OWNERSHIP CONCENTRATION, FREE CASH FLOW AGENCY PROBLEM AND FUTURE FIRM PERFORMANCE: NEW ZEALAND EVIDENCE

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Abstract

This study seeks to empirically examine the effect of ownership concentration on mitigating free cash flow agency problem in New Zealand. Following Jensen's (1986) argument that managers have incentives to misuse free cash flows, this study tests whether concentrated ownership structure helps alleviate such a problem or exacerbates it. A natural consequence of this agency problem will be overinvestment and other operational inefficiencies which are likely to have a detrimental impact on firms' future performance. The second objective of this paper is to examine the association between FCFAP conditional on ownership concentration on future firm performance. We measure free cash flow agency problem as the product of positive free cash flows and growth opportunities proxied by Tobin's Q and find that financial institution-controlled ownership structure in New Zealand is positively associated with free cash flow agency problem. We also document that free cash flow agency problem conditional on ownership concentration negatively affects future firm performance.

Keywords: Free Cash Flow Agency Problem, Agency Theory, Over-investment, Future Firm Performance

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1. Introduction

The purpose of this paper is to investigate the (i) impact of different classes of ownership concentration on free cash flow agency problem; and (ii) the effect of such agency problem on future firm performance in New Zealand. Corporate cash holding has been a topic of increasing research interest and there is evidence that in recent years large companies have increased holding a significant fraction of corporate wealth in terms of cash and cash equivalents (Dittmar & Mahrt-Smith, 2007). Although it is necessary for firms to hold some cash to finance daily operations, excessive cash holding may have negative impact on firm value. In a seminal contribution, Jensen (1986) argues from an agency theory perspective that managers are inclined to squander free cash flow (FCF) (internally generated cash flows in excess of that required to maintain existing assets in place and finance profitable projects) when their objectives differ from those of shareholders. This is referred to as free cash flow agency problem (hereafter FCFAP). Empirical research has

provided some support for the agency cost explanation of the FCF problems (Blanchard, Lopez-di-Silanes, and Shleifer, 1994; Harford, 1999; Bates, 2005; and Richardson, 2006). The general consensus from the empirical literature seems to support the entrenchment view of FCF which argues that in the absence of effective monitoring the value-destroying managerial behavior reduces shareholder wealth. Shareholders, therefore, are expected to demand monitoring mechanisms to ensure that the FCF is not opportunistically used by managers. This paper attempts to test the proposition that corporate governance requirements, specifically ownership concentration, can fulfill such a demand.

Concentration of ownership is acknowledged as a central concept in the theory of corporate governance (Morck, 2000; Shleifer & Vishny, 1997), as the ownership structures provide a fundamental explanation for governance issues, including managerial power, shareholders' monitoring, firms' financing and investment decisions. Whether ownership concentration mitigates FCFAP, however, requires empirical

testing. On the one hand, *efficient-monitoring hypothesis* claims that large shareholders have great expertise and can monitor management at lower cost than individual shareholders. So, ownership concentration can prevent managers from expropriating company resources for their personal benefit (Berle and Means, 1932; Huddart, 1993; Maug, 1998; Shleifer and Vishny, 1986). On the other hand, *conflict-of-interest* and *strategic-alignment hypotheses* contend that ownership concentration can also give rise to severe agency conflicts between majority and minority shareholders since the former group has the opportunity and incentives to work for management (Faccio, Lang, & Young, 2001; Shleifer & Vishny, 1997).

This paper aims to directly test these competing hypotheses using data from New Zealand. Garvey (1992), in an early attempt also examines the disciplinary effect of ownership concentration on FCF problem but fail to find any evidence that the decision to pay out FCF in a sample of large U.S. corporations is related to the size of managerial, family or institutional blockholdings. This finding leads him to conclude that, "… large shareholders are of no use in resolving the free cash flow problem, or that the importance of free cash flow as a source of agency problems has been greatly exaggerated." This paper differs from Garvey in at least three respects. Firstly, we concentrate on the sample of positive FCF but low growth opportunity sub-sample. These firm-year observations suffer from the most acute FCF problem and therefore provide a stronger setting for testing the efficiency versus entrenchment hypotheses of concentrated ownership. Secondly, the interactive effect of the FCF-ownership concentration on firm performance was not investigated by Garvey (1992). Since managerial misuse of FCF is likely to adversely impact future firm performance, the omission of this test does not tell the complete picture of the FCF agency problem. Finally, we use data from a small yet developed country which is characterized by substantially concentrated ownership structure[19], and less stringent governance regulation compared to her US counterpart which provides a natural

experimental setting to examine the efficiency versus entrenchment hypothesis of the concentrated ownership structures with respect to FCF.[20]

An important consideration regarding the FCF problem relates to the managerial use of excess cash flow for firms plagued with low growth opportunities. These are the firms where the FCFAP is most acute (Jensen, 1986). Taking this argument into account, this paper measures the dependent variable, FCFAP, as the interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if Tobin Q is less than the sample median and zero otherwise. This methodology follows Lang & Litzenberger's (1989) argument that the mangers of a firm with a "low" Q−low growth opportunities, are more likely to overinvest or waste their excessive cash resources. The independent variable of primary interest in this study is ownership concentration proxied by the total percentage of top five shareholders. However, the aggregated nature of ownership concentration may mask the true effect of the different classes of ownership composition on FCFAP. An important consideration in analyzing the impact of large shareholders is their mixed composition as there are likely to be disparities in the motivations and constrains of information sharing by different large shareholders (Badrinath, Gay, & Kale, 1989; Del Guercio, 1996; Falkenstein, 1996). We, therefore, categorize ownership concentration in New Zealand into three mutually exclusive groups, namely: (i) financial institution-controlled; (ii) management-controlled; and (iii) other group that combines government and other company-controlled observations, and examines the impact of ownership concentration under each type of controlling ownership structure on FCFAP and associated future firm performance.

Using data for publicly listed New Zealand companies from 2000 to 2009, this study reveals that overall ownership concentration measure is positively associated with FCFAP, and this positive relation holds for both financial institutions-controlled and management controlled-ownership structures. In addition, the study shows a significant negative effect of the FCFAP on future firm

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[19] Hossain, Prevost, and Rao (2001) show that the mean proportion of stock held by the top 20 shareholders in New Zealand is 73 per cent, while Demsetz and Lehn (1985) demonstrate the equivalent percentage at only 37.66 per cent in USA. ICANZ (2003) reports that institutions are the main investors accounting for 73 per cent of investment in the share market, while private individuals account for less than a quarter of investment in the share market in 2001. New Zealand is characterized as a developed country with higher shareholder litigation costs, weaker enforcement of law, and less minority shareholder protection compared with other OECD countries (Organisation for Economic Cooperation and Development).

[20] The association between FCF and ownership concentration has also been indirectly addressed by examining the effect of different forms of ownership structures on firm's dividend payout policy (Agrawal & Jayaraman, 1994; Eckbo & Verma, 1994; Short, Zhang, & Keasey, 2002). The theoretical underpinning for such an investigation is premised on the argument that dividend payout serves as a monitoring mechanism in reducing the agency costs of FCF (Jensen, 1986). Although these studies on ownership-dividend relationship have provided insight into managerial discretion on distributing FCF *ex post*, the effect of concentrated ownership structures on managerial decision on establishing FCF *ex ante* has not been directly investigated.

performance for firms with financial-institution-controlled and management-controlled ownership structures. Both these findings support the entrenchment rather than the efficiency hypothesis of concentrated ownership regime in New Zealand. This paper contributes to the existing literature on the association between governance mechanisms and accounting performance measures. Larcker, Richardson, and Tuna (2007) provide evidence that the standard governance variables have a very little explanatory power for financial reporting quality measures and organizational performance. This is explained by the fact that majority of the studies examine the association between governance variables and organizational performance measures without giving due consideration to the contexts in which these two interact. We show that the explanatory power of governance variable for future firm performance increases significantly with the incorporation of FCFAP. We also believe that these findings will help New Zealand governance regulators to assess the efficiency of concentrated ownership structure and consider any governance reform, if required. The paper proceeds as follows. The next section reviews the relevant literature and develops testable hypotheses. Section 3 describes research design issues and explains the sample selection procedure. Section 4 provides the test results and Section 5 concludes.

2. Literature Survey and development of testable hypotheses

A strand of capital structure literature has made considerable contribution to understanding the determinants of corporate cash holdings. Three theoretical perspectives have been advanced for understanding firms' cash holding behaviours. The transaction costs theory assumes that firms with a high marginal cost of cash shortfalls are expected to hold more cash (Meltzer, 1993; Miller & Orr, 1966; Mulligan, 1997); the trade-off theory claims that firms' optimal cash holding decision is a trade-off between benefits and costs (Opler, Pinkowiytz, Stulz, & Williamson, 1999); the financing hierarchy theory suggests that firms hold cash because internally generated cash is less expensive compared to external financing (Opler et al., 1999; Shyam-Sunder & Myers, 1999). Based on these theories, a number of studies have investigated the determinants of cross-sectional difference in the level of firms' cash holdings, and have reported that firms with stronger growth opportunities, asymmetric information, volatile cash flows, more limited access to capital markets, and high profitability are likely to hold higher cash reserves (Dittmar, Mahrt-Smith, & Servaes, 2003; Kim, Mauer, & Sherman, 1998; Mikkelson & Partch, 2003; Opler et al., 1999).

Jensen (1986) provides an alternative explanation for firms' cash holdings based on the assumption of managerial self-interests. It posits that conflicts of interest between shareholders and managers over cash payouts are more severe in the presence of excessive FCF. Opportunistic managers could use such surplus cash to finance negative net present value (NPV) projects which benefits them at the cost of outside stakeholders.[21] Empirical evidence on Jensen's FCF hypothesis, however, remains inconclusive. Opler et al.(1999) report that both transaction and asymmetrical information costs are important factors in explaining firms' cash holdings, but not the agency costs of holding cash. Mikkelson & Partch (2003) argue that firms with persistent cash holdings anticipate large investment requirements and high cash reserves support such investments. They find that such cash reserves are followed by greater investment, especially R&D expenditures, and by greater growth in assets.

On the other hand, Blanchard et al. (1994) document an excessive investment and acquisition activity for eleven firms that have experienced a large cash windfall due to a legal settlement. Harford (1999) finds that cash-rich firms are more likely to attempt acquisitions, pay higher acquisition premium and perform worse than other firms with normal cash flows. Richardson (2006) reports that over-investment is concentrated in firms having large amount of FCF, which is consistent with Jensen's (1986) FCF hypothesis argument. Chung, Firth and Kim (2005) show that managers of high FCF-low-growth firms tend to use income-increasing discretionary accruals to mask such value-destroying managerial activities. Gul (2001) argues that although last-in-first-out inventory methods results in maximization of tax benefits in period of rising prices and hence preferred by the shareholders, managers with FCF and low growth opportunities are more likely to choose first-in-first-out, an income increasing inventory method, in order to receive higher compensation. Empirical studies on the market valuation of cash holdings find that market value of an additional dollar in cash holding is less than one dollar (Dittmar & Mahrt-Smith, 2007; Faulkender & Wang, 2005), suggesting investors discount the firms having large cash reserve, which is consistent with Jensen's (1986) FCF hypothesis.

Theoretically, good corporate governance is expected to constrain managerial inefficient utilisation of corporate resources including FCF (Richardson, 2006; Dittmar & Mahrt-Smith, 2007). Gul and Tsui (1998, 2001), for example, identify audit quality and managerial equity ownership as effective governance mechanisms in constraining

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[21] For example, managers could increase the size of their organization by acquiring companies which do not add value to shareholders but increases managerial remuneration.

FCFAP. Chen, Chen, & Wei (2010) find that stronger shareholder rights are associated with lower cost of equity capital particularly for firms plagued with higher FCFAP. Dittmar, Mahrt-Smith, & Servaes (2003), in a cross-country study, find that firms in countries with poor shareholder protection hold twice as much cash as firms in countries with good shareholder protection which prevents managers from the opportunistic cash usage for their personal benefits.

One of the most fundamental governance mechanisms is the ownership structures which have been found to impact managerial power, shareholders' monitoring, and firms' financing and investment decisions (Shleifer and Vishny, 1997). With reference to the effect of large shareholdings on organizational outcomes, two competing arguments exist. On the one hand, *efficient-monitoring hypothesis* claims that large shareholders have greater expertise and can monitor management at lower cost than individual shareholders. So, ownership concentration can prevent managers from expropriating company resources for their personal benefit (Berle and Means, 1932; Huddart, 1993; Maug, 1998; Shleifer and Vishny, 1986). On the other hand, *conflict-of-interest and strategic-alignment hypotheses* contend that ownership concentration can also give rise to severe agency conflicts between majority and minority shareholders if the former group finds it advantageous to work for management instead of monitoring them (Faccio, Lang, & Young, 2001; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000; Shleifer & Vishny, 1997). This "cooperation" could potentially cripple the large shareholders in effectively monitoring management, and result in the expropriation of minority shareholders (Pound, 1988). For instance, Shleifer and Vishny (1997) assert that insiders can expropriate corporate wealth through setting unfair terms for intra-group sales of goods and services and transferring of assets and control shares.

FCFAP are likely to have negative consequences on firm performance. For example, managerial use of excess cash to finance negative NPV projects will result in increased remuneration expenses on financial statements without a concomitant increase in revenues. Extant research, however, is mixed. Opler et al. (1999) and Harford (1999) suggest a negative impact of large cash flows on operating performance but Mikkelson and Partch (2003) reveal that firms' high cash holdings are accompanied by greater investment, and growth in assets. The studies mentioned above, however, do not directly address the agency costs associated with FCF since these studies use cash and cash equivalents rather than the FCF. The later is a better proxy to measure agency costs because the calculation of FCF controls for cash investments and surrogates managerial discretion over the use of

such cash flows. Because agency costs associated with FCF is most acute for firms with positive FCF but low growth opportunities, it is interesting to examine the effect of such FCFs on future firm performance.

Due to the conflicting evidence provided by extant empirical research on the effect of ownership concentration on FCFAP and the absence of relevant research on the determinants of cash flow in New Zealand, we have developed the first hypothesis in null form.

H_1: There is no association between the level of overall ownership concentration and FCFAP.

An important consideration in analyzing the impact of large shareholders on reporting outcomes is their mixed composition as there are likely to be disparities in the motivations and constrains of information sharing by different large shareholders (Badrinath et al., 1989; Del Guercio, 1996; Falkenstein, 1996). Previous studies employed institutional ownership, insider ownership and block ownership to represent mixed composition of large shareholdings. However, those groups of shareholders overlap, as institutional shareholders can be both insiders and block holders. Without effective separation of those groups of shareholders, it is difficult to determine which group of large shareholders drives the observed relations (Rubin, 2007). Our paper overcomes such problems by categorizing ownership concentration in New Zealand into three mutually exclusive groups, namely: (i) financial institution-controlled; (ii) management-controlled; and (iii) other group that combines government and other company-controlled observations, and examines the impact of ownership concentration under each type of controlling ownership structure on the *FCFAP* and future operating performance.

Prior research on the monitoring effectiveness of financial institutions in New Zealand provides a rather pessimistic picture. Financial institutional shareholding (i) has been found to be passive in monitoring management (Bhabra, 2007); (ii) hinders firms' voluntary disclosure at high ownership concentration level (Jiang and Habib, 2009); and (iii) is related to high information asymmetry and severe investors adverse selection problem (Jiang, Habib and Hu, 2010). With respect to financial institutions' investment in the New Zealand equity market, foreign financial institutions and corporations account for the majority of investments which leads Bhabra (2007) to conclude that geographical separation of foreign institutional investors from their invested companies is partially responsible for the ineffective institutional monitoring observed in New Zealand. These arguments could provide a strong ground to hypothesize that financial-institution-based ownership concentration may not be a suitable

governance mechanism in monitoring value-destroying investment activities. We therefore develop the following hypothesis (in alternative form):

H_{1a}: There is a positive association between financial institutions-controlled ownership structure and FCFAP.

$$FCFAP_{i,t} = \gamma_0 + \gamma_1 OC_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 DIVID_{i,t} + \gamma_4 PROFIT_{i,t} + \gamma_5 LEVERAGE_{i,t} + \gamma_6 CVCF_{i,t} + \varepsilon_{it} \ldots\ldots(1)$$

$$i = 1,2,\ldots,86$$

$$t = 1,2,\ldots,10$$

The other group of shareholding structure that is likely to exert significant influence on FCFAP is the management group. In the presence of information asymmetries between corporate managers and outside minority shareholders, the former group has the incentive and opportunities to take actions that benefit them at the cost of outside shareholders. FCFAP is one such case. As has been argued before, managers may squander FCF in the absence of effective governance mechanisms leading to the following testable hypothesis (in alternative form):

H_{1b}: There is a positive association between management-controlled ownership structure and FCFAP.

In the presence of FCFAP, managers conduct investment, and other cash-related business activities in a way harmful to shareholders wealth (Jensen, 1986). Firm value may potentially deteriorate. If large shareholdings do affect firms' FCF agency problem, and there is a detrimental effect of FCFAP on firm value, we expect that this relationship between FCFAP and future firm performance will be modified by ownership structures in a systematic way. Consistent with H_{1a} and H_{1b}, we expect FCFAP in firms with financial institutions and management-controlled ownership structure is likely to have an adverse impact on future firm performance as hypothesized below:

H_{2a}: FCFAP in firms with financial institutions-controlled ownership structure will be negatively associated with future firm performance.

H_{2b}: FCFAP in firms with management-controlled ownership structure will be negatively associated with future firm performance.

3. Research Methodology

3.1 Research design

We employ Tobit regression model to examine the relationship between ownership concentration and FCFAP (see, e.g., Tobin, 1958; Amemiya, 1973). The rationale for choosing Tobit over ordinary least square (OLS) regression method is motivated because our dependent variable FCFAP, by construction, contain zero values for a non-trivial fraction of sample observations, and being roughly continuously distributed over positive value. Tobit model is more appropriate in providing unbiased estimates as opposed to the OLS method in this setting (Wooldridge, 2006).[22] To test H_1, regression (1) is estimated on pooled data using firm-year observations from 2000-2009.[23]

Where, *FCFAP* is defined as the interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if Tobin Q is less than the sample median and zero otherwise.[24] *OC* represents ownership concentration, proxied by the percentage shareholdings of the top-five largest shareholders and is the variable of primary interest. Regression (1) also controls for other determinants of firms' cash holding policies suggested in extant literature. *SIZE* is the natural logarithm of market capitalization. *DIVID* is cash dividend payout. *LEVERAGE* is measured as debt to assets ratio. *DIVID*, *SIZE*, and *LEVERAGE* are expected to be negatively related to firm *FCFAP* because prior studies report that cash holdings decrease significantly with size, leverage and whether a firm pays cash dividends (Opler et al., 1999). *PROFIT* is proxied by Return on assets (*ROA*) defined as net income before extraordinary items divided by total assets at the end of the year and is expected to have a positive effect on cash holding, because firms doing well are more likely to accumulate more cash than predicted (Opler et al., 1999). Cash flow volatility, *CVCF*, is the coefficient of variation of cash flow, calculated as firm-specific standard deviation of OCF during the sample years divided by the mean of OCF over the same time period. *CVCF* is expected to be positive since firms with volatile cash flows tend to hold more cash (Opler et al., 1999).

To investigate the impact of different classes of ownership structures on FCFAP (H_{1a} and H_{1b}), the following regression equation is estimated using the Tobit model:

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[22] A recent example of the application of Tobit model in accounting is Lanis and Richardson (2012).

[23] We manually collected data on ownership concentration and used year 2000 as the starting point to keep data collection manageable.

[24] Firms with negative FCF can only squander cash if they are able to raise 'cheap' capital. This is less likely to occur because these firms need to be able to raise financing and thereby place themselves under the scrutiny of external markets (DeAngelo, DeAngelo, & Skinner, 2004; Jensen, 1986).

$$FCFAP_{i,t} = \gamma_0 + \gamma_1 OC_{i,t} + \gamma_2 FDUM_{i,t} + \gamma_3 MDUM_{i,t} + \gamma_4 OC_{i,t} * FDUM_{i,t} + \gamma_5 OC_{i,t} * MDUM_{i,t} + \gamma_6 SIZE_{i,t}$$

$$+ \gamma_7 DIVID_{i,t} + \gamma_8 PROFIT_{i,t} + \gamma_9 LEVERAGE_{i,t} + \gamma_{10} CVCF_{i,t} + \varepsilon_{i,t} .... 1(a)$$

$$i = 1,2,...,86$$

$$t = 1,2,...,10$$

FDUM is coded one when a company has financial institutions-controlled ownership structures, and zero otherwise; *MDUM* is coded one when ownership concentration is management-controlled (directors, executives and/or companies' family founders), and zero otherwise. The default group is firm-year observations pertaining to government and other companies-controlled ownership structure. We expect the coefficients on γ_4 and γ_5 to be positive and significant.

Equation (2) will investigate the effect of FCFAP on future firm performance moderated by different classes of ownership categories (H_{2a} and H_{2b}). Since equation 1(a) strongly establishes that categories of ownership concentration matters, we use the following estimation to capture that notion in testing for the effect of FCFAP on future firm performance. Regression (2) is estimated on an un-balanced panel data using firm-year observations from 2000-2009.

Because accruals reverse over time, use of accounting discretion in the past might be correlated with the use of accounting discretion in the future, and hence with future *ROA*.

Finally, using stock returns as a measure of future performance may result in lower power in discriminating between efficient contracting and managerial opportunism because of the joint test nature. For example, even if opportunism were the true state of the world, on average, investors in an efficient stock market might anticipate such opportunism and factor it into the existing stock price. As a result, future stock returns could be unrelated to accounting discretion even in the presence of managerial opportunism. Thus, an examination of future stock returns, in isolation, cannot rule out managerial opportunism. This study uses *ROA* as the primary performance measure from an accounting perspective and Tobin's Q from a market perspective.

$$FUTPER_{i,t3} = \delta_0 + \delta_1 OC_{i,t} + \delta_2 OC_{i,t} * FDUM_{i,t} + \delta_3 OC_{i,t} * MDUM_{i,t} + \delta_4 FCFAP_{i,t} + \delta_5 FCFAP_{i,t} * OC_{i,t} * FDUM_{i,t} +$$

$$\delta_6 FCFAP_{i,t} * OC_{i,t} * MDUM_{i,t} + \delta_7 SIZE_{i,t} + \delta_8 DIVID_{i,t} + \delta_9 PROFIT_{i,t} + \delta_{10} LEVERAGE_{i,t} + e_{i,t} ....(2)$$

$$i = 1,2,...,77$$

$$t = 1,2,...,7$$

Where, *FUTPER* is firm's future performance measured as the sum of t+1 to t+3 return-on-assets (*ROA3*), and the sum of t+1 to t+3 Tobin's Q (*TQ3*). The rationale behind using a long-run profitability is premised on the ground that the effect of long term investment takes time to be incorporated into profitability. Thus, each sample firm losses three observations. So, the sample size reduces to 333 firm-year observations from 2000-2006. We acknowledge that there are a number of performance measures including *ROA*, operating cash flows (*OCF*), stock returns, return-on-equity (*ROE*), earnings per share (*EPS*), and Tobin's Q. All these measures have their merits and demerits. For example, *OCF* does not suffer from any mechanical relation between current accruals and future earnings due to accrual reversals. However, *OCF* lacks timeliness as a performance metric (Dechow, 1994). In particular, negative cash flows could be the result of investments in positive NPV projects and not the result of poor operating performance. Earnings-based performance metrics such as *ROA* (measured as income before extraordinary items scaled by lagged total assets) suffer less from the timeliness problems but more from accrual reversal problem.

We chose to use *ROA3* and *TQ3* because these performance measures have been extensively used and offer a comparison or contrast of accounting versus market measures.

The coefficients of interest in equation (2) are δ_5 and δ_6. If financial institutions- and management-controlled ownership concentration adversely impacts the FCFAP, then these two coefficients are likely to be negatively related to future firm performance consistent with the entrenchment hypothesis of FCFAP. Control variable, *PROFIT* is used to predict future performance (e.g., Nissim & Penman, 2001), so a positive association between these two variables is expected. We include *SIZE*, *DIVID*, and *LEVERAGE* as other potential determinants of firm's future operating performance. In unbalanced panel data setting, we conduct regression analysis employing the variants of the Panel Corrected Standard Error (PCSE) methodology to estimate efficient estimators robust to potential heteroskedasticity and autocorrelation in the disturbances (Beck & Katz, 1995). Industry dummy variables are used to control for industry effect because firms in industries with more dependence on external finance tend to retain more cash (Dittmar et al., 2003).

3.2 Measurement of variables

3.2.1 Measurement of FCFAP

FCFAP is measured as the interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if Tobin Q is less than the sample median and zero otherwise. Tobin's Q is proxied by market-to-book ratio (market value of equity/book value of equity). Market value of equity is defined as the product of shares outstanding and the closing stock price. Book value of equity excludes negative equities because negative market-to-book ratio is difficult to interpret. The notion of this measure of *FCFAP* is that the mangers of a firm with a 'low' Q are more likely to overinvest or waste their excessive cash resources. Lang & Litzenberger (1989) show theoretically that overinvestment firms will have a Q less than one. We employ the following FCF definition as our primary dependent variable:

FCF= Net cash provided by operating activities (OCF) – Capital expenditures (CAPEX)

3.2.2 Measurement of ownership concentration

Ownership concentration is measured as the sum of percentage shareholdings of the top five shareholders and is retrieved from the "Substantial Security Holders" section of the annual reports. Dummy variables are used to identify three different types of ownership structures. A company is categorized as having one of three mutually exclusive shareholding structures when that particular type of shareholding holds the largest proportion of the top-five shareholdings. For example, consider Telecom Corporation of New Zealand Limited. In 2009 its top-five shareholders comprised of all financial institutions accounting for 56.64% of the total outstanding shares. In this case, *FDUM* is coded 1, while *MDUM* and *OTHDUM* (government- and other companies-controlled groups) are coded zero. For a different example consider Smiths City Group Limited. The company's top-five shareholders held 38.25% of the outstanding shares in 2009 financial year with financial institutions, management and other company holding 12.31%, 14.6% and 11.34% respectively. Therefore, in the 2009 financial year, Smiths City Group Limited was categorized as having a management-controlled ownership structure, because managerial shareholding had the largest proportion among the top-five shareholdings. The same procedure is repeated for each firm-year observation to categorize its ownership structure.

3.3 Sample Selection

The sample for this study is selected from companies listed on the New Zealand Stock Exchange (NZX) and New Zealand Alternative Markets (NZAX) from 2000 to 2009. NZSX is the Main Board of NZX and its premier equity market, while NZAX is specifically created for fast-growing, small to medium sized and non-standard companies to facilitate effective capital financing. This paper includes NZAX listed companies to enlarge sample size and provide more cross-sectional variation in the data.[25] Initially, financial information of 867 firm-year observations for 107 listed companies is retrieved from NZX Deep Archive. Financial companies, overseas companies and delisted companies are excluded from the sample because of their unique regulatory characteristics that make findings generalisable across these groups. Table 1 shows the sample selection procedures and industry classification.

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[25] Because data comes from two different markets, we have incorporated a dummy variable for companies listed on NZAX market to control for any possible cross-market differences.

Table 1. Sample selection and industry composition

Panel A: Sample selection and elimination procedure			
	No. of observations		
Base Sample (NZX Deep Archive, Fiscal years 2000-2009)	867 (107 firms)		
Elimination:			
• Missing ownership structure information	(46)		
• Missing market value of equity information	(26)		
• Missing dividend information	(20)		
• Negative FCF observations	(262)		
• Negative BE observations	(2)		
Final sample	511 (86 firms)		
Panel B: Industry composition			
Industrials group	No. of firms	No. of obs.	Percentage
Healthcare	4	39	5.03%
Agriculture and Fishing	7	51	6.58%
Ports	5	50	6.45%
Transport	3	26	3.35%
Property	9	80	10.32%
NZAX	24	116	15.23%
Consumer	14	113	14.58%
Textiles and Apparel	1	7	0.90%
Energy Processing	7	58	7.48%
Food and Beverages	3	11	1.42%
Intermediate & Durables	12	93	12.00%
Building Materials and Construction	3	29	3.74%
Leisure & Tourism	4	40	5.16%
Service	1	10	1.29%
Media and Telecommunications	1	10	1.29%
Forestry & Forest Products	1	9	1.16%
Mining	4	31	4.00%
Total	86	511	100.00%

The sample size reduces to 605 firm-year observations after excluding negative FCF observations (n=262). As explained before firms with positive FCF are more vulnerable to managerial opportunism as opposed to their negative FCF counterpart. Missing ownership, market value of equity, and dividend data reduces the sample further. A final usable sample of 511 firm-year observations is used for empirical analysis. To control for industry- and equity market-specific effect, we have identified and controlled 16 industrials groups and the firms listed on NZAX using dummies. Industry classification is based on NZX industry classification provided by NZX Deep Archive. Consumer goods industry represents the largest industry group, accounting for14.58% of sample, and NZAX also contributes large sample observations with 116 firm-year observations accounting for 15.23% of sample observations.

4. Empirical Results

4.1 Descriptive analysis

In Table 2, panels A and B present the descriptive statistics and correlation matrix respectively for the dependent and independent variables. The mean and median un-deflated FCF (OCF-CAPEX) is $45,670,000 and $12,023,000 respectively with a large standard deviation. Total Assets-deflated FCF shows that FCF constitutes about 8.7% of total assets. The mean of ownership concentration measured by the total percentage of shareholdings of top five largest shareholders is 53.8%, suggesting a substantially concentrated ownership structures in New Zealand listed companies during this ten-year period. Firm growth opportunities proxied by Tobin's Q have a mean (median) of 2.24 and 1.29 respectively. Profitability proxied by *ROA* is 6.6%. Cash dividend paid on average is only 5.2% of total assets. There is some evidence of gradual decline in firms' propensities to pay out dividends. For example, the mean dividend of 6.27% in 2005 declined to 3.78% by the end of 2009. Whether this disappearing dividend (Fama and French, 2001) is a manifestation of increasing agency problem is an interesting research question. Sample firms are moderately leveraged with a mean (median) of 0.42 (0.39) respectively. Finally sample observations demonstrate large cash flow volatility (*CVCF*) with a mean of 0.80.

Table 2. Descriptive statistics

Panel A: Descriptive Statistics

	Mean	Median	S.D	25%	75%
FCF	0.087	0.061	0.093	0.033	0.116
TOBIN'S Q	2.241	1.290	3.289	0.843	2.389
OC (in %)	0.538	0.563	0.234	0.343	0.732
SIZE	11.97	11.92	1.697	10.65	13.07
DIVID	0.052	0.039	0.053	0.022	0.066
PROFIT	0.065	0.060	0.084	0.032	0.096
LEVERAGE	0.416	0.389	0.200	0.274	0.562
CVCF	0.797	0.511	0.916	0.302	0.901

Panel B: Correlation Matrix

	FCF	Tobin's Q	FCFAP	OC	SIZE	DIVID	PROFIT	LEVERAGE	CVCF
FCF	1								
TOBIN'S Q	0.19*	1							
FCFAP	0.19*	-0.28*	1						
OC	0.08***	-0.03	0.08***	1					
SIZE	-0.07***	0.17*	-0.26*	0.06	1				
DIVID	0.32*	0.17*	-0.11**	0.11**	0.15*	1			
PROFIT	0.39*	0.09*	-0.02	0.12*	0.15*	0.60*	1		
LEVERAGE	-0.18*	0.03	-0.25*	-0.25*	0.004	-0.19*	-0.17*	1	
CVCF	0.11**	0.26*	0.02	-0.13*	-0.32*	-0.28*	-0.27*	0.007	1

Panel C: Comparison of mean FCF and FCFAP for high and low ownership concentration observations

Variables	Categories	Mean deflated FCF	FCFAP
OC	High	0.0942	0.0395
	Low	0.0806	0.0271
	t-test for difference in mean (H-L)	1.66*	2.71***
	p-value	0.09	0.01

Notes:

*, **, and *** denote statistical significance at 10, 5 and 1 per cent level respectively (two-tailed-test).

Sample consists of 511 firm-year observations with positive FCF and non negative market-to-book equity ration from 2000-2009 sample period.

FCF= Difference between OCF and CAPEX deflated by lagged total assets;

FCFAP = The interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if the Tobin Q is less than the sample median and zero otherwise.

Tobin's Q = Market-to-book ratio (market value of equity divided by book value of equity);

OC = ownership concentration, measured as the total percentage of top five largest shareholding;

SIZE= natural log of market capitalization;

DIVID = dividend paid divided by total assets;

PROFIT = Return on assets (*ROA*) defined as net income before extraordinary items divided by total assets;

LEVERAGE = total liability divided by total asset;

CVCF = the coefficient of variation of cash flow, calculated as firm-specific standard deviation of OCF during the sample years divided by the mean of OCF over the same time period.

Panel B of Table 2 reports correlation analysis. The pair-wise correlation between profitability and dividend is 0.60 but all other correlation coefficients are within an acceptable range and therefore rules out the possibility of multicollinearity. Our focus is on FCFAP which is positively associated with ownership concentration implying the ownership concentration accentuates FCFAP. However, FCFAP is less of a concern for larger firms (correlation coefficient of -0.26) and firms paying cash dividend (correlation coefficient -0.11). Panel C provides the results of univariate analyses. We first compare whether there is a difference in cash holding between firms with high versus low level of ownership concentration. The results show that the average asset deflated FCF is 0.094 (0.08) for firms with high (low) ownership concentration group respectively. The difference in

mean is statistically significant at 10% level (two-tailed test). This *FCF* in itself, however, does not provide any evidence on differences in FCFAP between high versus low ownership concentration group. The next column provides this evidence. For firm-year observations with a high (low) ownership concentration level, the mean FCFAP is 0.0395 (0.0271) respectively. The difference in mean in FCFAP between high and low ownership group is statistically significant at better than the 1% level (t-statistics, 2.71) providing univariate evidence that high ownership concentration may actually exacerbate the FCFAP. Since univariate result does not control for some other determinants of the FCFAP, the result can't be considered as conclusive. We, therefore, conduct multivariate regression analysis to examine the effect of ownership concentration on FCFAP.

4.2 Regression analysis

4.2.1 Ownership concentration and FCFAP

The results of the Tobit model analysis for equation (1) and 1(a) are provided in Table 3. For equation 1 analysis, the primary independent variable of interest is ownership concentration which measures ownership concentration using the sum of five largest shareholdings as the proxy. The result shows that overall measure of ownership concentration does not have significant effect on the FCFAP (coefficient estimate 0.0001, t-statistics 0.19). The first hypothesis developed in null form is supported. However, this finding on the association between ownership concentration and FCFAP is less suggestive and it does not shed light on the impact of different categories of ownership concentration because there are likely to be disparities in the motivations and constrains of managerial monitoring under different types of ownership concentration. We therefore focus on the variables

in Equation 1(a). The constant is 0.36 and statistically highly significant suggesting that firm-year observations with government and other company-controlled ownership structure exacerbate FCFAP (this group is used as our default benchmark group). The coefficients for *FDUM* (–0.06) and *MDUM* (–0.04) need to be adjusted against this intercept to infer the average FCFAP for these two ownership groups. The resulting coefficient values of 0.30 (0.36-0.06) and 0.32 (0.36-0.04) for financial institutions and management-controlled ownership structures respectively indicate that all three groups suffer from FCFAP. The coefficients on *OC*FDUM* is 0.001 (z-statistics 2.10) is statistically significant at better than the 1% level suggesting that FCFAP increases with an increase in the ownership concentration for financial institution-controlled ownership structures, which provides support to our hypothesis H_{1a}. However, the coefficient on *OC*MDUM* is 0.0050 (z-statistics -0.08) is not statistically significant as we expected, resulting in a conclusion that management-controlled ownership structure is not positively associated with *FCFAP* using our sample observations. So, the result does not support H_{1b}. One plausible explanation for this insignificance is that management-controlled ownership structure may have a non-linear effect on firm corporate governance issues at various ownership concentration levels. For example, Bhabra (2007) reports a non-linear relationship between management-controlled ownership structure and firm value in New Zealand. That is, insider ownership and firm value are positively correlated at ownership level below 14 per cent, and above 40 per cent: and inversely correlated at intermediate level. Therefore, we could not identify a linear effect of management-controlled ownership structure on FCFAP.

Table 3. Tobit regression of *fcfap* on different categories of ownership concentration and other control variables

$$FCFAP_{it} = \gamma_0 + \gamma_1 OC_{it} + \gamma_2 SIZE_{it} + \gamma_3 DIVID_{it} + \gamma_4 PROFIT_{it} + \gamma_5 LEVERAGE + \gamma_6 CVCF + \varepsilon_{it}........(1)$$

$$FCFAP_{i,t} = \gamma_0 + \gamma_1 OC_{i,t} + \gamma_2 FDUM_{i,t} + \gamma_3 MDUM_{i,t} + \gamma_4 OC_{i,t} * FDUM_{i,t} + \gamma_5 OC_{i,t} * MDUM_{i,t} + \gamma_6 SIZE_{i,t}$$
$$+ \gamma_7 DIVID_{i,t} + \gamma_8 PROFIT_{i,t} + \gamma_9 LEVERAGE_{i,t} + \gamma_{10} CVCF_{i,t} + \varepsilon_{i,t}....................1(a)$$

Variables	Equation (1) Coefficient (z-statistics)	Equation (1a) Coefficient (z-statistics)
Constant	0.29*** (5.17)	0.36*** (5.70)
OC	0.0001 (0.19)	-0.0005(-1.47)
FDUM	-	-0.06** (-2.20)
MDUM	-	-0.04 (-1.08)
OC*FDUM	-	0.001*** (2.10)
OC*MDUM	-	0.0050 (0.08)
SIZE	-0.02*** (-6.13)	-0.02*** (-6.56)
DIVID	-0.35*** (-3.01)	-0.31*** (-2.66)
PROFIT	0.03(0.48)	0.02 (0.31)
LEVERAGE	-0.13*** (-5.40)	-0.12*** (-4.63)
CVCF	0.004 (1.00)	0.005 (1.21)
Industry dummies	Included	Included
Adjusted R^2	0.19	0.19
Log Likelihood	170.99	174.77
Observations	511	511

Note:
*, **, and *** denote statistical significance at 10, 5 and 1 per cent level respectively (two-tailed-test).

FCFAP = The interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if the Tobin Q is less than the sample median and zero otherwise.
Tobin's Q = Market-to-book ratio (market value of equity divided by book value of equity);
OC = ownership concentration, measured as the total percentage of top five largest shareholding;
FDUM = 1when company has financial institutions-controlled ownership structures, and zero otherwise;
MDUM = 1 when ownership concentration is management controlled (directors, executives and/or companies' family founders), and zero otherwise.
SIZE = natural log of market capitalization;
DIVID = dividend paid divided by total assets;
PROFIT = Return on assets (*ROA*) defined as net income before extraordinary items divided by total assets;
LEVERAGE = total liability divided by total asset;
CVCF = the coefficient of variation of cash flow calculated as firm-specific standard deviation of *OCF* during the sample years divided by the mean of *OCF* over the same time period.

The control variables report coefficients consistent with cash holdings literature. The coefficient on *SIZE* is negative and statistically significant at better than the 1% level suggesting that FCFAP is less of a concern for larger firms probably because larger firms can afford to maintain a costly governance structure to monitor managerial use of FCF. The coefficient on *LEVERAGE*, too, is negative and statistically significant at better than the 1% level in both models which supports the hypothesis that lenders monitor managerial opportunistic use of FCF. The coefficient on *DIVIDEND* is also negative confirming that firms paying more dividends suffer less from FCFAP. The findings on the effect of dividend and leverage are consistent with FCF hypothesis contending that dividend and debt serve as monitoring mechanisms because they reduce firms' cash holdings and force firms to resort to external finance and subject to market scrutiny (Jensen, 1986). The coefficient on *PROFIT* is theorized to be positive and significant because

higher profitability provides larger cash pool to play with. However, this coefficient using our sample does not provide support to this argument. Adjusted R²s are moderate and F-statistics are all significant at better than 1 per cent significant level. Therefore the general fitness of the models is satisfactory.

4.2.2. Ownership concentration, FCFAP, and future firm performance

If managers are opportunistic in their use of FCF, then future firm performance is likely to be impaired. Prior research provides evidence of managerial opportunism with respect to the use of FCF but does not provide any direct evidence whether such opportunistic behavior impacts firm performance. For example, Chung, Firth and Kim (2005) show that managers of high FCF-low-growth firms tend to use income-increasing discretionary accruals to mask such value-destroying managerial activities. Because of accrual

reversal property, this short-term income increasing action will be reversed in the future period leading to lower operating performance. Chung et al. (2005), however, did not empirically test this conjecture. We tackle this future performance issue not from earnings management perspective but rather from a governance perspective. Therefore, our primary goal is to document how ownership concentration modifies the association between FCFAP and future firm performance.

Our primary measure of future firm performance is three-years-ahead *ROA* defined as the sum of ROA_{t+1} to ROA_{t+3}. The argument for using three rather than one-year-ahead income relates to the time required for value-destroying investment to adversely impact future firm performance. Our sample size reduces to 333 firm-year observations because of this leading three-year performance requirement.

Table 4. The effect of *fcfap* on future firm performance moderated by different categories of ownership concentration

$$FUTPER_{i,t3} = \delta_0 + \delta_1 OC_{i,t} + \delta_2 OC_{i,t} * FDUM_{i,t} + \delta_3 OC_{i,t} * MDUM_{i,t} + \delta_4 FCFAP_{i,t} + \delta_5 FCFAP_{i,t} * OC_{i,t} * FDUM_{i,t} +$$

$$\delta_6 FCFAP_{i,t} * OC_{i,t} * MDUM_{i,t} + \delta_7 SIZE_{i,t} + \delta_8 DIVID_{i,t} + \delta_9 PROFIT_{i,t} + \delta_{10} LEVERAGE_{i,t} + e_{i,t}........(2)$$

Variables	FUTPER (ROA_{t3})		FUTPER (TQ_{t3})	
	Coefficient	t-statistics	Coefficient	t-statistics
Constant	0.29***	2.89	-6.48***	-5.13
OC	-0.0001	-0.68	0.01***	2.70
*OC*FDUM*	0.0002***	2.72	0.01***	6.37
*OC*MDUM*	-0.0011***	-3.65	0.04***	4.16
FCFAP	-0.40***	-5.10	-3.88**	-2.19
*FCFAP*OC*FDUM*	-0.0027***	-2.56	-0.26***	-4.50
*FCFAP*OC*MDUM*	-0.05***	-2.48	-0.88***	-5.27
SIZE	-0.014***	-3.45	0.67***	8.14
DIVID	1.14***	8.83	23.58***	10.65
PROFIT	0.55***	5.41	1.05*	1.87
LEVERAGE	-0.09***	-6.21	1.99***	7.96
Industry dummies	Included		Included	
Adjusted R^2	0.86		0.92	
F-statistics	80.32***		151.92***	
Observations	333		333	

Note:
***, ** and * denote statistical significance at 10, 5 and 1 per cent level respectively (two-tailed-test).

FUTPER: Proxied by *ROAt+3* measured as the sum of ROA from t+1 to t+3;

FCFAP = The interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if the Tobin Q is less than the sample median and zero otherwise.
Tobin's Q = Market-to-book ratio (market value of equity divided by book value of equity);
TQt+3= future firm performance measured as the sum of TQ from t+1 to t+3;
OC = ownership concentration, measured as the total percentage of top five largest shareholding;
FDUM= 1when company has financial institutions-controlled ownership structures, and zero otherwise;
MDUM = 1 when ownership concentration is management controlled (directors, executives and/or   companies' family founders), and zero otherwise.
SIZE= natural log of market capitalization;
DIVID = dividend paid divided by total assets;
PROFIT = Return on assets (*ROA*) defined as net income before extraordinary items divided by total assets;
LEVERAGE = total liability divided by total asset.

Table 4 reports the results of regression equation (2). The coefficients of primary interest in Table 4 are the three-way interaction terms *FCFAP*OC*FDUM* and *FCFAP*OC*MDUM*. We focus on these interaction terms because our goal is to detect the impact of *FCFAP* on future firm performance conditional on different categories of ownership concentration. We document that both these coefficients are negative and significant at better than the 1% level (coefficient estimate -0.0027, t-statistics -2.56 and coefficient estimate -0.05, t-statistics -2.48) in *ROA3* model. We use

TQ3 measured as the sum of TQ_{t+1} to TQ_{t+3} as a market measure of performance and find equally strong evidence of impaired future firm performance for firm's with financial and management-controlled ownership structures (coefficient values of -0.26 and -0.88 respectively, both are statistically significant at better than the 1% level). Also the coefficient on *FCFAP* is negative and statistically significant (coefficient value -3.88, t statistics -2.19). This finding seems to support the *conflict-of-interest* and *strategic-alignment hypotheses* associated with large

blockholders consistent with our hypotheses H_2 and H_{2a}. The independent variables in *ROA3* analysis explains about 86% of the variation in future firm performance. The corresponding figure is 92% for *TQ3* analysis.[26] With respect to the control variables, current profitability and dividend payout are significantly positively associated with future firm performance. The coefficients on firm size and leverage are sensitive to the firm performance measurements adopted.

5. Conclusion

This study examines the determinants and consequences of *FCFAP* in New Zealand listed companies. In a seminal contribution, Jensen (1986) argues that managers are inclined to squander *FCF* when their objectives differ from those of the dispersed shareholders. Whether firm-level ownership structure mitigates or exacerbates this *FCFAP* is a question of significant importance. Firm-level ownership structure provides a fundamental explanation for governance issues, including managerial power, shareholders' monitoring, firms' financing and investment decisions. We document that although overall ownership concentration is not associated with FCFAP, categorized concentrated ownership, especially financial institutions-controlled ownership structure accentuates the FCFAP. This finding seems to support the *conflict-of-interest* and *strategic-alignment hypotheses* associated with financial institutions' monitoring competence. We then investigate whether these specific FCFAP adversely affects future firm performance. We find that FCFAP impairs future firm performance for firms with both financial institution-controlled and management-controlled ownership structures. The findings of this paper are expected to benefit regulators in devising a stringent regulatory regime for vigilant monitoring of managerial abuse of FCF. Shareholders, too, could use this finding to differentiate companies with good versus bad use of FCF.

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[26] Further sensitivity tests are conducted using the alternative measures of FCF in the construction of FCFAP. Unreported result provides evidence similar to the results presented in the text.

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