manufacturer creates and sells physical assets. Manufacturer is the predominant type of Creator. Examples: General Motors, Bethlehem Steel.

(3) An Inventor creates and then sells intangible assets such as patents and copyrights. Firms using this business model exclusively are relatively rare, but some technology firms generate part of their revenues this way. Example: Lucent’s Bell Labs (see patentsales.lucentssg.com).

(4) A Human Creator creates and sells human assets. Since selling humans—whether they were created naturally or artificially or obtained by capture—is illegal and morally repugnant in most places today, this business model is included here for logical completeness.

(5) A Financial Trader buys and sells financial assets without significantly transforming (or designing) them. Banks, investment firms, and other financial institutions that invest for their own account are included in this business model.

(6) A Wholesaler/Retailer buys and sells physical assets. This is the most common type of Distributor. Examples: Wal*Mart, Amazon.

(7) An Intellectual Property (IP) Trader buys and sells intangible assets. This business model includes firms that buy and sell intellectual property such as copyrights, patents, domain names, etc.10 Example: NTL Inc.

(8) A Human Distributor buys and sells human assets. Like Human Creators, this business model is illegal and rare in most places and is included here only for logical completeness.

(9) A Financial Landlord lets others use cash (or other financial assets) under certain (often time limited) conditions. There are two major subtypes of this business model:

(9a) Lenders provide cash that their customers can use for a limited time in return for a fee (usually called “interest”). Examples: Bank of America, Fannie Mae.

(9b) Insurers provide their customers financial reserves that the customers can use only if they experience losses. The fee for this service is usually called a “premium.” Examples: Aetna, Chubb.

(10) A Physical Landlord sells the right to use a physical asset. The asset may, for example, be a location (such as an amusement park) or equipment (such as construction equipment). Depending on the kind of asset, the payments by customers may be called “rent”, “lease”, “admission”, or other similar terms. This business model is common in industries like real estate rental and leasing, accommodation, airlines and recreation. Examples: Marriott, Hertz division of Ford.

(11) An Intellectual Landlord licenses or otherwise gets paid for limited use of intangible assets. There are three major subtypes of Intellectual Landlord:

(11a) A Publisher provides limited use of information assets such as software, newspapers, or databases in return for a purchase price or other fee (often called a subscription or license fee). When a Publisher sells a copy of an information

asset, the customer receives certain limited rights to use the information, but the publisher usually retains the right to make additional copies and resell the information. Example: Microsoft.

(11b) A Brand Manager gets paid for the use of a trademark, know-how, or other elements of a brand. This includes franchise fees for businesses such as restaurant or hotel chains. Example: Wendy's.

(11c) An Attractor attracts people's attention using, for example, television programs or web11 content and then "sells" that attention (an intangible asset) to advertisers. The Attractor may devote significant effort to creating or distributing the assets that attract attention, but the source of revenue is from the advertisers who pay to deliver a message to the audience that is attracted. This business model is common in radio and television broadcasting, some forms of publishing, and some Internet-based businesses. Example: New York Times, Google.

(12) A Contractor sells a service provided primarily by people, such as consulting, construction, education, personal care, package delivery, live entertainment or healthcare. Payment is fee for service, often (but not always) based on the amount of time the service requires. Examples: Accenture, Federal Express.

A further example to note is a passenger airline would generally be considered a Physical Landlord—even though it provides significant human services along with its airplanes—because the essence of the service provided is to transport passengers from one place to another by airplane. Conversely, a package delivery service (like Federal Express) would generally be classified as a Contractor because the essence of the service provided is to have packages

picked up and delivered (usually by people) regardless of the physical transportation mode used (bicycle, truck, train, etc.).

(13) A Financial broker matches buyers and sellers of financial assets. This includes insurance Brokers and stock Brokerage functions in many large financial firms. Examples: e*Trade, Schwab.

(14) A Physical broker matches buyers and sellers of physical assets. Examples: eBay, Century 21.

(15) An Intellectual property (IP) broker matches buyers and sellers of intangible assets.12 Example: Valassis.

(16) A Human Resources (HR) broker matches buyers and sellers of human services. Examples: Robert Half, EDS.

APPENDIX 2: Categorised Securities List

Code	S&P/NZX50	Issuer	Type of Asset	Rights	Biz Model
ABA		**Abano Healthcare Group**	Human	Landlord	Contractor
AIA	Y	**Auckland Intl Airport**	Physical	Landlord	Physical Landlord
AIA		**Auckland Intl Airport**	Physical	Distributor	Wholesaler / Retailer
AIR	Y	**Air New Zealand**	Physical	Landlord	Physical Landlord
ALF		**Allied Farmers**	Financial	Broker	Physical Broker
AMP		**AMP (AUD)**	Financial	Landlord	Financial Landlord
AMP		**AMP (AUD)**	Financial	Distributor	Financial Trader
AMP		**AMP (AUD)**	Human	Landlord	Contractor
ANZ	Y	**ANZ Banking Group (AUD)**	Financial	Distributor	Financial Trader
AOR		**Aorere Resources**	Financial	Distributor	Financial Trader
APA		**Asia Pacific Units**	Financial	Broker	Financial Broker
APN		**APN News & Media (AUD)**	Intangible	Landlord	Intellectual Landlord
APN		**APN News & Media (AUD)**	Intangible	Broker	IP Broker
ARG	Y	**Argosy**	Physical	Landlord	Physical Landlord
ARV		**ARV Ltd (NS) Ords**	Human	Landlord	Contractor
ASB		**ASB Capital Preference**	Financial	Broker	Financial Broker
ASD		**AusDividend Units**	Financial	Broker	Financial Broker
ASF		**AusFinancials Units**	Financial	Broker	Financial Broker
ASP		**AusProperty Units**	Financial	Broker	Financial Broker
ASR		**AusResources Units**	Financial	Broker	Financial Broker
ATM	Y	**a2 Milk**	Physical	Creator	Manufacturer
AUG		**Augusta Ordinary Shares**	Physical	Landlord	Physical Landlord
AUG		**Augusta Ordinary Shares**	Human	Landlord	Contractor
AWF		**AWF Group**	Human	Landlord	Contractor
AWK		**Airwork Holdings Limited**	Human	Landlord	Contractor
BGR		**Briscoe Group**	Physical	Distributor	Wholesaler / Retailer
BIL		**Bethunes Investments**	Financial	Distributor	Financial Trader
BLT		**BLIS Technologies**	Physical	Creator	Manufacturer
BRM		**Barramundi**	Financial	Broker	Financial Broker
CAV		**Cavalier Corporation**	Physical	Creator	Manufacturer
CDI		**CDL Investments NZ**	Physical	Creator	Manufacturer
CEN	Y	**Contact Energy**	Physical	Creator	Manufacturer
CMO		**Colonial Motor Co**	Physical	Distributor	Wholesaler / Retailer

Code	S&P/NZX50	Issuer	Type of Asset	Rights	Biz Model
CNU	Y	**Chorus Limited**	Physical	Landlord	Physical Landlord
COA	Y	**Coats Group plc Ord Share (GBP)**	Physical	Creator	Manufacturer
CVT		**Comvita**	Physical	Creator	Manufacturer
DGL		**Delegat Group**	Physical	Creator	Manufacturer
DIL	Y	**DILIGENT Ordinary Shares (USD)**	Intangible	Landlord	Intellectual Landlord
DIV		**NZDividend Units**	Financial	Broker	Financial Broker
DNZ		**DNZ Property**	Physical	Landlord	Physical Landlord
EBO	Y	**Ebos Group**	Physical	Distributor	Wholesaler / Retailer
EMF		**Emerging Units**	Financial	Broker	Financial Broker
ERD		**EROAD Ltd Ords**	Intangible	Landlord	Intellectual Landlord
EUF		**Europe Units**	Financial	Broker	Financial Broker
EVO		**EVO Ltd Ords**	Human	Landlord	Contractor
FBU	Y	**Fletcher Building**	Physical	Creator	Manufacturer
FBU		**Fletcher Building**	Human	Landlord	Contractor
FIN		**Finzsoft Solutions**	Intangible	Landlord	Intellectual Landlord
FLI		**Fliway Group Limited**	Human	Landlord	Contractor
FNZ		**SmartFONZ**	Financial	Broker	Financial Broker
FPH	Y	**F&P Healthcare Corp**	Physical	Creator	Manufacturer
FRE	Y	**Freightways**	Human	Landlord	Contractor
FSF	Y	**Fonterra Fund Units**	Financial	Broker	Financial Broker
GMT	Y	**Goodman Property Trust**	Physical	Landlord	Physical Landlord
GNE	Y	**Genesis Energy Limited**	Physical	Creator	Manufacturer
GTK		**Gentrack Group Limited**	Intangible	Landlord	Intellectual Landlord
GXH		**Green Cross Health**	Physical	Distributor	Wholesaler / Retailer
HBY		**Hellaby Holdings**	Financial	Distributor	Financial Trader
HLG		**Hallenstein Glasson Hdgs**	Physical	Distributor	Wholesaler / Retailer
HNZ	Y	**HeartlandNZ**	Financial	Distributor	Financial Trader
IFT		**Infratil**	Physical	Landlord	Physical Landlord
IFT		**Infratil**	Physical	Creator	Manufacturer
IKE		**ikeGPS Group Limited**	Physical	Creator	Manufacturer
IQE		**Intueri Education Group**	Human	Landlord	Contractor
KFL		**Kingfish**	Financial	Distributor	Financial Trader

Code	S&P/NZX50	Issuer	Type of Asset	Rights	Biz Model
KMD	Y	**Kathmandu**	Physical	Distributor	Wholesaler / Retailer
KPG	Y	**KPG Limited Ords**	Physical	Landlord	Physical Landlord
KRK		**Kirkcaldie & Stains**	Physical	Distributor	Wholesaler / Retailer
MAD		**Energy Mad Ordinary**	Physical	Creator	Manufacturer
MCK		**Millen'm & Copth Hotels**	Physical	Landlord	Physical Landlord
MDZ		**SmartMIDZ**	Financial	Broker	Financial Broker
MEL	Y	**Meridian Ordinary Shares**	Physical	Creator	Manufacturer
MET	Y	**Metlifecare**	Human	Landlord	Contractor
MFT	Y	**Mainfreight**	Human	Landlord	Contractor
MGL		**Mercer Group**	Physical	Creator	Manufacturer
MHI		**Michael Hill Intl**	Physical	Distributor	Wholesaler / Retailer
MLN		**Marlin**	Financial	Distributor	Financial Trader
MMH		**Marsden Maritime Holdings**	Physical	Landlord	Physical Landlord
MOA		**Moa Group Limited**	Physical	Creator	Manufacturer
MPG	Y	**Metro Performance Glass**	Physical	Creator	Manufacturer
MRP	Y	**Mighty River Power**	Physical	Creator	Manufacturer
MVN		**Methven**	Physical	Creator	Manufacturer
MZY		**SmartMOZY**	Financial	Broker	Financial Broker
NPT		**NPT**	Physical	Landlord	Physical Landlord
NPX	Y	**Nuplex Industries**	Physical	Creator	Manufacturer
NTL		**New Talisman Gold Mines**	Physical	Creator	Manufacturer
NWF		**NZ Windfarms**	Physical	Creator	Manufacturer
NZF		**NZ Finance Holdings**	Financial	Broker	Financial Broker
NZO		**New Zealand Oil & Gas**	Physical	Creator	Manufacturer
NZR		**NZ Refining Co**	Physical	Creator	Manufacturer
NZX	Y	**New Zealand Exchange**	Financial	Broker	Financial Broker
NZX		**New Zealand Exchange**	Physical	Broker	Physical Broker
NZX		**New Zealand Exchange**	Intangible	Landlord	Intellectual Landlord
OGC		**NewOceana (USD)**	Physical	Creator	Manufacturer
OHE	Y	**Orion Hlth Grp Ltd Ords**	Intangible	Landlord	Intellectual Landlord
OIC		**OPUS Ordinary Shares**	Human	Landlord	Contractor
OZY		**SmartOZZY**	Financial	Broker	Financial Broker
PAY		**Pushpay Holdings Ltd Ord**	Intangible	Landlord	Intellectual Landlord

Code	S&P/NZX50	Issuer	Type of Asset	Rights	Biz Model
PCT	Y	**Precinct Properties**	Physical	Landlord	Physical Landlord
PEB	Y	**Pacific Edge**	Human	Landlord	Contractor
PFI	Y	**Property For Industry**	Physical	Landlord	Physical Landlord
PGC		**Pyne Gould Corp**	Human	Landlord	Contractor
PGW		**PGG Wrightson**	Physical	Distributor	Wholesaler / Retailer
PGW		**PGG Wrightson**	Physical	Broker	Physical Broker
PGW		**PGG Wrightson**	Physical	Creator	Manufacturer
PGW		**PGG Wrightson**	Financial	Landlord	Financial Landlord
PIL		**Promisia**	Physical	Creator	Manufacturer
POT	Y	**Port of Tauranga**	Physical	Landlord	Physical Landlord
PPL		**Pumpkin Patch**	Physical	Distributor	Wholesaler / Retailer
RAK		**Rakon**	Physical	Creator	Manufacturer
RBC		**Rubicon (USD)**	Financial	Broker	Financial Broker
RBD	Y	**Restaurant Brands NZ**	Physical	Creator	Manufacturer
RYM	Y	**Ryman Healthcare**	Human	Landlord	Contractor
SAN		**Sanford**	Physical	Creator	Manufacturer
SCL		**Scales Corporation**	Physical	Creator	Manufacturer
SCL		**Scales Corporation**	Human	Landlord	Contractor
SCL		**Scales Corporation**	Physical	Landlord	Physical Landlord
SCT		**Scott Technology**	Physical	Creator	Manufacturer
SCY		**Smiths City Group**	Physical	Distributor	Wholesaler / Retailer
SEA		**SEADRAGON**	Physical	Creator	Manufacturer
SEK		**Seeka Kiwifruit Inds**	Physical	Creator	Manufacturer
SKC	Y	**SKYCITY Entertainment**	Physical	Landlord	Physical Landlord
SKL	Y	**Skellerup Holdings**	Physical	Creator	Manufacturer
SKO		**Serko Limited**	Intangible	Landlord	Intellectual Landlord
SKT	Y	**SKYTV**	Intangible	Landlord	Intellectual Landlord
SLG		**Sealegs Corporation**	Physical	Creator	Manufacturer
SLI		**SLI Systems Ltd Shares**	Intangible	Landlord	Intellectual Landlord
SML		**Synlait Milk Limited**	Physical	Creator	Manufacturer
SPK	Y	**Spark NZ Ltd Ords**	Physical	Landlord	Physical Landlord
SPN		**South Port NZ**	Physical	Landlord	Physical Landlord

Code	S&P/NZX50	Issuer	Type of Asset	Rights	Biz Model
SPY		**SMARTPAY**	Physical	Landlord	Physical Landlord
STU	Y	**Steel & Tube Holdings**	Physical	Creator	Manufacturer
SUM	Y	**Summerset Group Holdings**	Human	Landlord	Contractor
TEN		**Tenon Ordinary (USD)**	Physical	Creator	Manufacturer
TGG		**T&G Global Ltd Ord Shares**	Physical	Creator	Manufacturer
THL		**Tourism Holdings**	Physical	Landlord	Physical Landlord
THL		**Tourism Holdings**	Physical	Distributor	Wholesaler / Retailer
TIL		**Trilogy**	Physical	Creator	Manufacturer
TLS		**Telstra Corp (AUD)**	Physical	Landlord	Physical Landlord
TME	Y	**Trade Me Group Limited**	Physical	Broker	Physical Broker
TME		**Trade Me Group Limited**	Human	Broker	Human Broker
TME		**Trade Me Group Limited**	Intangible	Landlord	Intellectual Landlord
TNR		**Turners Ltd Ord Shares**	Financial	Landlord	Financial Landlord
TNZ		**SmartTENZ**	Financial	Broker	Financial Broker
TPW	Y	**Trustpower**	Physical	Creator	Manufacturer
TRS		**Training Solutions Plus**	Human	Landlord	Contractor
TTK		**TeamTalk**	Physical	Landlord	Physical Landlord
TWF		**Total World Units**	Financial	Broker	Financial Broker
TWR	Y	**Tower**	Financial	Landlord	Financial Landlord
USF		**US 500 Units**	Financial	Broker	Financial Broker
USG		**US Growth Units**	Financial	Broker	Financial Broker
USM		**US Mid Cap Units**	Financial	Broker	Financial Broker
USS		**US Small Cap Units**	Financial	Broker	Financial Broker
USV		**US Value Units**	Financial	Broker	Financial Broker
VCT	Y	**Vector Ltd Ordinary**	Physical	Distributor	Wholesaler / Retailer
VGL		**Vista Group Ltd Ords**	Intangible	Landlord	Intellectual Landlord
VHP	Y	**VITAL HEALTH**	Physical	Landlord	Physical Landlord
VIL		**Veritas Investments**	Physical	Distributor	Wholesaler / Retailer
WBC	Y	**Westpac Banking Corp (AUD)**	Financial	Distributor	Financial Trader
WDT		**Wellington Drive Tech**	Physical	Creator	Manufacturer

Code	S&P/NZX50	Issuer	Type of Asset	Rights	Biz Model
WHS	Y	**The Warehouse Group**	Physical	Distributor	Wholesaler / Retailer
WYN		**Wynyard Ordinary Shares**	Intangible	Landlord	Intellectual Landlord
XRO	Y	**XERO**	Intangible	Landlord	Intellectual Landlord
ZEL	Y	**Z Energy Ltd Ords**	Physical	Distributor	Wholesaler / Retailer

APPENDIX 3: Reference Data

Sample data has been included below for an indication of information processed.

Due to the volume of data processed in this analysis, an electronic copy has been provided via email to all relevant parties including:

- Stephen.Cummings@vuw.ac.nz
- david.stewart@vuw.ac.nz

For anyone a copy of this data, please email nickgeorgeormrod@gmail.com.

Code	Issuer	Biz Model	Total Revenue 2015 ($'000)	Total Revenue 2014 ($'000)	Total Revenue 2013 ($'000)	Total Revenue 2012 ($'000)	Total Revenue 2011 ($'000)	EBITDA 2015	EBITDA 2014	EBITDA 2013	EBITDA 2012	EBITDA 2011
ABA	**Abano Healthcare Group**	Contractor	223,288	212,901	209,752	208,649	188,494	20,842	26,452	23,478	22,026	25,977
AIA	**Auckland Intl Airport**	Physical Landlord	389,000	407,116	334,071	316,540	317,711	437,100	410,251	365,319	327,731	265,902
AIA	**Auckland Intl Airport**	Wholesaler / Retailer	132,000	127,000	124,308	120,863	111,150					
AIR	**Air New Zealand**	Physical Landlord	5,060,000	4,752,000	4,662,000	4,514,000	4,377,000	1,006,000	872,000	667,000	442,000	389,000
ALF	**Allied Farmers**	Physical Broker	15,342	16,081	27,099	21,452	58,842	2,368	2,426	-2,506	-8,769	-31,252
AMP	**AMP (AUD)**	Financial Landlord	854,760,550	805,290,500	779,105,250	661,330,600	1,893,850	2,763,000	2,424,000	2,393,000	1,709,000	1,689,000
AMP	**AMP (AUD)**	Financial Trader	219,795,570	207,074,700	200,341,350	170,056,440	486,990					
AMP	**AMP (AUD)**	Contractor	1,367,616,880	1,288,464,800	1,246,568,400	1,058,128,960	3,030,160					
ANZ	**ANZ Banking Group (AUD)**	Financial Trader	35,768,000	34,315,000	37,220,000	35,817,000	31,431,000	26,311,000	25,088,000	28,104,000	27,164,000	22,524,000
AOR	**Aorere Resources**	Financial Trader	475	654	401	503	3,811	-3,917	-130	-450	-728	3,038
APA	**Asia Pacific Units**	Financial Broker	N/A									
APN	**APN News & Media (AUD)**	Intellectual Landlord	851,467	825,740	854,090	1,081,597	1,054,215	98,296	147,278	-502,517	35,715	239,004
APN	**APN News & Media (AUD)**	IP Broker	19,037	18,284	22,392	21,142	12,603					
ARG	**Argosy**	Physical Landlord	154,559	159,152	97,705	103,662	94,962	95,379	124,157	62,332	28,088	66,175
ARV	**ARV Ltd (NS) Ords**	Contractor	23,115					4,907				
ASB	**ASB Capital Preference**	Financial Broker	9,556	8,223	7,706	8,590	9,557	9,536	8,204	7,686	8,581	9,537
ASD	**AusDividend Units**	Financial Broker	4,669					4,424				
ASF	**AusFinancials Units**	Financial Broker	N/A									
ASP	**AusProperty Units**	Financial Broker	1,763					1,702				
ASR	**AusResources Units**	Financial Broker	N/A									
ATM	**a2 Milk**	Manufacturer	155,259	111,300	94,962	64,224	15,058	2,105	801	5,284	4,340	2,984
AUG	**Augusta Ordinary Shares**	Physical Landlord	14,806	9,734	12,234	9,261	13,333	11,073	6,534	9,090	1,214	9,075
AUG	**Augusta Ordinary Shares**	Contractor	9,868	2,592	2,008							
AWF	**AWF Group**	Contractor	148,742	130,499	119,283	95,838	70,360	8,436	8,360	6,364	6,034	3,389
AWK	**Airwork Holdings Limited**	Contractor	145,933	139,495				48,388	48,841			
BGR	**Briscoe Group**	Whole/retail	511,172	485,401	454,637	439,848	420,816	60,424	52,756	48,812	44,599	41,495
BIL	**Bethunes Investments**	Financial Trader	2,312	4,025	2,872	2,994	5,662	61,147	-50,888	210	-83	46
BLT	**BLIS Technologies**	Manufacturer	2,631	1,322	1,161	1,510	1,822	-814	-1,049	-1,236	-1,346	-1,054
BRM	**Barramundi**	Financial Broker	10,569	2,481	22,074	3,635	9,937	8,094	-4,575	18,171	-108	7,641
CAV	**Cavalier Corporation**	Manufacturer	217,242	202,711	207,069	220,631	231,597	-21,180	10,804	5,836	624	27,797
CDI	**CDL Investments NZ**	Manufacturer	45,518	39,455	27,023	11,695	9,712	20,550	18,552	12,929	5,364	4,096
CEN	**Contact Energy**	Manufacturer	2,443,000	2,460,000	2,539,000	2,733,516	2,235,793	464,000	601,000	526,000	523,345	440,414
CMO	**Colonial Motor Co**	Whole/retail	789,377	699,314	614,407	543,359	485,950	34,627	33,988	27,857	23,530	18,953
CNU	**Chorus Limited**	Physical Landlord	1,014,000	1,066,000	1,064,000	617,000		610,000	657,000	670,000	403,000	
COA	**Coats Group plc Ord Share (GBP)**	Manufacturer	1,032,000	1,098,000	1,052,000	1,185,000	1,398,000	67,000	90,954	77,905	86,018	106,999
CVT	**Comvita**	Manufacturer	159,967	119,412	105,033	98,211	84,187	19,741	14,455	13,293	15,272	7,105

Code	Issuer	Biz Model	Net Income 2015	Net Income 2014	Net Income 2013	Net Income 2012	Net Income 2011	Total Assets 2015	Total Assets 2014	Total Assets 2013	Total Assets 2012	Total Assets 2011
ABA	**Abano Healthcare Group**	Contractor	-1,268	4,859	2,813	1,612	11,464	221,133	224,290	210,978	203,175	168,985
AIA	**Auckland Intl Airport**	Physical Landlord	223,500	215,881	177,967	142,284	100,761	5,101,500	4,733,919	3,938,552	3,875,533	3,866,210
AIA	**Auckland Intl Airport**	Wholesaler / Retailer										
AIR	**Air New Zealand**	Physical Landlord	327,000	262,000	182,000	71,000	81,000	6,775,000	5,850,000	5,612,000	5,459,000	4,902,000
ALF	**Allied Farmers**	Physical Broker	655	1,028	-2,615	-14,093	-39,921	11,881	11,638	11,522	33,851	54,873
AMP	**AMP (AUD)**	Financial Landlord	815,000	834,000	730,000	567,000	771,000	134,855,000	133,224,000	118,751,000	110,290,000	89,261,000
AMP	**AMP (AUD)**	Financial Trader										
AMP	**AMP (AUD)**	Contractor										
ANZ	**ANZ Banking Group (AUD)**	Financial Trader	7,278,000	6,288,000	5,619,000	5,346,000	4,470,000	772,115,000	703,024,000	642,127,000	594,488,000	531,739,000
AOR	**Aorere Resources**	Financial Trader	-3,917	-106	-471	-714	3,037	2,068	5,489	4,890	5,261	8,109
APA	**Asia Pacific Units**	Financial Broker										
APN	**APN News & Media (AUD)**	Intellectual Landlord	11,489	2,626	-455,769	-45,070	93,756	1,128,921	1,254,901	1,346,843	1,997,976	2,162,922
APN	**APN News & Media (AUD)**	IP Broker										
ARG	**Argosy**	Physical Landlord	64,370	85,550	39,155	1,949	26,335	1,313,186	1,232,388	992,749	929,265	975,171
ARV	**ARV Ltd (NS) Ords**	Contractor	3,080					358,304				
ASB	**ASB Capital Preference**	Financial Broker	6,866	5,907	5,534	6,178	6,676	201,823	201,566	201,406	201,538	201,818
ASD	**AusDividend Units**	Financial Broker	4,150					49,004				
ASF	**AusFinancials Units**	Financial Broker										
ASP	**AusProperty Units**	Financial Broker	1,593					31,193				
ASR	**AusResources Units**	Financial Broker										
ATM	**a2 Milk**	Manufacturer	-2,091	10	4,120	4,405	2,116	88,867	76,643	72,404	49,672	32,729
AUG	**Augusta Ordinary Shares**	Physical Landlord	10,385	1,988	5,439	-646	4,835	124,352	126,214	107,474	103,969	102,400
AUG	**Augusta Ordinary Shares**	Contractor										
AWF	**AWF Group**	Contractor	3,952	6,923	2,616	3,198	2,002	76,961	35,375	36,244	34,038	25,750
AWK	**Airwork Holdings Limited**	Contractor	15,549	9,828				273,232	184,70			
BGR	**Briscoe Group**	Wholesaler / Retailer	39,302	33,575	30,468	27,529	21,612	234,754	215,384	191,831	207,305	191,119
BIL	**Bethunes Investments**	Financial Trader	-2,950	-112	106	-184	-81	3,976	8,822	4,842	4,860	5,412
BLT	**BLIS Technologies**	Manufacturer	-1,373	-1,541	-1,856	-1,759	-1,385	5,249	6,461	3,827	4,374	4,510
BRM	**Barramundi**	Financial Broker	8,272	-6,241	16,772	-884	7,513	93,037	86,826	97,419	85,356	91,272
CAV	**Cavalier Corporation**	Manufacturer	-25,715	5,790	3,030	-1,633	18,180	169,126	198,060	196,637	201,434	215,725
CDI	**CDL Investments NZ**	Manufacturer	14,710	13,404	9,303	3,788	2,912	130,469	120,335	108,030	99,162	95,645
CEN	**Contact Energy**	Manufacturer	133,000	234,000	199,000	190,429	150,294	6,089,000	6,183,000	6,197,000	6,112,363	5,643,499
CMO	**Colonial Motor Co**	Wholesaler / Retailer	16,326	18,221	13,867	11,835	8,184	282,353	246,607	222,588	217,110	211,935
CNU	**Chorus Limited**	Physical Landlord	91,000	148,000	171,000	102,000		3,841,000	3,680,000	3,333,000	2,934,000	
COA	**Coats Group plc Ord Share (GBP)**	Manufacturer	9,000	23,000	0	15,000	46,000	1,260,000	1,257,000	1,428,000	1,901,000	2,178,000
CVT	**Comvita**	Manufacturer	10,542	7,795	7,384	8,224	503	199,722	147,493	136,752	115,354	112,094

Code	Issuer	Biz Model	ROA 2015	ROA 2014	ROA 2013	ROA 2012	ROA 2011	# Shares (000) 2015	# Shares (000) 2014	# Shares (000) 2013	# Shares (000) 2012	# Shares (000) 2011
ABA	**Abano Healthcare Group**	Contractor	-0.57%	2.17%	1.33%	0.79%	6.78%	20,537	17,101	16,256	15,672	20,897
AIA	**Auckland Intl Airport**	Physical Landlord	4.38%	4.56%	4.52%	3.67%	2.61%	1,190,126	1,322,371	1,322,371	1,322,158	1,309,975
AIA	**Auckland Intl Airport**	Wholesaler / Retailer										
AIR	**Air New Zealand**	Physical Landlord	4.83%	4.48%	3.24%	1.30%	1.65%	1,114,424	1,103,925	1,099,707	1,090,833	1,076,747
ALF	**Allied Farmers**	Physical Broker	5.51%	8.83%	-22.70%	-41.63%	-72.75%	105,471	90,793	90,793	2,042,295	1,952,295
AMP	**AMP (AUD)**	Financial Landlord	0.60%	0.63%	0.61%	0.51%	0.86%	2,957,738	2,957,738	2,930,424	2,854,673	2,094,424
AMP	**AMP (AUD)**	Financial Trader										
AMP	**AMP (AUD)**	Contractor										
ANZ	**ANZ Banking Group (AUD)**	Financial Trader	0.94%	0.89%	0.88%	0.90%	0.84%	2,756,628	2,743,655	2,717,357	2,629,034	2,559,662
AOR	**Aorere Resources**	Financial Trader	-189.41%	-1.93%	-9.63%	-13.57%	37.45%	651,646	537,214	500,092	23,490	23,490
APA	**Asia Pacific Units**	Financial Broker										
APN	**APN News & Media (AUD)**	Intellectual Landlord	1.02%	0.21%	-33.84%	-2.26%	4.33%	1,029,041	661,526	661,526	630,211	606,084
APN	**APN News & Media (AUD)**	IP Broker										
ARG	**Argosy**	Physical Landlord	4.90%	6.94%	3.94%	0.21%	2.70%	802,629	790,912	680,932	558,517	549,186
ARV	**ARV Ltd (NS) Ords**	Contractor	0.86%					224,851				
ASB	**ASB Capital Preference**	Financial Broker	3.40%	2.93%	2.75%	3.07%	3.31%	200,001	200,001	200,001	200,001	200,001
ASD	**AusDividend Units**	Financial Broker	8.47%					27,165				
ASF	**AusFinancials Units**	Financial Broker										
ASP	**AusProperty Units**	Financial Broker	5.11%					25,423				
ASR	**AusResources Units**	Financial Broker										
ATM	**a2 Milk**	Manufacturer	-2.35%	0.01%	5.69%	8.87%	6.47%	633,067	615,166	559,008	526,246	361,131
AUG	**Augusta Ordinary Shares**	Physical Landlord	8.35%	1.58%	5.06%	-0.62%	4.72%	83,779	81,279	81,279	81,279	81,571
AUG	**Augusta Ordinary Shares**	Contractor										
AWF	**AWF Group**	Contractor	5.14%	19.57%	7.22%	9.40%	7.77%	26,126	26,126	26,126	26,126	26,126
AWK	**Airwork Holdings Limited**	Contractor	5.69%					50,241				
BGR	**Briscoe Group**	Wholesaler / Retailer	16.74%	15.59%	15.88%	13.28%	11.31%	216,593	215,534	213,698	213,048	212,150
BIL	**Bethunes Investments**	Financial Trader	-74.20%	-1.27%	2.19%	-3.79%	-1.50%	12,756	12,756	11,156	11,156	11,156
BLT	**BLIS Technologies**	Manufacturer	-26.16%	-23.85%	-48.50%	-40.21%	-30.71%	1,102,154	669,594	175,827	143,847	143,847
BRM	**Barramundi**	Financial Broker	8.89%	-7.19%	17.22%	-1.04%	8.23%	122,308	119,274	116,855	113,878	102,759
CAV	**Cavalier Corporation**	Manufacturer	-15.20%	2.92%	1.54%	-0.81%	8.43%	68,679	68,264	68,264	68,264	67,836
CDI	**CDL Investments NZ**	Manufacturer	11.27%	11.14%	8.61%	3.82%	3.04%	275,468	274,675	268,596	260,883	252,775
CEN	**Contact Energy**	Manufacturer	2.18%	3.78%	3.21%	3.12%	2.66%	733,302	733,302	718,670	695,068	604,935
CMO	**Colonial Motor Co**	Wholesaler / Retailer	5.78%	7.39%	6.23%	5.45%	3.86%	32,695	32,695	32,695	32,695	32,695
CNU	**Chorus Limited**	Physical Landlord	2.37%	4.02%	5.13%	3.48%		396,370	389,299	385,082		
COA	**Coats Group plc Ord Share (GBP)**	Manufacturer	0.71%	1.83%	0.00%	0.79%	2.11%	1,260,000	1,257,000	1,428,000	1,901,000	2,178,000
CVT	**Comvita**	Manufacturer	5.28%	5.28%	5.40%	7.13%	0.45%	31,715	29,097	28,431	28,174	27,167

Code	Issuer	Biz Model	$ Price of Share 2015	$ Price of Share 2014	$ Price of Share 2013	$ Price of Share 2012	$ Price of Share 2011	Market Val 2015	Market Val 2014	Market Val 2013	Market Val 2012	Market Val 2011
ABA	**Abano Healthcare Group**	Contractor	7.400	6.600	5.500	4.200	4.640	151,974	112,867	89,408	65,822	96,962
AIA	**Auckland Intl Airport**	Physical Landlord	4.935	3.900	2.970	2.440	2.225	5,873,272	5,157,247	3,927,442	3,226,066	2,914,694
AIA	**Auckland Intl Airport**	Wholesaler / Retailer										
AIR	**Air New Zealand**	Physical Landlord	2.550	2.080	1.485	0.860	1.120	2,841,781	2,296,164	1,633,065	938,116	1,205,957
ALF	**Allied Farmers**	Physical Broker	0.054	0.051	0.018	0.028	0.008	5,695	4,630	1,634	57,184	15,618
AMP	**AMP (AUD)**	Financial Landlord	5.780	4.750	6.050	5.400	6.950	17,095,726	14,049,256	17,729,065	15,415,234	14,556,247
AMP	**AMP (AUD)**	Financial Trader										
AMP	**AMP (AUD)**	Contractor										
ANZ	**ANZ Banking Group (AUD)**	Financial Trader	29.720	34.530	34.850	30.990	24.550	81,926,984	94,738,407	94,699,891	81,473,764	62,839,702
AOR	**Aorere Resources**	Financial Trader	0.003	0.010	0.011	0.140	0.180	1,955	5,372	5,501	3,289	4,228
APA	**Asia Pacific Units**	Financial Broker										
APN	**APN News & Media (AUD)**	Intellectual Landlord	0.830	0.500	0.320	0.950	2.400	854,104	330,763	211,688	598,700	1,454,602
APN	**APN News & Media (AUD)**	IP Broker										
ARG	**Argosy**	Physical Landlord	1.140	0.910	0.985	0.840	0.730	914,997	719,730	670,718	469,154	400,906
ARV	**ARV Ltd (NS) Ords**	Contractor										
ASB	**ASB Capital Preference**	Financial Broker	0.869	0.889	0.810	0.620	0.800	173,801	177,801	162,001	124,001	160,001
ASD	**AusDividend Units**	Financial Broker										
ASF	**AusFinancials Units**	Financial Broker										
ASP	**AusProperty Units**	Financial Broker										
ASR	**AusResources Units**	Financial Broker										
ATM	**a2 Milk**	Manufacturer	0.710	0.690	0.640	0.480	0.150	449,478	424,465	357,765	252,598	54,170
AUG	**Augusta Ordinary Shares**	Physical Landlord	0.990	0.880	0.880	0.700	0.620	82,941	71,526	71,526	56,895	50,574
AUG	**Augusta Ordinary Shares**	Contractor										
AWF	**AWF Group**	Contractor	2.350	2.800	2.400	2.500	1.480	61,396	73,153	62,702	65,315	38,666
AWK	**Airwork Holdings Limited**	Contractor										
BGR	**Briscoe Group**	Wholesaler / Retailer	2.900	2.620	2.450	1.740	1.500	628,120	564,699	523,560	370,704	318,225
BIL	**Bethunes Investments**	Financial Trader	0.200	0.620	0.500	0.500	0.800	2,551	7,909	5,578	5,578	8,925
BLT	**BLIS Technologies**	Manufacturer	0.019	0.016	0.017	0.020	0.065	20,941	10,714	2,989	2,877	9,350
BRM	**Barramundi**	Financial Broker	0.670	0.640	0.680	0.610	0.690	81,946	76,335	79,461	69,466	70,904
CAV	**Cavalier Corporation**	Manufacturer	0.360	1.330	1.700	1.520	3.800	24,724	90,791	116,049	103,761	257,777
CDI	**CDL Investments NZ**	Manufacturer	0.540	0.560	0.455	0.300	0.290	148,753	153,818	122,211	78,265	73,305
CEN	**Contact Energy**	Manufacturer	5.010	5.310	5.120	4.820	5.360	3,673,843	3,893,834	3,679,590	3,350,228	3,242,452
CMO	**Colonial Motor Co**	Wholesaler / Retailer	5.750	5.200	3.950	3.150	2.500	187,996	170,014	129,145	102,989	81,738
CNU	**Chorus Limited**	Physical Landlord	2.900	1.735	2.390	3.140		1,149,473	675,434	920,346	0	0
COA	**Coats Group plc Ord Share (GBP)**	Manufacturer	0.450	0.590	0.595	0.585	0.720	567,000	741,630	849,660	1,112,085	1,568,160
CVT	**Comvita**	Manufacturer	4.000	3.300	3.800	2.650	1.450	126,860	96,020	108,038	74,661	39,392

Code	Issuer	Biz Model	Gross Shareholder Return 2015	Gross Shareholder Return 2014	Gross Shareholder Return 2013	Gross Shareholder Return 2012	Gross Shareholder Return 2011	Gross Shareholder Return 2010	Gross Shareholder Return 2009	Gross Shareholder Return 2008	Gross Shareholder Return 2007	Gross Shareholder Return 2006
ABA	**Abano Healthcare Group**	Contractor	9.52%	25.58%	5.96%	54.91%	-8.81%	-19.21%	54.56%	-7.11%	116.76%	42.35%
AIA	**Auckland Intl Airport**	Physical Landlord	24.25%	20.54%	37.44%	10.40%	20.21%	13.31%	30.21%	-42.17%	36.90%	15.12%
AIA	**Auckland Intl Airport**	Whole/Retail										
AIR	**Air New Zealand**	Physical Landlord	22.43%	65.91%	33.99%	51.90%	-37.11%	30.75%	34.06%	-45.28%	8.17%	53.70%
ALF	**Allied Farmers**	Physical Broker	-30.99%	36.54%	73.34%	-3.22%	-98.45%	-82.46%	-84.31%	-48.23%	-18.99%	-4.90%
AMP	**AMP (AUD)**	Financial Landlord	12.93%	27.37%	-17.63%	19.26%	-17.84%	-11.93%	37.34%	-39.61%	9.30%	53.22%
AMP	**AMP (AUD)**	Financial Trader										
AMP	**AMP (AUD)**	Contractor										
ANZ	**ANZ Banking Group (AUD)**	Financial Trader	-6.60%	1.42%	16.54%	23.72%	-6.95%	15.05%	62.20%	-36.70%	3.77%	27.94%
AOR	**Aorere Resources**	Financial Trader	-57.14%	-30.00%	-16.67%	50.00%	6.67%	-3.23%	55.00%	-87.50%	35.27%	41.23%
APA	**Asia Pacific Units**	Financial Broker										
APN	**APN News & Media (AUD)**	Intel. Landlord	-41.18%	85.11%	56.25%	-62.71%	-60.15%	-9.38%	6.16%	-45.72%	-6.05%	42.91%
APN	**APN News & Media (AUD)**	IP Broker										
ARG	**Argosy**	Physical Landlord	3.63%	25.33%	8.22%	23.32%	17.55%	-0.48%	37.68%	-30.89%	-12.34%	15.08%
ARV	**ARV Ltd (NS) Ords**	Contractor	-7.48%	-1.05%								
ASB	**ASB Capital Preference**	Financial Broker	-0.57%	5.32%	35.83%	6.55%	-5.67%	-5.05%	-2.86%	-5.92%	0.88%	2.61%
ASD	**AusDividend Units**	Financial Broker										
ASF	**AusFinancials Units**	Financial Broker										
ASP	**AusProperty Units**	Financial Broker										
ASR	**AusResources Units**	Financial Broker										
ATM	**a2 Milk**	Manufacturer	32.76%	-27.50%	50.94%	120.83%	140.00%	17.65%	-26.09%	-47.73%	205.56%	-28.00%
AUG	**Augusta Ordinary Shares**	Physical Landlord	4.14%	34.37%	1.08%	26.65%	30.48%	15.52%	12.81%	-35.85%	-15.07%	8.00%
AUG	**Augusta Ordinary Shares**	Contractor										
AWF	**AWF Group**	Contractor	-4.88%	-7.05%	28.70%	32.15%	50.15%	71.69%	48.54%	-33.04%	-19.11%	14.30%
AWK	**Airwork Holdings Limited**	Contractor	12.76%	20.14%	6.15%							
BGR	**Briscoe Group**	Whole/Retail	-1.32%	29.94%	14.74%	82.05%	6.82%	14.74%	63.83%	-40.34%	-17.11%	52.89%
BIL	**Bethunes Investments**	Financial Trader	-87.33%	-38.10%	-12.64%	0.00%	-32.00%	-22.73%	-20.80%	-21.87%	-4.46%	20.49%
BLT	**BLIS Technologies**	Manufacturer	36.84%	5.56%	20.00%	-53.13%	-66.32%	-20.83%	100.00%	-21.05%	13.68%	-53.33%
BRM	**Barramundi**	Financial Broker	4.80%	1.13%	12.80%	16.73%	-9.51%	21.15%	70.48%	-49.18%	-19.44%	8.00%
CAV	**Cavalier Corporation**	Manufacturer	-31.15%	-63.87%	4.66%	-12.95%	-34.17%	17.13%	70.84%	-32.43%	-15.81%	32.75%
CDI	**CDL Investments NZ**	Manufacturer	20.77%	-0.06%	26.81%	57.25%	8.05%	11.70%	22.73%	-43.54%	11.33%	7.52%
CEN	**Contact Energy**	Manufacturer	-8.93%	30.51%	3.41%	3.43%	-10.54%	5.70%	-12.11%	-8.11%	2.04%	30.22%
CMO	**Colonial Motor Co**	Whole/Retaikl	3.29%	35.06%	29.17%	56.41%	14.73%	15.16%	10.07%	-23.97%	13.97%	21.35%
CNU	**Chorus Limited**	Physical Landlord	3.38%	84.72%	-46.51%	-1.69%	6.16%					
COA	**Coats Group plc Ord Share (GBP)**	Manufacturer	48.89%	-23.73%	-0.84%	1.71%	-17.30%	-3.42%	-4.14%	-35.81%	-20.60%	29.14%
CVT	**Comvita**	Manufacturer	84.60%	7.01%	1.01%	61.30%	67.46%	5.41%	27.17%	-57.41%	-28.41%	72.43%

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