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**Audit pricing in the pension plan audit market: An
empirical study on the New Zealand KiwiSaver
characteristics, audit market factors, non-audit services
and board governance**

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Abstract

This thesis documents the influence of the New Zealand KiwiSaver characteristics, audit market factors, non-audit services and board characteristics on audit fees between 2011 and 2013 fiscal years. It documents the first audit pricing study on New Zealand's defined contribution pension plan, the 'KiwiSaver', which adds to the little literature in the pension industry. I find that the KiwiSaver characteristics, including size, risk and complexity, are associated with audit fees, consistent with prior pension plans research and other markets studied. Further, I examine whether audit market factors (measured by Big Four and first year audit) earn audit fee premiums in the industry. Consistent with prior pension plans research I find that the audit market factors have no effect on audit fees in the industry, despite the Big Four firms having a much higher share in the KiwiSaver audit market. I also investigate the impact of the auditor-client relationship on audit pricing and address the KiwiSaver regulators concern with auditor independence in the industry. I find that a non-audit services fee is not a significant factor in determination of audit fees in the industry. This suggests that auditor independence is not an issue. The KiwiSaver presents a multi-tiered agency setting in which the impact of governance practices on audit fees can be analysed. I find evidence that skilful and expert trustees demand higher audit quality services, despite KiwiSaver's smaller board size.

Key words: Audit pricing, pension plan, KiwiSaver, audit market factors, non-audit services and governance.

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Abbreviations

Here is an explanation of the key abbreviations used throughout the thesis:

CEO	Chief Executive Officer
DBP	Defined Benefit Pension Plan
DCP	Defined Contribution Pension Plan
GDP	Gross Domestic Product
GFC	Global Financial Crisis
KSP	KiwiSaver Scheme Provider
NAS	Non-Audit Services
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
PAYE	Pay As You Earn
SMSFs	Self-Managed Superannuation Funds
Std. Deviation	Standard Deviation

Chapter 1

Introduction

1.1 Overview

This thesis documents the influence of the New Zealand KiwiSaver characteristics, audit market factors, non-audit services and board characteristics on audit fees between 2011 and 2013 fiscal years. This is the first audit pricing study on New Zealand's defined contribution pension plan (DCP), the 'KiwiSaver', which adds to the little literature in the pension industry. Since the introduction of the KiwiSaver in July 2007, it has been referred to as the structural game changer and, forecast to be a major contributor to Gross Domestic Product (GDP), employment and investment in the New Zealand economy (NZX Limited, 2013). The analysis provides new insight into this infant and fast growing industry from total assets of \$1.04 billion at 30 June 2008 to \$16.56 billion at 30 June 2013 with a membership of 2.09 million (about 50% of New Zealand total population) which exceeded all expectation. (Financial Markets Authority, 2013b; Inland Revenue Department, 2008; National Research and Evaluation Unit, 2013).

1.2 Motivation

Hay, Knechel and Wong (2006) performed a meta-analysis examining the accumulated effect of the drivers of audit fees identified in prior studies. It confirms that well-established variables for size, risk and complexity are related to audit fees. Hay et al. (2006) concluded with a call for further research on five topics: internal control; governance and regulation; the form of ownership of an auditee; audit quality and the demand for audit quality; and non-audit services. There has been little prior research devoted to audit pricing in the pension industry (Arnold, Bateman, Ferguson, & Rafferty, 2014). This study is motivated by the calls by Hay et al. (2006) and Arnold et al. (2014) for more research on audit fees determinants and specifically addresses three areas: form of ownership of an auditee, governance and regulation, and non-audit services, using the New Zealand KiwiSaver context.

The KiwiSaver was introduced in 2007 because New Zealand household saving in general appeared to be low and declining, and there were some who would reach retirement with an accumulation insufficient to allow them to sustain their pre-retirement standard of living. As the population ages, a significantly greater number of people will become eligible for the

New Zealand Superannuation (old-age pension), resulting in increased pressure on government finances (Law, Meehan, & Scobie 2011). Exceeding all expectation, currently assets in excess of \$16.56 billion with membership of 2.09 million after only six years in operation, the size of the New Zealand KiwiSaver is about 12 percent of New Zealand GDP and represents almost 20 percent of all managed fund assets in the New Zealand market (Morningstar, 2013; National Research and Evaluation Unit, 2013; Nefdt, 2013).

Consistent with its economic significance, in 2011 the government established a regulator (Financial Markets Authority) via the Financial Markets Authority Act 2011 for the administration, compliance monitoring and enforcement of the KiwiSaver Act 2006 and strengthening of public confidence in New Zealand's financial markets. Recently, the Financial Markets Authority became concerned with auditor independence and disclosures of fees paid to the external auditor in the industry (Financial Markets Authority, 2014a). Thus, it reviewed the disclosure of fees paid to the external auditors of a sample of listed issuers for 2012 balance dates. The review highlighted that disclosure by listed issuers of fees paid to the external auditor are often not in line with the requirements of Financial Reporting Standard 44. Some of the disclosures make it difficult for a user of the financial statements to determine the fees that relate to the audit of the financial statements and those paid for other services, undermining the auditor independence in the industry (Financial Markets Authority, 2014a). These findings form the basis of the motivation for this thesis.

1.3 Objectives and research questions

This thesis objective is to improve our understanding of how audit fees are determined and examine whether the key audit fee determinants identified by prior audit research prove to be relevant in determining the amount of audit fees in the New Zealand KiwiSaver industry.

To date, the literature on the determinants of audit fees in the pension plan is less developed with only a one study in 1997 and 1999 by Cullinan and recently by Arnold et al.'s (2014) of the United States and the Australian based study. I contribute to addressing this scarcity of economics of auditing effort on the pension market by providing new evidence outside of the United States and Australian context. Using a maximum sample of 123 KiwiSavers for the years 2011 to 2013, I adapt the Cullinan (1997) and Arnold et al. (2014) audit fees models and include explanatory variables to capture possible effects between the KiwiSaver characteristics, audit market factors, non-audit services and board characteristics and audit

fees, to consider several research questions to better understand the assurance of the KiwiSaver industry. The thesis seeks to do this in four ways.

First, the study investigates the determinants of audit fees in the New Zealand KiwiSaver industry. The research setting is interesting with an infant industry with phenomenal asset growth rate, the presence of a young regulator in an audit market dominated by the Big Four (Griffin, Lont, & Sun, 2009). This provides evidence of strong incentives for the demand and supply of high quality specialty audits. I expect that as the KiwiSaver grows bigger and becomes more complex, the more difficult it is to audit and more time consuming the audit is likely to be, which leads to higher audit fees. Consistent with this expectation, I introduce a new risk and complexity variable, LnGROWTHFUNDS, which represents the growth in asset size of the KiwiSaver high risk investment category.

Second, I examine whether audit market factors (measured by Big Four and first year audit) earn audit fee premiums in the industry. I expect the Big Four to dominate the KiwiSaver industry (Griffin et al., 2009). In contrast, in the United States defined benefit pension plans (DBPs) and Australian Self-managed superannuation funds (SMSFs) audit markets the Big Four (then the Big Six) and the industry leading auditors have a much lower market share. The study is expected to find that there is no relationship between audit market factors and audit fees.

Third, the study investigates the impact of the auditor-client relationship on audit pricing and addresses the Financial Markets Authority concern with auditor independence in the industry. Prior pension plan studies were not able to test this relationship because of data availability. However, in New Zealand, effective on July 2011, the Companies Act 1993 and Financial Reporting Standard 44 require separate disclosure of audit fees and non-audit services fees, thus enabling the study to test this relationship and provide insights into auditor independence. In addition, in New Zealand there is no ban or limit on non-audit services provided by the auditor unlike in other settings, for example the United States, where such services are restricted by law. Thus, New Zealand provides an interesting context to study the merits and costs of the joint supply of audit and non-audit services (Knechel, Sharma, & Sharma, 2012). The study is expected to find that the non-audit services fee is positively related to audit fees in the KiwiSaver industry.

Fourth, the study examines the impact of the KiwiSaver board governance on audit fees. This relationship was not able to be tested by the prior pension plan studies because of data

availability. In addition, other prior research reported excluding this industry from their samples, because of its uniqueness and complexities (DeFond, Francis, & Wong, 2000; Francis, 1984) . However, in New Zealand the KiwiSaver Act and Superannuation Schemes Act require the KiwiSaver scheme to produce an annual report including audited accounts and membership details and lodge an annual statistical return with the regulator (Financial Markets Authority) and distribute it to scheme members of public offer schemes (retail). In addition, the KiwiSaver Amendment Act 2011 made a number of changes to the governance structure of the KiwiSaver schemes that came into law on October 2012. This study is expected to find that this new legal requirement will influence the audit fees.

The New Zealand pension plan presents a multi-tiered agency setting in which the impact of governance practices on audit fees can be analysed to produce important new insights into how these substantial and valuable assets are being managed. In addition, prior research noted that with pension plans, corporation external mechanisms to reconcile the interest of shareholders and managers are limited or unavailable because they are governed by a trust structure, thereby vulnerable to the principal-agent problem and moral hazard problem. Hence a strong, competent and motivated trustee plays an essential role in mitigating the agency problems.

With total asset in excess of \$16.56 billion, KiwiSaver savings are invested in the economy in a multitude of ways, supporting economic activity and jobs, a clear indication that KiwiSaver is an important facet of the New Zealand financial markets and people lives and it will significantly grow over time as it mature. This increases the significance of this study tests to find an association between audit fee and pension plan governance, and ensuring that the New Zealanders' life savings are well managed and protected. The study takes a 'demand side' theory view that the board with stronger control and governance environment will demand higher audit quality services, thus more audit effort is required and higher audit fees result. Consistent with this expectation, I introduce a new governance variable, PROFTRUST, which represents the KiwiSaver board skills and expertise.

1.4 Summary of major findings and contributions

I observe the following research findings. First, I find that the KiwiSaver characteristics (size, risk and complexity) are associated with audit fees. This supports the study expectation that when the KiwiSaver is growing larger and becoming more complex, the audit fee is higher. Second, I find that the audit market factors (measured by Big Four and first year audit) have

no effect on audit fees in the industry, despite the Big Four firms having a much higher share in the KiwiSaver audit market. This supports the study expectation of no relationship between audit market factors and audit fees and the Big Four not earning premium on the industry.

Third, I find that a non-audit services fee is not a significant factor in determination of audit fees in the KiwiSaver industry. This suggests that the industry has no problem with auditor independence and ‘knowledge spill-over’. Thus, does not support the study expectation.

Fourth, I find that board independence evidence does not support either the ‘demand-side’ or the ‘supply-side’ arguments that a higher proportion of independent directors in the board demands better audit quality and that auditors view a high percentage of independent directors as a factor that can reduce their audit risk. However, I find evidence that skilful and expert boards demand higher audit quality services, despite KiwiSaver’s smaller board size. This supports the study expectation that the KiwiSaver board governance is associated with audit fees.

In summary, this thesis provides several contributions to the literature. First, it documents the first audit fee determinant research on the New Zealand KiwiSaver industry. Second, it provides new evidence about the pension audit market outside of the United States and the Australian sample context, by directly investigating the determinants of audit fees, audit market factors, non-audit services and board governance in the pension plan market, using the New Zealand’s KiwiSaver context. Third, it builds on the prior pension plan audit pricing literature (Cullinan, 1997; Arnold et al., 2014) by supplementing controls likely to impact audit fees in the New Zealand pension industry with additional explanatory variables, including investments in the KiwiSaver high risk funds category (LnGROWTHFUNDS), and pension plans managed by a professional trustee (PROFTRUST), representing the KiwiSaver board skills and expertise.

1.5 Structure of the thesis

The remainder of this thesis is structured as follows. Chapter 2 provides a brief overview of the KiwiSaver industry in New Zealand and its agency problems. Chapter 3 reviews the empirical and theoretical literature on audit pricing but focuses mainly on pension plan audit fee literature, and Chapter 4 outlines the research method applied in this study. Chapter 5 provides the empirical results and discussions. Chapter 6 summarises the key findings, and discusses the potential contributions and limitations of the research design along with

possible avenues for future research and recommendations to the KiwiSaver regulator for consideration.

Chapter 2

Institutional Setting and Theory

2.1 Introduction

This chapter provides a brief overview of the New Zealand KiwiSaver industry and its agency problems.

2.2 New Zealand retirement saving system: Hybrid Pillar 2-3

Retirement income policy is one of the critical social policies that a country must have and has been advocated by the International Monetary Fund and World Bank. Its primary objectives are to prevent old age financial hardship and assist workers to save towards retirement given the growth ageing population. Most countries, including New Zealand (Marriot, 2010), pursue this through pension plans. Since 1990s, the World Bank (1994) has been promoting the three-pillar pension system across the world. The model separates the major objectives of social security into three pillars, each with its own source of funding. The three pillars are state provision (Pillar 1), compulsory occupational schemes (Pillar 2) and private voluntary savings (Pillar 3) through private financial markets

New Zealand has adopted a unique approach among Organisation for Economic Co-operation and Development (OECD) countries to the policy issue of retirement savings and its associated taxation. The two primary differences are the absence of any compulsion and few tax incentives to encourage retirement savings. The combination of these two factors has resulted in low participation in traditional retirement savings vehicles in New Zealand and overall low levels of household savings, when compared to other OECD countries in the last two decades (Marriot, 2010).

New Zealand's retirement policy is based primarily on a basic state pension (New Zealand Superannuation) paid from general revenue (Pillar 1) and voluntary private savings with a 'soft-compulsion' mechanisms (Pillar 2-3). Individuals are automatically enrolled on starting new employment, although they can opt out or take contributions holidays ('soft compulsion'). Thus, the KiwiSaver is a hybrid pillars two-three schemes in that new employees are automatically enrolled but can opt out. If they do not opt out, both employees

and employers are compel to contribute (Pillar 2) with employees having the option of making contributions above the mandatory rate (Pillar 3) (Guest, 2013; Marriot, 2010).

2.2.1 *Pillar 1: New Zealand Superannuation*

New Zealand Superannuation is a simple, universal pension paid to all who qualify on age and residency criteria. Its dates back to 1893 when the state started providing an ‘age benefit’ for people aged 65 or older who had good moral character and sober habits. Since that time, the scheme has undergone many changes (Marriot, 2010).

Objective

New Zealand Superannuation is designed to provide a basic but adequate standard of living to alleviate poverty and hardship in old age (Maxwell, 2013; Ministry of Social Development, 2013).

Eligibility and coverage

Focussing on poverty alleviation of the elderly, the New Zealand Superannuation entitlements are determined based on age (over 65 years) and residency criteria, irrespective of an individual’s history of earnings (Ministry of Social Development, 2013).

Funding

New Zealand Superannuation is currently funded on a ‘Pay As You Go’ (PAYGO) basis and paid from government general revenue.

Final remarks

While the provision of retirement income has evolved dramatically over the past one hundred years, the New Zealand Superannuation today still serves its objective as a social safety net for needy elderly.

2.2.2 *Hybrid Pillar 2-3: The KiwiSaver*

The KiwiSaver is a voluntary, defined contribution work-based savings initiative to help New Zealanders with their long-term saving for retirement (Financial Markets Authority, 2014b; National Research and Evaluation Unit, 2013).

Objective

The KiwiSaver goals are to improve the financial position of New Zealanders in retirement, increase aggregate private saving in New Zealand, and reduce New Zealand's reliance on external debt (O'Connell, 2009; Ramsey, 2008; Treasury, 2014).

Eligibility and coverage

The KiwiSaver is open to all New Zealanders, and people living in, and entitled to live in, New Zealand permanently, who are under the age of 65. Thus, employees, who are visiting New Zealand and live elsewhere or hold temporary, visitor or student work permits, cannot join the KiwiSaver.

Funding

The KiwiSaver is funded by a mix of employees and employer contributions plus government subsidies. Currently, KiwiSaver is funded with compulsory minimum contribution of 3 percent for both employee and employer of gross salary/wages plus \$1,000 kick-start by the government into a new account when first joining.

Benefits

A member's final KiwiSaver Account balance depends on the length of membership, the size of contributions made, investment returns (or loss) less any withdrawals, fees and taxes.

Final remarks

The KiwiSaver has transformed savings in New Zealand. It started on 1 July 2007, and at the end of June 2013 had over 2.09 million members and \$16.56 billion total assets (Financial Markets Authority, 2014b; O'Connell, 2009). KiwiSaver is the world's first national auto-enrolment savings scheme, sometimes called 'soft compulsion' and is fast becoming the predominant vehicle for retirement saving in New Zealand (O'Connell, 2009). The uptake by New Zealanders in KiwiSaver has far exceeded initial projections. Its reach is wide and extends to those who have not previously invested for their retirement or even invested per se (Ministry of Economic Development, 2010). The main attractions of the KiwiSaver are choosing the level of contribution; receiving the government kick-start payments and annual member tax credits; the ability to take a contributions holiday; use of savings to buy a home; being able to choose between scheme providers and different fund investment mandates; and the ability to opt out.

For detailed information, refer Appendix A, which documents the KiwiSaver key features and designs.

2.3 Types of KiwiSaver scheme

A KiwiSaver scheme is one where individual savings are invested. KiwiSaver schemes fall into three distinct types: default, retail and restricted.

- **Default** schemes. These are schemes that new members are automatically enrolled into if they do not actively choose their own KiwiSaver scheme. The default scheme providers are appointed by the Government for a term of seven years. There were six default scheme providers by June 2013.
- **Retail** schemes open to members of the public.
- **Restricted** schemes for specific groups of people either employed in the same company or industry, or another defined group.

2.4 Types of investment

KiwiSaver schemes may offer several types of investment funds that range from conservative risk to higher risk funds. There are five types of funds that members may choose to invest in: defensive, conservative, balanced, growth or aggressive.

- **Defensive funds** are the most conservative type of fund (mainly cash and fixed interest only). This is a low risk option.
- **Conservative funds** are another low risk option. The KiwiSaver default schemes are conservative funds. Usually, about 10-35 percent of the fund is in higher risk (growth) assets such as shares and property.
- **Balanced funds** are split more evenly between growth assets (35-63%) such as shares and property, and lower risk investments including bank deposits and fixed investments. This is a medium risk option.
- **Growth funds** are for the longer term investor intending to leave their money in KiwiSaver for at least 10 years. Growth assets will make up 63-90 percent of the investment. This is a medium to high risk option.
- **Aggressive funds** are invested mainly in growth assets (over 90%). They are aiming for strong long term growth but there will be ups and downs along the way. This is the highest risk option.

2.5 Major players in the KiwiSaver industry

2.5.1 *KiwiSaver scheme provider*

A KiwiSaver scheme provider (KSP) is the organisation that offers the KiwiSaver scheme and is responsible for managing member savings in the scheme. Once an individual has joined the KiwiSaver, their primary relationship is with their KSPs.

KSP perform all of the usual functions of a superannuation scheme provider and/or administrator. The major difference between the KiwiSaver and other superannuation schemes is that Inland Revenue administers the collection of the KiwiSaver contributions from the employer through the 'pay as you earn' (PAYE) tax system.

2.5.2 *Employers*

For most people, KiwiSaver is a work-based savings plan, so employers play an important role, especially in deducting the KiwiSaver contributions from employee's gross salary or wages and making a compulsory employer contribution to their employee's KiwiSaver account or complying fund.

2.5.3 *New Zealand Government*

Under the KiwiSaver initiative, the Government provides various subsidies as incentives to encourage New Zealanders to opt into the KiwiSaver saving plan and provides a regulator to oversee the industry.

2.5.4 *Inland Revenue Department*

The Inland Revenue's main responsibilities under the KiwiSaver are to receive member and employer contributions and transfer these to the right KSPs and allocate people who do not make a choice to default schemes.

2.5.5 *Financial Markets Authority: The regulator*

Financial Markets Authority is responsible for the administration, compliance monitoring and enforcement of the KiwiSaver Act 2006. They supervise the management of registered KiwiSaver schemes and other superannuation schemes. Financial Markets Authority was established in 2011 under the Financial Markets Authority Act 2011.

2.5.6 *Ministry of Business, Innovation and Employment*

The Ministry of Business, Innovation and Employment coordinates the tender process for appointing the default KiwiSaver providers.

2.5.7 *Housing New Zealand Corporation*

Housing New Zealand provided policy advice on the KiwiSaver first home deposit subsidy and is responsible for setting the subsidy's caps for house price and income, and processing first home deposit subsidy applications.

2.5.8 *Commission for Financial Literacy and Retirement Income*

The Commission for Financial Literacy and Retirement Income is associated with KiwiSaver through its financial education programme. The Commission helps New Zealanders prepare for their retirement, by offering free and independent financial information through the Sorted website (www.sorted.org.nz).

2.6 *KiwiSaver governance structure*

2.6.1 *Trust Model*

The KiwiSaver schemes are governed by trust deeds and regulated like other superannuation schemes. KiwiSaver trustee's responsibilities are regulated by the Securities Trustees and Statutory Supervisors Acts 2011 and KiwiSaver Amendment Act 2011. Most superannuation schemes, including KiwiSaver, are run in an identical manner to managed funds. A fund provider sets up a fund with a manager and appoints a trustee to act as a supervisor. It is the trustees who have, in law, the authority to decide how members' funds are invested. Restricted KiwiSaver schemes are not currently covered by these Acts.

Different types of KiwiSaver schemes have different trustee requirements. The default KiwiSaver schemes are required to have one of the trustee corporations as the trustee. Non-default and restricted KiwiSaver schemes are required to have an independent trustee. Amongst other things, independence requires that the trustee is not connected with a promoter of the scheme and holds a licence under the Securities Trustees and Statutory Supervisors Act 2011.

Securities trustees and statutory supervisors may be liable for penalties of up to \$200,000 for breaches of their obligations. In addition, securities trustees and statutory supervisors may also be liable to pay compensation to investors arising out of any such breaches.

2.6.2 *KiwiSaver scheme providers as an 'Issuers'*

The KiwiSaver Amendment Act 2011 that came into law on October 2012 made a number of changes to the governance of the KiwiSaver schemes. The changes incentivise fund managers to act in the best interests of investors by making them primarily responsible for the accuracy of their prospectus, investment statement, and advertisements; and require trustees to be responsible for supervising managers and ensuring they comply with trust deeds and their other responsibilities. Thus, KSP is the issuer and not the trustee under the new legal requirements with various obligations. Primarily, these obligations are for management and administration of the KiwiSaver, including responsibility for the preparation and issue of the KiwiSaver's financial statements and annual report.

Prospectus

A prospectus contains information about the securities being offered, the terms of the offer, and information about the issuer and any promoters. Prospectuses must be signed by the issuer's directors, and each promoter (including the directors of a promoter, if it is a company). By doing so, the directors and promoters take responsibility for the content of the prospectus. Thus, if a prospectus or advertisement does contain an untrue statement, issuers and their directors, and promoters can have civil and criminal liability.

Once a prospectus (or amendment to a prospectus) is registered, issuers must update their website to let the public know the prospectus (or an amendment) has been registered, provide the Registrar of Financial Service Providers (via the Companies Office) with certain information for the register of securities offers, and notify the Registrar when there is any change to that information.

Financial Reporting Act 1993

The Financial Reporting Act requires issuers to prepare and register audited financial statements each year. An issuer's financial statements must comply with generally accepted accounting practice, being financial reporting standards approved by the Accounting Standards Review Board.

2.7 Agency problem in the pension plans industry

With pension plans, the contributors are the investors, principals and beneficiaries of the funds. They do not have control over how the fund is structured and managed or how and where their contributions are invested. Instead, contributors engage (through a trust deed) a trustee to manage the pension plan assets. Therefore, the trustee becomes the legal owner of the assets acquired using the moneys invested by the contributors. The trustee can, but need not, contract out management of the fund to an investment manager or KiwiSaver scheme providers. The contributors rely on the trustees and fund managers to safeguard their assets and require that the trustee is capable of making good investment decisions and acting in their best interest. Contributors, therefore, depend on legislation that binds trustees to honour the fiduciary duty that, by law, is owed to them (Benson, Hutchinson, & Sriram, 2011; Drew & Stanford, 2003).

Benson et al. (2011) state that there are two agency relationships (through contractual agreements) in the Australian superannuation plan. The first relationship is between the members and the trustees; the second is between the trustees and the fund managers who make the investment decisions for the superannuation funds. However, the New Zealand pension plans (KiwiSaver) seems to have more layers of agency relationships than those identified by Benson et al. (2011), particularly when taking into consideration the presence of KSPs and professional trustee boards. This is consistent with Nguyen, Tan and Cam (2012) argument for the Australian corporate fund and Clark and Urwin's (2008) findings on pension funds in the United Kingdom.

Figure 2.1 below reports the agency problems in the New Zealand pension plans (KiwiSaver). The agency problems may arise between committees, trustees, KSPs, asset consultants, fund managers and members. For instance, members desire high return and lowest cost, while asset consultants and fund managers might want to maximise their consulting and management fees. The natural trustees, who are nominated directly by employer and employee, are guardians of members' interest; the issue of agency cost may still arise if the trustees or committee members have personal and political interests. When the interest of committee members, trustees, asset consultants and fund managers are not aligned with members' interests, agency cost will increase leading to higher fees and lower return. Drew and Stanford (2003) suggest that the agency problems in pension plans may

result in lower returns, higher costs and the scope for unethical behaviour including mismanagement and fraud.

While there is no separation of ownership and control in the legal sense (for example, under the trust structure, trustees have both control and legal ownership of pension plan's assets, even though the members are beneficiaries of the assets), multiple principal-agents still exist, and it is important to identify who bears the risk. In DCP like the KiwiSaver, fund members bear all the investment risk, but they are typically heavily dispersed and often disengaged. Hence a strong, competent and motivated trustee plays an essential role in mitigating the agency problems. Furthermore, since the external governance is generally too weak to be effective for pension plans, internal governance, especially the trustee, hold more importance in the governance system of pensions funds than that in the corporate sector (Clark & Urwin, 2008; Jackowicz & Kowalewski, 2012).

Literature notes that the nature of the principal-agent problems is more severe in DCP, by far the most common type of superannuation funds in Australia and the New Zealand KiwiSaver schemes. In these funds, decisions are made by trustees but they are required to act in the interests of the beneficiaries (Clark & Urwin, 2008; Drew & Stanford, 2003; Nguyen et al., 2012). This increases the significance of this study's test to find an association between audit fees and pension plan governance, and ensuring that the New Zealanders' life savings are well managed and protected.

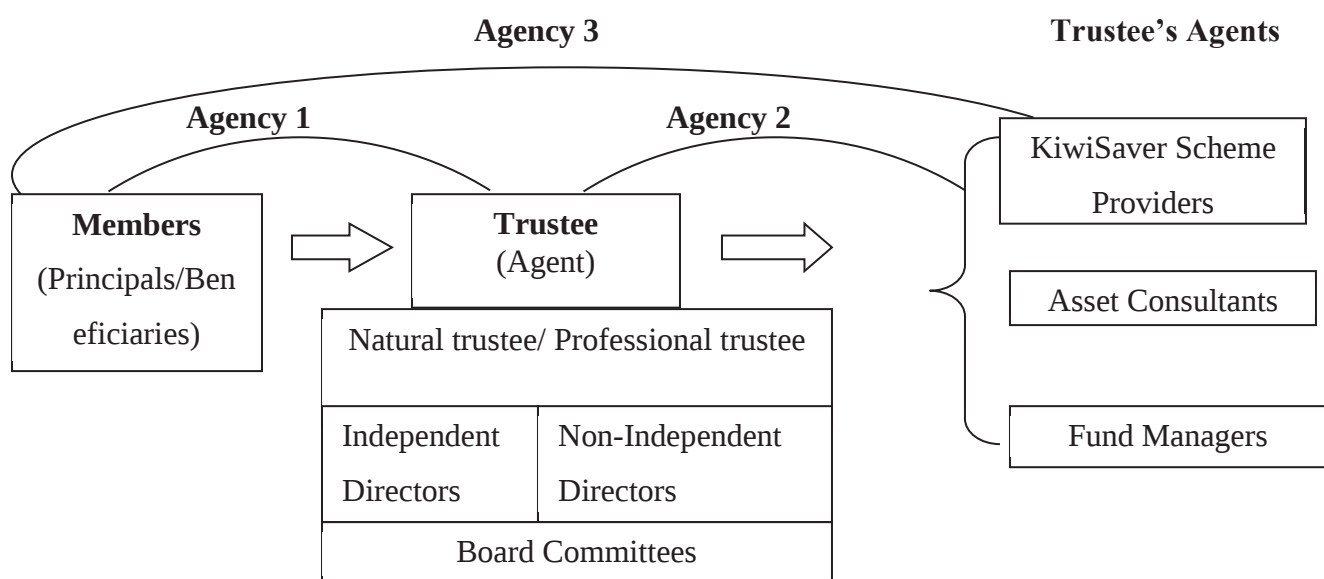


Figure 2.1 Agency Problems in the New Zealand KiwiSaver

2.9 Agency theory

Agency theory is based on the proposition that there is a separation between ownership and control. The separation of ownership and control has been regarded as the essence of the agency problem according to the contractual view of the firm (Fama & Jensen, 1983; Jensen & Meckling, 1976). The agency problem arises from an agency omnipresent relationship, which was defined by Jensen and Meckling (1976) as a type of contract in which principals, who supply capital, delegate decision making authority to agents, who perform services on behalf of the principals. Since the agents are not the primary claimants of the firm's net assets, and thus do not bear a major share of the wealth effects of their decisions, this creates moral hazard such as insufficient effort, extravagant investments, entrenchment strategies, and self-dealing. The theory assumes that the interests of the agents are not necessarily those of the principals. Given the decision making power of the agents, they may pursue their own interest at the expense of the principals.

The conflicts of interest, arising from the separation of ownership and control, create agency costs. They are defined by Jensen and Meckling (1976) as the sum of monitoring costs, bonding costs, and residual loss. Agency costs are compounded by the problems of incomplete contracting (i.e. hidden action) and information asymmetry (i.e. hidden information) between the principal and agent, as well as dispersed ownership. These agency costs impair firm performance and can be seen as the value loss to the principals. To address the agency problems and reduce agency costs, agency theory literature identifies number of mechanisms which aim to induce the agents to act in the best interest of their principals.

These mechanisms can be internal and/or external to the company. The mechanisms that are internal to the company include: insider ownership, board independence, board size, board diversity, board committees, leverage, and dividends. The mechanisms that are external to the company include block ownership, institutional ownership, market for corporate control, product market competition, labour market competition and legislation (Barnhart & Rosenstein, 1998; Byrd, Parrino, & Pritsch, 1998; Demsetz & Lehn, 1985; Gedajlovic & Shapiro, 1998).

2.10 Summary

The New Zealand KiwiSaver presents an interesting (multi-tiered) agency setting in which the impact of governance practices on audit fees can be analysed to produce important new

insights into how these substantial and valuable assets are being managed. Moreover, in DCP, fund members bear all the investment risk, but they are typically heavily dispersed and often disengaged. Prior research noted that with pension plans, corporation external mechanisms to reconcile the interest of shareholders and managers are limited or unavailable because they are governed by a trust structure, thereby vulnerable to the principal-agent problem and moral hazard problem. Hence a strong, competent and motivated trustee plays an essential role in mitigating the agency problems.

With total asset in excess of \$16.56 billion and 2.09 million membership, KiwiSaver savings are invested in the economy in a multitude of ways, supporting economic activity and jobs, a clear indication that KiwiSaver is an important facet of the New Zealand financial markets and people lives and it will significantly grow over time as it mature. This increases the significance of this study tests to find an association between audit fee and KiwiSaver governance, and ensuring that the New Zealanders' life savings are well managed and protected.

Chapter 3

Prior research and Hypotheses development

3.1 Introduction

This chapter provides a literature review on audit pricing but focuses mainly on pension plan audit fee literature.

3.2 Audit pricing prior research

The work of Simunic (1980) is the primary foundation for most of the subsequent research on audit fee determinants. In the Simunic model the audit fee is a price for audit services and reflects the demand and supply functions. Simunic develops an audit fee model using ordinary least square (OLS) regression as a function of client attributes (size, risk and complexity) and auditor attributes. Auditee size is the most important determinant (Simunic, 1980).

Over the last three decades there have been hundreds of attempts at modelling external audit fees. These studies have been extensive reviews by various authors (Cobbin, 2002; Hay, 2013; Hay et al., 2006). Thus, it is not the aim of the current study to provide a comprehensive review of the audit fee literature but to focus mainly on pension plan audit fees literature and the variables relevant to this study.

Hay et al. (2006) performed a meta-analysis examining the accumulated effect of the drivers of audit fees identified in prior studies. It confirms that well-established variables for size, risk and complexity are related to audit fees. They concluded with a call for further research on five topics: (1) How different forms of ownership (for example, types of dominant shareholders, such as parent/subsidiary relationships versus family-run businesses) and local institutional structures (for example, financing arrangements, tax laws) affect audit fees; (2) How more refined measures of internal control could be used in fees; (3) How a firm's governance and the regulatory requirement affect audit fees; (4) How audit quality is demanded and paid for by stakeholders; and (5) How non-audit services and audit fees are related.

This study is motivated by the Hay et al. (2006) call for more research on audit fees determinants: (1) form of ownership of an auditee, (3) governance and regulation, and (5)

non-audit services. This thesis addresses these three areas; specifically I examine the impact of New Zealand pension plan characteristics, audit market factors, non-audit services and board characteristics on audit fees.

3.3 Pension plan audit pricing prior research

There has been little prior research devoted to audit pricing in the pension industry (Arnold et al., 2014). The main exception is Cullinan (1997, 1999) and Arnold et al. (2014). They investigate audit fees in the context of the United States DBP and Australian SMSFs.

3.3.1 Audit pricing in the pension plan audit market, Cullinan (1997)

Cullinan notes that the pension plan in the United States market is surprisingly not dominated by Big Six accounting firms compared to other industries. Cullinan identifies the presence of active and aggressive regulators (sanctions imposed directly against pension plan administrators) and referrals of auditors to disciplinary authorities. This provides evidence of strong incentives for the demand and supply of high-quality specialty audits.

The audit fee model applied to pension plan market

Cullinan discusses four main categories of variables that have been shown to influence audit fees in the non-pension sector: size, risk and complexity, opinion type and audit market factors. He then addressed the way these factors would operate in the pension plan context.

Size

Size is one factor that is consistently shown to influence audit fees. The rationale is that larger auditees will require more time and other resources to audit, resulting in a higher audit fee. Thus, the larger the pension plan (measured by total assets) the higher the audit fee.

However, certain pension plan activities may require additional audit effort but may not be sufficiently represented by the total assets (size) measure. Three additional size measures are introduced: contributions, number of participants and asset sales. Total assets do not capture the contribution activity, because two pension plans of the same size may have differing levels of contributions. Similarly, number of participants could vary in pension plans of similar size. Thus, more contributions and greater number of participants in a pension plan will increase the audit fee. The effect of plan size was removed from the contributions and number of participants by scaling by total assets.

Asset sales activity may not be sufficiently represented in total assets, because asset sales may vary among pension plans of similar size. Some pension plans may employ a buy and hold strategy, while others may be more frequent traders. Thus, asset turnover ratio, calculated as the proceeds from the sale of assets divided by average assets, was introduced. Greater turnover indicates more asset sales, which require time to audit. Therefore, the audit fee is expected to be positively correlated with turnover ratio.

Risk and complexity

In addition to size, 'risk and complexity' is another factor that is consistently shown to influence audit fees. Prior research suggested that audit fees are positively associated with inherent risk in an engagement because certain parts of the audit may have a higher risk of error and require specialized audit procedures (Simunic, 1980). The rationale is that risky and complex transactions may influence audit fees because the auditor spends more time and other resources auditing risky clients. Alternatively, auditors may charge a higher fee per hour to compensate for the additional risk assumed. Thus, the more complex and risky the pension plan, the more difficult it is to audit and more time consuming the audit is likely to be.

Cullinan notes that the two metrics that are commonly used to represent inherent risk are inventory and accounts receivable. The rationale is that the higher dollar values of these accounts (relative to firm size), the greater the amount of time being spent on the audit, resulting in a higher audit fee. Results in the literature support this relationship. Unfortunately these measures are not applicable in the pension context because of their insignificant size. Thus, Cullinan introduced four additional risk and complexity measures: 'hard-to-audit' assets, legal fees, trust deed amendments and unionised plan.

Pension plans have invested in assets for which a market value is more difficult to obtain and more subjective, such as joint ventures and real estate assets ('hard-to-audit' assets). Hard-to-audit asset (relative to total asset) was used to measure pension plan risk. In addition, Cullinan notes that the pension plan industry is highly regulated with complex transactions and structures which require legal assistance to ensure compliance. These complex transactions are more susceptible to misstatement, thus increasing inherent risk and lead to increase in audit fee. Thus, the legal fee (relative to total asset) was used as a measure of risk and complexity of pension plan transactions.

Trust deed amendment was used as another measure of ‘risk and complexity’. Amendment might include changes to benefits and/or eligibility requirements. Thus, misstatements are more likely to arise during a transition period than during other periods, increasing inherent risk, and therefore audit fees, when plan changes are made. In addition, many pension plans are established as a result of a collective bargaining contract between the sponsoring firm’s management and trade union. The union’s goals are often different from those of the employers funding the plan. This separation and the potentially divergent interests may increase the probability of errors arising, as information and funds are passed from the employer to the union controlled pension plan. This increased probability of errors could affect the cost of the audit and the audit fee. Therefore, it is expected that collectively bargained union pension plans audit fees are expected to be higher than other plans.

In addition to audit risk, is the risk that the auditor will suffer loss or injury to his professional practice from litigation, adverse publicity, or other events arising in connection with financial statements he audited require by the professional auditing standards (‘client financial risk’). Researchers have measured this risk using variable associated with the probability of the client experiencing difficulty. Thus Cullinan introduce the level of the pension plan funding as its measurement. The rationale is that under-funded pension plans, in which the actuarial liabilities exceed the plan assets, are more susceptible to financial difficulty than fully-funded pension plans. Funding is measured as the ratio of plan assets to the pension plan actuarial liabilities. Lower funding ratios indicate greater client financial risk, resulting in a higher audit fee. As a result of the inclusion of this variable, Cullinan excluded all the United States DCPs from his sample.

Audit opinion

Cullinan notes that type of audit opinion influences the audit fee charged to a client. The rationale is that an audit opinion qualification increases time spent resolving and documenting the misstatement, and the time spent attempting to convince the client to modify the financial statements. Thus, qualified opinion is more costly than an audit resulting in an unqualified opinion, resulting in a higher audit fee.

Audit market factors

Cullinan notes previous research has mixed or non-significant differences in audit fees between the Big Four (then the Big Six) and smaller firms. In addition, if market forces were the primary influence on audit fees of newly-accepted audit clients, one would expect the

competitive process to result in lower fees on initial audit engagements. Alternatively, if a cost-based pricing approach were used, the audit fee would be expected to be higher for first-time audits. Thus, Cullinan concluded that given the divergent and the different potential interpretations of 'Big Six' effects and 'auditor change', no directional prediction was made for either variable.

With the revised audit model, Cullinan (1997) selected a sample of 1,110 multi-employer DBPs for United States firms with at least 100 employees using a sample from 1991.

Cullinan's descriptive evidence was consistent with the expectation that non-Big Six would have a sizeable presence in this sector, with only a 10 percent client share by Big Six. The average pension plan audit fee is smaller than those of non-pension audit fee studies. Further, the audit fee as a percentage of total assets is 0.02 percent indicates that audits in the pension audit market are less costly per dollar of assets than in other audit markets.

In relation to pension plan unique variables, the mean plan contributions are \$3,725,704, which represents 3.7 percent of plan assets. Legal fees average of \$47,839, while the mean hard-to-audit asset is \$2,297,747, which is 2.2 percent of total assets. The mean plan has 4,830 participants and a portfolio turnover of 62.38 percent. The mean funding level is 133.49 percent, indicating that the mean plan in the sample has adequate funding. The study noted that most of the pension plans are unionised (94.10 percent) and 89.5 percent amended their pension plan requirements during the year.

Cullinan found that larger and more active pension plans paid higher audit fees, and audit opinion qualifications resulted in higher audit fees, consistent with previous research. Similarly, audit fees were higher for pension plans with greater risk. Contrary to previous research, the Big Six firms had only a small share of the pension audit market, and the Big Six status of the auditor did not influence the audit fee charged. A change in auditors was also not found to influence the level of audit fee.

The author concluded that results indicate that the audit fee model has applicability in the pension audit context with regard to client characteristics. With respect to factors associated with the audit market, results indicated that audit market factors have different results in the pension market from other markets.

3.3.2 *Evidence of non-Big Six market specialisation and pricing power in a niche assurance service market, Cullinan (1999)*

Based on Cullinan's previous study background (1997) and the Big Six 10 percent share on pension plan audit market findings, Cullinan extends his work to test the Elliott and Pallais (1997) argument that small firms can compete with Big Six firms nationally without price reductions. He hypothesizes that there is a positive relationship between the number of an auditing firm's pension plan audit clients and the audit fees charged. He selected a sample of 993 multi-employers DBPs, using a sample from 1993. He found from testing the relationship between auditor expertise (based on the number of plans audited) and audit fees, that the control variables are broadly consistent with his previous study findings.

However, the results from examining the influence of individual audit firms on the relationship between pension audit expertise and audit fees indicate that the Big Six do not obtain fee premiums over non-Big Six firms for assurance services in the multi-employer pension market. This result was somewhat surprising compared to previous audit market studies, that Big Six firms are likely to have the expertise to conduct pension audits due to their size. Cullinan explained that one possible reason for this finding may relate to the unique nature of the multi-employer pension audit market and potentially divergent interests between the union and the funding employers. From a union perspective, shareholders and management represent interests potentially in conflict with the union. As such, union officials who administer pension plans may associate the larger Certified Public Accountants firms with the shareholders and managements of their members' employers and be reluctant to hire such firms to audit the union pension plans. This reluctance may help to explain both the small market share and lack of fee premiums for Big Six firms in the pension audit context.

He concluded that results indicate that non-Big Six firms have a dominant market position in the multi-employer pension audit context. In addition, those smaller audit firms which develop niche-specific expertise in the pension audit market are able to charge higher fees than either Big Six firms or other smaller firms without a large market share. Thus, this supported the Elliott and Pallais (1997) arguments that new assurance services can be priced based on the value to the purchasers of the assurance services.

Contributions

Both Cullinan studies contribute with the extension of the Simunic model to the pension plan audit market. This contribution was acknowledged by Brownlow (1998) and Lindsay (1998) when reviewing the Cullinan (1998) paper and acknowledged the robustness of the model.

Limitations

Both Cullinan studies acknowledged that the overall predictability of audit fees appears to be lower in the pension market than in the public company market. The adjusted R^2 of .39 for the 1997 study and .43 for the 1999 study, are below the adjusted R^2 of many other audit fee models R^2 of .79. In addition, the variable used to measure the audit fee may include non-audit related fees and may contain a degree of measurement error.

Cullinan presented four reasons for surprisingly low adjusted R^2 results. Firstly, the audit fees of clients that are established, publicly-traded firms may be more predictable than those of other audit clients. Secondly, may be the difference is between audits of entities engaged primarily in financial activities and those in more traditional industries such as manufacturing. Thirdly, the scarcity of Big Six auditors in the sample may also indicate that non-Big Six firms' audit fees are less predictable than audit fees of markets in which Big Six firms predominate. Lastly, the variable measuring audit fee may include some non-audit services fees.

These limitations were noted by Brownlow (1998) and Lindsay (1998) and suggested that more attention is needed on model specification and structural analysis. But, they encourage the author to continue pursuing his work in the pension plan context.

3.3.3 *Understanding assurance in the Australian self-managed superannuation fund industry, Arnold et al. (2014)*

Arnold et al. notes that the Australian SMSF segment is the fastest growing and largest sector of the \$1.75 trillion Australian retirement savings industry. In addition, the Government commissioned report (Cooper Report) highlights, amongst its findings, a lack of basic knowledge and understanding of the SMSF segment and its auditors, in a well-defined but highly regulated industry. They note that traditional agency cost issues associated with publically listed companies are not present, since owners of SMSFs are effectively the managers. This suggests that price considerations will dominate quality considerations as reputation effects will matter little in the demand for SMSFs audits and hence the SMSF

trustee has incentives to seek the lowest priced audit, an ideal setting for which to test economies of scale auditing as proposed by Simunic (1980).

Arnold et al. (2014) examines whether industry specialist auditors earn fee premiums in the SMSFs segment in Australia, using a sample of 99,668 SMSFs over the years 2008-2010. They also examine whether registered company auditors and members of professional bodies, who are required to comply with auditing and ethical standards, receive a fee premium for perceived higher quality audits than auditors who do not enforce auditing and ethical standards. Further, they investigate the impact of the supply of non-audit services (NAS) on auditor independence. They follow Simunic's and Cullinan's (1999) models to test their hypothesis and also introduce additional variables unique to Australia's SMSFs industry.

They find evidence of fee discounting for the leading suppliers of SMSFs audits consistent with Simunic's (1980) assertion of competition in the small client segment. They also find evidence of audit fee premiums for auditors with higher quality professional affiliations that are required to comply with auditing and ethical standards. Further, they find the supply of NAS promotes propensity to qualify and report breaches to the regulator (Australian Taxation Office). Lastly, they find that leading firms (defined by market share) earn significant fee premiums when the dependent variable is re-defined to non-audit fees in additional testing.

They concluded that large suppliers are passing on the benefits of scale economies. Further, supply of NAS actually improves the auditors' ability to report breaches. This may be due to enhanced client understanding, derived from knowledge spill-over gained in the joint supply of audit and NAS, whilst posing no independent threat. In addition, auditors in this setting appear to be active in applying scale advantages in two ways – providing lower cost audits and using larger client portfolios – as a conduit to supplying higher margin non-audit services. They acknowledged one limitation that their sample period fell within the global financial crisis (GFC).

The Arnold et al. (2014) study provides new audit pricing evidence out of the United States sample context in relation to the pension market. Further, it introduced supplementary controls likely to impact audit fees in an Australian pension industry context, with additional explanatory variables including cash balance, investments in artwork and collectibles, the number of members, the existence of reserve accounts and the presence of assets acquired by related parties.

Consistent with the Cullinan studies, Arnold et al. (2014) have much lower adjusted R^2 of .093. However, they explained that lower adjusted R^2 was due to smaller client size and audit fees.

3.4 Hypothesis development

3.4.1 *Size and ‘risk and complexity’*

Based on Cullinan (1997) and Arnold et al. (2014) I hypothesize that there is a positive relationship between pension plan size and risk and complexity and audit fees.

Hypothesis 1: There is a positive relationship between pension plan size and ‘risk and complexity’ and audit fee.

The current study builds on the Cullinan (1997) and Arnold et al. (2014) models by supplementing controls likely to impact audit fees in a New Zealand pension industry context, with additional explanatory variables by including investments in growth and aggressive funds. This inclusion is based on the expectation that the more complex a client, the more difficult it is to audit, and the more time-consuming the audit is likely to be (Hay et al., 2006). Table 3.1 summarises this study’s size, risk and complexity measures compared to Cullinan (1997) and Arnold et al. (2014).

A major difference between the Cullinan sample and this thesis is that the United States pension plans are typically DBPs. The New Zealand KiwiSaver schemes are mostly DCP. In a DBP, the employer promises employees a specific benefit payable at retirement. To provide that benefit, the employer typically makes payments into a trust fund, funds contributed to the trust grow with investment returns, and eventually the employer withdraws money from the trust fund to pay the promised benefits. Employer contributions are based on actuarial valuations, and the employer bears all of the investment risks and responsibilities. Under a DCP, the employer and worker typically contribute a specified percentage of the worker’s compensation to an individual investment account for the worker. The member bears all of the investment risks and costs. In recent years, DCPs have come to dominate the pension landscape (Forman & Mackenzie, 2013).

I introduce a new risk and complexity variable, LnGROWTHFUNDS, which represents the growth in asset size of KiwiSaver high risk investment category. Hypothetically, the study expects that as KiwiSaver invests in a more diverse and high risk funds, auditors may charge

a higher fee per hour to compensate for the additional risk assumed, and more time and effort is needed to perform the external audit work. A positive coefficient is expected as audit risk increases with increased holdings of growth assets.

3.4.2 *Audit market factors*

Replicating Cullinan (1997), I hypothesize that there is no relationship between audit market factors (measured by Big Four and first year audit) and audit fees.

Hypothesis 2: There is no relationship between the Big Four and first year audit in the pension plan and audit fee.

3.4.3 *Non-audit services*

Prior research shows that the non-audit services fee is strongly significant and positively related to audit fee (Hay, 2013; Hay et al., 2006), thus I hypothesize, there is a positive relationship between pension plan non-audit service fee and audit fee.

Hypothesis 3: There is a positive relationship between pension plan non-audit service fee and audit fee.

As in prior research, the non-audit service fee is measured by the natural log of non-audit service fees and a positive relationship with audit fee is expected. Cullinan (1997, 1999) was not able to test the non-audit services on the United States pension plans because of data availability, audit fees and non-audit fees were not separately disclosed in the financial statements. On the other hand, Arnold et al. (2014) did not focus on the relationship between the two variables but on the impact of providing non-audit services on auditor independence, measured by reporting of breaches to the regulator, as reported in Table 3.1.

The relationship between audit fees and non-audit fees has been examined extensively in the non-pension industry. There are two theoretical arguments that imply that a negative relationship exists between audit fees and non-audit fees. The first is the ‘loss leader’ argument, that a lower-priced audit is used to entice companies to switch to, or stay with, the auditor, so that the auditor can obtain non-audit service fees. This might create a threat to auditor independence. The other argument is known as the ‘knowledge spill-over’ argument. The provision of both audit and non-audit services to clients would result in knowledge spill-

over such that reduction of audit services cost may be achieved. The negative relationship in this case does not necessarily undermine auditor independence (Zhang & Hay, 2013).

In New Zealand there is no ban or limit on non-audit services provided by the auditor. The New Zealand Securities Commission determined through consultation with stakeholders that it was not necessary to introduce regulation restricting non-audit services provided to audit clients (New Zealand Securities Commission, 2004). Supporting this position is the fact that companies in New Zealand rely on the auditor for the provision of many non-audit services because they lack in-house resources (Sharma, Sharma, & Ananthanarayanan, 2011). Sharma et al. (2011) found a more significant component of revenues generated by audit firms in New Zealand than in the United States: an average of 7 percent compared to 2.3 percent in the United States from providing non-audit services.

3.4.4 Governance

The next set of hypotheses (4 to 7) relates to pension plan corporate governance but mainly focuses on the board governance.

Corporate governance refers to the way companies are directed and controlled. A primary concern is the likelihood of a deviation in the objectives of corporate managers from those of shareholders, due to the costs involved in monitoring managerial behaviour. Existing agency theory proposes a series of mechanisms that seek to reconcile the interests of shareholders and managers (Berle & Means, 1932). These include external governance instruments such as takeovers (Manne, 1965), competition in product markets (Hart, 1983), and the managerial labour market (Fama, 1980). The potential for shareholder–manager conflict may also be reduced by the utilization of internal control mechanisms such as monitoring by non-executive directors (Fama & Jensen, 1983), monitoring by large shareholders (Shleifer & Vishny, 1986), and the incentive effects of executive share ownership (Jensen & Meckling, 1976). An additional instrument of shareholder monitoring is the statutory audit whereby independent auditors report annually to shareholders on the appropriateness of the financial statements prepared by management (Watts & Zimmerman, 1983).

Among the important internal corporate governance mechanisms emphasized by previous researchers are board composition (Beasley & Petroni, 2001; O’Sullivan, 2000; Yatim, Kent, & Clarkson, 2006), ownership by directors and outside investors, ownership by financial institution and non-institutional (Mitra, Hossain, & Deis, 2007; O’Sullivan, 2000), and by

CEO/Chairman (O’Sullivan, 2000). These selected internal mechanisms of corporate governance show a significant relationship with audit quality, whether in form of audit size or audit fees.

However, it is interesting to note that prior audit fee studies have excluded financial companies and pension funds from their samples, because of their uniqueness and complexities (DeFond et al., 2000; Francis, 1984). This is supported by the Liu (2013) arguments that these external mechanisms can only work effectively in the corporation context, including publicly listed companies. With pension plans these mechanisms are limited or unavailable because they are governed by a trust structure, thereby vulnerable to the principal-agent problem and moral hazard problem. Prior research highlighted that a pension plan board of directors (trustee), which assumes all the responsibilities and fiduciary duties to act in the members’ best interest, becomes the dominant means that members can rely on for governance purposes (Clark & Urwin, 2008; Jackowicz & Kowalewski, 2012; Liu, 2013). This is similar to public sectors, in which the lack of market control mechanisms means that the most important governance mechanism is the board of directors and its committees (Bradbury, 1999). This increases the significance of the current study tests to find an association between audit fee and pension plan governance.

To the best of my knowledge, Cullinan (1997, 1999) and Arnold et al. (2014) are the only studies that investigate determinants of pension plan audit fees. However, neither study focused on the impact of board governance on audit fee. The current study extends the audit fee determinant and corporate governance literatures with the inclusion of the board characteristics variable in the market niche of the pension plan industry. However, due to data availability, this study focuses mainly on board governance variables relevant to the study. These variables are board independence, CEO duality, board size and professional trustees. Table 3.1 summarises this study’s governance measures compared to Cullinan (1997) and Arnold et al. (2014).

3.4.4.1 Board independence

Prior research shows that the ‘demand-side’ arguments (positive relationship) are theoretically stronger and more convincing than the ‘supply-side’ arguments (negative relationship) (Bliss, 2011; Hay, 2013; Hay et al., 2006; Yatim et al., 2006). ‘Demand side’ theory argues that boards with a higher proportion of board independence significantly

demand higher audit quality services, thus more audit effort is required and higher external audit fees result. On the other hand, ‘supply side’ theory argues that better corporate governance reduces control and inherent risk, and thus will reduce audit effort (Knechel & Willekens, 2006). That is, a stronger control and governance environment is likely to reduce the auditor’s assessment of control risk and the extent of audit procedures, thus reducing audit fees. Thus, I hypothesize, there is a positive relationship between pension plan board independence and audit fee.

Hypothesis 4: There is a positive relationship between pension plan board independence and audit fee.

Board independence is measured by the percentage of outside directors in the board as in prior research. The study expects a significant and positive relationship between board independence and audit fee. Board independence was not included in the previous pension plan literature.

3.4.4.2 CEO duality

CEO duality refers to lack of separation of roles between working as CEO and acting as chairman of the board or being a member of the Board. Prior research shows when individuals occupy both positions, as CEO and chairman, board effectiveness is affected (controlling and monitoring mechanisms) because board independence is impaired, which is a signal poorer governance may lead to auditor assessment of higher inherent and control risk (Fama & Jensen, 1983; Hay et al., 2006). The large scope of audit work, in turn, leads to higher audit fees. While the CEO cannot act as a chair of a board in New Zealand, the presence of the CEO on the board may have an inhibiting effect by reducing the effectiveness of the board and, thus, increasing governance risk (Redmayne, Bradbury, & Cahan, 2011). Thus, I hypothesize, there is positive relationship between CEO duality and audit fee.

Hypothesis 5: There is a positive relationship between pension plan CEO duality and audit fee.

As in prior research, the CEO duality is measured by 1 if the CEO is the chairman or member of the board, 0 otherwise. The study expects a positive and significant association between CEO duality and audit fee. CEO duality was not tested in prior pension plan research.

3.4.4.3 Board size

A recent study by Bliss (2011) provides evidence that the number of directors on the board is positively associated with audit fee pricing. He suggests that audit firms assess firms with larger boards as being more risky and, as such, charge a higher audit fee, *ceteris paribus*. Taking a ‘supply-side’ perspective, it is expected that larger boards of directors will be positively associated with audit fees. That is, it is expected that larger boards will be perceived by audit firms as being associated with more risky clients and transactions requiring greater audit effort to audit such clients. Therefore, I hypothesize, there is a positive relationship between pension plan board size and audit fee.

Hypothesis 6: There is a positive relationship between pension plan board size and audit fee.

Board size is measured by the total number of board members in a board, as in prior research. The study expects a positive and significant relationship between board size and audit fee. Board size was not tested in prior pension plan research.

Board size may play an important role in directors’ ability to monitor and control managers (Jensen, 1993; Lipton & Lorsch, 1992). Jensen (1993) and Yermack (1996) have studied the relationship between the board size and its efficiency whereas Jensen (1993) suggests that a higher number of board members is positively related to higher levels of conflict. In contrast, Pearce and Zahra (1992) suggest that a larger board enhances its control capacity and performance. Hence, the larger size of board intentionally requires less audit assessment which then leads to lower audit fees.

Lipton and Lorsch (1992) and Jensen (1993) argue that because of difficulties in organising and coordinating large groups of directors, board size is negatively related to the board’s ability to advise and engage in long-term strategic plans. Similarly, Daily and Dalton (1992) consider that a small-sized board of directors is more effective than a larger board, since it is able to monitor the strategic decisions taken by managers and reduce their discretionary behaviour. Beasley (1996) also finds that the size of the board of directors significantly affects the likelihood of financial statement frauds. His results indicate that as board size increases, the likelihood of financial statement fraud also increases. As such, board size is likely to affect the financial reporting process, hence the audit process. If larger boards are less effective monitors of the financial reporting process (Beasley, 1996), then the firm’s

external auditor assesses the control environment as weak, hence more audit hours are required, resulting in higher external audit fees. In contrast, Yatim et al. (2006) find that external audit fees are not related to the board size.

3.4.4.4 Professional trustee

Prior research suggested that governance and regulation are now more widely researched, and the collective results show that improved governance through more active directors is positively related to audit fees (Hay, 2013). Given the data availability, I introduce a new governance variable, professional trustee, which represents board skills and expertise. A positive coefficient is expected as a skilful and expert board will demand higher audit quality service and this leads to increased audit fees. Thus, I hypothesize, there is a positive relationship between pension plan managed by a professional trustee and audit fee.

Hypothesis 7: There is a positive relationship between pension plan being managed by professional trustee and audit fee.

Board skill and expertise is measured by 1 if the board is managed by a professional trustee and 0 otherwise.

A pension plan trust or board can be comprised of natural persons or professional trustee companies. Natural trustees are individuals who are elected either by the employer or members or independent candidates. This arises due to the need for representatives' board and giving pension plan member's greater say in pension governance. Alternatively, schemes can hire professional trustees to perform the trustee role. A professional trustee is generally an individual who has expertise in the area of employee benefits and is most likely, but not always, not linked to the industry with which the pension plan is associated (Ecklund, 2012).

In the Anglo-Saxon model, pension trusteeship is an executive decision-making role with a high level of legal and moral responsibility. Trustees oversee significantly large financial assets. Moreover, as institutional shareholders, pension funds exert a dominant role in global financial markets and are influential in shaping global corporate investment policy (Sayce, Weststar, & Verma, 2013).

Given the importance of the trustee role and the diversification of trustees through increased member representation, a debate has arisen regarding the benefits and risks of so-called 'lay' trustees, and the skills and education required for trustees to effectively fulfil their fiduciary

role. Clark et al. (2006) and Ambachtsheer et al. (2008) consider that well-intentioned amateurs can complicate and limit the decision making of pension plans. Clark (2007) claims that the tension between expertise and representation is increasing as institutions search for appointees capable of performing well during periods of turbulent financial markets and underfunded liability crises such as those experienced by Canada, the United States and the United Kingdom over the past decade.

Clark (2007) argues that representatives need advanced quantitative skills, probabilistic reasoning and numeracy skills to adequately monitor the actions of delegated agents; otherwise, they can become too reliant on legal, financial and investment experts' advice. Evidence cited to support these claims is a pension trustee experiment that contrasted Oxford graduates with a self-selected group of pension trustees (Clark et al., 2006). It was found that when it came to strategic investment decision making, the graduates were more consistent than the pension trustees. This supports the Ambachtsheer et al. (2008) argument that a representatives' board is not enough and expertise is also needed to counter perceived weaknesses in trustees' oversight to combat potential moral hazard and conflict of interest.

In the United States, the use of professional trustees has increased for a number of reasons. Benefit laws and regulations are becoming increasingly complex, and a greater breadth and depth of knowledge is required to properly serve as a trustee (Ecklund, 2012). He pointed out that one of the advantages of professional trustees is that they may be the answer for a plan that is having a difficult time finding trustees to serve. Professional trustees will have the expertise to help ensure the plan complies with the ever-increasing myriad of laws. Often, a professional trustee is able to defuse personality conflicts that might otherwise erupt between management and union (Ecklund, 2012). On the other hand, the disadvantages argument, the most widely expressed criticism of the use of a professional trustee is that such a trustee does not have any 'skin in the game'. This is the same argument for not keeping trustees (union or management) on after they retire from their business because they no longer have the same incentives they had while they were working for a contributing employer or a sponsoring union (Ecklund, 2012).

In Australia, the two main agency problems are controlling the self-interest of trustees, and political issues of investment and activism. Self-interest arises where there is employer or employee representation and each group has its own interest. Where professional trustees are used, there is also the possibility of conflict where investment is placed in associated vehicles

(Levy & Farrar, 2011). Further, the agency costs might be higher in a fund managed by an external professional trustee firm than by natural trustees (Coleman, Esho, & Wong, 2006).

Coleman et al. (2006) found that not-for-profit superannuation funds in Australia significantly outperformed for-profit superannuation funds. They explain that not-for-profit superannuation funds trustees' interest is more likely to be aligned with those of members, which is due in part to the trustee composition while retail trustees/employees have to work both in the interest of the members and in the interest of their employer. In addition, the Australian superannuation management industry operated on the basis of commission rather than a fee-for-service basis, while retail superannuation funds pay commission to financial advisers. This incentive potentially reduces the independence of advisors and increases the agency problems for members. In not-for-profit funds, members are employees of the corporation, giving them more leverage to prevent the fund from taking extra profits and they could potentially initiate a strike if fund exploitation was found.

In New Zealand, the KiwiSaver scheme (other than certain employer and restricted-entry schemes) must have a manager who is the issuer for the purposes of the Securities Act 1978 and a licensed external trustee whose main function is to supervise the manager. Further, the Securities Trustees and Statutory Supervisors Act 2011 (the Act) requires licensees or professional trustees to perform their functions effectively. The Act explicitly focuses on protecting the interests of investors and on enhancing investor confidence. Financial Markets Authority licenses securities trustees (retail schemes) and statutory supervisors, and monitors the performance of their functions. Financial Markets Authority stated that professional trustees have been entrusted with a vital role and they must conduct themselves in a manner deserving of that trust (Financial Markets Authority, 2013a).

Financial Markets Authority emphasises that a failure by one or more licensees to perform its functions effectively is likely to have serious consequences for investors who place reliance on the licensee role. Many of these investors are inexperienced in investment matters and as a result vulnerable. Therefore, any serious consequence for investors in one supervised entity can result in wider loss of investor confidence and serious adverse consequences for the financial markets (Financial Markets Authority, 2013a).

Table 3.1

Summaries of the Study Size, Risk and Complexity, Non-Audit Services and Governance Variables Measures Compared to Cullinan (1997) and Arnold et al. (2014)

Variables	Cullinan study	Arnold et al. study	This study
Size			
LnASSETS	Yes	Yes	Yes
CONTRIBUTIONS/ASSETS	Yes		Yes
PARTICIPANTS/ASSETS	Yes		Yes
TURNOVER	Yes		Yes
PARTICIPANTS		Yes	
LCONT		Yes	
ROA		Yes	
DISPOSAL		Yes	
Risk and complexity			
AMENDMENTS	Yes		Yes
UNIONISED PLANS/RETAIL SCHEME	Yes (UNIONISED PLANS)		Yes (RETAIL SCHEME)
PROPERTY		Yes	Yes
FOREIGN		Yes	Yes
BORROWING		Yes	Yes
LnGROWTHFUNDS			Yes
LnCASH		Yes	Yes
LEGAL FEES	Yes		
HARD-TO-AUDIT ASSETS	Yes		
PLAN FUNDING	Yes		
LPROPERTY		Yes	
LSHARES		Yes	
ARTWORK		Yes	

RESERVEACCTS		Yes	
INHOUSE		Yes	
LOSSES		Yes	
Audit opinion			
OPINION	Yes	Yes	Yes
Audit market factors			
BIG FOUR (BIG SIX)	Yes		Yes
FIRST YEAR AUDIT	Yes		Yes
LEADER_ALL		Yes	
LAG		Yes	
Non-audit services			
LnNASFEES			Yes
BREACHES REPORTED		Yes	
Governance			
BODINDPT			Yes
CEODIR			Yes
BSIZE			Yes
PROFTRUST			Yes

3.5 Other factors not considered in this study

The current study is limited to the above variables (reported in Table 3.1) due to data availability. However, the study notes that there are other factors studied in audit fee models which includes the timing of audits, for example, Palmrose (1986), as related to financial year-ends, internal audit usage; audit risk, for example, O’Keefe et al. (1994), auditor retention and selection, for example, Simunic (1980), and auditor location, for example, Chan et al. (1993). On governance analysis, there are other governance variables studied in audit fee models which include board diligence, for example, Carcello et al. (2002) and Lorsch (1992), multiple directorship, for example, O’Sullivan (2000) and Carcello et al.(2002), and board audit committees, for example Collier and Gregory (1996), Stewart and Munro (2007),

Coulton et al. (2001), Redmayne et al. (2011) and Zaman et al. (2011). These variables may be considered in future research.

3.6 Summary

There has been little prior research devoted to audit pricing in the pension industry (Arnold et al., 2014). The main exception are Cullinan (1997, 1999) and Arnold et al. (2014). They investigate audit fees in the context of United States DBPs and Australian SMSFs. The literature review notes that the pension plan industry studies are identified with lower adjusted R^2 compared to other industries. The current study will provide new insight by addressing the last two possible reasons for a low adjusted R^2 put forward by Cullinan, Big Four small market share and measurement error with possible inclusion of non-audit fees as audit fee. Prior research found Big Four firms have much higher (over 80 percent) market share in the New Zealand audit market (Griffin et al., 2009), much higher than the United States. Further, the Companies Act 1993 and Financial Reporting Standard 44 require separate disclosure of audit fees and non-audit services fees, eliminating measurement error.

Therefore, this study extends prior audit pricing literature by providing new evidence about the pension audit market in an out of United States and Australia sample context, by directly investigating the determinants of audit fees, non-audit services and governance in the pension plan market, using New Zealand's KiwiSaver context. In addition, the current study builds on the prior pension plan audit pricing literature (Cullinan, 1997; Arnold et al., 2014) by supplementing controls likely to impact audit fees in the New Zealand pension industry with additional explanatory variables, including investments in growth and aggressive funds, and pension plans managed by a professional trustee.

This study is motivated by the calls by Hay et al. (2006) and Arnold et al. (2014) for more research on audit fees determinants and specifically addresses three areas: form of ownership of an auditee, governance and regulation, and non-audit services, using the New Zealand KiwiSaver context.

Chapter 4

Research design and Methodology

4.1 Sample selection

As of June 2013, there are 45 registered KiwiSaver schemes. Of these, 33 are retail (6 ‘default’ and 27 ‘non-default’) schemes and 12 non-retail (‘restricted’) schemes (Financial Markets Authority, 2013b; Morningstar, 2013). This study selects all 45 schemes to investigate the research hypotheses. However, two new non-default schemes (Bank of New Zealand; Generate KiwiSaver) were registered during 2013 and are due to provide their full financial statements and annual reports for the first time in 2014. Thus, the maximum sample size is 43 schemes.

Table 4.1 Panel A reports the missing observations. Two schemes (1 scheme from restricted and non-default) in 2011 were discarded due to incomplete financial information, being registered during 2011 so their first full financial statements were provided in 2012; four retail schemes (2 defaults and 2 non-defaults) were removed due to the audit fees not being separately disclosed in the financial statements. This yields a final sample of 123 KiwiSaver-year observations. Table 4.1 Panel B reports the sample different types of KiwiSaver schemes. The sample comprised 72 percent retail schemes and 28 percent restricted schemes.

Table 4.1

Breakdown of KiwiSaver Schemes Sample between 2011-2013

Panel A: Sample selection by year		2011	2012	2013	Total
Maximum sample		43	43	43	129
Less:	Observations removed due to incomplete information	-2			-2
Less:	Observations removed due to no audit fees disclosed		-2	-2	-4
Remaining KiwiSaver-year observations with audit fees disclosed		41	41	41	123
Panel B: Types of kiwisaver schemes by year					
Default schemes (retail scheme)		6	5	5	16
Non-default schemes (retail scheme)		24	24	24	72
Restricted schemes		11	12	12	35
		41	41	41	123

4.2 Research design and methodology

4.2.1 Basic model

To test hypotheses 1 and 2, the following models adopt Cullinan (1997) and Arnold et al. (2014) audit fees models.

$$\begin{aligned} \text{LnAFEEES} = & b_0 + b_1 \text{LnASSETS} + b_2 \text{CONTRIBUTIONS/ASSETS} + \\ & b_3 \text{PARTICIPANTS/ASSETS} + b_4 \text{TURNOVER} + b_5 \text{AMENDMENTS} + b_6 \text{RETAILSCHEME} + \\ & b_7 \text{PROPERTY} + b_8 \text{FOREIGN} + b_9 \text{BORROWING} + b_{10} \text{LnGROWTHFUNDS} + b_{11} \text{LnCASH} + \\ & b_{12} \text{OPINION} + b_{13} \text{BIGFOUR} + b_{14} \text{FIRST- YEAR- AUDIT} + e \end{aligned} \quad \textbf{Model 1}$$

The variables are described in Table 4.2 and brief explanations are given below.

Dependent variable

Audit fees

As in prior research, the audit fee is measured by the natural log of audit fees.

Independent variables

Size

The natural log of KiwiSaver total assets (LnASSETS), ‘contributions activity’ (CONTRIBUTIONS/ASSETS), ‘participants activity’ (PARTICIPANTS/ASSETS) and ‘assets sold activity’ (TURNOVER) are used as measures of KiwiSaver size.

Risk and complexity

AMENDMENTS, RETAIL SCHEME, PROPERTY, FOREIGN, BORROWING and LnCASH are included, based on the expectation that the more complex a client, the more difficult it is to audit and the more time-consuming the audit is likely to be (Hay et al., 2006).

I introduce a new risk and complexity variable, LnGROWTHFUNDS, which represents the growth in asset size of KiwiSaver high risk investment category. A positive coefficient is expected as audit risk increases with the increased holding of growth assets.

Audit market factors

No directional prediction given the different potential interpretations of Big Four effect and auditor changes. The two variables utilised are BIG FOUR and FIRST-YEAR-AUDIT.

Audit opinion

OPINION is included on the expectation that an audit resulting in a qualified opinion will be more costly than an audit resulting in an unqualified opinion.

4.2.2 Non-audit services

As prior research shows, non-audit service fees may be a determinant of audit fees. To test hypothesis 3 the study adds the non-audit service fees variable to the basic model.

$$\begin{aligned} \text{LnAFEES} = & b_0 + b_1 \text{LnNASFEES} + b_2 \text{LnASSETS} + b_3 \text{CONTRIBUTIONS/ASSETS} + \\ & b_4 \text{PARTICIPANTS/ASSETS} + b_5 \text{TURNOVER} + b_6 \text{AMENDMENTS} + b_7 \text{RETAILSCHEME} + \\ & b_8 \text{PROPERTY} + b_9 \text{FOREIGN} + b_{10} \text{BORROWING} + b_{11} \text{LnGROWTHFUNDS} + b_{12} \text{LnCASH} + \\ & b_{13} \text{OPINION} + b_{14} \text{BIGFOUR} + b_{15} \text{FIRST- YEAR- AUDIT} + e \end{aligned} \quad \textbf{Model 2}$$

The variables are described in Table 4.2 and brief explanation is given below.

Non-audit services fees

As in prior research, the non-audit service fee is measured by the natural log of non-audit service fees.

4.2.3 Governance

Prior research shows board governances may be a determinant of audit fees. To test hypotheses 4 to 7, the study adds four KiwiSaver board governance variables to the basic model.

$$\begin{aligned} \text{LnAFEES} = & B_0 + B_1 \text{BODINDPT} + B_2 \text{CEODIR} + B_3 \text{BSIZE} + B_4 \text{PROFTRUST} + B_5 \text{LnASSETS} + \\ & B_6 \text{CONTRIBUTIONS/ASSETS} + B_7 \text{PARTICIPANTS/ASSETS} + B_8 \text{TURNOVER} + \\ & B_9 \text{AMENDMENTS} + B_{10} \text{RETAIL SCHEME} + B_{11} \text{PROPERTY} + B_{12} \text{FOREIGN} + \\ & B_{13} \text{BORROWING} + B_{14} \text{LnGROWTHFUND} + B_{15} \text{LnCASH} + B_{16} \text{OPINION} + B_{17} \text{BIGFOUR} + \\ & B_{18} \text{FIRST- YEAR- AUDIT} + e \end{aligned} \quad \textbf{Model 3}$$

The variables are described in Table 4.2 and brief explanations are given below.

Board independence

As in prior research, board independence (BODINDPT) is measured by the percentage of outside directors in the board (trust).

CEO duality

CEO duality (CEODIR) is included on the expectation that when individuals occupy positions of both chairman and CEO or a member of the board, board effectiveness is affected. This is a signal of poorer governance leading to auditor assessment of higher risk leading to increased audit fees.

Board size

As in prior research, BSIZE is measured by the total number of directors (trustees) in a board (trust).

Professional trustee

I introduce a new board governance variable, PROFTRUST, which represents board skills and expertise. A positive coefficient is expected as a skilful and expert board will demand higher audit quality service and this leads to increased audit fees.

Table 4.2

Summary of Study Variables with Expected Signs

Variables	Description	Predicted Sign
Dependent variable		
Audit fees (<i>AFEES</i>)	External audit fees paid to auditor by KiwiSaver scheme per financial year	
<i>LnAFEES</i>	Natural log of audit fees	
Independent variables		
<i>Size</i>		
<i>LnASSETS</i>	Natural log of total assets	+
<i>CONTRIBUTIONS/ASSETS</i>	Total contributions/Total assets	+
<i>PARTICIPANTS/ASSETS</i>	Total scheme membership/Total assets	+
<i>TURNOVER</i>	Asset sold/Average total assets	+
<i>Risk and complexity</i>		
<i>AMENDMENTS</i>	1 if scheme was amended during the year, 0 otherwise (<i>indicator variable</i>)	+
<i>RETAILSCHEME</i>	1 if a retail scheme, 0 otherwise (<i>indicator variable</i>)	+

<i>PROPERTY</i>	1 if invested in property, 0 otherwise (<i>indicator variable</i>)	+
<i>FOREIGN</i>	1 invested offshore, 0 otherwise (<i>indicator variable</i>)	+
<i>BORROWING</i>	1 if scheme borrowed, 0 otherwise (<i>indicator variable</i>)	+
<i>LnGROWTHFUNDS</i>	Natural log of total growth and aggressive investment funds	+
<i>LnCASH</i>	Natural log of the scheme cash balances	–
Audit opinion		
<i>OPINION</i>	1 if unqualified opinion, 0 if qualified opinion (<i>indicator variable</i>)	–
Audit market factors		
<i>BIGFOUR</i>	1 if auditor is a Big Four firm ¹ , 0 otherwise (<i>indicator variable</i>)	?
<i>FIRST-YEAR-AUDIT</i>	1 if first time audit, 0 otherwise (<i>indicator variable</i>)	?
Non-audit services		
Non-audit service fees (<i>NASFEES</i>)	Non-audit service fees paid to existing auditor per financial year	
<i>LnNASFEES</i>	Natural log of non-audit service fees	+
Governance		
<i>BODINDPT</i>	Board independence measured by percentage of outside (that is, non-management) directors on the trust	+
<i>CEODIR</i>	1 if CEO/chairman or a member of the trust, 0 otherwise, (<i>indicator variable</i>)	+
<i>BSIZE</i>	Board size measured by total number of trustees per trust	+
<i>PROFTRUST</i>	1 if scheme managed by professional trustee, 0 otherwise, (<i>indicator variable</i>)	+

¹ The Big Four audit firms operating in New Zealand; Deloitte, Ernst and Young, PricewaterhouseCoopers and KPMG, consistent with Griffin et al. (2009).

Chapter 5

Empirical results and Discussions

5.1 Introduction

The first data analysis will be the descriptive statistics for variables used in the study, including the mean, median, and standard deviation for the KiwiSaver market, audit market factors and measures of scheme audit fees with a focus on scheme characteristics, non-audit services and governance characteristics. This is followed by an examination of the correlations among the size variables in the sample before proceeding with the OLS regression models.

5.2 Descriptive statistics

The descriptive statistics (means, median and standard deviation (std. deviation)) for variables used to explain the KiwiSaver market, audit market and estimate the audit fees are shown in Table 5.1, 5.2 and 5.3. For detailed information, refer Appendix B, which documents annual descriptive statistics for KiwiSaver schemes for 2011, 2012 and 2013. Table 5.3 presents all year observations for audit fee models.

5.2.1 *KiwiSaver market*

The mean KiwiSaver schemes contribution is \$90,564,594, which represents 31 percent of the total assets. This is much higher than Cullinan's (1997) findings of \$3,725,704 contribution which represents 3.7 percent of planned assets and Arnold et al.'s (2014) concessional contribution of \$34,801 which represent 5 percent of total assets. This was mainly due to KiwiSaver mandatory contribution rate and bigger membership base with an average members of 42,771 compared to the United States DBP average members of 4,830 and Australian SMSFs average member of 1.92 (2).

The study notes audit fees, non-audit fees and total assets constant rate of growth in means all showed significant increase. This was caused by significant increases in all variables of 10.5 percent, 11.7 percent and 42.5 percent, respectively from 2011 to 2012. This may suggest that significant increase in audit fees may be caused by the increased in total assets.

The mean KiwiSaver scheme has cash balances of \$6,953,789 and growth funds average of \$62,753,292, which represents 2.4 percent and 21 percent of total assets, respectively. The

latter finding is higher than Cullinan's (1997) hard-to-audit assets of 2 percent of total assets, but lower than average growth funds (share, property and overseas investment) of \$311,273, which represent 49 percent of SMSF's total assets (Arnold et al., 2014). Arnold et al.'s (2014) average cash, representing 26 percent of total assets (\$168, 029), is also higher than KiwiSaver. This indicates that KiwiSaver is holding minimal cash and majority of assets for interest bearing investment but a significant portion is invested in conservative funds compared to the Australian SMSFs high risk investment profile.

The study reported 32 percent of the KiwiSaver amended the scheme requirement and/or structure during the sample period. This was mainly due to the KiwiSaver Amendments Act 2011 which came into force in 1 October 2012. Thus, 79 percent of the sample reported amended their trust deed in 2013 (see Appendix B). This is lower than Cullinan's (1997) finding of 89.5 percent pension plans being amended during the year.

Table 5.1

KiwiSaver Market

Variable		Mean	Median	Std. Deviation
Contributions		90,564,594	20,137,517	142,027,698
Participants		42,771	5,567	73,282
Asset sold during the year (DISPOSAL)		43,562,975	605,074	127,935,811
Low risk investment (CASH)		6,953,789	1,031,000	17,264,239
High risk investment (GROWTHFUNDS)		62,753,292	11,740,167	104,861,382
Constant rate of growth in means:				
	2011	2012	2013	All year
Audit Fees (<i>AFEES</i>)		10.5%	1.3%	6.7%
Non-audit fees (<i>NASFEES</i>)		11.7%	-5.5%	5.5%
Total Fees		10.6%	1.0%	6.6%
Total Assets (<i>ASSETS</i>)		42.5%	26.2%	22.7%
Dichotomous variables:				
			Value	%
Unqualified opinion (<i>OPINION</i>)			Yes	100%
Scheme amended during sample period (<i>AMENDMENTS</i>)			Yes	32%
Scheme offer to the public (<i>RETAIL SCHEMES</i>)			Yes	72%

The large standard deviation (relative to means) for audit fees, assets, contributions and participants is indicative of the large size of a certain number of the KiwiSaver schemes. This is consistent with Cullinan's (1997) results on United States pension plan markets. Moreover, it agreed with the industry report December 2013 quarterly by Morningstar findings that the

New Zealand KiwiSaver industry is highly concentrated, with the eight largest KiwiSaver providers accounting for 97 percent of industry total assets (Morningstar, 2013).

5.2.2 Audit market factors

The two variables measuring audit market factors were Big Four status and first year audit. The market share data for Big Four audit firms for the sample in terms of client numbers, audit fees and total assets is presented in Panels A and B of Table 5.2. The study reported 93 percent of the sample used a Big Four firm as their auditor and accounts for around 97 percent of audit fees and total assets of KiwiSaver market. That is, KPMG captures 46 percent of the KiwiSaver industry, followed by PricewaterhouseCoopers with 24 percent. Surprisingly, all restricted schemes were audited by Big Four compared to nine retail schemes audited by non-big four firms. The Big Four dominant market share is consistent with the Griffin et al. (2009) findings of Big Four's 82 percent market share and their receipt around 95 percent of combined audit fees on their New Zealand sample from 2002 to 2007. They noted that PricewaterhouseCoopers and KPMG capture more than 70 percent of the audit market in New Zealand, consistent with KiwiSaver results. This shows that KPMG and PricewaterhouseCoopers being the most dominant Big Four firms in New Zealand audit market, agreed with Ananthanarayanan's (2011) finding.

In the pension plan context, this substantial market share finding is much higher than Cullinan's (1997) Big Four (then the Big Six) finding of 10 percent share of the United States DBP audit market and Arnold et al.'s (2014) finding of 4.75 percent share by the top ten leading auditors in the Australian SMSFs market. Therefore, the Big Four firms have a much higher share in the KiwiSaver audit market compared to the United States DBP and the Australian SMSFs audit markets and other markets studied.

The study reported 6.5 percent of the KiwiSavers changed auditors during the sample period (see Panel C of Table 5.2). In the sample there were eight changes in auditor. That is, 63 percent (5) in 2012 and 37 percent (3) in 2013. Interestingly, the growth in means of audit fees also significantly increases from 2011 to 2012 by 10.5 percent. Thus, may suggest that the significant increase in audit fees may be caused by the change in auditors and supports the cost-based argument. This finding is slightly higher than Cullinan's (1997) finding of 5.9 percent of his sample. However, it is consistent with Griffin et al.'s (2009) finding of 6.3 percent in their New Zealand sample experiencing an auditor change.

Table 5.2

Audit Market

Panel A: Auditors and audit markets								
	Clients	% markets	Audit fees	% markets	Total Assets	% markets	Audit fees	
Audit Firms	Sample	(clients)	Sample	(fees)	Sample	(size)	% of total assets	
BIG FOUR	114	93%	3,424,386	97%	37,190,674,454	97%	0.01%	
Others	9	7%	114,203	3%	975,743,807	3%	0.01%	
	123	100%	3,538,589	100%	38,166,418,261	100%	0.01%	
Panel B: Auditors and KiwiSaver schemes distribution								
				No. of audit				%
KPMG				56				46%
PricewaterhouseCoopers (pwc)				30				24%
Deloitte				14				11%
Ernest & Young				14				11%
Grant Thornton				4				3%
HLB Mann Judd Chartered Accountants				3				2%
William Buck (NZ)				2				2%
Total				123				100%
Panel C: Change in auditor								
Changes in auditor (FIRST-YEAR-AUDIT)				Yes	6.5%			

5.2.3 Basic model

The average audit fee charged to KiwiSaver is \$28,769 and the total average asset is \$295,863,707. This is much lower than Griffin et al.'s (2009) mean audit fees of \$188,485 and total assets of \$459,872,017 on their New Zealand sample. However, in a pension plan context, this finding is higher than Cullinan's (1997) average audit fees of \$20,674 and total assets of \$101,360,000 and Arnold et al.'s (2014) average audit fee of \$709 and total assets of \$635,960. This shows that KiwiSaver average audit fees and assets are higher than the United States DBPs and the Australian SMSFs audit market but smaller compared to other market audit fees studies.

Further, the audit fees as a percentage of total assets in the current study are 0.01 percent, while this figure was 0.04 percent in Griffin et al. (2009). In addition, Griffin et al. (2009) also observe "lower audit fees for companies in the finance and investment services industry" in their sample (p.712). In a pension plan context, this figure is much lower than Cullinan's (1997) figure of 0.02 percent and Arnold et al.'s (2014) figure of 11 percent. This supports Cullinan's (1997) claims that audits in the pension plans audit market are less costly per dollar of assets than in other audit markets examined.

The mean KiwiSaver scheme has a turnover ratio of 25 percent. This is lower than Cullinan's (1997) portfolio turnover of 62 percent and Arnold et al.'s (2014) turnover of 58 percent. In addition, the study notes 70 percent of the sample invested in property and 82 percent in offshore investment on average. This is higher than Arnold et al.'s (2014) finding of 17 percent on property investment and 7 percent on foreign investment, and Cullinan's (1997) hard-to-audit assets of 2 percent of total assets. This reflects the United States and Australian active share market compared to limited investment options available on local New Zealand market with higher offshore investment rate. Another reason may be the KiwiSaver higher property investment rate compared to the United States and Australia.

The study reported that 100 percent of the KiwiSaver audits resulted with in an unqualified opinion and 100 percent did not engage in any form of borrowing. This is contrary to Cullinan's (1997) 5.9 percent qualified opinion and Arnold et al.'s (2014) finding of 4 percent qualified opinion and 2 percent SMSFs borrowing. In addition, qualified audit opinion was also an issue on other market studied (Gist, 1992; Simunic, 1980). Overall, these descriptive statistics indicate that KiwiSaver compliance is very high.

5.2.4 *Non-audit services*

The average non-audit fee paid to existing auditor for the sample is \$1,297, which represents 5 percent of the total audit fees. The study notes non-audit fees average constant rate of growth in means was increased in the sample period by 5.5 percent. This was caused by a significant increase of 11.7 percent from 2011 to 2012, offset by a decline of 5.5 percent in 2013 (refer Table 5.1). The mean non-audit fee is much lower than Griffin et al.'s (2009) findings of \$124,187, which represent 28.7 percent of the total audit fees. This suggests that in the New Zealand audit market, other industries rely more than the KiwiSaver industry on the auditor for the provision of many non-audit services because they lack in-house resources (Sharma et al., 2011). However, auditing firms are free to provide consulting services to KiwiSaver that are not their clients.

The sample reported 29 percent (37) engaging existing auditors with non-audit services (refer Table 5.3). This is higher than Arnold et al.'s (2014) finding of 13 percent in their SMSFs sample. These services were with Big Four auditors, with Ernst and Young, and Deloitte having only one client each for the sample period. This may indicate that these two Big Four firms may have voluntarily restricted the non-audit services they provide. This finding is

consistent with the Griffin et al. (2009) finding that Ernst and Young and Deloitte non-audit services decline significantly from 2002 to 2007.

The study notes that taxation consultation and annual reviewing of KiwiSaver prospectus documents are the most common non-audit services provided by audit firms for KiwiSaver. This may explain the industry low non-audit services fees compared to other New Zealand industry.

5.2.5 Governance

The average board size per trust is five members (5.02). The average board size has been maintained at five in the sample period (4.9 in 2011: 5.3 in 2013: refer Appendix B). This is contrary to Boyle and Ji (2013) findings that average New Zealand listed companies board size fell from about 6.7 (7) directors in 1995 to 5.9 (6) in 2010. This is a surprising result given that it has been argued that a board size of eight members is less than optimal for companies in New Zealand's small economy. There is only a small pool of directors available for companies to choose from and it may be difficult to obtain the right balance in terms of skills and expertise required in the board room with a smaller board size. It is argued that to balance the skills required in the board room, New Zealand companies may require a larger board size than might otherwise be the case in larger economies (Reddy, Locke, Scrimgeour, & Gunasekarage, 2008). Thus, the KiwiSaver average board size is small compared to other industries and the expected board size in New Zealand.

Further, the average board reported 78 percent with a majority of independent directors and management by an independent professional trustee. This is basically all the retail schemes (29) and two restricted schemes in 2013. The percentage of boards with a majority of independent directors increased by 18 percent from 2011 to 2013 (refer Appendix B). This is consistent with Boyle and Ji (2013) findings of approximately 80 percent of New Zealand listed companies with majority independent directors in 2010 and 16 percent increase in majority of independent directors. This shows that KiwiSaver is managed by independent and professional directors, consistent with New Zealand listed company board composition.

All KiwiSaver trusts reported clear separation of CEO from chairman with 100 percent of sample having no CEO as chairman or being a member of the trust in the sample period. This is consistent with Boyle and Ji's (2013) findings that "virtually no New Zealand CEO also held the position of board chair in either 1995 or 2010" (p. 244).

Table 5.3

Audit Fee Models

	Mean	Median	Std. Deviation
<i>Audit Fees (AFEES)</i>	28,769	17,400	32,476
<i>LnAFEES</i>	4.17	4.24	0.56
Size			
<i>Total Assets (ASSETS)</i>	295,863,707	53,496,773	489,565,988
<i>LnASSETS</i>	7.68	7.76	1.05
<i>CONTRIBUTIONS/ASSETS</i>	1.45	0.31	12.41
<i>PARTICIPANTS/ASSETS</i>	0.00	0.00	0.01
<i>TURNOVER</i>	0.25	0.03	1.44
<i>LnCONTRIBUTIONS/ASSETS</i>	1.52	1.49	0.29
<i>LnPARTICIPANTS/ASSETS</i>	- 1.95	- 2.01	0.35
<i>LnTURNOVER</i>	0.83	0.92	0.91
Risk and complexity			
<i>AMENDMENTS</i>	0.31	0.00	0.46
<i>RETAILSCHEME</i>	0.72	1.00	0.45
<i>LnGROWTHFUNDS</i>	7.37	7.33	0.86
<i>LnCASH</i>	5.86	6.05	1.19
<i>PROPERTY</i>	0.70	1.00	0.46
<i>FOREIGN</i>	0.82	1.00	0.39
<i>BORROWING</i>	0.00	0.00	0.00
Audit Opinion			
<i>OPINION</i>	1.00	1.00	0.00
Audit market factors			
<i>BIGFOUR</i>	0.93	1.00	0.26
<i>FIRST-YEAR-AUDIT</i>	0.06	0.00	0.24
Non-audit services			
<i>Non-audit services fees (NASFEES)</i>	1,297	0.00	3,506
<i>LnNASFEES</i>	3.49	3.48	0.35
<i>OTHERSERVICES</i>	0.29	0.00	0.45
<i>Total audit fees (Total Fees)</i>	28,728	17,000	33,169
<i>LnTAFEES</i>	4.21	4.26	0.54
<i>Non-audit fees to total fees</i>	0.05	0.00	0.11
Board governances			
<i>BSIZE</i>	5.02	5.00	1.80
<i>BODINDPT</i>	0.78	1.00	0.40
<i>CEODIR</i>	0.00	0.00	0.00
<i>PROFTRUST</i>	0.78	1.00	0.41

LnAFEES = natural log of audit fees, *LnASSETS* = natural log of total assets, *CONTRIBUTIONS/ASSETS* = total contributions received by scheme per financial year over total assets, *PARTICIPANTS/ASSETS* = number of members in the scheme over total assets, *TURNOVER* = total assets sold during the year over average total assets, *LnCONTRIBUTIONS/ASSETS* = natural log of total contributions over total assets,

LnPARTICIPANTS/ASSETS = natural log of participants over total assets, *LnTURNOVER* = natural log of turnover ratio, *AMENDMENTS* = 1 if scheme was amended during the year, 0 otherwise, *RETAIL SCHEME* = 1 if scheme is retail scheme, 0 otherwise, *PROPERTY* = 1 if scheme invested in property, 0 otherwise, *FOREIGN* = 1 if scheme invested overseas, 0 otherwise, *BORROWING* = 1 if scheme borrowed, 0 otherwise, *LnGROWTHFUNDS* = natural log of total growth and aggressive funds, *LnCASH* = natural log of scheme cash balances, *OPINION* = 1 if unqualified opinion, 0 if qualified opinion, *BIG FOUR* = 1 if auditor is Big Four firm, 0 otherwise, *FIRST-YEAR-AUDIT* = 1 if first time audit, 0 otherwise, *NASFEES* = non-audit services fees paid during the year, *LnNASFEES* = natural log of non-audit services fees, Total audit fees = sum of audit and non-audit fees paid during the year, *LnTAFEES* = natural log of total audit fees, *BODINDPT* = percentage of outside directors on the trust, *CEODIR* = 1 if the CEO is a trustee or chairman, 0 otherwise, *BSIZE* = Board size measured by total number of trustees on the trust, *PROFTRUST* = 1 if scheme is managed by professional trustee, 0 otherwise.

5.3 Correlations

The study size variables correlation matrix (Pearson) is presented in Table 5.4. The correlations result shows that *LnASSETS* seems to be highly correlated with most of the other measures and negatively correlated with *LnCONTRIBUTIONS/ASSETS*. Gujarati (2008) recommends a bivariate correlation coefficient of 0.80 as the threshold for multicollinearity concerns that may threaten OLS regression analysis. All of the significant correlations except contribution and participants are below this threshold. Therefore, the regression analyses of this study may proceed without concerns about multicollinearity.

Table 5.4

The Correlation Matrix for Size Variables

		<i>LnASSETS</i>	<i>LnCONTRIBUTIONS/ASSETS</i>	<i>LnPARTICIPANTS/ASSETS</i>	<i>LnTURNOVER</i>
<i>LnASSETS</i>	Pearson Correlation	1			
	Sig. (2-tailed)				
<i>LnCONTRIBUTIONS/ASSETS</i>	Pearson Correlation	-.244**	1		
	Sig. (2-tailed)	.006			
<i>LnPARTICIPANTS/ASSETS</i>	Pearson Correlation	.036	.836**	1	
	Sig. (2-tailed)	.690	.000		
<i>LnTURNOVER</i>	Pearson Correlation	.293**	.234*	.284**	1
	Sig. (2-tailed)	.006	.030	.008	
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					
Number of observation		123			

LnASSETS = natural of log total assets, *LnCONTRIBUTIONS/ASSETS* = natural log of total contributions over total assets, *LnPARTICIPANTS/ASSETS* = natural log of participants over total assets, *LnTURNOVER* = natural log of turnover ratio.

5.4 Multivariate results

5.4.1 Basic model

The regression results for the basic model are presented in Table 5.5. For detailed information, refer Appendix C, which documents annual OLS regression results for KiwiSaver for 2011, 2012 and 2013. Table 5.5 presents all year observations. Due to there being no variation throughout the sample period, the 'OPINION' variable was omitted from the regression. For discussion purposes, the study focuses on the all year sample description reported in Table 5.5.

The model obtains an adjusted R^2 of .364 and F -statistic of 5.007, significant at $p < .001$. The t -test probabilities are all one-tailed, with the exception of the Big Four and first-year audit variables, because no directional predictions are made for these variables. Standardised betas are presented to facilitate comparisons among the variables. Although the adjusted R^2 is lower than other industries and the Cullinan (1997) adjusted R^2 of .39, it is acceptable compared to the Arnold et al. (2014) adjusted R^2 of .093. However, the study F -statistic is much lower than the Arnold et al. (2014) F -statistic of 601.501. The unsurprising explanatory power and statistical significance of the study basic model is mainly caused by the study's small sample size compared to the Cullinan (1997) and Arnold et al. (2014) studies.

Size

The control variable for size (LnASSETS and TURNOVER) reports positive coefficients consistent with directional expectations and significant at 10 percent and 5 percent. Other size variables (CONTRIBUTIONS/ASSETS, PARTICIPANTS/ASSETS) were not significant but consistent with the positive directional expectations.

Risk and complexity

Risk and complexity control variables of RETAILSSCHEME, PROPERTY and FOREIGN were all significant at 10 percent, 1 percent and 1 percent. In addition, all were consistent with directional coefficient predictions except FOREIGN negative coefficient. Other risk and complexity variables (AMENDMENTS, LnGROWTHFUNDS and LnCASH) were not significant but were consistent with directional prediction.

Note 1: The study noted that Arnold et al. (2014) did not scale their size variables by the total assets to be consistent with Cullinan (1997), given SMSFs average member of 2 (1.92) and low concessional contributions figure of \$34,801.

The coefficient of KiwiSaver invested offshore (FOREIGN) is negative and significant at $p < .001$, suggesting that less audit effort is needed when KiwiSaver engages in offshore investment.

Table 5.5

Model 1: Ordinary Least Squares Regression Results (Dependent Variable: Natural Log of Audit Fees)

Variable	Expected sign	Regression coefficient	t-statistics	one-tail p > t
Intercept	NA	2.74	6.05	0.000
Size				
LnASSETS	+	0.16	1.54	0.064
CONTRIBUTIONS/ASSETS	+	0.00	0.42	0.337
PARTICIPANTS/ASSETS	+	2.17	0.40	0.344
TURNOVER	+	0.00	1.94	0.028
Risk and complexity				
AMENDMENTS	+	0.06	0.86	0.196
RETAIL SCHEME	+	0.38	1.40	0.083
PROPERTY	+	0.26	3.02	0.002
FOREIGN	+	- 0.56	- 2.86	0.003
LnGROWTHFUNDS	+	0.02	0.48	0.316
LnCASH	-	- 0.02	- 0.84	0.202
Audit market factors				
BIG FOUR*	?	0.17	1.42	0.161
FIRST-YEAR-AUDIT*	?	0.06	0.51	0.612
F-statistic			5.007	.000
Adjusted R ²			0.364	
Number of observation	123			
*Two tail test to lack of expected sign				

LnASSETS = natural log of total assets, CONTRIBUTIONS/ASSETS = total contributions received by scheme per financial year over total assets, PARTICIPANTS/ASSETS = number of members in the scheme over total assets, TURNOVER = total assets sold during the year over net total assets, AMENDMENTS = 1 if scheme was amended during the year, 0 otherwise, RETAIL SCHEME = 1 if scheme is retail scheme, 0 otherwise, PROPERTY = 1 if scheme invested in property, 0 otherwise, FOREIGN = 1 if scheme invested overseas, 0 otherwise, LnGROWTHFUNDS = natural log of total growth and aggressive funds, LnCASH = natural log of scheme cash balances, BIG FOUR = 1 if auditor is Big Four firm, 0 otherwise, FIRST-YEAR-AUDIT = 1 if first time audit, 0 otherwise.

Audit market factors

The two variables measuring audit market factors, (BIGFOUR; FIRST-YEAR-AUDIT) were not significant in explaining the variability of audit fees, despite both having a positive coefficient.

5.4.1.1 Sensitivity tests

Simunic (1980) suggests sensitivity tests in order to ensure the robustness of the OLS regression results. The study's first test is reducing the basic model, by dropping all the insignificant variables and re-estimating OLS Model 1. The second sets of tests re-estimate OLS Model 1 using alternative measures of the dependent variable, audit fees, and the independent control variable.

Dropping insignificant results

As part of the study sensitivity test, the study drops all the seven insignificant variables from Table 5.5: CONTRIBUTIONS/ASSETS, PARTICIPANTS/ASSETS, AMENDMENTS, LnGROWTHFUNDS, LnCASH, BIG FOUR and FIRST-YEAR-AUDIT. The regression results for the reduced Model 1 are presented in Table 5.6.

Table 5.6:

Reduced Model 1: Ordinary Least Squares Regression Results (Dependent Variable: Natural Log of Audit Fees)

Variable	Expected sign	Regression coefficient	t-statistics	one-tail p > t
Intercept	NA	2.21	9.13	0.000
Size				
LnASSETS	+	0.20	5.42	0.000
TURNOVER	+	0.00	1.28	0.101
Risk and complexity				
RETAIL SCHEME	+	0.93	8.59	0.000
PROPERTY	+	0.25	3.53	0.000
FOREIGN	+	- 0.47	- 4.99	0.000
F-statistic			54.182	.000
Adjusted R ²			0.685	
Number of observation 123				

LnASSETS = natural log of total assets, *TURNOVER* = total assets sold during the year over average assets, *RETAIL SCHEME* = 1 if scheme is retail scheme, 0 otherwise, *PROPERTY* = 1 if scheme invested in property, 0 otherwise, *FOREIGN* = 1 if scheme invested overseas, 0 otherwise.

As expected with fewer variables, the adjusted R^2 and F -statistic are both significantly increased to 68.5 percent and 54.182, significant at $p < .001$. Control variable for size (*LnASSETS* and *TURNOVER*) and complexity (*RETAILSCHEME*, *PROPERTY* and *FOREIGN*) all becomes highly significant at 1 percent except turnover status which is significant at 10 percent. In addition, all variables, except foreign investment negative coefficient, were consistent with directional prediction.

Alternative scaling

Prior research uses log scaling for audit fees and total assets as a control variable. Re-estimating OLS Model 1 using the log of audit fees (rather than natural log) as the dependent variable, and the log of total assets as a control variable, the study found results similar to those reported earlier, except cash status is also becoming significant at 10 percent, which enhances the robustness of the results (refer Appendix D).

5.4.1.2 Additional test

Total auditor worked

The study replicates Arnold et al.'s (2014) additional test by reconfiguring the dependent variable from audit fees to total fees including non-audit service fees for the sample. The regression results for the basic model with the natural log of total fees as dependent variable are reported in Table 5.7. The model obtains an adjusted R^2 of .368 and F -statistic of 5.078, significant at $p < .001$.

Surprisingly, the study noted that the coefficient on *BIGFOUR* continued to be positive and significant at $p < .001$, suggesting that the Big Four firms charge at a premium. This is consistent with prior audit fee research. Ferguson and Stokes (2002) claims that when the dependent variable (audit fees) is redefined as total auditor work, different results are found. However, this finding is contrary to that of Arnold et al. (2014) of negative and significant result for *LEADER_1*.

In addition, this Big Four result can be reconciled with the Cullinan's (1997, 1999) acknowledged limitation that his dependent variable may have included non-audit related fees paid to the independent accountant in addition to the audit fee. As such, there is a

possibility of measurement error in the dependent variable in both these studies (Lindsay, 1998). As a result, the study is able to address this issue as audit fees and non-audit fees are required to be separately disclosed in the KiwiSaver annual report.

Table 5.7

Model 1: Ordinary Least Squares Regression Results (Dependent Variable: Natural Log of Total Fees)

Variable	Expected sign	Regression coefficient	t-statistics	one-tail p > t
Intercept	NA	2.67	6.03	0.000
Size				
LnASSETS	+	0.17	1.63	0.054
CONTRIBUTIONS/ASSETS	+	0.00	0.39	0.350
PARTICIPANTS/ASSETS	+	1.61	0.31	0.380
TURNOVER	+	0.00	1.80	0.038
Risk and complexity				
AMENDMENTS	+	0.06	0.82	0.208
RETAILSCHEME	+	0.34	1.29	0.101
PROPERTY	+	0.21	2.49	0.007
FOREIGN	+	- 0.51	- 2.69	0.004
LnGROWTHFUNDS	+	0.06	0.59	0.280
LnCASH	-	- 0.05	- 0.90	0.186
Audit market factors				
BIG FOUR*	?	0.22	1.90	0.062
FIRST-YEAR-AUDIT*	?	0.05	0.38	0.704
F-statistic			5.078	.000
Adjusted R ²			0.368	
Number of observation				
*Two tail test to lack of expected sign				

LnASSETS = natural log of total assets, *CONTRIBUTIONS/ASSETS* = total contributions received by scheme per financial year over total assets, *PARTICIPANTS/ASSETS* = number of members in the scheme over total assets, *TURNOVER* = total assets sold during the year over average assets, *AMENDMENTS* = 1 if scheme was amended during the year, 0 otherwise, *RETAIL SCHEME* = 1 if scheme is retail scheme, 0 otherwise, *PROPERTY* = 1 if scheme invested in property, 0 otherwise, *FOREIGN* = 1 if scheme invested overseas, 0 otherwise, *LnGROWTHFUNDS* = natural log of total growth and aggressive funds, *LnCASH* = natural log of scheme cash balances, *BIG FOUR* = 1 if auditor a Big Four firm, 0 otherwise, *FIRST-YEAR-AUDIT* = 1 if first time audit, 0 otherwise.

5.4.2 Non-audit services

The most common non-audit services provided by Big Four firms in the industry are taxation consultation and annual reviewing of KiwiSaver prospectus documents. To examine whether non-audit services fees may be a determinant of audit fees, the study added the natural log of non-audit fees (LnNASFEES) to the reduced Model 1 in Table 5.6 to test hypothesis 3. The regression results for the reduced Model 1 with LnNASFEES as additional independent variable are presented in Table 5.8.

Table 5.8

Reduced Model 1: Ordinary Least Squares Regression Results (Dependent Variable: Natural of Log of Audit Fees)

Variable	Expected sign	Regression coefficient	t-statistics	one-tail p > t
Intercept	NA	2.24	9.06	0.000
Non-audit services				
LnNASFEES	+	0.01	0.57	0.285
Size				
LnASSETS	+	0.19	5.00	0.000
TURNOVER	+	0.00	1.27	0.104
Risk and complexity				
RETAIL SCHEME	+	0.95	8.40	0.000
PROPERTY	+	0.26	3.57	0.000
FOREIGN	+	- 0.48	- 5.00	0.000
F-statistic			44.946	.000
Adjusted R ²			0.684	
<i>Number of observation 123</i>				

LnNASFEES = natural log of non-audit services fees, LnASSETS = natural log of total assets, TURNOVER = total assets sold during the year over average assets, RETAIL SCHEME = 1 if scheme is retail scheme, 0 otherwise, PROPERTY = 1 if scheme is invested in property, 0 otherwise, FOREIGN = 1 if scheme invested offshore, 0 otherwise.

The model obtains an adjusted R² of .752 and F-statistic is 19.237, significant at $p < .001$. The non-audit services fee (LnNASFEES) was not significant in explaining the variability of audit fees, despite having a positive coefficient. As expected from results shown in Table 5.6, the control variables for size (LnASSETS and TURNOVER) and complexity (RETAIL

SCHEME, PROPERTY and FOREIGN) remained significant in explaining the audit fees variation. In addition, all variables, except foreign investment negative coefficient, were consistent with directional prediction.

5.4.2.1 Sensitivity tests

In sensitivity testing this result, the study used Model 2. The regression results for Model 2 are presented in Table 5.9. The model obtains an adjusted R^2 of .359 and F -statistic of 4.621, significant at $p < .001$. Not surprisingly, the study found results similar to those reported earlier, which enhances the robustness of the results.

Table 5.9

Model 2: Ordinary Least Squares Regression Results (Dependent Variable: Natural Log of Audit Fees)

Variable	Expected sign	Regression coefficient	t-statistics	one-tail p > t
Intercept	NA	2.79	6.06	0.000
Non-audit services				
LnNASFEES	+	0.02	0.67	0.252
Size				
LnASSETS	+	0.16	1.51	0.068
CONTRIBUTIONS/ASSETS	+	0.00	0.48	0.318
PARTICIPANTS/ASSETS	+	2.51	0.46	0.322
TURNOVER	+	0.00	1.86	0.033
Risk and complexity				
AMENDMENTS	+	0.07	0.88	0.190
RETAILSCHEME	+	0.37	1.38	0.086
PROPERTY	+	0.27	3.09	0.001
FOREIGN	+	- 0.56	- 2.87	0.003
LnGROWTHFUNDS	+	0.05	0.43	0.336
LnCASH	-	- 0.05	- 0.81	0.211
Audit market factors				
BIG FOUR*	?	0.15	1.18	0.242
FIRST-YEAR-AUDIT*	?	0.06	0.45	0.655
F-statistic			4.621	.000
Adjusted R^2			0.359	
<i>Number of observation 123</i>				
<i>*Two tail test to lack of expected sign</i>				

LnNASFEES = natural log of non-audit services fees, *LnASSETS* = natural log of total assets, *CONTRIBUTIONS/ASSETS* = total contributions received by scheme per financial year over total assets, *PARTICIPANTS/ASSETS* = number of members in the scheme over total assets, *TURNOVER* = total assets sold during the year over average assets, *AMENDMENTS* = 1 if scheme was amended during the year, 0 otherwise, *RETAIL SCHEME* = 1 if scheme is retail scheme, 0 otherwise, *PROPERTY* = 1 if scheme invested in property, 0 otherwise, *FOREIGN* = 1 if scheme invested offshore, 0 otherwise, *LnGROWTHFUNDS* = natural log of total growth and aggressive funds, *LnCASH* = natural log of scheme cash balance, *BIG FOUR* = 1 if auditor is Big Four firm, 0 otherwise, *FIRST-YEAR-AUDIT* = 1 if first time audit, 0 otherwise.

In addition, when the study reconfigures the dependent variable (from audit fees to non-audit services fees) and includes the natural log of audit fees (*LnAFEES*) as an additional independent variable, this is consistent with Arnold et al.'s (2014) sensitivity test. The study found results similar to those reported earlier, which enhances the robustness of the results (refer Appendix E).

5.4.3 Governance

The study adds three board governance variables (*BODINDPT*, *BSIZE* and *PROFTRUST*) to the reduced Model 1 in Table 5.6 to test hypotheses 4, 6 and 7. The CEO duality (*CEODIR*) was omitted because there was no variation in the variable. Thus, hypothesis 5 cannot be tested. The regression results for the reduced Model 1 with the three governance variables as additional independent variables are presented in Table 5.10. The model obtains an adjusted R^2 of .619 and *F*-statistic is 23.308, significant at $p < .001$.

The control variables for *BSIZE* and *PROFTRUST* were both significant at 5 percent and 1 percent. *PROFTRUST* was consistent with positive directional expectations whereas *BSIZE* was negative. The *BODINDPT* was not significant, despite having a positive coefficient. The coefficient of board size (*BSIZE*) is negative and significant at $p < .001$, suggesting that more audit effort is needed with KiwiSaver's smaller board size.

As shown in Table 5.6 results, control variable for size (*LnASSETS* and *TURNOVER*) and complexity (*RETAILSCHEME*, *PROPERTY* and *FOREIGN*) remain significant in explaining the audit fees variation. In addition, all variables, except foreign investment negative coefficient, were consistent with directional prediction.

Note 2: Given that only 37 observations for non-audit services fees are for schemes with non-zero non-audit fees; the study entered zero ('0') value for schemes that did not engage on non-audit services to maintain the all year observations of 123.

Table 5.10

Reduced Model 1: Ordinary Least Squares Regression Results (Dependent Variable: Natural Log of Audit Fees)

	Expected	Regression		one-tail
Variable	sign	coefficient	t-statistics	p > t
Intercept	NA	2.16	9.18	0.000
Board governances				
BSIZE	+	- 0.04	- 2.05	0.022
BODINDPT	+	- 0.00	- 0.00	0.499
PROFTRUST	+	0.49	3.50	0.000
Size				
LnASSETS	+	0.22	5.54	0.000
TURNOVER	+	0.00	1.50	0.069
Risk and complexity				
RETAILSCHEME	+	0.40	2.14	0.017
PROPERTY	+	0.25	3.57	0.000
FOREIGN	+	- 0.38	- 2.77	0.003
F-statistic			23.308	.000
Adjusted R ²			0.619	
Number of observation 123				

BSIZE = Board size measured by total number of trustees on board, *BODINDPT* = percentage of outside directors on the board, *PROFTRUST* = 1 if scheme is managed by professional trustee, 0 otherwise. *LnASSETS* = natural log of total assets, *TURNOVER* = total assets sold during the year over average assets, *RETAIL SCHEME* = 1 if scheme is retail scheme, 0 otherwise, *PROPERTY* = 1 if scheme invested in property, 0 otherwise, *FOREIGN* = 1 if scheme invested overseas, 0 otherwise,

5.4.3.1 Sensitivity test

In sensitivity testing this result, the study used Model 3. The regression results for Model 3 are presented in Table 5.11. The model obtains an adjusted R² of .360 and *F*-statistic of 4.379, significant at $p < .001$. The *PROFTRUST* was deleted by the SPSS regression program because it was constant or has missing correlations.

Table 5.11

Model 3: Ordinary Least Squares Regression Results (Dependent Variable: Natural Log of Audit Fees)

Variable	Expected sign	Regression coefficient	t-statistics	one-tail p > t
Intercept	NA	2.63	5.49	0.000
Board governances				
BSIZE	+	- 0.01	- 0.52	0.303
BODINDPT	+	- 0.13	- 1.08	0.142
Size				
LnASSETS	+	0.20	1.79	0.039
CONTRIBUTIONS/ASSETS	+	0.00	0.40	0.345
PARTICIPANTS/ASSETS	+	3.54	0.64	0.262
TURNOVER	+	0.00	1.74	0.043
Risk and complexity				
AMENDMENTS	+	0.10	1.24	0.109
RETAILSCHEME	+	0.48	1.56	0.061
PROPERTY	+	0.21	2.19	0.016
FOREIGN	+	- 0.56	- 2.84	0.003
LnGROWTHFUNDS	+	0.02	0.20	0.421
LnCASH	-	- 0.03	- 0.53	0.300
Audit market factors				
BIG FOUR*	?	0.19	1.54	0.127
FIRST-YEAR-AUDIT*	?	0.05	0.39	0.698
F-statistic			4.379	.000
Adjusted R ²			0.360	
<i>Number of observation 123</i>				
<i>*Two tail test to lack of expected sign</i>				
<i>PROFTRUST variable was deleted by the SPSS regression program</i>				

BSIZE = Board size measured by total number of trustees on board, BODINDPT = percentage of outside directors on the board, LnASSETS = natural log of total assets, CONTRIBUTIONS/ASSETS = total contributions received by scheme per financial year over total assets, PARTICIPANTS/ASSETS = number of members in the scheme over total assets, TURNOVER = total assets sold during the year over average assets, AMENDMENTS = 1 if scheme was amended during the year, 0 otherwise, RETAIL SCHEME = 1 if scheme is retail scheme, 0 otherwise, PROPERTY = 1 if scheme invested in property, 0 otherwise, FOREIGN = 1 if scheme invested overseas, 0 otherwise, LnGROWTHFUNDS = natural log of total growth and aggressive funds, LnCASH = natural log of scheme cash balances, BIG FOUR = 1 if auditor is a Big Four firm, 0 otherwise, FIRST-YEAR-AUDIT = 1 if first time audit, 0 otherwise.

Surprisingly, BSIZE and BODINDPT variables become not significant and have negative coefficients. As expected from results shown in Table 5.5 results, control variables for size (LnASSETS and TURNOVER) and complexity (RETAILSCHEME, PROPERTY and FOREIGN) remain significant in explaining the audit fees variation. In addition, all variables, except foreign investment negative coefficient, were consistent with directional prediction. All other variables of the basic model remain not significant.

5.5 Discussions

5.5.1 *KiwiSaver market*

The descriptive statistics results support the industry report findings that the New Zealand KiwiSaver industry is highly concentrated, with a phenomenal asset growth rate. This was mainly contributed by KiwiSaver's high level of mandatory contribution rate and larger membership base compared to the United States DBPs and Australian SMSFs. Overall descriptive statistic results indicate that KiwiSaver compliance is very high.

From an investment funds perspective, results indicate that KiwiSaver is holding minimal cash balances and majority of the assets for interest bearing investment but a significant portion is invested in conservative funds compared to Australian SMSFs high risk investment. This confirms Muller's (2013) findings in her study of KiwiSaver members' behaviour. She found that KiwiSaver members may be unconcerned or apathetic about their KiwiSaver funds, and have low levels of investment risk tolerance. This has resulted in a large number of KiwiSaver members remaining in the funds they were defaulted into when they were automatically enrolled. In addition, even for members who choose their own fund, there is a tendency towards more conservative investments (Nefdt, 2013). Thus, confirming that KiwiSaver investment portfolio allocation will be mostly into conservative investment funds, given the KiwiSaver members freedom to choose their investment types.

The KiwiSaver turnover ratio is much lower than the United States DBPs and Australia SMSFs. This reflects the United States and Australia active share markets compared to the limited investment options available on the local New Zealand market. This is reflected in the KiwiSaver investment portfolio allocation; it has a higher offshore and property investment allocations compared to the United States DBPs and Australian SMSFs.

5.5.2 *Audit market factors*

The Big Four firms have a much higher share in the KiwiSaver audit market compared to the United States DBPs and Australian SMSFs audit markets and other markets studied. With changes in auditor, the KiwiSaver rate is slightly higher than United States DBPs. However, the audit market factors findings are consistent with previous New Zealand study findings.

5.5.3 *Basic model*

The KiwiSaver average audit fees and total assets are higher than the United States DBPs and Australian SMSFs audit fees and total assets but smaller when compared to other market audit fees studies. However, on audit cost per total assets analysis, the KiwiSaver percentage is much lower than the United States DBPs and Australian SMSFs and other market audit fees. This supports Cullinan's (1997) claims that audits in the pension plan audit market are less costly per dollar of assets than in other audit markets examined.

With the regression analysis, the variables found to be significant explanatory factors in this study are those related to client size, and risk and complexity. The client's size and activity are likely to affect the cost of the audit because of the increased amount of time spent auditing the transactions. The increased cost would then affect the audit fee. Inherent risk and complexity can affect the audit's cost, either through more hours being spent on the audit, or a higher fee per hour being charged to compensate for the greater risk assumed. Both the size, and risk and complexity factors are items known to the auditor when an audit fee is determined. The present study findings are consistent with other market audit fee (Hay et al., 2006) and the pension plan literature (Arnold et al., 2014; Cullinan, 1997) that have demonstrated an association between size, risk and complexity and audit fees.

The significant negative coefficient result of KiwiSaver invested offshore (FOREIGN) is consistent with Arnold et al.'s (2014) negative coefficient but that result was not significant. This finding suggests that less audit effort is needed when KiwiSaver engages in offshore investment.

The two variables measuring audit market factors, (BIGFOUR and FIRST-YEAR-AUDIT) were both not significant in explaining the variability of audit fees, despite both having positive coefficients. This result is consistent with Cullinan (1997). However, it disagreed with Cullinan's argument that the Big Four (then the Big Six) small market share in the

pension plan market caused the not significant result (Cullinan, 1997). However, looking at the country level, this finding is consistent with Griffin et al.'s (2009) claim that the Big Four has no premium in New Zealand audit market despite the substantial market share.

These results and the robustness of the basic model were confirmed with the study sensitivity tests producing similar results. The sensitivity test also reduced the basic model, Model 1, to consisting of only the significant variables.

Addressing the acknowledged limitation in Cullinan's (1997) possibility of measurement error with inclusion of non-audit related fees in the dependent variable, the study reconfigured the dependent variable from audit fees to total fees including non-audit service fees. The study is able to address this issue as audit fees and non-audit fees are required to be separately disclosed in the KiwiSaver annual report. The BIG FOUR coefficient become positive and significant, suggesting the Big Four firms have a premium in the KiwiSaver industry. This is consistent with prior audit fee research claims that when the dependent variable (audit fees) is redefined as total auditor work, different results are found. Thus, indicating that the dependent variable used in Cullinan (1997, 1999) may have included non-audit related fees.

Therefore, this study does support hypotheses 1 and 2, a positive relationship between audit fees and KiwiSaver characteristics (size, risk and complexity) because in KiwiSaver industry these variables are significant factors in determination of audit fees. In addition, the audit market factors measures by Big Four status and changes in auditor have no effect on audit fees determination.

5.5.4 *Non-audit services*

The study notes that taxation consultation and an annual reviewing of KiwiSaver prospectus documents are the most common non-audit services provided by audit firms for KiwiSaver. This is reflected in KiwiSaver's low average of non-audit service fees compared to other industries in New Zealand. The non-audit services fee declined in 2013 after a significant increase in 2012. This was mainly due to retail schemes reviewing all their prospectus documents to comply with new KiwiSaver Amendment Act 2011 that came into law in October 2012.

To examine whether a non-audit services fee may be a determinant of audit fees, the study added the natural log of non-audit fees (LnNASFEES) to the reduced Model 1. The non-audit

service fee has a positive relationship but is not a significant factor in determination of audit fees. Not surprisingly, when sensitivity testing of this result using Model 2, the results were similar. This is contrary to Arnold et al.'s (2014) finding of negative coefficient and significant result and other markets studied (Hay et al., 2006) findings of significant positive relationship between non-audit fees and audit fees.

As a result, the study does not support hypothesis 3, a positive relationship between audit fees and non-audit services fees because, in the KiwiSaver industry non-audit services fees is not a factor in determination of audit fees.

5.5.5 Governance

Consistent with other New Zealand studies, no New Zealand CEO held the position of board chair in the KiwiSaver board (trust). In addition, no KiwiSaver CEO is a trustee of the trust responsible for the schemes. On board independence, a KiwiSaver trustee reported to a majority of independent directors. Moreover, the majority of the KiwiSaver is managed by independent professional trustees.

Interestingly, the average board size for KiwiSaver is small compared to other industries and the expected size of a New Zealand board. There is an argument that to balance the skills and expertise required in the board room, New Zealand companies may require a larger board size.

The study adds board governance variables (BODINDPT, BSIZE and PROFTRUST) to the reduced Model 1 to test hypotheses 4, 6 and 7. Hypothesis 5 cannot be tested due to the omission of CEODIR from the regression. The control variables for BSIZE and PROFTRUST were significant and consistent with directional expectations except BSIZE negative coefficient. The BODINDPT was not significant, despite having a positive coefficient. The PROFTRUST and BSIZE result support the 'demand-side' arguments that professional trustees demand higher audit quality services, despite KiwiSaver's smaller board size.

The result of BODINDPT does not support either the 'demand-side' or the 'supply-side' arguments that independent directors in the board demand better audit quality and that auditors view a high percentage of independent directors as a factor that can reduce their audit risk. This suggests that board independence in the KiwiSaver industry is not a significant factor for audit firms in estimating their audit risk. This may be due to new

regulatory requirements that came into force in October 2012 to improve the KiwiSaver governance structure.

Overall, the board governances have an association with audit fees. This is consistent with other markets studied (Hay et al., 2006). Therefore, this study does support hypotheses 6 and 7, a positive relationship between audit fees and KiwiSaver professional trustee and board size because in the KiwiSaver industry, these variables are significant factors in the determination of audit fees. On the other hand, this study does not support hypotheses 4 and 5, a positive relationship between audit fees and KiwiSaver board independence and CEO duality because in the KiwiSaver industry, these variables are not significant factors in the determination of audit fees.

Chapter 6

Conclusions and Recommendations

6.1 Summary

Using data collected from KiwiSaver scheme's financial statements and annual reports, this thesis has documented the influence of the New Zealand KiwiSaver characteristics, audit market factors, non-audit services and board characteristics on audit fees between 2011 and 2013 fiscal years. Chapter 2 provided a brief overview of the KiwiSaver industry in New Zealand and its agency problems. Since the introduction of the KiwiSaver in July 2007, New Zealand witnessed the KiwiSaver assets increase fifteen-fold to \$16.56 billion, the equivalent of about 12 percent of the New Zealand GDP. One of the factors for such a phenomenal growth rate was the membership growth that exceeded all expectations and currently stands at 2.09 million (about 50% of New Zealand total population). The main attractions of the KiwiSaver are choosing the level of contribution; receiving the government kick-start payments and annual member tax credits; the ability to take a contributions holiday; use of savings to buy a home; being able to choose between scheme providers and different fund investment mandates; and the ability to opt out.

Chapter 3 addressed the lack of audit pricing on the pension plan industry in general and identified an opportunity to extend the little literature using the New Zealand KiwiSaver setting. The latest developments in the KiwiSaver industry meant the study could include the influences of non-audit services and governance characteristics on audit fees to improve our understanding of how audit fees are determined in the pension industry. Thus, I developed seven hypotheses to examine whether the key audit fee determinants identified by prior audit research prove to be relevant in determining the amount of audit fees in the New Zealand KiwiSaver industry. Building on prior pension plan audit fees models in Chapter 4, I introduce two new explanatory variables, LnGROWTHFUNDS and PROFTRUST, which represents the growth in asset size of KiwiSaver high risk investment category and the board skills and expertise, respectively. Both variables were expected to have positive coefficient based on the rationale that as the KiwiSaver invests in a more diverse and high risk funds, auditors may charge a higher fee per hour to compensate for the additional risk assumed, and more time and effort is needed to perform the external audit work. I take a 'demand-side'

theory view on board governance that skilful and expert boards will demand higher audit quality services, resulting in higher audit fees.

KiwiSaver characteristics

Given the KiwiSaver's phenomenal asset growth rate, unexpected membership take up rate with members flexibility to choose between schemes providers and different investment funds, and the KiwiSaver being offered to the public, it is not surprising that I find evidence that audit fees is positively related to the KiwiSaver characteristics (size, risk and complexity). This supports the study expectation that when the KiwiSaver is growing bigger and becoming more complex, it becomes more difficult and more time consuming the audit is likely to be, leading to higher audit fees. Surprisingly, the new risk and complex variable, LnGROWTHFUNDS, was not significant but was consistent with directional prediction. This was supported by the KiwiSaver members' behaviour, that they have a low level of risk tolerance and a tendency towards conservative funds. Thus, substantial asset is invested in conservative funds and not in the high risk funds category.

Audit market factors

I find no evidence that the audit market factors measures by the Big Four status and changes in auditor influence the audit fees in the KiwiSaver industry, despite the Big Four firms having a much higher share in the KiwiSaver audit market compared to the US DBPs and Australian SMSFs audit markets and other markets studied. This is a surprising result given that a similar result was found by Cullinan (1997) but with a much lower Big Four (then the Big Six) market share. However, when the dependent variable is redefined as total auditor work, I observe the Big Four earning a premium in the KiwiSaver industry.

Non-audit services

Addressing the regulator concerns of auditor independence, I find evidence that jointly supplying audit and non-audit services is not associated with problems of auditor independence and 'knowledge spill-over' in the industry. This result is somehow not surprising given that the most common non-audit services in the industry, taxation consultation and reviewing of the KiwiSaver prospectus documents, resulted in much lower non-audit services fees compared to other New Zealand industry.

Governance

Consistent with previous New Zealand listed company board composition studies, the KiwiSaver board (trust) has no issue with CEO duality, with 100 percent of the sample having a clear separation of CEO from chairman or being a member of the trust. In addition, a KiwiSaver trustee reported to a majority of independent directors. Interestingly, the average board size per trust is five members, despite it has been argued that a board size of eight members is less than optimal for companies in New Zealand's small economy.

Surprisingly, I find evidence that does not support either the 'demand-side' or the 'supply-side' arguments that a higher proportion of independent directors in the board demands better audit quality and that auditors view a board with a majority of independent directors as a factor that can reduce their audit risk. This suggests that board independence in the KiwiSaver industry is not a significant factor for audit firms in estimating their audit risk and demanding higher audit quality. This may be due to the KiwiSaver Amendment Act 2011 that came into force in October 2012 that improves the KiwiSaver governance structure. However, with regard to the KiwiSaver board with skills and experts, I find evidence that supports the 'demand-side' theory that skilful and expert trustees demand higher audit quality services, despite KiwiSaver's smaller board size, as expected.

6.2 Study contributions

This thesis provides several contributions to the literature. First, it documents the first audit pricing research on the KiwiSaver industry. Second, it provides new evidence about the pension audit market outside of the United States DBPs and the Australian SMSFs sample context, by directly investigating the determinants of audit fees, audit market factors, non-audit services and governance in the pension plan market, using New Zealand's KiwiSaver context.

Third, the current study builds on the prior pension plan audit pricing literature (Cullinan, 1997; Arnold et al., 2014) by supplementing controls likely to impact audit fees in the New Zealand pension industry with additional explanatory variables, including investments in high risk funds category (LnGROWTHFUNDS), and pension plans managed by a professional trustee (PROFTRUST), representing skilful and expert boards. Lastly, the results also help the auditing community understand the current environment of auditing and audit fee setting within the New Zealand KiwiSaver industry.

6.3 Research limitations

The present study has a number of limitations that provide opportunities for further research. First, the sample is inherently small, which reduces the power of the study tests. However, I find significant results for the study testing variables, and the results are robust according to several sensitivity tests. Second, the sample is limited to New Zealand DCP (the ‘KiwiSaver’), therefore the extent to which the results apply in other pension plan settings is uncertain.

Third, this study involved a great deal of hand collection of data and purchasing of data sources from vendors. This could raise some concerns on the reliability and validity of the results. Moreover, the lack of relevant data also prevents this study from examining other specific reasons that prior studies suggest that may influence audit fees (refer Section 3.5).

6.4 Future research

Whilst this study has made several interesting findings about the KiwiSaver sector, it would be interesting to conduct further research in the New Zealand retirement savings industry. First, it would be interesting to extend the audit analysis to all the New Zealand types of superannuation funds, including the KiwiSaver Exempt Employer and the Approved Complying Superannuation Funds sectors. Both sectors are under the Financial Markets Authority jurisdictions. However, this will be possible only when the trusted source provides such data for these variables along other financial data.

Second, whilst this study has had a domestic focus, it may have broader global implications, I recommend further research to be conducted on the comparison of the New Zealand retirement savings industry to those in other countries with similar benefit design, especially the Australian DCPs sector.

6.5 Recommendations

The study has potential policy implications for the KiwiSaver regulator, Financial Markets Authority. Thus, I put forward the following recommendations for their information and consideration.

1. I support the Financial Markets Authority concern and calls on issuers for better disclosure and correctly applied the requirements of Financial Reporting Standard 44 in disclosing audit and non-audit services fees.

The regulator will be relieved to note that there are no issues with auditor independence or ‘knowledge spill-over’ in the industry. However, there are issues around disclosure of audit fees and non-audit fees which are unclear and inconsistent according to the new reporting requirements. Audit and non-audit services fees are not clearly disclosed on the KiwiSaver, sponsor and scheme providers financial statements despite the new legal requirement, reported in Table 4.1. Surprising, these schemes were mostly retail schemes (with one default scheme) and audited by the Big Four firms. This issue was also addressed by the Financial Markets Authority Guidance Notes issued in April 2014 (Financial Markets Authority, 2014a).

Thus, I support the Financial Markets Authority concern and call on issuers for better disclosure and correctly applied the requirements of Financial Reporting Standard 44 in disclosing audit and fees for other services, given the financial statements users need a clear picture of how the external auditor’s independence is managed by the issuer and how the auditor maintains its independence.

2. I support the call by the Financial Markets Authority to encourage all listed issuers/trustees to consider the inclusion of audit committee information in their annual report. However, I recommend that the calls should also extend to include other governance information.

The Financial Markets Authority will be delighted to note that KiwiSaver managed by a professional trustee is significant determinant of audit fees that supported their primary role of protecting the interests of investors and on enhancing investor confidence. Again, there are issues around disclosure of governance matters, like trustee directorship, trust and issuers audit committee, and so on, on the KiwiSavers’ and members’ annual reports. The disclosure of audit committees was addressed by the Financial Markets Authority Guidance Notes on April 2014.

This study supports the call by Financial Markets Authority to encourage all listed issuers to consider inclusion of audit committees’ information in their annual report. However, I recommend that this call should also be extended to include other governance information,

for example, multiple directorships, number of board meetings, board skill and experience, and so on, that will give investors an opportunity to know the people and process who are managing their life savings.

3. I recommend that the Financial Markets Authority consider the possibility of extending their responsibility to include, collecting and compiling the official government data on the KiwiSaver industry and other superannuation funds under their jurisdiction.

Currently, responsibility for maintaining and developing data on KiwiSaver is spread across government agencies and industry bodies and produced mainly by Inland Revenue Department, Financial Markets Authority and the Reserve Bank. A number of industry bodies report, advocate and develop data on KiwiSaver and associated retirement income provision. Whilst private data such as the Morningstar surveys is regular, there is no guarantee that this will continue into the future, and there is no way to relate this information about the industry to data on individual members or groups of members (Dwyer, 2013).

Thus, the study supports Dwyer's (2013) suggestion that transparency would be better supported by an independent and timely distillation of the disclosed information by the Financial Markets Authority. This official government data will ensure that reliable data is available for researchers and academic examination, and the public would be able to learn more about the industry. In addition, this extra responsibility will be consistent with the Australian retirement saving regulators (Australian Taxation Office and Australian Prudential Regulation Authority) providing official government data on the Australian superannuation industry.

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Appendices

Appendix A: Key Features and Design of the KiwiSaver

Principal Act	KiwiSaver Act 2006
Governance Model	Trust Model
Fund Model	Defined Contribution Plan
Type of Schemes	1. 'Default' KiwiSaver schemes 2. 'Retail' schemes open to members of the public 3. 'Restricted' schemes for specific groups of people either employed in the same company or industry, or other defined group.
Fund Administrator and Management	KiwiSaver Service Provider (KSP)
Membership	• KiwiSaver is open to all New Zealand citizens, and people living in, and entitled to live in New Zealand, permanently, who are under the age of 65.
KiwiSaver Choice (Auto enrol)	• Employees who meet residence, age (18-64), and employment (not own account, casual or temporary) criteria are automatically enrolled in KiwiSaver when they start a new job (unless their employer has an approved alternative work-based saving scheme) and have an eight week period to opt out. • Those who 'opt- in' to KiwiSaver cannot opt-out at a later date, however anyone can apply for a contributions holiday after 12 months
Opt-Out	• Employees who choose to 'opt-out' of KiwiSaver within the 8 weeks, all contributions made to the KiwiSaver will be return to both employee/employers.
KiwiSaver Scheme/Investment Choice	• Individuals can choose their KiwiSaver scheme and switch schemes at any time • Members can choose their own type of investments within their scheme • Auto-enrolled employees who do not select a scheme, and those who 'opt-in' to KiwiSaver without choosing a scheme, are randomly allocated to a default scheme by Inland Revenue Department
KiwiSaver Account	• Member can have only one KiwiSaver Account. • KiwiSaver schemes are portable, which means employees can continue to contribute to the same scheme if they change jobs or even if they have deductions from two (or more) job
Mandatory Contributions	Employees: • Employees may elect to contribute at 2 percent (the minimum, rising to 3 percent on 1 April 2013), 4 percent or 8 percent of their gross salary. Employers: • Employers must contribute a minimum of 3 percent of gross salary to their employees' KiwiSaver schemes. • Employers are obliged to make contributions only when an employee's account is active, but can also voluntarily do so during contribution holidays. New Zealand Government:

	• Government provides a one-off, \$1,000 <i>kick-start</i> contribution to a new KiwiSaver account, and • Member Tax Credit (MTC) contribution of 50 cents for each dollar a member contributes (up to a maximum MTC of \$521 per year, which equals \$10 per week). Complying superannuation funds also access the MTC where member contributions are paid on a KiwiSaver equivalent 'locked in' basis.
Voluntary Contributions	• Member/Employer can make voluntary contribution with no tax incentives either directly to KSP or through the Inland Revenue. • Individuals who are not employees may enrol with a KiwiSaver scheme and choose how much and how often they contribute.
Contribution holidays	After 12 months' membership, employees can take a contributions holiday for up to five years and can take as many contribution holidays as they like.
Preservations Rule	Savings are locked in until the age of 65, and at least 5 years' membership (or death).
Retirement Age (Withdrawal date)	65 years
Type of Benefits	• Retirement – (attained retirement age 65 and at least 5 years membership) • Early Release Conditions
Early Release Conditions	• There are special circumstances, with criteria, when members may be able to make an early withdrawal. These include: 1. A member passes away. If a KiwiSaver member dies before their savings mature, the savings will be paid to their estate 2. Significant financial hardship. The amount of this withdrawal will be based on individual circumstances (less the \$1,000 <i>kick-start</i> and MTC). 3. Serious illness. This withdrawal may be for all of their accumulated savings including the \$1,000 <i>kick-start</i> and the MTC. 4. Migration, a member moves permanently overseas. They can apply for this after 12 months overseas. In these cases the member will receive the \$1,000 <i>kick-start</i> but not the MTC which is paid back to the Government. From 1 July 2013 MTC will be included following emigration to Australia, but transfers to Australian complying superannuation schemes. 5. First Home. A one-off withdrawal to help with the purchase of their first home, after they have been with KiwiSaver for three years. This withdrawal can be part or all of their accumulated savings (less the \$1,000 <i>kick-start</i> and MTC). In addition, first home buyers can also receive a first home purchase subsidy of \$1,000 per year of KiwiSaver contributions (up to \$5,000 each and \$10,000 for a couple).
Retirement Product	Benefit can be paid by a way of a lump-sum or allocated pension as nominated by members.
Fees or charges	Fees (investment, management and administration charges) are deducted from individual accounts
Crediting Rates	Act require the crediting rates to be calculated and distributed to members annually or as per type of investment rule

Taxation	• Since April 2012, employer's superannuation contribution tax (ESCT), which is typically the same as the employee's marginal tax rate, has been deducted from all employer contributions; this reduces the net amount paid into an employee's KiwiSaver. • The investment income earned within KiwiSaver schemes is subject to relatively favourable tax treatment as a Portfolio Investment Entity. • Existing superannuation schemes that become KiwiSaver-compliant can access (in relation to member contributions made on a KiwiSaver-consistent 'locked in' basis) the annual member contribution subsidy but not the <i>kick-start</i> payment. • Lump sum payments on retirement, or earlier withdrawals, are not taxable in the hands of recipients.
Reporting Requirement	• KSPs must meet certain minimum on-going reporting requirements. These requirements are: a. Providing members with an annual personalised statement of contributions and accumulations; b. Providing members with a copy of the scheme annual report; and c. Submitting an annual return to the regulator. • From July 2013 (and initially as at 30 June 2013) fund managers ('retail' scheme only) must begin reporting their performance and returns, fees and costs, assets and portfolio holdings, liquidity and liabilities, and key personnel, along with any conflicts of interest, in a standardised format.
Government Guarantee	• There is no government guarantee that the KiwiSaver accounts will retain their value, let alone grow. • KiwiSaver is based on a competitive market for providers, including default providers, as well as the option to switch providers at any time.
KSPs discipline	The discipline on KSPs comes from: • the government's Financial Markets Authority; • self-management (including trust model) and disclosure by KSPs; and • market pressure from KiwiSaver clients.
Regulator	Financial Markets Authority is responsible for the administration, compliance monitoring and enforcement of the KiwiSaver Act 2006

Source: The key features and design of the KiwiSavers were extracted from these websites:

Inland Revenue Department (www.ird.govt.nz), KiwiSaver (www.kiwisaver.govt.nz),

Financial Markets Authority (www.fma.govt.nz) and Sorted (www.sorted.org.nz).

Appendix B: Descriptive Statistics from 2011 to 2013

	Model A (2011 year, n=41)			Model B (2012 year, n=41)			Model C (2013 year, n=41)			Model D (All year, n=123)		
	Mean	Median	Std. Deviation	Mean	Median	Std. Deviation	Mean	Median	Std. Deviation	Mean	Median	Std. Deviation
<i>Audit Fees (AFEEs)</i>	26,761	14,350	30,650	29,575	17,250	35,634	29,971	19,544	31,644	28,769	17,400	32,476
<i>LnAFEEs</i>	4.14	4.16	0.57	4.16	4.24	0.58	4.21	4.29	0.55	4.17	4.24	0.56
Size												
<i>Total assets (ASSETS)</i>	210,085,448	40,315,005	331,549,126	299,450,862	61,890,430	469,576,014	378,054,813	80,806,175	620,925,688	295,863,707	53,496,773	489,565,988
<i>LnASSETS</i>	7.62	7.63	1.00	7.67	7.79	1.10	7.75	7.91	1.07	7.68	7.76	1.05
<i>CONTRIBUTIONS/ASSETS</i>	0.42	0.36	0.16	0.36	0.30	0.18	3.52	0.22	21.34	1.45	0.31	12.41
<i>PARTICIPANTS/ASSETS</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.001	0.0001	0.01
<i>TURNOVER</i>	0.12	0.02	0.21	0.10	0.02	0.18	0.55	0.05	2.46	0.25	0.03	1.44
<i>LnCONTRIBUTIONS/ASSETS</i>	1.60	1.55	0.13	1.53	1.47	0.16	1.45	1.34	0.45	1.52	1.49	0.29
<i>LnPARTICIPANTS/ASSETS</i>	1.89	1.93	0.23	1.97	2.03	0.23	1.99	2.06	0.50	1.95	2.01	0.35
<i>LnTURNOVER</i>	0.99	1.03	0.65	0.65	0.79	0.84	0.87	1.07	1.12	0.83	0.92	0.91
Risk and complexity												
<i>AMENDMENTS</i>	0.05	0.00	0.22	0.07	0.00	0.26	0.79	1.00	0.41	0.31	0.00	0.46
<i>RETAILSCHEME</i>	0.73	1.00	0.45	0.72	1.00	0.45	0.72	1.00	0.45	0.72	1.00	0.45
<i>LnGROWTHFUNDS</i>	7.30	7.17	0.76	7.35	7.32	0.97	7.48	7.34	0.85	7.37	7.33	0.86
<i>LnCASH</i>	5.71	6.02	1.23	5.84	6.04	1.22	6.03	6.18	1.14	5.86	6.05	1.14
<i>PROPERTY</i>	0.71	1.00	0.46	0.70	1.00	0.46	0.70	1.00	0.46	0.70	1.00	0.46
<i>FOREIGN</i>	0.83	1.00	0.38	0.81	1.00	0.39	0.81	1.00	0.39	0.82	1.00	0.39
<i>BORROWING</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Audit opinion												
<i>OPINION</i>	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Audit market factors												
<i>BIG FOUR</i>	0.90	1.00	0.30	0.93	1.00	0.26	0.95	1.00	0.21	0.93	1.00	0.26
<i>FIRST-YEAR-AUDIT</i>	0.00	0.00	0.00	0.12	0.00	0.32	0.07	0.00	0.26	0.06	0.00	0.24
Non-audit services												
<i>Non-audit services fees (NASFEES)</i>	1,227	0.00	3,442	1,371	0.00	3,583	1,295	0.00	3,573	1,297	0.00	3,506
<i>LnNASFEES</i>	3.52	3.50	0.36	3.51	3.48	0.32	3.45	3.48	0.40	3.49	3.48	0.35
<i>OTHERSERVICES</i>	0.26	0.00	0.44	0.30	0.00	0.46	0.30	0.00	0.46	0.29	0.00	0.45
<i>Total audit fees</i>	26,743	15,763	31,308	29,570	16,288	36,388	29,872	19,544	32,289	28,728	17,000	33,169
<i>LnTAFEEs</i>	4.18	4.21	0.54	4.21	4.24	0.54	4.24	4.29	0.54	4.21	4.26	0.54
<i>Non-audit fees to total fees</i>	0.05	0.00	0.11	0.05	0.00	0.10	0.04	0.00	0.11	0.05	0.00	0.11
Board governance												
<i>BSIZE</i>	4.89	4.00	1.71	4.82	4.00	1.96	5.33	6.00	1.71	5.02	5.00	1.80
<i>BODINDPT</i>	0.72	1.00	0.45	0.73	1.00	0.44	0.87	1.00	0.31	0.78	1.00	0.40
<i>CEODIR</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>PROFTRUST</i>	0.76	1.00	0.43	0.79	1.00	0.41	0.79	1.00	0.41	0.78	1.00	0.41
Other variables												
<i>Contributions</i>	79,828,622	17,710,332	124,124,601	98,056,666	20,033,219	153,823,764	93,808,495	21,174,860	149,067,947	90,564,594	20,137,517	142,027,698
<i>Participants</i>	36,577	5,407	62,380	42,947	6,101	73,274	48,788	5,843	83,842	43,562,975	605,074	127,935,811
<i>Asset sold during the year (DISPOSAL)</i>	35,921,693	67,354	103,124,216	31,848,070	409,689	91,344,024	62,919,163	6,108,000	174,126,163	42,771	5,567	73,282
<i>Cash balance</i>	3,903,693	509,688	8,890,781	7,961,752	729,095	19,925,701	8,995,922	1,160,983	20,431,373	6,953,789	1,031,000	17,264,239
<i>Growth funds</i>	46,747,363	6,652,266	76,047,652	63,421,776	12,261,000	101,412,733	78,455,914	14,756,500	130,686,928	62,753,292	11,740,167	104,861,382

$LnAFEEES$ = natural log of audit fees, $LnASSETS$ = natural log of total assets, $CONTRIBUTIONS$ = total contributions received by scheme per financial year, $PARTICIPANTS$ = number of members in the scheme, $TURNOVER$ = total assets sold during the year over average total assets, $LnCONTRIBUTIONS/ASSETS$ = natural log of total contributions over total assets, $LnPARTICIPANTS/ASSETS$ = natural log of participants over total assets, $LnTURNOVER$ = natural log of turnover ratio, $AMENDMENTS$ = 1 if scheme was amended during the year, 0 otherwise, $RETAIL SCHEME$ = 1 if scheme is retail, 0 otherwise, $PROPERTY$ = 1 if scheme invested in property, 0 otherwise, $FOREIGN$ = 1 if scheme invested overseas, 0 otherwise, $BORROWING$ = 1 if scheme borrowed, 0 otherwise, $LnGROWTHFUNDS$ = natural log of total growth and aggressive funds, $LnCASH$ = natural log of scheme cash balances, $OPINION$ = 1 if unqualified opinion, 0 if qualified opinion, $BIG FOUR$ = 1 if auditor is a Big Four firm, 0 otherwise, $FIRST-YEAR-AUDIT$ = 1 if first time audit, 0 otherwise, $NASFEES$ = non-audit services fees paid during the year, $LnNASFEES$ = natural log of non-audit services fees, $Total\ audit\ fees$ = sum of audit and non-audit fees paid during the year, $LnTAFEES$ = natural log of total audit fees, $BODINDPT$ = percentage of outside directors on the board, $CEODIR$ = 1 if CEO a board member or chairman, 0 otherwise, $BSIZE$ = Board size measured by total number of trustees on the board, $PROFTRUST$ = 1 if scheme managed by professional trustee, 0 otherwise.

Appendix C: Ordinary Least Squares Regression Results (Dependent Variable: Natural Log of Audit Fees) from 2011 to 2013

Variable	Expected sign	Model A: year = 2011			Model B: year = 2012			Model C: year = 2013			Model D: All year		
		Regression Coefficient	t-statistics	one-tail p > t	Regression Coefficient	t-statistics	one-tail p > t	Regression Coefficient	t-statistics	one-tail p > t	Regression coefficient	t-statistics	one-tail p > t
Intercept	NA	2.97	3.46	0.000	3.04	3.51	0.000	2.89	2.49	0.000	2.74	6.05	0.000
Size													
LnASSETS	+	0.02	0.10	0.922	0.14	0.70	0.247	0.17	0.90	0.190	0.16	1.54	0.060
CONTRIBUTIONS/ASSETS	+	0.00	0.14	0.890	-	1.03	0.160	-	0.00	0.314	0.001	0.42	0.337
MEMBERSHIP'S/ASSETS	+	7.77	0.97	0.344	2.59	0.18	0.430	-	0.03	0.499	2.17	0.40	0.344
TURNOVER	+	0.01	1.96	0.070	0.00	0.52	0.305	0.01	2.50	0.010	0.003	1.94	0.030
Risk and complexity													
AMENDMENTS	+				0.88	1.63	0.060	-	0.06	0.14	0.06	0.86	0.196
RETAIL SCHEME	+	0.12	0.26	0.796	0.34	0.70	0.248	0.61	1.23	0.119	0.38	1.40	0.080
PROPERTY	+	0.20	1.23	0.235	0.42	2.46	0.010	0.42	2.22	0.020	0.26	3.02	0.002
FOREIGN	+	-	0.71	0.050	-	1.39	0.090	-	0.58	1.64	0.56	-	0.003
LnGROWTHFUNDS	+	0.38	1.66	0.115	-	0.40	0.346	0.04	0.19	0.427	0.02	0.48	0.316
LnCASH	-	-	0.26	0.090	0.13	1.13	0.137	-	0.06	0.61	0.02	-	0.202
Audit market factors													
BIG FOUR*	?	0.34	1.60	0.129	0.04	0.16	0.874	0.03	0.11	0.911	0.17	1.42	0.161
FIRST-YEAR-AUDIT*	?				0.52	2.59	0.020	-	0.53	0.030	0.06	0.51	0.612
F-statistic			2.532	.004		2.376	.054		1.931	.114		5.007	.000
Adjusted R ²			0.362			0.371			0.293			0.364	
		Number of observation 41			Number of observation 41			Number of observation 41			Number of observation 123		
		*Two tail test to lack of expected sign			*Two tail test to lack of expected sign			*Two tail test to lack of expected sign			*Two tail test to lack of expected sign		

LnASSETS = natural log of total assets, CONTRIBUTIONS/ASSETS = total contributions received by scheme per financial year over total assets, PARTICIPANTS/ASSETS = number of members in the scheme over total assets, TURNOVER = total assets sold during the year over average assets, AMENDMENTS = 1 if scheme was amended during the year, 0 otherwise, RETAIL SCHEME = 1 if scheme is retail scheme, 0 otherwise, PROPERTY = 1 if scheme invested in property, 0 otherwise, FOREIGN = 1 if scheme invested overseas, LnGROWTHFUNDS = natural log of total growth and aggressive funds, LnCASH = natural log of scheme cash balances, BIG FOUR = 1 if auditor is Big Four firm, 0 otherwise, FIRST-YEAR-AUDIT = 1 if first time audit, 0 otherwise.

Appendix D: Ordinary Least Squares Regression Results (Dependent Variable: Log of Audit Fees)

Variable	Expected sign	Regression coefficient	t-statistics	one-tail p > t
Intercept	NA	6.60	6.30	0.000
Size				
LASSETS	+	0.15	1.43	0.079
CONTRIBUTIONS/ASSETS	+	0.00	0.48	0.318
PARTICIPANTS/ASSETS	+	2.16	0.17	0.431
TURNOVER	+	0.01	1.54	0.064
Complexity				
AMENDMENTS	+	0.12	0.73	0.235
RETAIL SCHEME	+	0.80	1.29	0.100
PROPERTY	+	0.56	2.81	0.003
FOREIGN	+	- 1.27	- 2.84	0.003
LGROWTHFUNDS	+	0.08	0.70	0.243
LCASH	-	- 0.08	- 1.29	0.101
Audit market factors				
BIG FOUR*	?	0.42	1.55	0.125
FIRST-YEAR-AUDIT*	?	0.16	0.57	0.570
F-statistic			4.266	.000
Adjusted R ²			0.326	
<i>Number of observation 123</i>				
<i>*Two tail test to lack of expected sign</i>				

LAFEES = log of audit fees, LASSETS = log of total assets, CONTRIBUTIONS/ASSETS = total contributions received by scheme per financial year over total assets, PARTICIPANTS/ASSETS = number of members in the scheme over total assets, TURNOVER = total assets sold during the year over average assets, AMENDMENTS = 1 if scheme was amended during the year, 0 otherwise, RETAIL SCHEME = 1 if scheme is a retail scheme, 0 otherwise, PROPERTY = 1 if scheme invested in property, 0 otherwise, FOREIGN = 1 if scheme invested overseas, 0 otherwise, LGROWTHFUNDS = log of total growth and aggressive funds, LCASH = log of scheme cash balances, BIG FOUR = 1 if auditor is Big Four firm, 0 otherwise, FIRST-YEAR-AUDIT = 1 if first time audit, 0 otherwise.

Appendix E: Ordinary Least Squares Regression Results (Dependent Variable: Natural Log of Non-Audit Services Fees)

Variable	Expected sign	Regression coefficient	t-statistics	one-tail p > t
Intercept	NA	- 4.23	- 1.47	0.000
Audit Fees				
LnAFEES	+	0.41	0.67	0.252
Size				
LnASSETS	+	0.09	0.17	0.433
CONTRIBUTIONS/ASSETS	+	- 0.01	- 0.75	0.227
PARTICIPANTS/ASSETS	+	- 22.85	- 0.82	0.207
TURNOVER	+	0.00	0.55	0.291
Risk and complexity				
AMENDMENTS	+	- 0.15	- 0.39	0.349
RETAILSCHEME	+	0.08	0.06	0.477
PROPERTY	+	- 0.88	- 1.85	0.034
FOREIGN	+	0.55	0.52	0.303
LnGROWTHFUNDS	+	0.35	0.63	0.266
LnCASH	-	- 0.09	- 0.30	0.383
Audit market factors				
BIG FOUR*	?	1.37	2.21	0.030
FIRST-YEAR-AUDIT*	?	0.43	0.67	0.504
F-statistic			1.704	.079
Adjusted R ²			0.098	
Number of observation	123			
*Two tail test to lack of expected sign				

LnAFEES = natural log of audit fees, LnASSETS = natural log of total assets, CONTRIBUTIONS/ASSETS = total contributions received by scheme per financial year over total assets, PARTICIPANTS/ASSETS = number of members in the scheme over total assets, TURNOVER = total assets sold during the year over average assets, AMENDMENTS = 1 if scheme was amended during the year, 0 otherwise, RETAIL SCHEME = 1 if scheme is retail scheme, 0 otherwise, PROPERTY = 1 if scheme invested in property, 0 otherwise, FOREIGN = 1 if scheme invested overseas, 0 otherwise, LnGROWTHFUNDS = natural log of total growth and aggressive funds, LnCASH = natural log of scheme cash balances, BIG FOUR = 1 if auditor is Big Four firm, 0 otherwise, FIRST-YEAR-AUDIT = 1 if first time audit, 0 otherwise.