

Does Institutional Ownership Create Values? The New Zealand Case

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This study investigates the relationship between institutional ownership and corporate performance of New Zealand non-financial companies. We find that total institutional ownership increases firm values as measured by Tobin's Q and operational return on equity. The top institution's share ratio is negatively related to measurements of firm value. Institutional investors can make a positive contribution by cost-effective monitoring of management's behavior. The results are consistent with Cornett (2004) and the Federal Reserve Financial Economists Roundtable Statement (1998).

Introduction

As the world has moved into the twenty-first century, institutional investment in public firms has emerged as an important mechanism in monitoring and controlling the functioning of their business operations. Institutional investors have real interest and ability in influencing corporate decisions. Their abilities are significantly stronger than the collective efforts of diverse, small investors' independent board representatives. The purpose of this study is to examine whether institutional investors perform an effective monitoring function and add value to the monitored firms.¹

¹Institutional investors are not monolithic in their trading profiles. Some are short-term traders in stocks, while others hold longer-term positions in stock for strategic or investment purposes. The short-term traders are not interested in monitoring roles and are only concerned with the profit potential in the near term. The long-term holders of positions will be more inclined to play a monitoring role, according to Chen, Harford, and Li (2007). In a sense, tests of the monitoring function in these data sets also implicitly examine the relative distribution of institutional trading profiles.

There are several metrics that could be used to determine whether value is added. We choose improved financial returns as an indicator of added value. This study uses sample firms traded on the New Zealand Stock Exchange to specifically test our hypotheses. The New Zealand market is a small, open, and highly concentrated market. We believe institutional influence is more sensitive to, and hence easily detectable by employing, data from a small open market.

The relationship between ownership structure and firm performance has been a focus of academic research as early as Berle and Mean (1932), who hypothesized that an inverse correlation should be observed between the diffuseness of shareholdings and firm performance. Given the significance of this topic in management, economics, and finance, the relationship between ownership structure and firm performance is one that has received considerable attention in empirical studies. Empirical results so far have failed to provide consistent evidence to prove whether the type of ownership does significantly affect firm performance. This failure simply might reflect the various degrees of variability of ownership profiles and percentages across the samples utilized.

Corporate ownership also is studied widely via analyses of ownership concentration (Demsetz and Lehn, 1985; Demsetz and Villalonga, 2001) and management agency cost due to interest conflicts (Jensen and Murphy, 1990). There are empirical results supporting the view that ownership concentration and management ownership are important elements to control cost (Shleifer and Vishny, 1986). This proposition is not often tested with data on institutional investors, who have the potential to play a much stronger monitoring function than independent directors.

Grossman and Hart (1980) provide an analysis of the incentives for large shareholders such as institutional investors in effectively monitoring and governing corporations. Cornett et al. (2004) examine the relation of institutional ownership and corporate performance and confirm a significant positive relationship between a firm's operating cash flow and both of the institutions' ownership percentage and institutional stockholder number. Additionally, they find that this relation is found only for pressure-insensitive institutional investors, those with no business relation with the firm.

In periods of market crises, Baek, Kang, and Park (2004) find that firms that have unaffiliated foreign institutional investors performed better than firms where the institutional investors were tied by other existing relationships to the firms in which they were invested. Hence, the duration of the institutional investment, the level of self-interest, and other firm-level specific factors can affect monitoring performance of institutional investors.

In this study we use New Zealand publicly-listed firms and empirically test if there is any relation between the institutional ownership measures and the firms' market value as measured by Tobin's Q and return on equity. New Zealand has experienced a decade of change in its business and financial environment. In

particular, the economic deregulation of the mid-1980s paved the way for New Zealand to become a more open economy, especially with regard to international capital markets (Grimes, 1998).

Listed companies in New Zealand are typically not as diversified as those in bigger developed countries, nor are they as hybrid and complex as those in Asian countries. Nevertheless, institutional ownership, like that in other developed markets, trends on average around the 14 percent mark reported by La Porta, Lopez-De-Silanes, and Shleifer (1999). The high institutional ownership and small firm size make the study unique, and the results could be interesting to other global markets.

Literature Review

Institutional investors' real wealth involvement in corporations is their initial motivation to actively monitor management behavior, and such monitoring function becomes cost effective. Monitoring their equity stakes provides an incentive for management to be more responsive to shareholder concerns; it provides the institutional investor with improved insights into firm performance and can help with the selection of future investment targets. The hypothesized positive relationship between institutional ownership and corporate performance is well established from Jensen and Meckling's (1976) agency cost theory.

Institutional investors also can influence corporate behavior not only on passive monitoring, but also by actively participating in the corporate control and decision-making processes such as proxy contests (Pound, 1988; Smith 1996) and CEO turnover (Warner et al., 1988). Larger ownership positions make it difficult and costly for these investors to sell their positions in large blocks of shares for those companies with a poor management team. The Federal Reserve Financial Economists Roundtable (1998) concludes that "increased institutional ownership of common stock has the potential to increase the effectiveness of corporate governance and to mitigate the problems created by the separation of ownership from control in large corporations."

Tests on ownership-performance types typically are done on ownership concentration (starting from Berle and Means, 1932), or management ownership, or on family and block holders' stakes. Moreover, the literature focusing on institutional investors usually centers on the topics of CEO turnover and compensation (Parrino et al., 2003) and corporate governance (Gillan and Starks, 2000).

McConnell and Servaes (1990) empirically test the relationship between ownership and corporate performance. Apart from the non-linear relationship between insider ownership and performance, they conclude that institutional ownership is positive and significantly related to a firm's Tobin's Q. Cornett et al. (2004) focus empirically on institutional ownership and report a positive relationship with operating cash flow returns.

The existing literature on the ownership of the firm and its performance is based mainly upon U.S. and European data; it reflects corporate behavior purely within those markets. Little is known about the relationship between ownership structure and firm performance, particularly in the smaller markets outside of Europe and the U.S. There are only two previous studies that have examined the impacts of ownership structure on firm performance of New Zealand listed companies.

The first one is performed by Firth (1992) who finds no evidence of a significant relationship between control-type and accounting figures based on measures of profitability. Fox (1996) also concludes that ownership of New Zealand public companies does not appear to influence firm performance. He measured ownership as the proportion of issued voting capital held by the largest major shareholder.

Conceptual and Measurement Issues

Institutional ownership

There is no doubt that the increase in institutional holdings has created the potential for financial institutions to play a greater role in corporate governance, but it is not clear if this is a favorable development. The Financial Economists Roundtable (1998) believes that the increase of institutional ownership is a positive phenomenon. They have summarized three positive advantages. Firstly, larger owners aligned with a higher proportion of economic benefits are more likely to perceive oversight activities as cost effective. Second, larger ownership positions can reduce the costs of coordinating management oversight activities with other owners. Third, larger institutions may find it more difficult and costly to sell their positions in large blocks of shares of those companies in which they feel managers are not maximizing shareholder value.

Apart from the advantages mentioned, the Financial Economists Roundtable also has recognized that institutional ownership poses its own problem of incentive conflicts, which is the separation of ownership of stock in institutional portfolios from the management of those portfolios. Management may pursue their own interests, which becomes a cost to portfolio investors. For example, management may try to build some special relationships with invested firms. These relationships, that are shown in Cornett et al., 2004, might mitigate their positive influence.

Does institutional ownership influence a firm's performance in application? How do institutional investors contribute to the improvement of these firms? This study is designed to answer these empirical questions. Making use of the available New Zealand data, we can directly test the relationships.

We follow the method used by Cornett et al. (2004) and Hartzell and Starks (2003) and adopt two institutional ownership variables. They are the fraction of shares owned by the top institutional investor (Cornett et al., 2004, use the top five institutions) and total institutions' share ratio. We believe that the manager of a top institution has a real chance to establish a special relation with the invested firm, and

we hypothesize that the top ownership ratio is negatively related with the firm's value measure.² The total institutional ownership does not show a special relationship for the individual manager, as large groups of institutional ownership could provide beneficial pressure on a firm's management behavior. We thus hypothesize a positive relation for total institutional ownership to a firm's performance and value.³

Firm Performance and Control Variables

Two measures of performance are collected and used to value firm profitability: a proxy of Tobin's Q and the accounting-based return on equity (ROE). The Q-ratio, calculated from dividing the market value of equity by the net tangible assets attributable to shareholders, is a common measure of efficiency and future opportunities of company. According to Demsetz and Villalonga (2001), these two measures differ in two respects.

First, the accounting-based profit measure (ROE) is backward-looking while Tobin's Q is forward-looking. Another difference is that accounting profit only partially involves estimates of future events in the form of depreciation and amortization. Tobin's Q, however, is influenced by a wide range of unstable factors, such as investor psychology and market forecasts. Considering the above concerns, we use both measures to evaluate firm performance.

We use the top five shareholding interests to measure the shareholder concentration and fraction of shares owned by the board of directors. In addition to the variables mentioned above, several control variables have been chosen for this study. These include (a) firm size, measured as the natural logarithm of total assets, is included to account for the possibility that firm performance and ownership are related through the size of the firm, (b) financial leverage, measured as the ratio of debt against capital employed in book value, is adopted to take into account the possible influence of a firm's capital structure upon its investment decisions (Harris and Raviv, 1991), and (c) following the lead of Demsetz and Villalonga (2001), we include two measures of financial risk that have been included in this research: market risk (or beta), measured by a regression of the monthly return on a stock on a market return index, and firm-specific risk measured as the standard error of estimate from the regression. Both market risk and firm-specific risk are included as control variables as they are likely to influence behavior in different ways. Thus, the following variables are used in this study.

²This ties closely with the notion that institutional investor independence and non-affiliation status are important drivers in performance (Baek et al., 2004). To the extent, that top five institutions are able to develop special relations with the management teams of the firms in which they are invested, that lessens objectivity and independence and will lower returns.

³The larger the size of the institutional ownership group, the greater the potential for a free rider problem. This will be counterbalanced by some firms in the investor pool who will monitor management's actions to protect their equity stakes. Hence, a large institutional ownership stake is likely to be beneficial on balance.

- 1) Firm value: measured by Tobin's Q and the accounting-based ROE;
- 2) Institutional ownership: Top institution share ratio (TIE) and total institution share ratio (TIE);
- 3) Ownership concentrations: measured by the fraction of shares owned by the top five shareholders' equity ownership interests (5LE);
- 4) The fraction of shares, not including options, held by directors of the board (BDH);
- 5) Size: natural logarithm of total assets in booking value (SIZE);
- 6) Leverage: ratio of debt against the book values of assets (DAR);
- 7) Market risk (MR): measured by the β coefficient obtained through running a regression of the monthly return on a stock on monthly market return index;
- 8) Firm-specific risk (FSR): measured as the standard error of the β estimate from the regression.

Data and Models

Description of Data

The sample utilized in this research comprises all companies listed on the New Zealand Stock Exchange (NZSE) during the period of 2000-2003, excluding newly-listed firms during this period. Financial institutions, property, and mining companies are excluded from this study due to their balance sheets' unusual characteristics. Finally, data are collected for a total of 259 firms (70 for 2000, 66 for 2001, 62 for 2002, and 61 for 2003) in which all required information is available.

Accounting information, including ownership data, has been collected from the DATEX database, whereas the share prices of listed companies are downloaded from DataStream. The measures for market risk (beta) and firm-specific risk (standard error) have been calculated by running a regression of the monthly return on a stock on the monthly market return index.

OLS Regression Models

As a common approach for estimating the impact of ownership structure on firm value, we base the study on the use of OLS analysis. Thus, the OLS regression model is discussed first. We use the following OLS regression models to test whether ownership structure affects firm value and managerial efficiency in the use of assets.

$$Q = \alpha + \beta_1 * TIE + \beta_2 * TIE + \beta_3 * 5LE + \beta_4 * BDH + \beta_5 * SIZE + \beta_6 * DAR + \beta_7 * MR + \beta_8 * FSR \quad (1)$$

$$ROE = \alpha + \beta_1 * TIE + \beta_2 * TIE + \beta_3 * 5LE + \beta_4 * BDH + \beta_5 * SIZE + \beta_6 * DAR + \beta_7 * MR + \beta_8 * FSR. \quad (2)$$

The regression models are similar with one replacing the dependent Q value with ROE, while holding the set of explanatory variables fixed. Next we analyze the relations for institutional ownership measured by the top 1 institution ownership (T1IE) and total institutional ownership (TIE) in a company:

$$T1IE = \rho + \rho_1 * Q + \rho_2 * 5LE + \rho_3 * BDH + \rho_4 * SIZE + \rho_5 * DAR + \rho_6 * MR + \rho_7 * FSR \quad (3a)$$

$$TIE = \rho + \rho_1 * Q + \rho_2 * 5LE + \rho_3 * BDH + \rho_4 * SIZE + \rho_5 * DAR + \rho_6 * MR + \rho_7 * FSR \quad (4a)$$

$$T1IE = \rho + \rho_1 * ROE + \rho_2 * 5LE + \rho_3 * BDH + \rho_4 * SIZE + \rho_5 * DAR + \rho_6 * MR + \rho_7 * FSR \quad (3b)$$

$$TIE = \rho + \rho_1 * ROE + \rho_2 * 5LE + \rho_3 * BDH + \rho_4 * SIZE + \rho_5 * DAR + \rho_6 * MR + \rho_7 * FSR \quad (4b)$$

The model is based upon the argument that the institutional relationship identified by regressions (1) and (2) could be the result of a portfolio manager's selection skills, rather than any direct influence on corporate governance and decision making. If this is true, then we are expecting a non-zero coefficient associated with the performance variables (Q or ROE).

SUR Regression Model

One of the key assumptions of the OLS regression is the recursivity assumption—that is, the model should not involve feedback loops. Thus, for instance, the model should not contain a situation such as one where researchers must assume that the disturbance term of the dependent variable is correlated with the causes of the independent variables. In this study, if a higher firm value is the reason for higher institutional ownership, then institutional ownership might spuriously appear to be a determinant of firm value in the OLS regressions (1 and 2). Thus, a seemingly unrelated regression (SUR) is used to cover this situation where the ordinary least squares (OLS) regression's assumption of recursivity cannot be reasonably held.

This study has adopted the following two equations to analyze the relationship between institutional ownership and firm performance in order to account for the recursivity effect.

$$\left\{ \begin{array}{l} Q = \gamma_0 + \gamma_1 * T1IE + \gamma_2 * TIE + \gamma_3 * 5LE + \gamma_4 * BDH + \gamma_5 * SIZE + \gamma_6 * DAR + \gamma_7 * MR + \gamma_8 * FSR \\ T1IE = \rho + \rho_1 * Q + \rho_2 * 5LE + \rho_3 * BDH + \rho_4 * SIZE + \rho_5 * DAR + \rho_6 * MR + \rho_7 * FSR \end{array} \right. \quad (5a)$$

$$\left\{ \begin{array}{l} TIE = \rho + \rho_1 * Q + \rho_2 * 5LE + \rho_3 * BDH + \rho_4 * SIZE + \rho_5 * DAR + \rho_6 * MR + \rho_7 * FSR \end{array} \right. \quad (5b)$$

Table 1—Quantiles for Performance Measures (Sample of New Zealand Listed Firms, 2000-2003)

Quantile	TBQ	ROE	(Truncated) ROE
100%	79.66	1622.22	45.5
99%	64.29	571.85	44.87
95%	17.22	45.5	31.99
90%	5.15	31.47	27.2
75%	2.66	20.82	20.04
50%	1.56	12.31	12.33
25%	0.93	5.84	7.00
10%	0.66	-6.51	0.82
5%	0.48	-25.94	-7.77
1%	0.25	-146.7	-22.96
0%	0.19	-1942.6	-25.42
Observations	259	259	234

The performance measure of the Q ratio also is replaced with the alternative ROE in the above SUR model to test for the possibility of recursivity. (The other institutional variable, TIE, is tested as well, but not reported here.)

Empirical Results

Firm Characteristics

Table 1 contains the quantiles for the two performance measures: Tobin's Q (TBQ) and return on equity (ROE). For the whole sample of available firms, Tobin's Q top and bottom 1 percent quantiles are not far from the top and bottom 5 percent quantiles. For ROE, however, the 1 percent and 5 percent quantiles are far from each other. Considering the potential influence of outliers, we have excluded from this study the extreme 5 percent ROE value observations on both sides. As a result, there are a total of 234 observations for the following regression analysis.

Table 2 gives the annual averages for institution number and ownership in a firm. In the sample period, the total institution number invested in a firm generally is declining from 23 to 19 (a 17 percent reduction). A similar percentage reduction is observed in the total institution ownership for both whole sample and truncated data sets.

Table 3 shows the simple statistics for the variables used in the study. The two performance measures are distributed in a wide range and it is helpful in enhancing the power of the regression model. The average top institution ownership is 6 percent, and the standard deviation is 9 percent, ranging from zero to 53 percent. The average total institutional ownership is 14 percent with a standard deviation of 16 percent. The highest is 78 percent.

One noticeable feature of New Zealand's market is that the five largest shareholders hold 60 percent on average, an indication of high concentration, while the board members hold about 18 percent on average. The interesting question is how well these high ownerships contribute to firm value in New Zealand. The relative

Table 2—Average Institution Number and Ownership by Year

Year	Whole Sample		Truncated	
	Institute No	Ownership	Institute No	Ownership
2000	23.0	0.17	23.5	0.18
2001	21.5	0.18	19.5	0.18
2002	21.7	0.17	20.0	0.16
2003	18.9	0.14	19.1	0.14

Many institutional investors hold equity stakes in the target firms either directly or via a portfolio stake. We calculate the average institutional number of owners by using N_i as the number of institutional owners invested in firm i and O_i as the ownership equity stake in firm i , where $(N_1+N_2+\dots+N_n)/n$, measures the aggregate cross-sectional number of institutional owners in a calendar year. $(O_1+O_2+\dots+O_n)/n$, measures the aggregate cross-sectional equity stakes in a calendar year. N is the total number of firms analyzed

Table 3—Simple Statistics

Variables	Mean	Std. Dev.	Minimum	Maximum
TBQ	2.39	5.47	0.19	77.70
ROE	12.99	11.48	-25.42	45.50
T1IE	0.06	0.09	0.00	0.53
TIE	0.14	0.16	0.00	0.78
T5LE	60.20	20.72	6.09	93.25
BDH	17.97	23.82	0.00	87.14
SIZE	5.35	0.85	3.35	8.25
DAR	0.46	0.23	0.00	0.95
MR	0.20	0.56	-0.54	6.54
FSR	0.032	0.015	0.001	0.097

Note: TBQ: Proxy of Tobin's Q; ROE: Return on equity; T1IE: Top institution share ratio; TIE: total institution share ratio; 5LE: Fraction of shares owned by the top-five shareholding interests; BDH: Fraction of shares, not including options, held by directors of the board; SIZE: Natural logarithm of total assets to book value; DAR: Ratio of debt against book value of assets; MR: Market risk, measured by β coefficient obtained through running a regression of the monthly return on a stock on the monthly market return index; FSR: Firm specific risk, measured as standard error of β estimate from the regression. Data comes from DataStream online service

small size of firms is shown in the average logarithm of total assets to book value. The average debt ratio is 46 percent of book value. Some firms are sensitive to market movement, and most firm-specific risk is low relative to the market model. The beta values are estimated with 12 monthly returns that are volatile in our data set.

Correlations and Regression Results

Table 4 presents the correlation matrix among the variables employed in this study. It is surprising to see that Tobin's Q is not highly correlated with ROE. These two variables display different characteristics in terms of value measures for New Zealand firms. The highest correlation of any explanatory variable with a performance measure occurs in the case of the debt-to-book value ratio. Its correlation coefficient relative to the Q ratio is 0.122 (significant at 10 percent statistical level) and relative to the ROE it is 0.247 (significant at 1 percent level).

Table 4—Correlation Matrix

	TBQ	ROE	T1IE	TIE	T5LE	BDH	SIZE	DAR	MR
ROE	0.091 (0.162)								
T1IE	-0.044 (0.502)	-0.064 (0.326)							
TIE	0.019 (0.768)	0.015 (0.818)	0.842 (<0.000)						
T5LE	0.063 (0.330)	-0.109 (0.095)	0.187 (0.004)	0.076 (0.244)					
BDH	-0.016 (0.806)	0.002 (0.974)	-0.067 (0.302)	-0.142 (0.029)	0.170 (0.009)				
SIZE	-0.044 (0.495)	-0.000 (0.996)	0.137 (0.035)	0.207 (0.001)	0.058 (0.372)	-0.346 (<0.000)			
DAR	0.122 (0.061)	0.247 (0.000)	0.005 (0.937)	0.051 (0.437)	-0.094 (0.151)	0.025 (0.693)	0.439 (<0.000)		
MR	-0.029 (0.648)	0.103 (0.114)	0.004 (0.946)	-0.008 (0.893)	-0.209 (0.001)	-0.069 (0.289)	0.050 (0.44)	0.083 (0.205)	
FSR	-0.130 (0.046)	0.011 (0.860)	0.053 (0.411)	0.099 (0.128)	-0.010 (0.876)	0.029 (0.651)	-0.008 (0.895)	-0.036 (0.583)	0.051 (0.437)

Note: Variable definitions and sources are provided in Table 1

The two institutional ownership variables are highly correlated with each other: the coefficient is 0.842 (significant at 1 percent). Both institutional ownership measures are positively related to the size which shows that New Zealand institutions like to invest in larger size firms. The size is also significantly related to board member holdings and debt ratio. For larger firms, the board members have a lower share ratio, and these firms borrow more money from the debt market.

Table 5 gives the OLS regression result with Tobin's Q (equation 1) as the endogenous variable. Although the two institutional ownership variables are highly correlated, the coefficients for the two are all significant at the 5 percent level in the whole sample period. The Q ratio is negatively related to the top institution ownership ratio and positively related to the total institutional shareholding ratio. The result indicates that a dominating institution might hurt firm value as was conjectured. The total institution ownership ratio is positively related to the Q ratio, however, as the higher total institutional ownership is appreciated by market investors.

The Financial Economists Roundtable (1998) recognizes the positive monitoring advantage of a larger institutional ownership, which is consistent with the above positive relation to the total institutional share ratio. Apart from also recognizing that institutional ownership poses its own incentive conflicts, the manager may pursue objectives that will maximize his or her personal benefits which could deviate from the interests of portfolio investors. The dominating institution's negative result is consistent with the theory. The larger the top institution's ownership is, the more chance there will be that the manager may establish a special relation with the invested firm and the invested firm will be less focused in a monitoring role.

Table 5—OLS Regression of Tobin's Q

	2000-2003		2000		2001		2002		2003	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	6.31	0.02	13.04	0.00	1.80	0.30	2.76	0.23	-18.12	0.50
T1IE	-15.71	0.03	-12.96	0.15	-5.85	0.06	-9.22	0.13	-66.22	0.16
TIE	8.67	0.04	8.76	0.07	2.72	0.12	6.48	0.07	36.48	0.16
T5LE	0.04	0.05	-0.01	0.71	0.01	0.40	0.01	0.47	0.13	0.06
BDH	-0.02	0.22	0.00	0.84	0.00	0.79	0.00	0.92	-0.06	0.42
SIZE	-1.25	0.02	-1.42	0.06	-0.12	0.69	-0.48	0.08	-2.49	0.20
DAR	4.99	0.01	-0.46	0.85	1.47	0.18	2.06	0.04	16.00	0.01
MR	-0.05	0.94	0.83	0.78	-0.11	0.64	-0.09	0.86	10.10	0.54
FSR	-49.34	0.04	-89.83	0.01	-11.05	0.50	1.46	0.98	814.06	0.42
R ²	0.08		0.26		0.14		0.17		0.20	
Obs	234		66		57		56		55	

The other significant relations are positive to the concentration variable (five largest shares), negative to the size, positive to the debt ratio, and negative to the firm-specific risk. We find that these control variables are important to explain New Zealand firms' value, but we will not discuss them further in this report because our main interest is the institutional ownership.

One of the common problems in the panel data regression is the autoregressive problem. To avoid this, we have run the other four yearly regressions. The results are consistent with the all-years regression—all significant variables in the all-years result have the same sign in the yearly results.

Although the Q ratio and ROE are not highly correlated (a coefficient of 0.091 in Table 3), the regression results with the ROE in Table 6 show a similar pattern to Table 5. The number one institutional ownership is significantly negative, and total institutional ownership is significantly positive. The other two significant variables are size and debt ratio (in book value). Again annual regressions are run to check the influence of autoregressive disturbance in the panel data. For the top institution ownership, the annual results are all consistent with the whole period in negative sign. For the total institutional variable, three of four are consistent with the whole sample sign of positive relation.

The significant relationships in the above performance regressions could be the result of the wise share selecting ability of institutional managers. To investigate this type of causal relation, we run the institutional ownership regressions (equations 3 and 4), and the results are shown in Table 7. Panel A of the table uses the Q ratio as an exogenous variable, and Panel B uses ROE as an exogenous variable. Basically, the performance variables do not explain the institutional ownership variables—all of the associated coefficients are not statistically significant. The only significant variables are the concentration measure (equity ratio for the five largest investors), which is positively related to the number one institutional ownership and the size, which is positively related to the total institution ownership.

Table 6—OLS Regression of ROE

	2000-2003		2000		2001		2002		2003	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Intercept	17.83	0.00	14.45	0.22	25.60	0.04	13.62	0.47	26.88	0.36
T1IE	-29.59	0.05	-53.67	0.07	-1.40	0.95	-35.58	0.47	-76.87	0.14
TIE	15.97	0.06	31.38	0.05	-0.94	0.94	30.92	0.28	23.41	0.41
T5LE	-0.01	0.76	0.00	0.97	-0.05	0.54	0.03	0.71	-0.06	0.44
BDH	-0.02	0.61	-0.06	0.45	0.03	0.61	-0.07	0.36	0.05	0.52
SIZE	-2.21	0.04	-2.80	0.25	-2.92	0.18	-2.43	0.27	-1.62	0.44
DAR	15.28	<.0001	22.18	0.01	10.62	0.18	18.87	0.02	10.09	0.15
MR	1.70	0.21	5.70	0.56	0.04	0.98	4.29	0.33	17.53	0.33
FSR	5.93	0.91	67.82	0.52	12.16	0.92	-37.30	0.95	-306.56	0.78
R ²	0.10		0.22		0.10		0.19		0.20	
Obs	234		66		57		56		55	

Table 7—OLS Regression of Institutional Ownership

	T1IE		TIE	
	Estimate	P-Value	Estimate	P-Value
Panel A: Regression with Tobin's Q, Equations (3-a) and (4-a)				
TBQ	-0.001	0.515	0.001	0.574
T5LE	0.001	0.004	0.001	0.265
BDH	0.000	0.381	-0.001	0.190
SIZE	0.012	0.184	0.035	0.025
DAR	-0.007	0.820	-0.014	0.805
MR	0.006	0.608	-0.003	0.861
FSR	0.317	0.436	1.230	0.093
R ²	0.061		0.068	
Panel B: Regression with Return on Equity, Equations (3-b) and (4-b)				
Intercept	-0.052	0.269	-0.107	0.206
ROE	0.000	0.510	0.000	0.661
T5LE	0.001	0.005	0.001	0.231
BDH	0.000	0.397	-0.001	0.178
SIZE	0.012	0.178	0.035	0.026
DAR	-0.005	0.869	-0.014	0.797
MR	0.006	0.568	-0.004	0.829
FSR	0.355	0.381	1.174	0.106
R ²	0.067		0.061	

Table 8 provides the results of the seemingly unrelated regression (SUR) with equations 5a and 5b. The results are basically the same as those listed in the OLS regression results in Tables 5 through 7, confirming that the institutional ownership has an important influence on corporate performance and that OLS regression results do not suffer any problem of recursivity.

The regression results suggest that institutional ownership measured in the number one institutional ownership ratio and institutional ownership measured in the total institutional ownership ratio variables are important influences on corporate performance, measured in both Tobin's Q and ROE. Although the two performance measures are not correlated with each other (they may separately measure different

Table 8—Seemingly Unrelated Regression

	Estimate	P-Value		Estimate	P-Value
Panel A					
	TBQ (Equation 5a)			IIE (Equation 5b)	
Intercept	6.162	0.026	Intercept	-0.049	0.290
T1IE	-18.208	0.014	TBQ	-0.001	0.198
TIE	8.635	0.037			
T5LE	0.038	0.040	T5LE	0.001	0.003
BDH	-0.021	0.208	BDH	0.000	0.351
SIZE	-1.216	0.020	SIZE	0.011	0.216
DAR	4.961	0.006	DAR	-0.003	0.912
MR	-0.032	0.961	MR	0.005	0.615
FSR	-48.429	0.046	FSR	0.286	0.483
Panel B					
	ROE (Alternative Equation 5a)			IIE (Equation 5b)	
Intercept	17.515	0.002	Intercept	-0.046	0.330
T1IE	-34.830	0.023	ROE	-0.001	0.192
TIE	15.913	0.063			
T5LE	-0.007	0.853	T5LE	0.001	0.006
BDH	-0.019	0.584	BDH	0.000	0.382
SIZE	-2.144	0.047	SIZE	0.011	0.206
DAR	15.220	<.0001	DAR	0.000	0.996
MR	1.734	0.198	MR	0.007	0.537
FSR	7.832	0.876	FSR	0.360	0.374

performance parts), their relation to the explanatory variables of institutional ownership examined in the study are surprisingly similar.

The interesting element of the New Zealand market is its relatively small-sized firms. We further divide the truncated sample into two parts. We analyze the top half and bottom half samples of the total institution ownership distribution. We want to see if the conclusions drawn from above tests that share values are negatively related to the top institution ownership and positively related to the total institution ownership in a firm are robust for these two ranges of institution ownership.

The same regression is run on the sub-samples, and the results are shown in Table 9. The results for two major variables: top institution ownership (T1IE) and total institution ownership (TIE) from the sub-samples are basically consistent with the all sample results for both Tobin's Q and ROE. It is interesting to note that the negative relation for top ownership has a stronger significance in the top half sample and no significance for the bottom half sample. We interpret the result as a strong confirmation of the negative relation with the top institution ownership; the bottom half with less significance could be explained by the lower variation of the group which is indicated in the Table 3.

We do not see any signal for the difference for total institution ownership between the two sub-samples, although the signs are all consistently positive. The other two significant relations are of size (SIZE) and debt asset ratio (DAR), again both are significant (at the 1 percent level) for the top half samples (in both Tobin's

Table 9—OLS Regression of Corporate Value Related to Institutional Ownership in a Firm

	All		Top Half		Bottom Half	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Panel A: Tobin's Q						
Intercept	6.31	0.02	4.97	<.0001	6.08	0.18
T1IE	-15.71	0.03	-14.22	0.01	-25.76	0.54
TIE	8.67	0.04	1.38	0.79	6.79	0.22
T5LE	0.04	0.05	0.07	0.19	-0.01	0.10
BDH	-0.02	0.22	-0.04	0.59	0.00	0.80
SIZE	-1.25	0.02	-1.52	<.0001	-0.44	0.74
DAR	4.99	0.01	10.76	0.00	0.41	0.04
MR	-0.05	0.94	-0.63	0.31	-0.25	0.52
FSR	-49.34	0.04	-38.44	0.28	-39.44	0.34
R ²	0.08		0.13		0.10	
Obs	234		116		118	
Panel B: ROE						
Intercept	17.83	0.00	40.68	<.0001	10.86	0.18
T1IE	-29.59	0.05	-33.10	0.01	-88.11	0.54
TIE	15.97	0.06	2.07	0.79	100.28	0.22
T5LE	-0.01	0.76	0.06	0.19	-0.10	0.10
BDH	-0.02	0.61	-0.02	0.59	0.01	0.80
SIZE	-2.21	0.04	-5.94	<.0001	-0.54	0.74
DAR	15.28	<.0001	17.13	0.00	12.40	0.04
MR	1.70	0.21	3.91	0.31	1.01	0.52
FSR	5.93	0.91	-70.48	0.28	67.56	0.34
R ²	0.10		0.30		0.11	
Obs	234		116		118	

The truncated sample is first divided into two parts: top half and bottom half in terms of total institution ownership; and the same regressions (equations 1 and 2) are run on the sub-samples

Q and ROE regressions), but not so for the bottom half. The comparisons between top and bottom support our conclusions made on the overall sample. The conclusion is strengthened for the firms with higher total institution ownership in the top half of the sample. The less significant finding for the bottom half group could be explained by the lower level of variation of the institution ownership in that group.

In summary, our results indicate that increasing total institutional ownership promotes strong corporate performance. This is consistent with Cornett et al. (2003) in that operating cash flows return is positively related to the total number of institutional investors. A larger institutional investor group (total institutional ownership in our study and total number of institutions in Cornett et al., 2003) is effective in monitoring management behavior and improving firm value. On the other hand, our study shows an important negative factor of institutional investors is that institutional ownership should not be too concentrated. The number one institutional ownership variable in our study is significantly negative to performance values. This result is also consistent with Cornett et al. (2003) in that concentrated institutions may have the chance to build special business relations (termed *pressure sensitive relations*) with the firms, which will reduce their operating cash flows return.

Conclusion

This study is primarily motivated by relatively little evidence regarding the relationship among institutional ownership and firm performance for New Zealand's (and other countries in the world) publicly-listed companies. The regression results indicate that institutional ownership is an important influence on firm performance, which is measured by both Tobin's Q and operational return on equity. After allowing for the recursivity of institutional ownership variables, the results show that neither of the two measures of institutional ownership is explained significantly by firm performance. These regression results suggest that it is institutional ownership that influences firm operation (and increases firm value), and not the opposite direction whereby institutional managers select high performance firms.

The results could be explained with existing theory about the possible influence of institutional investors. Institutional investors can make a positive contribution by cost-effectively monitoring management behavior. Moreover, institutional managers themselves can create a new type of agency problem by pursuing their own interest through special ties with the invested companies and thus lowering firm value, if institutional ownership is too concentrated. We find that New Zealand institutional investors prefer to invest in larger-sized firms and those firms are more likely to have low director equity stakes.

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