

**Are Institutional Investors Under-Investing in
Family Controlled Corporations?**

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Abstract

This thesis compared institutional ownership in family controlled and non-family controlled businesses and found that institutional ownership is less prevalent in the case of family controlled firms. In particular, concentrated ownership by the controlling family deterred institutional investment. When concentrated family ownership is controlled for, regression results showed that institutional investors avoided family controlled businesses, and that this avoidance behavior might be related to institutional investor size. Comparing institutional ownership of a firm's largest five institutional holders and that of its smaller institutional investors showed that, while institutional investors have less ownership in family versus non-family controlled businesses, the evidence was stronger for the firm's largest five institutional holders than for the small institutional investors. The analysis presented in this thesis concluded that some institutional investors may avoid family controlled businesses due to concerns over the investors' ability to control firm management.

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Chapter 1

Introduction

Family controlled businesses play a key role in the US economy. Approximately, one third of the fortune 500 companies are family controlled businesses (McConaughy et al, 2001; Anderson and Reeb, 2003). Family ventures start with the capital forming within the family, but as they expand, they look for other sources. Substantial numbers of family controlled businesses are market leaders in their respective industry and their stocks are publicly traded in high volume. On the other hand, institutional investors are now major contributors of the capital in the United States. Institutional holders with more than \$100 million US dollars in funds, have control over the majority of the US equity capital market (Gompers and Metrick, 2001). There is also a trend towards more institutional holdings in both large and small firms (Grinstein and Michaely, 2005). However, our study shows that the expansion of institutional holdings has been somewhat slower for family controlled businesses. Fernando et al. (2014) argued that family controlled businesses suffer from type 2 agency problems, in which large inside shareholders (i.e., family) may use their controlling power to extract private benefit at the expense of minority shareholders. They concluded that institutional investors are more capable of recognizing the agency problem and will avoid investing in family controlled businesses. In this study, we discuss four questions. First, we investigate whether family controlled businesses have a lower level of institutional ownership. Second, we examine whether the lower level of institutional ownership is due to the existence of a large block of family ownership (crowding out effect) or the avoidance of family controlled businesses by some of the institutional investors. Third, we examine whether family controlled businesses have a lower level of concentrated institutional ownership. Forth, we examine whether small institutional investors avoid family controlled businesses.

Fernando et al. (2014) argued that institutional investors avoid family controlled businesses because of the type 2 agency problem, while Anderson and Reeb (2003) found that family controlled businesses perform better and run more efficiently than non-family controlled businesses. Anderson and Reeb (2003) concluded that the idea of minority shareholders being

adversely affected by family ownership is inconsistent with the superior performance and efficiency of family controlled businesses. This also suggests that type 2 agency problems are not the only reason for institutional investor to avoid family controlled businesses. To find a reason for the institutional investors' avoidance of family controlled businesses, we look into concentrated institutional ownership. Grinstein and Michaely (2005) first used a similar term to represent the ownership of major institutional investors, and claimed that concentrated institutional ownership measures institutional investors' influence on management. We believe institutional investors' inability to control management in a family controlled business, will result in lower level of concentrated institutional ownership. Coffee (1991) and Gillan and Starks (2000) argue that institutional investors have greater incentive to monitor as they can not always sell the shares of the underperforming firms. Moreover, institutional investors are also more likely to get involved in corporate management than non-institutional investors due to their high ownership stake (Brickley et al., 1988). However, in family controlled firms, the founding family exercises considerable influence over management, which prevents institutional investors from having an impact on management decisions. Thus, being unable to influence management, institutional investors avoid family controlled businesses. Another possible reason for institutional investors to avoid family controlled businesses could be the existence of type 2 agency problems (insider majority shareholders extract private benefit at the expense of minority shareholders). To investigate this argument, we look into the ownership of small institutional investors (institutional investor that does not belong to a firm's largest ten institutional holders and does not have more than 5% ownership in that firm). Most of the small institutional investors are small holders and do not have any intention to influence management. Therefore, their investment decision should not be affected by ownership structure. However, a low institutional ownership stake might indicate that family controlled businesses suffer from type 2 agency problems. It is possible that institutional investors are avoiding family controlled businesses because of the fear of type 2 agency problems, rather than due to the existence of it.

To investigate the research questions, we used a matched sample approach. We created two groups with similar criteria. One group consists of the family controlled businesses and the other consists of the same number of non-family controlled businesses. We followed a method originally used by Rosenbaum and Rubin (1985) to create two groups using propensity score matching. This approach allows us to see if two firms with similar criteria other than family and non-family

controlled, attract the same number of institutional investors. We considered most of the factors institutional investors consider when investing, such as size, profitability, dividend payments, growth prospects, and leverage. We find robust evidence to support our argument that, *ceteris paribus*, institutional investors will either avoid family controlled businesses or invest less in family controlled businesses than in non-family controlled businesses.

Chapter 2

Literature Review

Institutional investors have been the major provider of capital in the United States over the past few decades. Due to a high concentration of ownership they enjoy some privileges over retail investors. The privileges include better access to information (Boehmer and Kelly, 2009), ability to influence management decision making (Brickley et al., 1988), and terminating managers if their performance is not satisfactory (Aggarwal, 2010). However, due to high ownership, it is not easy for them to have an exit policy. As institutional holdings get larger, institutional investors will avoid an exit option and become long-term holders (Coffee, 1991). Therefore, they have more incentive to get engaged in management and prevent any policy that might adversely affect the value of the firm (Brickley et al., 1988).

Institutional investors also play a great role in monitoring performance and reducing agency costs. Hartzell and Starks (2003) suggest that institutional investors serve a monitoring role in mitigating the agency problem between shareholders and managers. Moreover, Demiralp et al. (2011) emphasize that institutional investors have informational advantages, which help them to focus on their monitoring duties. Jensen and Meckling (1976), in their seminal paper on agency problems and ownership structure, explained outside equity holders can reduce agency costs by monitoring and other control activities like auditing, formal control system, budget restrictions and establishment of an incentive compensation system. Institutional ownership has been found to improve corporate disclosure practices (Bushee and Noe, 2000) and higher institutional ownership puts more weight on an incentive compensation system rather than a fixed salary for management to ensure better performance (Hartzell and Starks, 2003). However, Bushee (1988) put forward an idea that different institutions might have different agendas. He classified institutional investors into three major groups based on their investment activity. He found that dedicated investors and quasi indexers, who invest for the long term, have significant influence on management and influence its decision to meet their own long-term goals.

However, the role of institutional investors in improving any form of performance has been a matter of debate. McConnell and Servaes (1990) and Clay (2001) found empirical evidence that institutional investors improve firm performance and market valuations. Han and Suk (1998) found that stock returns are positively related to institutional ownership. But, Charfeddine and Elmarzougui (2010) investigated France's capital market and found little evidence to support the relationship between firm performance and institutional ownership. Nevertheless, most of the literature associates institutional ownership with better operating performance and market valuation.

Family controlled businesses have a unique structure. Family controlled businesses start capital accumulation from family members, but as they expand, they look for additional capital from external sources. Another feature of family controlled businesses is their tendency to use special class shares in order to maintain sufficient ownership or voting rights to retain control over the firm. Major shareholders, like founding family members, do not merely monitor management teams, they lead them (Holderness and Sheehan, 1988). In the United States, where most of the family controlled businesses are widely held (Morck and Yeung, 2003), this practice raises concern that management actions might favor controlling family's interest over that of minority shareholders.

There are two main factors that might explain the lower institutional investor participation in family controlled businesses. First, a high level of family ownership prevents institutional investors from investing in family controlled businesses. Second, institutional investors may avoid family controlled businesses. Institutional investors prefer large firms with high liquidity (Gomper and Metrick, 2001). For institutional investors looking for liquidity, taking large control positions is unattractive (Coffee, 1991). High family ownership removes a significant portion of the market shares, which in turn reduces liquidity. Reviewing the past literature, we have found two possible reasons to explain why institutional investors might avoid family controlled businesses: 1) Concern that they won't have control over management; 2) Controlling families might take advantage of their position and influence management for their private gain. We will discuss each rational in following paragraphs.

The first argument for institutional investors' avoidance of family controlled firms is institutional investors' inability to influence management. Brickley et al. (1988), Coffee (1991), and Gillan and

Starks (1999) argue that institutional investors have incentives to monitor and influence management. The literature finds robust evidence of institutional investors' influence on management (Brickley et al., 1988, Bushee, 1998, Bushee and Noe, 2001, Hartzell and Starks, 2003, and Aggarwal, 2010). Therefore, institutional investors will avoid firms where they can't influence management. However, each institutional investor has different priorities, thus institutional investors do not always invest in a firm to influence management. Pound (1988) put forward three hypotheses to describe the roles of institutional investors. First the "efficient monitoring" hypothesis. It says that institutional investors have greater expertise and can monitor management at lower cost than small shareholders. The "conflict of interest" hypothesis, suggests that in view of other profitable business relationships with the firm, institutional investors are coerced into voting their shares with management. The third hypothesis is the "strategic-alignment" hypothesis. It holds that the institutional owner and the managers will find it mutually advantageous to co-operate. Brickley et al. (1988) found that banks, insurance companies, and trusts, frequently derive benefits under existing management, thus are less likely to oppose management than mutual funds, foundations, and public-employee pension funds, which support Pound's (1988) second and third hypotheses. These three hypotheses indicate that different institutional investors will have different priorities. Among these three hypotheses, the "efficient monitoring" hypothesis has been widely studied and compelling evidence has been found in favor of it.

Gillan and Starks (1999) find that institutional investors with a large stake in the firm have a strong incentive to take a monitoring role as the substantial increase in return is sufficient to cover the monitoring costs. Further, Hartzell and Starks (2001) find that institutional investors make management's compensation more sensitive to performance to ensure strong operating performance. Brickley et al. (1988), Coffee (1991), and Aggarwal (2010) have drawn similar conclusions about an institutional investor's role. Bushee (1998) took a different approach to differentiate institutional investors based on their investment patterns and tried to determine whether his classification would determine the priorities of each group. He classified institutional investors into three distinct groups: dedicated investors, quasi-indexers, and transient investors. Dedicated investors and quasi-indexers are long term investors who follow a buy and hold policy, and transient investors are short term traders. He found that dedicated investors and quasi-indexers are sophisticated investors, who have noteworthy influence over management and invest for

growth and performance. On the other hand, transient investors do not concern themselves with management action, they are more concerned about liquidity and short-term gain. Thus, it is evident that some, but not all, institutional investors have incentive and resources to influence management.

Our second argument to explain lower institutional ownership in family controlled firms is based on the fear of type 2 agency problems. As ownership and management get separated, managers and owners will have conflicting interests and information (Jensen and Meckling, 1976). Furthermore, according to Jensen and Meckling (1976), the more concentrated the ownership the less serious the agency problem. Villalonga and Amit (2006) put forward the idea of another form of agency problem: Large inside shareholders will extract benefits using their controlling position at the expense of the minority shareholder (type 2 agency problem). Fernando et al. (2014), argue that family controlled businesses suffer from type 2 agency problems, thus sophisticated investors, like institutional investors, avoid family controlled businesses. Bhaumik and Gregoriou (2010) also discuss type 2 agency problems. Morck and Yeung (2003) raised similar concerns that with the existence of large family holdings, when most of the shares are widely held, professional managers may fail in their fiduciary duty to act for public shareholders. On the other hand, Anderson and Reeb (2003) concluded that family ownership does not adversely affect the minority shareholders and claimed that family controlled businesses perform better than their non-family counterparts. Anderson and Reeb's (2003) findings are in contrast with the later works of Bhaumik and Gregoriou (2010), and Fernando et al. (2014). Bhaumik and Gregoriou's (2010) extensive review of the literature found world-wide evidence of type 2 agency problems through transferring of assets, hiding losses, and fraud cover-ups. Thus, type 2 agency problems exist and can be a valid argument to explain why institutional investors avoid family controlled businesses.

Past literature suggests these motivations to explain why institutional investors might favor a non-family controlled over a family controlled business. It is hard to determine a single reason for this behavior; however, it is evident that, regardless of the reason, institutional investors prefer non-family controlled over family controlled businesses.

Chapter 3

Theoretical Argument and Hypotheses

Based on our literature review, we found that institutional investors prefer to have control over management. However, the unique structure of family controlled businesses may prevent anyone from influencing management except family members. This should discourage institutional investors from investing in family controlled businesses. Moreover, there is a possibility that type 2 agency problems exist. Existence of type 2 agency problems will also deter the institutional investors from investing in family controlled businesses. Furthermore, a substantial family ownership shares may present a limited ownership opportunity to the institutional investors (the crowding out effect). Hence, our first hypothesis is as follows:

Hypothesis 1: Ceteris paribus family controlled business will have a lower level of institutional ownership.

Our first hypothesis tests only whether the family controlled businesses have less institutional ownership. It does not tell us whether the lower institutional ownership is due to institutional investors' avoidance of family controlled firms or the crowding out effect of family ownership. To distinguish whether institutional investors avoid family controlled businesses or if they are being crowded out, we put forward the following two hypotheses:

Hypothesis 2A: A portion of the reduction in institutional ownership is due to a crowding out effect as concentrated ownership by the controlling family prevents institutional investors from investing in family controlled businesses.

Hypothesis 2B: After controlling for the crowding out effect, there will still be lower institutional ownership in family controlled businesses, indicating that institutional investors avoid family controlled businesses.

Major investors usually have incentives and resources to monitor management. However, the existence of a large block of family owners will discourage institutional investors that wish to influence managerial decision making. Therefore, concentrated ownership (ownership of the

largest five institutional investors within a firm) will be less in family controlled businesses. Hence, our next hypothesis is:

Hypothesis 3: Ceteris paribus, relative to a non-family controlled, a family controlled business will have a lower level of concentrated institutional ownership, because the inability to control management discourages institutional investors from investing in family controlled businesses.

Investors with a large ownership stake invest for the long term and have incentives to influence management (Grinstein and Michaely, 2005). However, small institutional investors (institutional investors that do not fall into the largest ten institutional investor group in a firm and do not have ownership over 5%) focus on firm performance. In other words, ownership structure should not influence the investment decision of a small institutional investor. Therefore, ceteris paribus both family controlled and non-family controlled firms should have similar small institutional ownership holdings. On the other hand, a family controlled or strongly family influenced management may act on behalf of the controlling family rather than in the best interests of the shareholders in general. This scenario will give rise to type 2 agency problems, and lead small institutional investors to avoid family controlled businesses. Hence, our fourth hypothesis is:

Hypothesis 4: Ceteris paribus, type 2 agency problems will discourage small institutional investors from investing in family controlled businesses.

Chapter 4

Data Sources and Research Methodology

4.1: Data Sources

The institutional holdings data is the end of quarter total institutional stock holdings for 45 family controlled and 142 non-family controlled US businesses between 2010 and 2015 inclusive. We have selected the family controlled firms from the list provided by the University of St.Gallen (2015) and the non-family controlled businesses using propensity score matching. Propensity score matching will be discussed in detail in the next section. The matches are done on a year by year basis so that the matched firms change over time. If dual class shares exist in a family controlled business, we considered only the common share class and excluded the special or voting shares class, as most of these are not available to outside shareholders. Our institutional ownership data is collected from Thompson Reuters T13 Institutional Holding database. The Thompson Reuters T13 Institutional Holding database includes institutional investors who submit F-13 to the Security and Exchange Commission and these institutional investors have portfolios worth more than 100 million US dollars. In this paper, we classify top five and top ten investors, within a firm, as large investors, and we classify the rest of the investors as small investors. Financial statement data is from Compustat, and stock market index and trading volume data is from CRSP. T-bill rates (90 days) are from the Federal Reserve System database. Finally, we collected the family ownership data from the proxy statements submitted to the Security and Exchange Commission each year from 2010 to 2015 inclusive. We have also created a second subset for the family controlled firms with dual class shares and their matches.

Variable Descriptions:

Table 4.1 provides a list of the variables used in this study, the sources of the data used in calculating the variables, and the formula for calculating each variable if the variable is not provided by the database. The following paragraphs provide details from Table 4.1.

Insert table 4.1 here

Total Institutional Ownership (TIO): Our first dependent variable is total institutional ownership. It is provided by the Thompson Reuters T13 database. This variable is created by dividing the total number of shares held by the institutions by the total number of shares outstanding. Bushee (1998), Fernando et al. (2014), Grinstein et al. (2005) and many previous studies used this variable as a dependent variable to represent institutional investors' ownership in a firm.

Top Five Ownership (1T5): Like the institutional ownership, this firm-specific variable is created by dividing the shares held by the top five institutional investors, by the total numbers of share outstanding. The number is expressed as a percentage to represent the ownership of the top five institutions in the business. Grinstein and Michaely (2005) argued that this variable represents concentration of holdings and reflects the institutions' ability to monitor and affect boards decisions.

Six to Ten Ownership (6T10): This firm-specific variable is calculated by dividing the number of shares held by the sixth to tenth ranked institutional investors in a firm by the total number of shares outstanding. The idea behind using this variable is same as the prior one: It allows us to study whether the inability to control management affects the next sixth to tenth investors in the same way it affects the top five institutional investors.

Small institutional ownership (SIO): Small institutional ownership is created by dividing the shares held by small institutional investors by the total number of shares outstanding. We define small institutional investors as institutional investors that do not fall into the top ten investor category and have less than 5% institutional ownership. Smaller institutional investors don't have any incentive or the ability to control management. Therefore, lower level of small institutional ownership might indicate that some institutional investors avoid family controlled businesses due to type 2 agency problems.

Retail ownership (RO): We created retail ownership by dividing the shares held by retail investors by the total number of shares outstanding. In this paper, retail investors are individual investors or institutional investors with less than 100 million dollars in their portfolio. Fernando et al. (2014) argued that if institutional investors are investing less in family controlled businesses, retail investors should be holding more.

Family Controlled Businesses (FC): This is a dummy variable indicating whether a firm is family controlled. According to the list of family controlled businesses created by the University of St.Gallen in 2015. They defined family controlled businesses as follows “for a publicly listed firm, a firm is classified as a family firm in case the family holds at least 32% of the voting rights.” They used 32% as their cut off value because in OECD countries, on average, 30% of the votes are sufficient to dominate the general assembly of a publicly listed company. The St.Gallen list is the top 500 family controlled businesses based on revenue. From that list, we found 45 firms, which are publicly traded and have their main operation in the USA. We confine our research to the USA as the Thomson Reuter database is confined to the US market.

Percentage Family Ownership (PFO): Percentage family ownership is calculated by dividing the number of shares held by family members by the number of shares outstanding. Our data set contains only common class shares, therefore ownership in special class or voting class shares does not impact our percentage family ownership and therefore does not represent the voting power of the controlling family.

Dual class dummy (DD): Dual class dummy indicates whether a family controlled business has dual class shares. The dual class dummy is 1 if a firm is family controlled and has dual class shares and zero otherwise.

Control variables: We include control variables to capture previously documented determinants of institutional ownership. Gompers and Metrick (2001) found that size positively affects institutional investors’ decisions. Ferreira and Matos (2007) found that operating performance, debt to asset, firm valuation, beta, liquidity and S&P 500 dummy is positively correlated with institutional ownership. Michaely (2005) found that institutional investors prefer firms with a moderate level of payout and Bathala et al. (1994) found that the level of debt negatively affects institutional ownership. Moreover, institutional investors are concerned about liquidity and sales revenue (Bushee, 2001), and prefer firms with a higher book to market ratio (Gompers and Metrick, 1998). In addition to firm specific variables, we included market condition and borrowing cost variables to represent the investment environment. We use the log of total assets as a proxy for size (Charfeddine and Elmarzougui, 2010), return on assets as a measure of profitability (Charfeddine and Elmarzougui, 2010), and debt to asset as a measure of leverage (Bushee et al, 2000). We also used capital expenditure (Bushee, 1998), payout (Grinstein and Michaely, 2005) and sales turnover

(Grinstein and Michaely, 2005) as control variables. We also included Tobin's Q (Bushee, 1998) to capture market valuation (market to book ratio), share volume to represent liquidity (Bushee, 2001) and beta to proxy risk (Fernando et al, 2014). Finally, the return on S&P 500 and the T-bill rate measure market conditions and borrowing costs, respectively.

4.2: Propensity Score Matching

Propensity score matching is a statistical method to create a set of observations which best matches, based on some predetermined criteria, our treated group. The propensity score approach runs a Probit or a Logit regression on the predetermined criteria to find a score for each observation of the treated group; then it selects one or multiple observations from the control group based on a matched score. The selected observations will have the score closest to the score of the treated group. In other words, the selected observations will have similar characteristics as the treated group, but the new group will lack the treatment. Rosenbaum and Rubin (1985) introduced this method to create a controlled group for their study.

In this study, we examine and compare two groups: the family controlled group and non-family controlled group. To ensure that two groups have the same number of companies each year and for each industry we used nearest neighbor matching without replacement. The family controlled group is the top 45 family controlled businesses, by revenue and traded publicly in the USA according to the list created by the University of St.Gallen. The non-family controlled group is also traded in the US market. In our propensity score matching we used the most common factors institutional investors consider when investing in a firm. Gompers and Metrick (2001) found that from 1980 to 1996 institutional investors increased demand for large companies and decreased demand for small companies. Ferreira and Matos (2007) found that operating performance and capital expenditure affects institutional ownership. Moreover, institutional investors prefer firms with a moderate level of payout (Grinstein and Michaely, 2005) and avoid firms with high debt level (Bathala et al., 1994). Furthermore, Bushee (1998) found that institutional investors prefer firms with higher research and development expenditures. Therefore, for our propensity score matching we used size ($\ln(\text{total asset})$), profitability (return on assets), leverage (debt to total asset), payout (cash dividend to total asset), and capital expenditure (capital expenditure to total asset). Unfortunately, we had to drop research and development as only 21 out of the 45 family controlled

firms in our sample, had research and development data. The following equation presents the model for our propensity score matching.

$$Prob(family_i) = \beta_1 ASize_{it} + \beta_2 AROA_{it} + \beta_3 ADA_{it} + \beta_4 APO_{it} + \beta_5 ACX_{it} + e_i \dots \dots \dots (4.1)$$

Table 4.2 describes variables used in the Probit regression while Table 4.3 presents the Probit regression estimates for the propensity score matching.

Insert table 4.2 here

Insert table 4.3 here

In general, a limitation of propensity score matching is that it is cross sectional analysis, so it is confined within one specific period of time. However, our data set is from 2010 to 2015, therefore, we matched for each year separately. This allows the matches to vary annually. Nearest neighbor matching will give the best match for that year, so if there is difference between institutional ownership within that year, it will be due to the nature of the firms. In other words, whether a firm is family controlled or not will solely determine the differences in the institutional ownership.

We used annual data from Compustat to avoid seasonality and for simplicity. We started with two groups: one group consists of 45 family controlled companies, the treated group, and the other group consists of all the other publicly traded companies that do not fall into our family controlled businesses category and don't have any missing data. We also confine our matching pool to those firms with more than 1 million dollars in total assets to avoid noise from small companies. Further, one of the pre-conditions of the match is that the firms must be in the same industry and same year. If we do not find a match for a family controlled firm within the industry for a year, the firm is dropped for that year. Before the matching the number of untreated firms was slightly less than four thousand each year. However, after the matching scores, we had 45 family controlled businesses and only 142 non-family controlled businesses.

4.3: Testing for propensity score matching

Propensity score matching uses given criteria to find the best match for the treated variables from the non-treated sample. One of the ways to assess the success of propensity score matching is to do a t-test on the difference in the means of the factors before and after matching. Table 4.4

presents the differences in means by year, of $ASize_{it}$, $AROA_{it}$, ADA_{it} , APO_{it} and ACX_{it} , before and after the matching. The differences between family and non-family groups decreases as the family controlled group is matched with the same number of non-family controlled businesses. The most noticeable change is in the differences of the mean values of $ASize$, the range of differences decreases from 3.15 to 3.44 pre-match to -.0897 to .015 post-match. Moreover, the t-values become insignificant after the data is matched. The means of $AROA$ also become insignificantly different after matching. The means of ADA , APO and ACX change slightly. APO in 2010, 2012 and 2015, and ADA in 2013 increase noticeably, when the two groups are matched. These increases are expected because propensity score matching uses five factors to determine the best match. In order to select the best match, it will select an observation, which fits best considering all five factors. For example, to get a better match for size, the algorithm might select a firm which might not be the best match for leverage. However, the increases are not a concern as the highest t-value in the entire matched dataset is 1.86, which is within the 5% cut-off. Furthermore, the standard deviations of the differences decrease quite noticeably, indicating that we have a more consistent and reliable dataset after matching. Therefore, we can conclude that the propensity score matching has given us two matched groups that meet our expectations and do not raise any concerns about the reliability of the process.

Insert table 4.4 here

The ultimate test for the propensity score matching is to show that the two groups are equally desirable from an investment point of view. Therefore, a test of the effectiveness of the propensity score matching is to investigate the difference in the investment performance of the matched groups over the 5-year period of the study. If the investment performance is similar, we can claim that the propensity score matching is effective in finding pairs whose ownership structure is irrelevant from an investment point of view. The investment performance tests and results of these tests are presented in this section.

To implement this test we created two portfolios, one consisting of only family controlled businesses and the other consisting of non-family businesses. We considered our matched firms from each year, and created the portfolio using those matched firms at the beginning of the next year. We created an equally weighted portfolio, therefore each firm has the same weight as its match in the portfolio. The purpose of this part of our study is to compare the performance of a

portfolio consisting of only family controlled businesses, with the performance of a matched non-family business portfolio.

Insert table 4.5 here

From panel A of Table 4.5 and graphs 4.1 and 4.2, we can see that both portfolios have similar return patterns. There are some noticeable differences in the second quarter of 2012. The family portfolio had a higher value than the non-family portfolio in May 2012. The family businesses portfolio value was significantly higher than the value of non-family businesses portfolio until December 2014. In January 2015, the value of the non-family business portfolio exceeded the value of the family business portfolio. However, after that, the family portfolio started outperforming the non-family portfolio. In December 2015, the value of the family businesses portfolio was approximately 13% higher than the non-family businesses portfolio.

Panel B of Table 4.5 presents the test of difference of means of the return of the portfolio. The t-value is 0.1621 and p-value is 0.8715. This indicates that the returns were not statistically significant, even though the family business portfolio generated 13% more value than the non-family portfolio. These results help us to draw several conclusions. Our two portfolios are not only similar with respect to the five factors we used in our propensity score matching, but also similar in terms of market performance of the subsequent years.

4.4: Research Methodology

We followed two approaches to test the first hypothesis that total institutional ownership (TIO) is less in family controlled relative to non-family controlled businesses. The first approach tests the difference in the means of TIO. If the mean of TIO is different across groups, family control should be the only factor responsible for the gap. The same intuition applies to difference in means tests of any of the other dependent variables (top five institutional investors' ownership (1T5), sixth to tenth institutional investors' ownership (6T10) and small institutional ownership (SIO)).

The second approach to test the first hypothesis involves estimating cross-sectional regressions to see the impact of family control on each of the four dependent variables. Even though propensity score matching gives us the best possible match for our treated group, in practice it is not possible to get a perfect match for all the firms. In other words, even with the best match, the two groups will have minor differences regarding size, profitability, leverage, payout and capital expenditure.

Multivariate analysis will allow us to control the effect of those characteristics and observe the impact of the family control on institutional ownership independent of firm characteristics.

Models for Regression Analysis:

Hypothesis 1 examines the relationship between institutional ownership and family controlled businesses. Model 4.2 compares the level of total institutional ownership between family controlled and non-family controlled businesses and thus is used to test Hypothesis 1.

Hypotheses 2A and 2B investigate whether the lower level of total institutional ownership is due to a lack of available shares (crowding out effect) or if institutional investors are avoiding family controlled businesses. To investigate these hypotheses, we use model 4.3, which includes percentage family ownership, model 4.4 uses a dual class dummy and model 4.5 incorporates both. These models allow us to examine the impact of family control on institutional ownership after controlling for the crowding out effect and various other factors.

$$TIO_{it} = Const_{it} + B_1FC_i + B_2Size_{it} + B_3ROA_{it} + B_4DA_{it} + B_5PO_{it} + B_6CX_{it} + B_7ST_{it} + B_8TobQ_{it} + B_9LIQ_{it} + B_{10}Beta + B_{11}S\&PCo + B_{12}S\&P_t + B_{13}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it} \dots\dots\dots(4.2)$$

$$TIO_{it} = Const_{it} + B_1FC_i + B_2PFO_{it} + B_3Size_{it} + B_4ROA_{it} + B_5DA_{it} + B_6PO_{it} + B_7CX_{it} + B_8ST_{it} + B_9TobQ_{it} + B_{10}LIQ_{it} + B_{11}Beta + B_{12}S\&PCo + B_{13}S\&P_t + B_{14}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it} \dots\dots\dots(4.3)$$

$$TIO_{it} = Const_{it} + B_1FC_i + B_2DD_i + B_3Size_{it} + B_4ROA_{it} + B_4DA_{it} + B_6PO_{it} + B_7CX_{it} + B_8ST_{it} + B_9TobQ_{it} + B_{10}LIQ_{it} + B_{11}Beta + B_{12}S\&PCo + B_{13}S\&P_t + B_{14}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it} \dots\dots\dots(4.4)$$

$$TIO_{it} = Const_{it} + B_1FC_i + B_2PFO_{it} + B_3DD_i + B_4Size_{it} + B_4ROA_{it} + B_6DA_{it} + B_7PO_{it} + B_8CX_{it} + B_9ST_{it} + B_{10}TobQ_{it} + B_{11}LIQ_{it} + B_{12}Beta + B_{13}S\&PCo + B_{14}S\&P_t + B_{15}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it} \dots\dots\dots(4.5)$$

Hypothesis 3 examines the relationship between the top institutional owners and family controlled businesses. Large institutional investors invest in a firm for the long term and they have an incentive to monitor and control management (Grinstein and Michaely, 2005). Thus, the inability to influence management will deter large institutional investors from investing in family controlled businesses. To observe this avoidance effect without confounding it with crowding

out, we use the group with dual class shares only. Family members in family controlled firms tend to hold the firm's special class shares, if they are available, rather than common shares and therefore institutional investors are not being crowded out. Model 4.6 and 4.7 focus on the top five and the sixth to tenth institutional investors, respectively. Intuitively, if major institutional investors avoid family controlled business in our dual share subsample, it is because the inability to control management is a deterrent. We do not simultaneously include family ownership and percentage family ownership in the models because these two variables lead to multicollinearity.

$$1T5_{it} = Const_{it} + B_1FC_i + B_2Size_{it} + B_3ROA_{it} + B_4DA_{it} + B_5PO_{it} + B_6CX_{it} + B_7ST_{it} + B_8TobQ_{it} + B_9LIQ_{it} + B_{10}Beta + B_{11}S\&PCo + B_{12}S\&P_t + B_{13}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it} \dots \dots \dots (4.6)$$

$$6T10_{it} = Const_{it} + B_1FC_i + B_2Size_{it} + B_3ROA_{it} + B_4DA_{it} + B_5PO_{it} + B_6CX_{it} + B_7ST_{it} + B_8TobQ_{it} + B_9LIQ_{it} + B_{10}Beta + B_{11}S\&PCo + B_{12}S\&P_t + B_{13}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it} \dots \dots \dots (4.7)$$

Model 4.8 is used to test whether family controlled businesses have a lower level of ownership by small institutional investors relative to non-family controlled businesses (Hypothesis 4). We define small institutional investors as institutional investors that do not have ownership exceeding 5% and they are not one of the major ten institutional investors in a firm. In our dataset, most of the institutional investors are small institutional investors with no motivation to control management. Therefore, lower small institutional ownership will indicate that small institutional investors, who do not get involved in management, avoid family controlled business due to the fear of type 2 agency problems. We also confined this test to the group with dual class shares to avoid the influence of the crowding out effect. Hence our model is:

$$SIO_{it} = Const_{it} + B_1FC_i + B_2Size_{it} + B_3ROA_{it} + B_4DA_{it} + B_5PO_{it} + B_6CX_{it} + B_7ST_{it} + B_8TobQ_{it} + B_9LIQ_{it} + B_{10}Beta + B_{11}S\&PCo + B_{12}S\&P_t + B_{13}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it} \dots \dots \dots (4.8)$$

Chapter 5

Summary statistics and Results

5.1: Descriptive statistics

Table 5.1 presents the descriptive statistics of the dependent variables, our control variables and the three dummy variables. We have four different dependent variables: 1) total institutional ownership (TIO), 2) total ownership of the top five institutional investors (1T5), 3) total ownership of sixth to tenth ranked institutional investors (6T10) and 4) total ownership of small institutional investors (SIO) that reported F-13 institutional holdings to SEC. Size, return on assets (ROA), debt to assets (DA), pay out (PO), capital expenditure (CX), sales turnover (ST), Tobin's Q (TobQ), liquidity or share volume (LIQ) and Beta are firm specific variables used as controls. We added the S&P 500 (S&P) index and T-bill rates (int) to represent market conditions and borrowing costs, respectively. Good market conditions have a positive correlation with investment and a high borrowing cost should have a negative correlation with investment. Finally, FC is a family control dummy variable to represent family controlled firms, DD is a dummy variable for dual class shares and S&PCo is a dummy variable that indicates if the firm is included in the S&P500.

Insert table 5.1 here

In panel A of Table 5.1, total institutional ownership (TIO) ranges from .11% to 99.7% with an average of 62.25%. Institutional ownership over 100% and their matches were dropped. WRDS, and Thompson Reuters are aware of this data issue. Although they could not provide a definite explanation for this anomaly, they suspect it could be due to short selling. Unfortunately, they do not have short selling data for institutions and individuals, so they could not make any adjustments. Nevertheless, Thomson Reuters assured us that they take extensive care to avoid double counting. As this dataset is the most reliable and widely used in the literature, we decided to use it for our research. The top five institutional (1T5) and the top six to ten institutional investors (6T10) own on average 25.28% and 9.3% respectively, which represents a substantial share in a firm. The mean ownership of the small institutional investors (SIO) is 28.42% with a

range from 0 to 56%. The median values of the four dependent variables are close to their respective means, indicating that skewness is not a problem.

In Panel B, the family control (FC) dummy indicates whether a firm is family controlled or not. The mean and median of the family dummy is .5 because we have the same number of family controlled and non-family controlled businesses in our sample. Size, ROA, DA, PO, CX, TobQ, ST and LIQ variables do not show any abnormalities that raise concerns about the dataset. Moreover, except for capital expenditure (CX), none of the firm specific variables are skewed. Furthermore, the range of these variables are within reasonable limits. This helps us conclude that extremes or outliers are not an issue in our sample.

5.2: Univariate test

Table 5.2 presents the correlation matrix between institutional holdings, family ownership and all the control variables. The results demonstrate that total institutional ownership (TIO), top five institutional investor's ownership (5T10), six to ten institutional ownership (6T10), small institutional ownership (SIO) and retail ownership (RO) are significantly negatively correlated with the family control dummy and family ownership. This indicates that institutional and retail holdings decrease when the firm in question is a family controlled firm. Institutional ownership is also negative and significantly correlated with size, payout (PO), and capital expenditure (CX), but positive and significantly correlated with debt to asset (DA), liquidity (LIQ) and the S&P 500 dummy (S&PCo). A moderate level of debt encourages institutional investors to invest (Bathala et al., 1994) and institutional investor always prefer more liquid shares (Bushee, 1998). Thus, we expect and observe positive correlations between TIO and DA, and TIO and LIQ. The negative correlation between institutional ownership and size is expected, as institutions need more funds to have a strong presence in a larger firm than in a smaller one. But the negative correlation with payout is somewhat surprising because institutional investors tend to prefer a moderate payout level (Grinstein and Michaely, 2005). The correlations between institutional ownership and ROA, TobQ, Beta and ST are not significant. Past literature supports both positive (Clay, 2001) and negative (Gompers and Metrick, 1998) correlations between institutional ownership and Tobin's Q.

Insert table 5.2 here

The top five institutional investors' ownership (1T5) is also negatively correlated with size, ROA, payout (PO), capital expenditure (CX), sales turnover (ST), S&P 500 constitute (S&PCo) and Tobin's Q (TobQ), but positively related to debt to asset (DA) and liquidity (LIQ). Moreover, six to ten institutional ownership (6T10) is also significantly negatively correlated with size and payout (PO), but positively correlated with debt to asset (DA) and liquidity (LIQ). On the other hand, the relationships between 6T10 and, ROA, capital expenditure (CX), sales turnover (ST) and Tobin's Q (TobQ), Beta, S&PCo and S&P are not significant. The relationships between small institutional ownership (SIO) and size, payout (PO), capital expenditure (CX), and sales turnover (ST) and Beta are not significant. Liquidity (LIQ), ROA, debt to asset (DA), Tobin's Q (TobQ), S&PCo, S&P and Int are significantly positively related to small institutional ownership. These correlations show that major institutional investors have different priorities relative to the small investors with respect to most of the firm specific variables.

The family control dummy has insignificant relationships with each of the variables used in propensity score matching (size, ROA, DA, PO, CX). The lack of significant correlations is an indication that our propensity score matching has achieved its goal: Creation of a sample where the family controlled businesses will not significantly differ from non-family controlled businesses with respect to these five variables. The family control dummy is negatively correlated with Tobin's Q (TobQ), liquidity (LIQ), and the S&P 500 dummy. The negative correlation with share volume (LIQ) is expected because as the controlling family holds a huge portion of the ownership, fewer shares are available. The negative relationship between Tobin's Q and family control dummy is weak but significant. The family control dummy (FC) does not have any significant relationships with any other explanatory variable.

The largest correlation among the control variables is between the family control and dual class dummy variables (.588). The family control dummy is also correlated (.492) with family ownership (second strongest correlation). This raises the possibility of multicollinearity in the multivariate analysis. For robustness, we estimated the models using these three variables separately and jointly.

Among the explanatory variables, the third highest positive correlation is between ROA and Tobin's Q (.457), and the highest negative correlation is between liquidity (LIQ) and percentage family ownership (PFO) (-.317). ROA and Tobin's Q are correlated because a higher return

indicates better performance, which in turn results in higher market valuation. On the other hand, a higher percentage family ownership (PFO) indicates that less shares will be available to be traded in the market, resulting in lower liquidity (LIQ). None of the other correlations among the right-hand side variables suggest that multicollinearity will be a problem in the multivariate analysis.

We tested the difference in the means of each variable across the family and non-family groups. The tests were done assuming equal and unequal variances but the results are the same, so we present only one set of outcomes. Table 5.3 presents the results for each characteristic across the family and non-family groups from 2010 to 2015 inclusive. In panel 1A and 1B we test the difference in the means of our four dependent variables and in panel 2A and 2B we test the difference in the means of firm specific characteristics. Panel 3A and 3B focuses on a dual class share sub sample. The tests are done on a yearly basis because there are different matches each year.

Insert table 5.3 here

In the Panel 1A and 1B we tested the difference between mean values of institutional ownership (TIO), mean of top five institutional investors' ownership (1T5), mean of sixth to tenth institutional investors' ownership (6T10), and mean of the small institutional ownership (SIO) across family and non-family firms. The results illustrate that family controlled businesses have experienced average total institutional ownership (TIO) ranging from 51% (2011) to 60% (2013), on the other hand the non-family controlled businesses have average institutional ownership varying from 63.5% (2014) to 79% (2010). The difference between the institutional ownership of family and non-family controlled groups ranges between 8% (2015) to 26% (2010) over the six-year period. Within each year, the difference is always positively statistically significant. This provides strong support for the first hypothesis that institutional ownership is less when it comes to family controlled businesses. Moreover, when we consider the top five (1T5) and the sixth to tenth institutional investors' (6T10) ownership, the difference is between 2% (2013) to 7% (2010) for top five institutional investors' ownership and between 0.7% (2015) to 4% (2010) for the sixth to tenth institutional investors' ownership. The total institutional ownership, top five ownership, sixth to tenth institutional ownership and small institutional ownership are significantly higher for non-family controlled businesses, except for the sixth to

tenth institutional ownership in year 2015. Large investors tend to want significant control over management and they have an interest in long term investment (Grinstein and Michaely, 2005). Therefore, observing lower levels of concentrated institutional ownership in family firms suggests that institutional investors avoid family controlled businesses due to the inability to control management. Finally, the results also show that small institutional ownership is significantly less in family versus non-family controlled businesses. These small investors have neither the capacity nor the intention to influence management and they invest based on the firm's financial performance. Given that the firms in the two groups are matched based on size, profitability, leverage, payout and capital expenditure, they should have almost the same levels of small institutional ownership. The discrepancy reflects the small institutional investors lack of trust in the management of family controlled firms (Bhaumik and Gregoriou, 2010). This is also consistent with Fernando et al. (2014): Family controlled firms might suffer from type 2 agency problems and institutional investors, being sophisticated investors, therefore avoid family controlled businesses.

In panel 2A and 2B we tested the differences in means between family and non-family controlled businesses for the firm specific variables. None of the five variables used in the propensity score matching was significantly different in any of the six years, except payout (PO) in 2013. This shows that even though we used yearly data for our propensity score matching, the match is consistent for quarterly data. We introduced five additional firm specific control variables to our model, sales turnover (ST), Tobin's Q (TobQ), liquidity (LIQ), beta, and the S&P 500 dummy (S&PCo). Among these five control variables, sales turnover (ST) and beta were not significantly different in any year across ownership structures, but non-family controlled had significantly higher means, relative to the family controlled firms for Tobin's Q in 2014, liquidity in 2010-2011 and 2013 and S&PCo in 2010 and 2012-2014. These results suggest that, in general, the non-family and family controlled firms had similar firm specific characteristics except for liquidity and listing on the S&P500 in select years.

Panel 3A and 3B present the outcomes for the difference in means tests for TIO, 1T5 and SIO within the dual class share (and matches) subgroup. TIO and SIO are significantly higher for the non-family controlled group from 2010 to 2012, but no statistical difference is found for 2013-2015. In contrast, 1T5 is significantly larger for the non-family controlled group in only 2013.

The evidence suggests that institutional investors interest in family versus non-family controlled firms may vary over time and needs to be studied in a more complete setting that considers other factors.

In summary, the univariate tests show that family controlled businesses have less total institutional ownership (TIO), top five institutional investors' ownership (1T5), sixth to tenth of institutional ownership (6T10) and small institutional ownership (SIO). This lower institutional ownership concentration can be due to the crowding out effect, institutional investors fear of type 2 agency problems or recognition of the difficulty of controlling family firm management. We turn to multivariate analysis for a deeper understanding of institutional investor's behavior towards family and non-family firms.

5.3: Multivariate Tests

The univariate tests illustrated that family controlled businesses, in general, have less TIO, 1T5, 6T10, and SIO. However, controlling for the effect of firm specific variables and the investment environment will allow a deeper understanding of the impact of family control on institutional holdings.

Insert tables 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, and 5.10 here

Table 5.4 presents the regression estimates using model 4.2. In Tables 5.4 to 5.10, column 1 presents the estimates when the five variables used in propensity score matching, the returns on the S&P 500 and the interest rate are included as explanatory variables. Column 2 adds sales turnover and Tobin's Q while columns 3 and 4 include liquidity and beta, respectively. Tobin's Q and ROA measure similar concepts and thus are significantly correlated (.457, Table 5.2) so we consider them separately, ROA in column 5, Tobin's Q in column 6, and jointly in column 7. The number of family and non-family controlled businesses is the same, in each year and in each industry.

The regression results in Table 5.4 show that the main variable of interest, the family control dummy (FC), is significantly negatively correlated with institutional ownership. The coefficient indicates that after controlling for other factors, institutional ownership is about 11.5% to 11.7% less for family controlled businesses (columns 5 to 7). The control variables have the expected

signs and by comparing the coefficients in columns 4 to 7 we can see that multicollinearity does not have a significant impact on our results.

Hypothesis 1 compares the level of total institutional ownership between family and non-family control, but it does not provide a rationale for this discrepancy. There are two possible reasons for lower institutional ownership: First it could be a crowding out effect, in other words because of high family ownership, there is not enough room for institutional investors to invest in the family controlled business. Second, institutional investors could be avoiding family controlled businesses for a variety of reasons. Alternatively, it could be a mixed effect of both. To distinguish the crowding out effect from the institutional investors' avoidance, we tried three different models. First, we introduced a percentage family ownership variable, then we included a dual class dummy, and finally we used both the percentage family ownership and the dual class dummy in our model.

Table 5.5 presents the regression estimates of model 4.3 which introduces the percentage family ownership variable to distinguish between the crowding out and avoidance effects. The results support a significant negative relationship between total institutional ownership (TIO) and percentage family ownership (PFO) in all columns. *Ceteris paribus*, a 1% increase in family ownership on average leads to .591% to .595% decrease (columns 5 to 7) in institutional ownership. Moreover, after controlling for the percent of family ownership, the family control dummy is still negative and significant, albeit the economic significance of the family dummy (FC) in columns 5, 6 and 7 has fallen (from the range of 11.5% to 11.7% to the range of 2.9% to 3.1%). Our control variables had the expected signs and our results do not change significantly when we added or removed variables to the regression. Therefore, we can conclude that after controlling for the percentage family ownership (PFO), family controlled businesses have 2.9% to 3.1% less institutional ownership than non-family controlled businesses. This result indicates that the crowding out effect cannot fully explain the reduced level of institutional ownership in family controlled businesses

In model 4.4 and Table 5.6 we control for the crowding out effect by introducing a dual class dummy and explore other explanations for the lower institutional ownership in family controlled firms relative to non-family firms. The difference between the coefficients of the family control and dual class dummy variables should capture the avoidance effect of institutional investors.

From Table 5.6 we can see that family controlled firms without special class shares have 20.5% (columns 5 to 7) less institutional ownership compared to non-family controlled businesses, *ceteris paribus*. The dual class dummy (DD) indicates that family controlled businesses with dual class shares have approximately 17% more (columns 5 to 7) institutional ownership than family controlled businesses without dual class shares. These coefficients are significant at 1%. The existence of dual class shares for family firms translates into less family holdings of the firm's common shares and this increased public float reduces the potential for crowding out of institutional investors. The difference between the family controlled dummy and the dual class dummy (20.5%-17%) indicates that after controlling for crowding out, the family controlled businesses still have 3.5% less institutional ownership. We call this the avoidance effect and we investigate it in more depth below.

Table 5.7 presents the regression estimates of model 4.5 where we include both the percentage family ownership and the dual class dummy. The smaller coefficient on the family control dummy and the insignificance of the dual class dummy is likely the result of multicollinearity as DD and PFO are significantly negatively correlated (-.187 in Table 5.2). However, the net results are similar to the results of Table 5.5: Family controlled businesses have 5% less (columns 5 to 7) total institutional ownership after controlling for percentage family ownership (PFO) and dual class dummy (DD).

Hypotheses 1 and 2 are supported by the multivariate results reported in Tables 5.4 to 5.7. Thus, we believe that institutional investors avoid family controlled businesses for crowding out and avoidance reasons. Previous literature supports two rationales to explain institutional investors avoidance of family controlled businesses. The first reason is based on the institutional investors inability to control family firm management and the second reason is due to type 2 agency problems associated with family controlled firms. We investigate these two rationales in models 4.6 - 4.7 where we control for the crowding out effect by restricting the sample to the firms with dual class shares and their matches. In Table 5.8 the dependent variable is ownership of the top five institutional investors (1T5). The significant coefficient estimates on FC indicate top five institutional investors own 1.7% to 1.9% less (columns 5 to 7) in family controlled than in non-family controlled business. The top five institutional investors tend to be interested in being involved in management of the firm. The observed lower levels of institutional ownership for

this group indicates that the inability to influence management discourages them from investing in family controlled businesses. These results support Hypothesis 3's supposition that institutional investors avoid family controlled businesses due to the inability to control management.

We repeat our investigation into the role of management involvement by institutional owners in model 4.7, with the ownership of the sixth to tenth investors (6T10) as the dependent variable. In this scenario, see Table 5.9, the family control dummy variable is insignificant. Thus, the impact of the inability to control management is important for 1T5 but dissipates as institutional ownership concentration declines.

Hypothesis 4 states that small institutional investors should be affected by type 2 agency problems. We test for this in model 4.8 by using the dual class share (and their matches) subgroup and regressing the ownership of small institutional investors (SIO) on our suite of explanatory variables. We found that on average the total ownership of the small investors is 1.4% to 1.5% less (columns 5 to 7 in Table 5.10) in family controlled businesses but at the 10% level of significance if TobQ is included and at 5% if ROA replaces TobQ. Thus, our results are consistent with hypothesis 4 and Fernando et al. (2014): Institutional investors avoid family controlled businesses due to type 2 agency problems.

Using the subset of family firms with dual class shares (and their matches) leads to results that suggest the top 1T5 institutional investors are influenced by the ability to control family firm management but the 6T10 group is not. We also find evidence to support the role of type 2 agency problems as a deterrent for small institutional investors. Thus, our results are consistent with both a control and a type 2 agency problem rationale to explain institutional investor avoidance of family controlled firms.

5.4: Robustness Test

To test the rigour of our results we consider alternate definitions of our dependent variables. We also repeat our regressions using Tobit analysis to take the truncated nature of the dependent variables into account.

In our first test, we used available shares as our new denominator instead of total shares outstanding. We calculated available shares by subtracting shares held by family members from

the total shares outstanding. Fernando et al. (2014) used this measurement for testing total institutional ownership. We apply that measure to top five institutional investors, small institutional investors and retail investors (individual investors and institutional investors who do not submit F-13 report) and relabel the dependent variables with an AS suffix. The limitation of this approach is that institutional ownership is now a function of percentage family ownership. Therefore, changes in family ownership will change the institutional ownership, even if institutional investors do not change their holdings. The modified dependent variables and our models are shown in equations (5.1) to (5.4).

$$TIOAS_{it} = Const_{it} + B_1FC_i + B_2Size_{it} + B_3ROA_{it} + B_4DA_{it} + B_5PO_{it} + B_6CX_{it} + B_7ST_{it} + B_8TobQ_{it} + B_9LQ_{it} + B_{10}Beta + B_{11}S\&PCo + B_{12}S\&P_t + B_{13}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it}. \dots \dots \dots (5.1)$$

$$1T5AS_{it} = Const_{it} + B_1FC_i + B_2Size_{it} + B_3ROA_{it} + B_4DA_{it} + B_5PO_{it} + B_6CX_{it} + B_7ST_{it} + B_8TobQ_{it} + B_9LQ_{it} + B_{10}Beta + B_{11}S\&PCo + B_{12}S\&P_t + B_{13}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it}. \dots \dots \dots (5.2)$$

$$SIOAS_{it} = Const_{it} + B_1FC_i + B_2Size_{it} + B_3ROA_{it} + B_4DA_{it} + B_5PO_{it} + B_6CX_{it} + B_7ST_{it} + B_8TobQ_{it} + B_9LQ_{it} + B_{10}Beta + B_{11}S\&PCo + B_{12}S\&P_t + B_{13}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it}. \dots \dots \dots (5.3)$$

$$ROAS_{it} = Const_{it} + B_1FC_i + B_2Size_{it} + B_3ROA_{it} + B_4DA_{it} + B_5PO_{it} + B_6CX_{it} + B_7ST_{it} + B_8TobQ_{it} + B_9LQ_{it} + B_{10}Beta + B_{11}S\&PCo + B_{12}S\&P_t + B_{13}Tbill_t + B_kIndustry_i + B_lyear_t + e_{it}. \dots \dots \dots (5.4)$$

Insert table 5. 11, 5. 12, and 5. 13 here

In our robustness tests, we exclude any observations with a sum of institutional ownership and family ownership greater than 100%. We excluded those observations to avoid any potential data errors such as double counting. We also excluded the matched firm to have a balanced portfolio. Table 5.11 illustrates that the results don't change for the total institutional and the one to five percent categories. Family controlled businesses have less total institutional ownership and less top five institutional ownership. However, columns 5, and 6, show that small institutional ownership is not significantly lower for family controlled businesses. But we need to be careful when interpreting these outcomes because the denominator changes with the change in family

ownership leading to a possible confusion of effects. Finally, we tested retail investors ownership in the family controlled businesses in model 5.4. We found that family controlled businesses have significantly more retail ownership than non-family controlled businesses. This also supports institutional investors' preference for non-family controlled businesses.

In our second robustness test we used Tobit regression instead of OLS. The Tobit results for TIO and the full sample are in Table 5.12. A comparison of the Tobit and OLS tables (Tables 5.12 and 5.4 or 5.5) show that the TIO results are similar. Institutional investors avoid family controlled firms and this is tempered if the dual class dummy is in the regression. Table 5.13 focuses on the outcomes for the dual class share subgroup. The Tobit results in Table 5.13 and the OLS results in Table 5.8 (for 1T5) and 5.10 (for SIO) are consistent. The details of the corresponding OLS results for TIO and the dual class share subsample are not included but the OLS coefficient on FC ranges from -.033 to -.036 and thus is consistent with the Tobit results. Similarly, we continue to find that there is less institutional ownership in family controlled firms for 1T5. On the other hand, SIO is insignificantly influenced by the family ownership structure when ROA is included but marginally significant if TobQ replaces ROA. Therefore, we have strong evidence to support institutional investors' avoidance of family controlled firms due to the inability to control management, but weaker support for the type 2 agency rationale.

5.5: Summary of Results

The univariate and multivariate tests show that family controlled businesses have less total institutional ownership (TIO), less concentrated institutional ownership (1T5), and less small institutional ownership (SIO). The univariate tests show that despite having similar firm characteristics, institutional investors will invest more in non-family controlled relative to family controlled businesses. The multivariate test results continue to support a lower level of institutional ownership when the firm is family controlled and we consider either the total institutional or top 5 institutional owners. Small institutional owners are still negatively impacted by a family ownership structure but at a lower level of significance and they are indifferent to family ownership in the Tobit robustness test when TobQ replaces ROA. These results support three of our hypotheses: H1: family controlled businesses have less total institutional ownership than non-family controlled businesses, H2A & H2B: we find that both high family ownership (H2A) and institutional investors avoidance (H2B) contribute to the lower

level of institutional ownership in family controlled businesses, and H3: institutional investors avoid family controlled businesses due to an inability to control management. The evidence for H4: institutional investors avoid family controlled businesses due to type 2 agency problem, was weaker. Thus, our findings help us to draw three conclusions. First, institutional investors avoid family controlled businesses. Second, both the crowding out and avoidance impacts help explain institutional investors' preference for non-family controlled firms. Finally, institutional investors avoid family controlled businesses because they cannot influence management. But there is weaker evidence that small institutional investors avoid family controlled businesses and therefore weaker support for type 2 agency problems as a rationale for institutional investors' preference for non-family controlled firms.

Chapter 6

Summary of the findings

6.1: Summary and Conclusions

The goal of this thesis is to examine whether family controlled businesses are desirable investment targets for institutional investors and whether institutions prefer non-family controlled businesses. We propose three reasons that may reduce the willingness of institutional investors to invest in family controlled corporations. These include reduced control over the decisions of management which is more influenced by the controlling family, concern over self-dealing by the controlling family, and a crowding out effect as family control of a major portion of the shares may reduce liquidity. Family controlled businesses are ideal to test our theory, because their unique structure helps us to determine the impact of lack of control over institutional ownership. It also gives us an idea of potential type 2 agency problems that family controlled businesses might have, because of the absolute control over management of the founding family.

Our data set contains 45 family controlled companies. We use propensity score matching to find a group of non-family controlled companies that match the family controlled group on five criteria that are considered to be of significance to institutional investors. This is an attempt to find pairs of companies where each pair consists of two companies, one family controlled and one non-family controlled, but the two are equally desirable as investment alternatives for institutions. We propose that any difference in the pattern of institutional ownership is due the family ownership.

Furthermore, we divide the family controlled companies between a group that has dual shares and a group that does not have dual shares. This division is important for the analysis as the voting rights related to the family controlled firms with dual shares are mainly owned by the controlling family. Therefore, an institutional investor's decision to invest in a family controlled firm with dual shares is not going to be based on the desire to control the decisions of management. In addition, we find that for firms with dual shares, the ownership of the family of

non-voting or limited voting shares is minor (less than 2%). Thus, there is no crowding out effect on institutional investors.

We analyse the magnitude of ownership by holders ranked among the top 5, institutional holders that rank 6 to 10, and institutional holders that rank above 10 in terms of ownership. Also, we analyse the magnitude of ownership by retail investors including institutional investors owning less \$100,000 worth of shares.

We find that major holders avoid family controlled businesses but small institutional investors may be indifferent to family controlled businesses. This helps us draw the conclusion that lack of control over management is driving the institutional investors away from family controlled businesses. In addition, we find evidence suggesting that after controlling for the crowding out effect institutional investors still avoid family controlled businesses, making our conclusion more robust.

6.2: Limitation, Practical Implication, and Future Research

Even though we got very robust and consistent results throughout the study, our research has some limitations. Our first limitation comes from our data. Our main data source, Thompson Reuters T13 database, has more than 10% of the observations reporting institutional ownership over 100% (one observation has 177% institutional ownership). We contacted our vendor, WRDS, for an explanation and they suggested that this anomaly could be due to short selling as Thompson Reuters is taking great care to avoid double counting. However, we have confidence in our results, because only a small portion of data we used had that kind of anomaly and Thompson Reuters T13 is the most reliable source for the institutional investors' ownership. Our second limitation is also due to the data base. We used six different data sources for our research. We found that there are many observations missing in each of the databases which resulted in a much smaller sample size for our tests. Our findings have practical implications regarding capital management and behavioral science. Family controlled businesses are one of the major contributor to the US economy, and their capability of raising capital is influenced by their ability to attract investors. Moreover, institutional investors' avoidance might suppress the proper valuation of the shares. By, reporting more details about their activities, family controlled businesses can build a trustworthy relationship with their investors. Our study shows that

operating performance alone is insufficient to attract investors; better communication and reporting can ensure investors that type 2 agency problems do not exist.

Our research does consider some important aspects of institutional investors and management issues, yet further research is possible regarding this subject. One possibility is to see whether the nature of the institutional investors such as being active or passive investors impact the behavior of the institutional investors when it comes to investing in family controlled businesses.

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Table 4.1

Variable Description

Table 4.1 presents all the dependent and independent variables used in this paper.

Variable name	Variable description
TIO	= Total number of shares held by the institutional investors/ Total number of shares outstanding
1T5	= Total number of shares held by the major five institutional investors/ Total number of shares outstanding
6T10	= (Total number of shares held by the major ten institutional investors- Total number of shares held by the major five institutional investors) / Total number of shares outstanding
SIO	= (Total number of shares held by the institutional investors- Total number of shares held by the major ten institutional investors) / Total number of shares outstanding
FC	= Family control dummy indicating whether a firm is controlled by family or not
PFO	= Total number of shares held by the family members/ Total number of shares outstanding
DD	= 1 if the firm is family controlled and have dual class shares; 0 otherwise
Size	= ln (Total assets)
ROA	= Net income/Total assets
DA	= (Current liabilities + Non-current liabilities)/Total assets
PO	= Cash dividend/Total asset
CX	= Capital expenditure/Total asset
ST	= Net sales/Total asset
TobQ	= (Market value of common equity+ Preferred shares +Current liabilities +Non-current liabilities)/Total asset
LIQ	= Average monthly shares traded in a quarter/Total shares outstanding
Beta	= The beta of the stock
S&PCo	= Dummy variable indicating whether a company is in S&P 500 or not
S&P	= Return on S&P 500 index
Int	= Average (geometric mean) of 90-day T-bill rate for each quarter
TIOAS	= Total number of shares held by the institutional investors/ (Total number of shares outstanding-Total number of shares held by the family members)
1T5AS	= Total number of shares held by the major five institutional investors/ (Total number of shares outstanding-Total number of shares held by the family members)
SIOAS	= (Total number of shares held by the institutional investors- Total number of shares held by the major ten institutional investors)/ (Total number of shares outstanding-Total number of shares held by the family members)
RIOAS	= (Total number of shares outstanding- Total number of shares held by the institutional investors -Total number of shares held by the family members)/ (Total number of shares outstanding-Total number of shares held by the family members)

Table 4.2

Propensity Score matching

Table 4.2 describes variables used in the Probit regression (model 4.1) for our propensity score matching. The dependent variable is family dummy. $ASize_{it}$, $AROA_{it}$, ADA_{it} , APO_{it} , and ACX_{it} are the annual value of size, return on asset, debt to asset, payout, and capital expenditure the independent variables.

Variable name		Variable description
FC_i	=	1, if the business is run by a family
$ASize_{it}$	=	ln (Total assets), (Annual data)
$AROA_{it}$	=	Return on assets, (Annual data)
ADA_{it}	=	Debt to asset, (Annual data)
APO_{it}	=	Dividend to total asset ratio, (Annual data)
ACX_{it}	=	Capital expenditure to total asset ratio, (Annual data)

Table 4.3

Probit Regression

Table 4.3 presents the Probit regression estimates for our propensity score matching. The dependent variable is family dummy. $ASize_{it}$, $AROA_{it}$, ADA_{it} , APO_{it} and ACX_{it} are the annual value of size, return on asset, debt to asset, payout, and capital expenditure the independent variables. Each column presents regression estimates for each year from 2010 to 2015.

	Dependent variable= FC_i					
	2010	2011	2012	2013	2014	2015
ASize	0.2478***	0.2503***	0.2527***	0.2598***	0.2609***	0.2602***
Z-value	7.27	7.26	7.43	7.6	7.39	7.35
AROA	0.0039	0.6726	0.2263	0.2891	1.057***	1.516***
Z-value	0.12	1.69	0.91	1.23	2.61	3.06
S.E.	0.3279	0.3268	0.3267	0.3316	0.3292	0.3302
Z-value	-0.98	-0.91	-1.14	-1.47	-1.2	-1.87
APO	0.3694	-0.3205	0.2056	-0.0014	-0.6776	-0.9777
Z-value	0.6	-0.41	0.51	0	-0.9	-1.6
ACX	0.4839	0.4543	0.6898	1.0601	0.1248	1.8511
Z-value	0.43	0.44	0.81	1.21	0.29	1.7
Cons	-4.0268***	-4.0969***	-4.1204***	-4.1939***	-4.2380***	-4.2388***
Z-value	-13.2	-12.91	-13.23	-13.4	-12.97	-12.85
Pseudo R2	0.1665	0.1749	0.177	0.1837	0.1879	0.1906

Table 4.4

Testing the difference of mean

Table 4.4 presents the result of the difference in the means test of ASize, AROA, ADA, APO and ACX before the matching and after the matching from the year 2010 to 2015 inclusive.

Panel A													
2010							2011						
	Sample	Treated	Controls	Difference	S.E.	T-stat		Sample	Treated	Controls	Difference	S.E.	T-stat
ASize	Unmatched	9.031	5.794	3.237	0.408	7.940	ASize	Unmatched	9.087	5.775	3.313	0.408	8.120
	Match	9.031	8.872	0.159	0.334	0.480		Match	9.087	9.098	-0.011	0.293	-0.040
AROA	Unmatched	0.059	-0.048	0.107	0.702	0.150	AROA	Unmatched	0.065	-0.145	0.210	0.143	1.470
	Match	0.059	0.046	0.014	0.014	1.000		Match	0.065	0.059	0.006	0.012	0.470
ADE	Unmatched	0.231	0.230	0.001	0.067	0.010	ADE	Unmatched	0.233	0.233	-0.001	0.061	-0.010
	Match	0.231	0.275	-0.044	0.042	-1.040		Match	0.233	0.259	-0.026	0.036	-0.740
APO	Unmatched	0.019	0.020	-0.001	0.019	-0.030	APO	Unmatched	0.018	0.017	0.001	0.017	0.060
	Match	0.019	0.014	0.006	0.006	0.930		Match	0.018	0.019	0.000	0.004	-0.090
ACX	Unmatched	0.040	0.040	0.000	0.011	-0.010	ACX	Unmatched	0.046	0.047	0.000	0.012	-0.010
	Match	0.040	0.042	-0.002	0.009	-0.220		Match	0.046	0.056	-0.009	0.011	-0.840

Panel B

2012							2013						
	Sample	Treated	Controls	Difference	S.E.	T-stat		Sample	Treated	Controls	Difference	S.E.	T-stat
ASize	Unmatched	9.125	5.720	3.405	0.411	8.290	ASize	Unmatched	9.193	5.755	3.439	0.406	8.460
	Match	9.125	9.165	-0.040	0.283	-0.140		Match	9.193	9.283	-0.090	0.277	-0.320
AROA	Unmatched	0.062	-0.208	0.271	0.150	1.800	AROA	Unmatched	0.067	-0.224	0.291	0.160	1.810
	Match	0.062	0.070	-0.008	0.014	-0.590		Match	0.067	0.066	0.001	0.013	0.070
ADE	Unmatched	0.238	0.270	-0.032	0.185	-0.180	ADE	Unmatched	0.234	0.253	-0.019	0.073	-0.260
	Match	0.238	0.291	-0.053	0.036	-1.450		Match	0.234	0.294	-0.060	0.032	-1.860
APO	Unmatched	0.032	0.026	0.006	0.022	0.250	APO	Unmatched	0.020	0.039	-0.019	0.162	-0.120
	Match	0.032	0.026	0.006	0.009	0.700		Match	0.020	0.017	0.003	0.004	0.660
ACX	Unmatched	0.050	0.050	0.000	0.014	0.010	ACX	Unmatched	0.051	0.046	0.005	0.013	0.380
	Match	0.050	0.048	0.003	0.010	0.260		Match	0.051	0.047	0.005	0.010	0.450

Panel C

2014							2015						
	Sample	Treated	Controls	Difference	S.E.	T-stat		Sample	Treated	Controls	Difference	S.E.	T-stat
ASize	Unmatched	9.257	5.890	3.367	0.403	8.350	ASize	Unmatched	9.207	6.053	3.154	0.385	8.190
	Match	9.257	9.260	-0.003	0.281	-0.010		Match	9.207	9.175	0.032	0.280	0.120
AROA	Unmatched	0.070	-0.239	0.309	0.224	1.380	AROA	Unmatched	0.066	-0.288	0.354	0.695	0.510
	Match	0.070	0.070	0.001	0.016	0.040		Match	0.066	0.075	-0.009	0.016	-0.560
ADE	Unmatched	0.252	0.267	-0.015	0.083	-0.180	ADE	Unmatched	0.254	0.283	-0.029	0.086	-0.330
	Match	0.252	0.295	-0.043	0.039	-1.100		Match	0.254	0.277	-0.023	0.039	-0.580
APO	Unmatched	0.020	0.019	0.001	0.017	0.030	APO	Unmatched	0.023	0.022	0.002	0.021	0.080
	Match	0.020	0.020	0.000	0.005	-0.040		Match	0.023	0.021	0.002	0.006	0.330
ACX	Unmatched	0.049	0.048	0.001	0.019	0.070	ACX	Unmatched	0.048	0.041	0.007	0.010	0.680
	Match	0.049	0.048	0.002	0.010	0.160		Match	0.048	0.050	-0.002	0.010	-0.180

Table 4.5

Portfolio performance

Table 4.5 presents the monthly return and the value of family businesses portfolio and non-family businesses portfolio from year 2011 to 2015. The table presents the return and the value of the portfolios at the end date of the month. Portfolios are equally weighted and the weight is adjusted at the beginning of each month.

Panel A

Year	Month	Family return	Non-family return	Family Value	Non-family Value	Year	Month	Family return	Non-family return	Family Value	Non-family Value
2011	Jan	-0.007	0.007	0.993	1.007	2012	Jan	0.086	0.079	1.175	1.181
	Feb	0.059	0.040	1.052	1.048		Feb	0.067	0.052	1.254	1.243
	Mar	0.009	0.003	1.061	1.051		Mar	0.031	0.033	1.292	1.284
	Apr	0.061	0.051	1.126	1.104		Apr	-0.013	-0.014	1.275	1.266
	May	-0.011	-0.005	1.114	1.099		May	-0.059	-0.079	1.199	1.166
	Jun	-0.008	-0.011	1.105	1.087		Jun	0.027	0.032	1.231	1.203
	Jul	-0.026	-0.019	1.076	1.067		Jul	0.002	-0.021	1.234	1.178
	Aug	-0.063	-0.034	1.008	1.031		Aug	0.041	0.024	1.284	1.207
	Sep	-0.062	-0.061	0.946	0.968		Sep	0.025	0.033	1.316	1.247
	Oct	0.162	0.125	1.098	1.089		Oct	0.033	0.003	1.360	1.251
	Nov	0.002	-0.003	1.100	1.086		Nov	0.006	0.033	1.367	1.292
	Dec	-0.017	0.008	1.082	1.095		Dec	0.015	0.023	1.388	1.322

Year	Month	Family return	Non-family return	Family Value	Non-family Value	Year	Month	Family return	Non-family return	Family Value	Non-family Value
2013	Jan	0.081	0.057	1.501	1.397	2014	Jan	-0.045	-0.037	1.909	1.772
	Feb	0.009	0.031	1.515	1.441		Feb	0.064	0.075	2.031	1.905
	Mar	0.061	0.033	1.608	1.488		Mar	0.010	-0.001	2.050	1.904
	Apr	0.015	0.029	1.633	1.532		Apr	0.018	-0.004	2.088	1.896
	May	0.030	0.045	1.681	1.602		May	0.035	0.029	2.160	1.951

Jun	-0.007	-0.007	1.670	1.590	Jun	0.020	0.015	2.205	1.980
Jul	0.076	0.054	1.796	1.676	Jul	-0.050	-0.030	2.094	1.920
Aug	-0.044	-0.041	1.717	1.607	Aug	0.047	0.062	2.194	2.040
Sep	0.055	0.046	1.811	1.682	Sep	-0.053	-0.025	2.077	1.990
Oct	0.040	0.040	1.884	1.749	Oct	0.043	0.034	2.167	2.057
Nov	0.039	0.034	1.958	1.809	Nov	0.035	0.056	2.243	2.171
Dec	0.021	0.017	1.999	1.840	Dec	0.007	0.031	2.260	2.239

						Panel B			
		Family	Non-family	Family	Non-family				
Year	Month	return	return	Value	Value			Family	
								Non-family	
2015	Jan	-0.039	-0.018	2.171	2.198	Mean		0.014896862	0.013691157
	Feb	0.090	0.053	2.368	2.315	Variance		0.00190237	0.001415352
	Mar	0.003	0.002	2.374	2.321	Observations		60	60
	Apr	-0.019	-0.003	2.329	2.313	df		118	
	May	0.007	0.000	2.346	2.313	Tvalue		0.162142432	
	Jun	-0.013	-0.008	2.315	2.295	P(T<=t) two-tail		0.871471013	
	Jul	-0.003	-0.001	2.309	2.293	t Critical two-tail		1.980272249	
	Aug	-0.026	-0.057	2.250	2.162				
	Sep	-0.022	-0.038	2.199	2.080				
	Oct	0.071	0.058	2.356	2.200				
	Nov	0.006	-0.006	2.369	2.187				
	Dec	-0.029	-0.007	2.301	2.171				

Table 5.1

Descriptive Statistics

Table 5.1 reports sample statistics for the principal variables. Panel A shows the institutional investors' holdings over the 2010 to 2015 period, Panel B shows the firm characteristics over the 2010 to 2015-time period and Panel C presents the return on S&P 500 and T-bill rates. In panel A, We define total institutional ownership (TIO) as the total number of shares held by the institutional investors divided by the total number of shares outstanding, top five institutional investors' ownership (1T5) as the total number of shares held by the top five institutional investors divided by the total number of shares outstanding, ownership of sixth to tenth institutional investors (6T10) is number of shares held by the sixth to tenth ranked institutional investors within a firm divided by the total number of shares outstanding and the small institutional ownership (SIO) is the is number of shares held by small investors within a firm divided by the total number of shares outstanding. In panel B, FC is the family control dummy, PFO is the ownership of the family members expressed as a percentage total share outstanding, DD is also a dummy variable whether the family controlled firm in question is has dual class shares, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current labilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets, Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities, and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding, Beta is the quarterly beta, and S&PCo is a dummy variable indicating whether a company is a member of S&P 500 index. In panel C, S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs.

Descriptive Statistics

	Obs	Mean	Std	Min	Max	Median	95% Conf. interval	
Panel A: Institutional Investors' Holdings								
TIO	1,266	0.6225***	0.2148	0.0011	0.9970	0.68262	0.47443	0.80964
1T5	1,266	0.2528***	0.1079	0.0011	0.8721	0.24557	0.19558	0.30548
6T10	1,266	0.0931***	0.0411	0.0000	0.2252	0.09591	0.0619	0.1271
SIO	1,266	0.2842***	0.1249	0.0000	0.5602	0.30033	0.18555	0.39467
RO	1,266	0.3015***	0.1752	0.0030	0.9989	0.24193	0.14854	0.37333
Panel B: Firm characteristics								
FC	1,266	0.500***	0.500	0.000	1.000	0.500	0.000	1.000
PFO	1,266	0.0760***	0.159019	0	0.704242	0	0	0.0499
DD	1,266	0.2424***	0.428762	0	1	0	0	0
Size	1,146	9.3029***	1.2837	5.3759	12.3575	8.4928	8.4928	9.9743
ROA	1,146	0.0154***	0.0193	-0.0948	0.2913	0.0139	0.0068	0.0217
DA	1,146	0.3196***	0.2263	0	1.5849	0.2957	0.1775	0.4480
PO	1,146	0.0053***	0.0168	-0.0305	0.5300	0.0029	0.0002	0.0075
CX	1,146	0.0117***	0.0222	-0.5587	0.1822	0.0086	0.0045	0.0162
ST	1,146	0.2834***	0.2097	0.0060	1.7054	0.2235	0.1353	0.3809
TobQ	1,146	1.4284***	0.8862	0.0624	5.6691	1.2158	0.8583	1.8419
LIQ	1,109	0.0054***	0.0036	0.0002	0.0302	0.0046	0.0029	0.0072
Beta	1,064	0.925	2.121	-13.788	14.948	.8872	-1.9644	3.9297
S&PCo	1,064	0.658	0.475	0	1	1	0	1
Panel C: Market and economic conditions								
Int	1,266	0.0268***	0.0629	-0.1433	0.1200	0.0439	-0.0023	0.0645
S&P	1,266	0.0474***	0.0307	0.0100	0.1153	0.0348	0.0199	0.0643

* different from 0, at 10% level of significance

** different from 0, at 5% level of significance

*** different from 0, at 1% level of significance

Table 5.2

Correlation Matrix

Table 5.3 presents the correlation among, institutional ownership, top five institutional investor's ownership, sixth to tenth institutional investor's ownership, ownership of institutional investors, family control dummy, percentage family ownership, dual class dummy, size, return on assets (ROA), debt to assets (DA), Pay out (PO), Capital expenditure (CX), Tobin's Q (TobQ), sales turnover (ST), Liquidity (LIQ), Beta, S&P 500 dummy, S&P 500 and interest rate. Below the value of the correlation.

	TIO	1T5	6T10	SIO	RO	FC	PFO	DD	Size	ROA
TIO	1									
1T5	0.606***	1								
6T10	0.843***	0.462***	1							
SIO	0.793***	0.011	0.625***	1						
RO	-0.571***	-0.497***	-0.533***	-0.323***	1					
FC	-0.360***	-0.217***	-0.252***	-0.300***	-0.066**	1				
PFO	-0.621***	-0.349***	-0.476***	-0.528***	-0.253***	0.492***	1			
DD	0.094***	0.059***	0.079***	0.073**	0.058*	0.588***	-0.187***	1		
Size	-0.145***	-0.210***	-0.265***	0.019	0.128***	0.009	0.041	-0.081***	1	
ROA	0.028	-0.096***	-0.026	0.122***	-0.034	0.015	0.020	0.023	-0.157***	1
DA	0.146***	0.077**	0.165***	0.112***	-0.017***	0.007	-0.136***	-0.038	-0.021	-0.046
PO	-0.103***	-0.113***	-0.092**	-0.042	0.094	0.007	0.032	-0.009	-0.030	0.149***
CX	-0.059*	-0.151***	-0.005	0.029	-0.015	-0.036	0.116***	-0.149***	-0.113***	0.060**
ST	-0.018	-0.089***	0.018	0.036	-0.044	0.033	0.095***	0.059*	-0.308***	0.204***
TobQ	0.045	-0.082***	-0.027	0.137***	-0.040	-0.082***	0.010	-0.126***	-0.263***	0.457***
LIQ	0.490***	0.204***	0.464***	0.446***	-0.267***	-0.139***	-0.317***	0.120***	-0.186***	-0.027
Beta	0.002	0.015	0.025	-0.015	-0.002	0.014	-0.004	-0.004	-0.057*	0.011
S&PCo	0.185***	-0.066**	0.027	0.319***	-0.088***	-0.151***	-0.121***	-0.143***	0.402***	0.146***
S&P	0.042	0.001	0.026	0.055*	-0.035	0.000	-0.012	0.009	-0.009	0.045
Int	0.099***	0.026	0.112***	0.097***	-0.102***	0.000	-0.010	-0.004	-0.015	-0.012

	DA	PO	CX	ST	TobQ	LIQ	Beta	S&PCo	S&P	Int
DA	1									
PO	0.104***	1								
CX	0.164***	0.027	1							
ST	-0.011	0.027	0.171***	1						
TobQ	0.163***	0.176***	0.147***	0.141***	1					
LIQ	0.229***	-0.075**	0.084***	0.146***	-0.033	1				
Beta	0.020	-0.040	0.015	0.055*	-0.006	0.028	1			
S&PCo	0.038	0.034	-0.077**	-0.127***	0.294***	0.051*	-0.048	1		
S&P	-0.029	0.044	-0.024	0.042	0.034	-0.106***	0.009	0.029	1	
Int	-0.014	-0.035	-0.009	0.043	-0.102***	0.055*	-0.065**	0.037	0.220***	1

- * different from 0, at 10% level of significance
- ** different from 0, at 5% level of significance
- *** different from 0, at 1% level of significance

Table 5.3

Univariate Test

Table 5.3 presents the results of test of the differences in means of the institutional holding variables and firm specific variables. Panel 1A, and 1B presents the test of differences of mean of institutional ownership (TIO), top five institutional investors' ownership (1T5), ownership of the sixth to tenth institutional investors (6T10) and ownership of the small investors (SIO) for the time from 2010 to 2015. Panel 2A, and 2C presents the firm specific control variables of our model: size, ROA, DA, payout, capital expenditure, Tobin's Q, sales turnover, liquidity, beta and S&P 500 composites for the same period. And 3A and 3B presents TIO, 1T5 and SIO with the subgroup with dual class shares and their matches.

Panel 1A										
		2010			2011			2012		
		Mean	S.E.	Obs	Mean	S.E.	Obs	Mean	S.E.	Obs
TIO	Non-family	0.7874	0.0194	76	0.7360	0.0168	87	0.7199	0.0176	95
	Family	0.5257	0.0255	76	0.5076	0.0217	87	0.5617	0.0234	95
	Difference	0.2617***	0.0320		0.2284***	0.0275		0.1582***	0.0293	
	T-value	8.18			8.31			5.39		
1T5	Non-family	0.2893	0.0090	76	0.2565	0.0076	87	0.2690	0.0090	95
	Family	0.2171	0.0113	76	0.2158	0.0102	87	0.2375	0.0103	95
	Difference	0.0722***	0.0145		0.0407***	0.0128		0.0314**	0.0136	
	T-value	4.99			3.19			2.30		
6T10	Non-family	0.1216	0.0043	76	0.1170	0.0035	87	0.1134	0.0036	95
	Family	0.0817	0.0044	76	0.0849	0.0045	87	0.0911	0.0044	95
	Difference	0.0399***	0.0061		0.0321***	0.0057		0.0223***	0.0057	
	T-value	6.50			5.59			3.91		
SIO	Non-family	0.3765	0.0139	76	0.3625	0.0109	87	0.3376	0.0125	95
	Family	0.2311	0.0131	76	0.2290	0.0119	87	0.2533	0.0138	95
	Difference	0.1454***	0.0192		0.1335***	0.0161		0.0843***	0.0186	
	T-value	7.59			8.27			4.54		

Panel 1B										
		2013			2014			2015		
		Mean	S.E.	Obs	Mean	S.E.	Obs	Mean	S.E.	Obs
TIO	Non-family	0.7346	0.0150	98	0.6353	0.0156	140	0.6529	0.0143	137
	Family	0.5960	0.0220	98	0.5107	0.0194	140	0.5696	0.0191	137
	Difference	0.1386***	0.0266		0.1247***	0.0249		0.0833***	0.0238	
	T-value	5.21			5.01			3.50		
1T5	Non-family	0.2867	0.0099	98	0.2701	0.0117	140	0.2792	0.0099	137
	Family	0.2244	0.0085	98	0.2339	0.0110	140	0.2443	0.0089	137
	Difference	0.023***	0.0131		0.0362**	0.0160		0.0349**	0.0133	
	T-value	4.77			2.26			2.63		
6T10	Non-family	0.1109	0.0037	98	0.0883	0.0031	140	0.0895	0.0027	137
	Family	0.0834	0.0038	98	0.0750	0.0038	140	0.0826	0.0037	137
	Difference	0.0275***	0.0053		0.0133***	0.0049		0.0069	0.0045	
	T-value	5.22			2.72			1.52		
SIO	Non-family	0.3370	0.0102	98	0.2769	0.0092	140	0.2842	0.0080	137
	Family	0.2951	0.0136	98	0.2227	0.0105	140	0.2569	0.0102	137
	Difference	0.0419**	0.0169		0.0542***	0.0140		0.0273**	0.0130	
	T-value	2.47			3.89			2.11		

Panel 2A										
		2010			2011			2012		
		Mean	S.E.	Obs	Mean	S.E.	Obs	Mean	S.E.	Obs
Size	Non-family	9.129	0.1374	67	9.328	0.1394	82	9.217	0.1496	78
	Family	9.273	0.1667	67	9.412	0.1575	82	9.269	0.1704	78
	Difference	-0.1443	0.2160		-0.0847	0.2103		-0.0527	0.2267	
	T-value	-0.67			-0.40			-0.23		
ROA	Non-family	0.013	0.0014	67	0.017	0.0023	82	0.014	0.0020	78
	Family	0.016	0.0019	67	0.018	0.0026	82	0.014	0.0012	78
	Difference	-0.0032	0.0023		-0.0016	0.0035		-0.0003	0.0023	
	T-value	-1.36			-0.45			-0.11		
DA	Non-family	0.330	0.0163	67	0.330	0.0215	82	0.319	0.0202	78
	Family	0.286	0.0180	67	0.341	0.0368	82	0.360	0.0380	78
	Difference	0.0441	0.0243		-0.0103	0.0426		-0.0403	0.0430	
	T-value	1.81			-0.24			-0.94		
PO	Non-family	0.004	0.0007	67	0.010	0.0064	82	0.004	0.0011	78
	Family	0.006	0.0012	67	0.006	0.0007	82	0.006	0.0010	78
	Difference	-0.0019	0.0014		0.0042	0.0065		-0.0015	0.0015	
	T-value	-1.36			0.65			-1.03		
CX	Non-family	0.004	0.0088	67	0.009	0.0026	82	0.016	0.0021	78
	Family	0.009	0.0008	67	0.012	0.0010	82	0.014	0.0013	78
	Difference	-0.0051	0.0088		-0.0030	0.0028		0.0025	0.0024	
	T-value	-0.58			-1.09			1.04		
ST	Non-family	0.316	0.0307	67	0.263	0.0162	82	0.284	0.0214	78
	Family	0.292	0.0231	67	0.281	0.0214	82	0.312	0.0245	78
	Difference	0.0239	0.0385		-0.0173	0.0269		-0.0283	0.0325	
	T-value	0.62			-0.64			-0.87		
TobQ	Non-family	1.189	0.0554	67	1.199	0.0627	82	1.272	0.0959	78
	Family	1.252	0.0800	67	1.308	0.0774	82	1.163	0.0773	78
	Difference	-0.0629	0.0972		-0.1088	0.0996		0.1091	0.1231	
	T-value	-0.65			-1.09			0.89		
LIQ	Non-family	0.007	0.000	58	0.007	0.000	72	0.006	0.000	74
	Family	0.005	0.000	58	0.005	0.000	72	0.005	0.000	74
	Difference	0.0016***	0.0006		0.0023***	0.0006		0.0008	0.0006	
	T-value	2.68			3.72			1.31		
Beta	Non-family	0.644	0.1151	57	1.374	0.1877	71	0.297	0.3884	74
	Family	0.932	0.1513	57	1.041	0.1311	71	0.440	0.2566	74
	Difference	-0.2881	0.1901		0.3324	0.2290		-0.1429	0.4655	
	T-value	-1.52			1.45			-0.31		
S&PCo	Non-family	0.842	0.0487	57	0.718	0.0538	71	0.676	0.0548	74
	Family	0.632	0.0645	57	0.634	0.0576	71	0.487	0.0585	74
	Difference	0.2105***	0.0808		0.0845	0.0788		0.1892	0.0802	
	T-value	2.61			1.07			2.36		

Panel 2B										
		2013			2014			2015		
		Mean	S.E.	Obs	Mean	S.E.	Obs	Mean	S.E.	Obs
Size	Non-family	9.403	0.1337	89	9.290	0.1037	130	9.286	0.1071	127
	Family	9.455	0.1539	89	9.234	0.1049	130	9.321	0.1108	127
	Difference	-0.0521	0.2039		0.0554	0.1475		-0.0356	0.1541	
	T-value	-0.26			0.38			-0.23		
ROA	Non-family	0.019	0.0039	89	0.013	0.0019	130	0.013	0.0012	127
	Family	0.018	0.0014	89	0.016	0.0014	130	0.016	0.0015	127
	Difference	0.0002	0.0041		-0.0027	0.0023		-0.0025	0.0019	
	T-value	0.06			-1.14			-1.27		
DA	Non-family	0.308***	0.0203	89	0.314***	0.0143	130	0.321***	0.0175	127
	Family	0.279***	0.0174	89	0.318***	0.0233	130	0.330***	0.0243	127
	Difference	0.0288	0.0267		-0.0039	0.0273		-0.0088	0.0299	
	T-value	1.08			-0.14			-0.30		
PO	Non-family	0.004	0.0006	89	0.005	0.0004	130	0.004	0.0004	127
	Family	0.006	0.0008	89	0.005	0.0005	130	0.005	0.0005	127
	Difference	-0.0020**	0.0010		-0.0001	0.0007		-0.0011	0.0006	
	T-value	-2.11			-0.18			-1.63		
CX	Non-family	0.012	0.0018	89	0.013	0.0011	130	0.012	0.0017	127
	Family	0.010	0.0007	89	0.013	0.0010	130	0.012	0.0009	127
	Difference	0.0024	0.0020		0.0001	0.0015		0.0001	0.0019	
	T-value	1.21			0.10			0.06		
ST	Non-family	0.323	0.0358	89	0.280	0.0168	130	0.229	0.0151	127
	Family	0.316	0.0230	89	0.288	0.0178	130	0.261	0.0157	127
	Difference	0.007	0.0426		-0.008	0.0245		-0.032	0.0218	
	T-value	0.16			-0.34			-1.46		
TobQ	Non-family	1.557	0.0852	89	1.743	0.0999	130	1.601	0.0978	127
	Family	1.494	0.0874	89	1.477	0.0807	130	1.450	0.0854	127
	Difference	0.063	0.1220		0.266**	0.1284		0.150	0.1298	
	T-value	0.52			2.07			1.16		
LIQ	Non-family	0.005	0.000	87	0.006	0.000	121	0.006	0.000	126
	Family	0.004	0.000	87	0.005	0.000	121	0.006	0.000	126
	Difference	0.0011**	0.0005		0.0008	0.0005		0.0002	0.0005	
	T-value	2.40			1.63			0.36		
Beta	Non-family	1.165	0.351	86	1.179	0.1880	118	0.637	0.1520	126
	Family	0.975	0.271	86	1.366	0.1648	118	0.817	0.1696	126
	Difference	0.190	0.444		-0.186	0.2500		-0.1796	0.2277	
	T-value	0.43			-0.75			-0.79		
S&PCo	Non-family	0.883	0.034	86	0.686	0.042	118	0.650	0.042	126
	Family	0.662	0.051	86	0.567	0.045	118	0.563	0.044	126
	Difference	0.220***	0.062		0.118	0.062		0.087	0.061	
	T-value	3.57			1.89			1.42		

Panel 3A										
		2010			2011			2012		
		Mean	S.E.	Obs	Mean	S.E.	Obs	Mean	S.E.	Obs
TIO	Non-family	0.7401	0.0333	28	0.6910	0.0259	33	0.7462	0.0316	33
	Family	0.6277	0.0362	28	0.6257	0.0248	33	0.6535	0.0328	33
	Difference	0.1124**	0.0492		0.0653*	0.0359		0.0927**	0.0456	
	T-value	2.28			1.82			2.03		
IT5	Non-family	0.2846	0.0130	28	0.2562	0.0150	33	0.2885	0.0164	33
	Family	0.2854	0.0160	28	0.2351	0.0074	33	0.2714	0.0131	33
	Difference	-0.0008	0.0206		0.0210	0.0167		0.0171	0.0210	
	T-value	-0.04			1.26			0.81		
SIO	Non-family	0.3433	0.0264	28	0.3279	0.0119	33	0.3365	0.0155	33
	Family	0.2466	0.0211	28	0.2857	0.0160	33	0.2764	0.0204	33
	Difference	0.0968***	0.0338		0.0421**	0.0199		0.0601**	0.0257	
	T-value	2.86			2.11			2.34		

Panel 3B										
		2013			2014			2015		
		Mean	S.E.	Obs	Mean	S.E.	Obs	Mean	S.E.	Obs
TIO	Non-family	0.7179	0.0197	55	0.6538	0.0184	55	0.6792	0.0144	68
	Family	0.6927	0.0260	55	0.6463	0.0251	55	0.6748	0.0209	68
	Difference	0.0253	0.0326		0.0075	0.0311		0.0044	0.0254	
	T-value	0.77			0.24			0.17		
1T5	Non-family	0.2762	0.0106	55	0.2683	0.0124	55	0.2860	0.0134	68
	Family	0.2498	0.0078	55	0.2664	0.0133	55	0.2720	0.0102	68
	Difference	0.0264**	0.0132		0.0019	0.0182		0.0141	0.0169	
	T-value	2.00			0.10			0.83		
SIO	Non-family	0.3340	0.0112	55	0.2905	0.0089	55	0.3041	0.0097	68
	Family	0.3450	0.0180	55	0.2848	0.0173	55	0.3080	0.0139	68
	Difference	-0.0110	0.0212		0.0057	0.0194		-0.0039	0.0169	
	T-value	-0.52			0.29			-0.23		

- * different from 0, at 10% level of significance
- ** different from 0, at 5% level of significance
- *** different from 0, at 1% level of significance

Table 5.4

Multivariate Test-1

Relationship between family controlled businesses and total institutional ownership

Table 5.4 presents the regression estimates of model 4.2. Here TIO is the total institutional ownership. FC is a dummy variable indicating whether the business in question is family controlled or not, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding. Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs.

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Dependent Variable: TIO								
	Expected Sign	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
FC	-	-0.148***	-0.149***	-0.123***	-0.123***	-0.115***	-0.116***	-0.117***
		-13.34	-13.57	-12.33	-12.32	-11.58	-11.63	-11.75
Size	-	-0.005	-0.012***	-0.004	-0.004	-0.020***	-0.016***	-0.020***
		-1.1	-2.47	-0.9	-0.89	-3.64	-3.03	-3.57
ROA	+/-	0.690**	1.368***	0.833***	0.832***		0.558**	0.796***
		2.3	4.09	2.71	2.71		1.99	2.62
DA	+	0.148***	0.156***	0.093***	0.093***	0.085***	0.086***	0.094***
		5.24	5.57	3.63	3.62	3.37	3.41	3.68
PO	-	-1.672***	-1.472***	-0.916***	-0.914***	-0.809***	-0.925***	-0.863***
		-4.93	-4.37	-3.14	-3.13	-2.79	-3.21	-2.98
CX	+/-	0.056	0.258	-1.075***	-1.075***	-1.127***	-1.179***	-1.125***
		0.21	0.98	-2.78	-2.78	-2.93	-3.08	-2.94

ST	+/-		-0.189***	-0.209***	-0.209***	-0.195***	-0.205***	-0.208***
			-5.5	-6.92	-6.92	-6.61	-6.88	-6.97
TobQ	+/-		-0.022***	0.000	0.000	-0.008		-0.016**
			-2.75	0.01	0.02	-1.12		-2.04
LIQ	+			26.14***	26.14***	24.24***	24.92***	24.15***
				16.83	16.82	15.19	16.1	15.17
Beta	+/-				0.000	0.000	0.000	0.000
					0.13	0.14	0.17	0.11
S&PCo	+					0.071***	0.058***	0.707***
						4.88	4.37	4.83
S&P	+/-	0.023	0.031	0.144	0.144	0.143	0.139	0.140
		0.23	0.32	1.64	1.64	1.64	1.6	1.61
Int	+	0.249	0.262	0.015	0.015	0.024	0.020	0.031
		0.9	0.96	0.06	0.06	0.1	0.08	0.13
Const		0.633***	0.751***	0.567***	0.566***	0.712***	0.658***	0.707***
		9.74	11.18	8.97	8.92	10.26	10.12	10.21
Industry dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		1,146	1,146	1,064	1,064	1,064	1,064	1,064
R square		0.2377***	0.2616***	0.4347***	0.4348***	0.4435***	0.445***	0.4472***
Adj R square		0.2242***	0.2471***	0.4222***	0.4217***	0.4307***	0.4322***	0.4339***

Table 5.5

Multivariate Test-2

Relationship between family controlled businesses and total institutional ownership after controlling for the percentage family ownership

Table 5.5 presents the regression estimates of model 4.3. Here TIO is the total institutional ownership. FC is the a dummy variables indicating whether the business in question is family controlled or not, PFO is the ownership of the family members expressed as a percentage total share outstanding, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding. Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs.

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Dependent Variable: TIO								
	Expected Sign	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
FC	-	-0.037***	-0.040***	-0.034***	-0.034***	-0.029***	-0.029***	-0.031***
		-3.39	-3.68	-3.35	-3.35	-2.87	-2.95	-3.04
PFO	-	-0.744***	-0.725***	-0.601***	-0.601***	-0.595***	-0.594***	-0.591***
		-21.06	-20.45	-17.76	-17.75	-17.65	-17.67	-17.57
Size	-	-0.001	-0.005	0.001	0.001	-0.012**	-0.009**	-0.011**
		-0.25	-1.23	0.27	0.27	-2.38	-2.01	-2.33
ROA	+/-	0.697***	1.060***	0.615**	0.615***		0.462*	0.590**
		2.74	3.71	2.29	2.28		1.87	2.21
DA	+	0.094***	0.099***	0.051**	0.051**	0.046**	0.048**	0.052**
		3.91	4.1	2.27	2.27	2.06	2.17	2.33

PO	-	-1.299***	-1.199***	-0.811***	-0.811***	-0.732***	-0.806***	-0.773***
		-4.51	-4.17	-3.17	-3.16	-2.88	-3.18	-3.04
CX	+/-	0.563**	0.670***	-0.048	-0.048	-0.099	-0.128	-0.104
		2.49	2.97	-0.14	-0.14	-0.29	-0.38	-0.3
ST	+/-		-0.121***	-0.157***	-0.157***	-0.148***	-0.156***	-0.158***
			-4.09	-5.93	-5.92	-5.68	-5.93	-5.98
TobQ	+/-		-0.010	0.004	0.004	-0.003		-0.008
			-1.49	0.66	0.66	-0.43		-1.24
LIQ	+			19.33***	19.33***	17.91***	18.27***	17.88***
				13.67	13.67	12.39	12.96	12.39
Beta	+/-				0.000	0.000	0.000	0.000
					0	0	0.01	-0.02
S&PCo	+					0.056***	0.048***	0.666***
						4.35	4.18	4.31
S&P	+/-	0.014	0.018	0.106	0.106	0.105	0.103	0.103
		0.17	0.21	1.38	1.38	1.38	1.35	1.35
Int	+	0.271	0.278	0.109	0.109	0.115	0.114	0.119
		1.16	1.2	0.5	0.5	0.54	0.54	0.56
Const		0.633***	0.702***	0.554***	0.554***	0.669***	0.639***	0.666***
		11.49	12.23	10.02	9.97	10.98	11.2	10.94
Industry dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		1,146	1,146	1,064	1,064	1,064	1,064	1,064
R square		0.4534***	0.4621***	0.5663***	0.5663***	0.572***	0.5733***	0.574***
Adj R square		0.4431***	0.4511***	0.5563***	0.5559***	0.5617***	0.5631***	0.5633***

Table 5.6

Multivariate Test-3

Relationship between family controlled businesses and total institutional ownership after controlling for dual class dummy

Table 5.6 presents the regression estimates of model 4.4. Here TIO is the total institutional ownership. FC is the a dummy variables indicating whether the business in question is family controlled or not, DD is also a dummy variable whether the family controlled firm in question is has dual class shares, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding. Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs.

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Dependent Variable: TIO								
	Expected Sign	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
FC	-	-0.267***	-0.266***	-0.209***	-0.209***	-0.205***	-0.205***	-0.205***
		-21.25	-21.51	-17.47	-17.47	-17.36	-17.4	-17.4
DD	-	0.232***	0.233***	0.164***	0.164***	0.172***	0.171***	0.170***
		15.77	15.87	11.61	11.61	12.33	12.34	12.2
Size	-	0.001	-0.004	0.001	0.001	-0.018***	-0.016***	-0.018***
		0.2	-0.99	0.14	0.17	-3.41	-3.19	-3.37
ROA	+/-	0.627**	0.971***	0.624**	0.622**		0.451*	0.572**
		2.31	3.2	2.16	2.15		1.72	2.01
DA	+	0.197***	0.196***	0.123***	0.123***	0.118***	0.120***	0.124***
		7.65	7.69	5.04	5.03	4.97	5.07	5.18
PO	-	-1.541***	-1.431***	-0.986***	-0.981***	-0.885***	-0.955***	-0.923***

		-5.02	-4.7	-3.58	-3.56	-3.27	-3.54	-3.41
CX	+/-	0.543***	0.708***	-0.350	-0.348	-0.374	-0.401	-0.380
		2.24	2.95	-0.95	-0.94	-1.03	-1.11	-1.05
ST	+/-		-0.195***	-0.210***	-0.210***	-0.200***	-0.208***	-0.209***
			-6.27	-7.39	-7.39	-7.25	-7.45	-7.49
TobQ	+/-		-0.003	0.010	0.010	-0.002		-0.008
			-0.44	1.51	1.52	-0.34		-1.09
LIQ	+			22.26***	22.26***	19.81***	20.15***	19.79***
				14.84	14.83	12.91	13.46	12.92
Beta	+/-				0.001	0.001	0.001	0.001
					0.46	0.48	0.48	0.45
S&PCo	+					0.083***	0.076***	0.690***
						6.05	6.1	6
S&P	+/-	0.037	0.037	0.132	0.132	0.128	0.126	0.126
		0.42	0.42	1.6	1.6	1.58	1.55	1.56
Int	+	0.228	0.239	0.036	0.037	0.051	0.051	0.056
		0.91	0.97	0.16	0.16	0.23	0.22	0.25
Const		0.581***	0.671***	0.529***	0.526***	0.693***	0.665***	0.690***
		9.86	11.01	8.88	8.8	10.68	10.94	10.64
Industry dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		1,146	1,146	1,064	1,064	1,064	1,064	1,064
R square		0.3759***	0.397***	0.4997***	0.4998***	0.5147***	0.516***	0.5166***
Adj R square		0.3642***	0.3847***	0.4881***	0.4877***	0.503***	0.5043***	0.5044***

Table 5.7

Multivariate Test-4

Relationship between family controlled businesses and total institutional ownership after controlling for the percentage family ownership and dual class dummy

Table 5.7 presents the regression estimates of model 4.5. Here TIO is the total institutional ownership. FC is the a dummy variables indicating whether the business in question is family controlled or not, PFO is the ownership of the family members expressed as a percentage total share outstanding, DD is also a dummy variable whether the family controlled firm in question is has dual class shares, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding. Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs.

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Dependent Variable: TIO								
	Expected Sign	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
FC	-	-0.091***	-0.099***	-0.044***	-0.044***	-0.050***	-0.050***	-0.050***
		-5.15	-5.64	-2.57	-2.57	-2.93	-2.95	-2.95
PFO	-	-0.624***	-0.590***	-0.578***	-0.578***	-0.547***	-0.547***	-0.547***
		-13.28	-12.49	-12.66	-12.64	-11.9	-11.92	-11.92
DD	+	0.071***	0.079***	0.013	0.013	0.027	0.027	0.026
		3.87	4.26	0.74	0.74	1.53	1.51	1.43
Size	-	0.000	-0.004	0.001	0.001	-0.012**	-0.010**	-0.012**
		0.04	-0.92	0.31	0.31	-2.44	-2.11	-2.39
ROA	+/-	0.677***	0.983***	0.607**	0.607***		0.453*	0.572**
		2.68	3.46	2.25	2.25		1.84	2.14

DA	+	0.118***	0.123***	0.055**	0.055***	0.054**	0.057**	0.060**
		4.77	5	2.38	2.38	2.36	2.47	2.6
PO	-	-1.319***	-1.236***	-0.821***	-0.821***	-0.750***	-0.820***	-0.788***
		-4.61	-4.33	-3.2	-3.2	-2.95	-3.24	-3.1
CX	+/-	0.629***	0.745***	-0.028	-0.028	-0.062	-0.090	-0.069
		2.8	3.32	-0.08	-0.08	-0.18	-0.26	-0.2
ST	+/-		-0.136***	-0.159***	-0.159***	-0.152***	-0.160***	-0.162***
			-4.59	-5.97	-5.97	-5.82	-6.06	-6.1
TobQ	+/-		-0.006	0.005	0.005	-0.002		-0.008
			-0.88	0.76	0.76	-0.35		-1.15
LIQ	+			19.28***	19.28***	17.72***	18.05***	17.70***
				13.62	13.61	12.22	12.75	12.22
Beta	+/-				0.000	0.000	0.000	0.000
					0.03	0.07	0.08	0.04
S&PCo	+					0.059***	0.052***	0.666***
						4.54	4.4	4.48
S&P	+/-	0.020	0.022	0.107	0.107	0.106	0.103	0.104
		0.24	0.27	1.39	1.39	1.39	1.36	1.37
Int	+	0.261	0.268	0.107	0.107	0.112	0.112	0.117
		1.12	1.16	0.5	0.5	0.52	0.52	0.55
Const		0.617***	0.684***	0.552***	0.552***	0.670***	0.642***	0.666***
		11.24	11.98	9.95	9.9	10.99	11.25	10.95
Industry dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		1,146	1,146	1,064	1,064	1,064	1,064	1,064
R square		0.4605***	0.4707***	0.5666***	0.5666***	0.5729***	0.5743***	0.5748***
Adj R square		0.4500***	0.4594***	0.5561***	0.5557***	0.5622***	0.5636***	0.5637***

Table 5.8

Multivariate Test-5

Relationship between family controlled businesses and top five institutional ownership

Table 5.8 presents the regression estimates of model 4.6. Here 1T5 is the institutional ownership of top five major investors within a firm. FC is a dummy variable indicating whether the business in question is family controlled or not, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding, Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs. The regression only considers the firm with dual class shares.

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Dependent Variable: 1T5								
	Expected Sign	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
FC	-	-0.013*	-0.017**	-0.019***	-0.019***	-0.018**	-0.017**	-0.019***
		-1.98	-2.51	-2.75	-2.74	-2.58	-2.36	-2.68
Size	-	0.005	-0.003	-0.006	-0.006	-0.005	0.000	-0.005
		1.22	-0.63	-1.43	-1.42	-1.05	-0.09	-1.11
ROA	+/-	-0.113	0.233	0.211	0.210		0.003	0.210
		-0.63	1.19	1.11	1.1		0.02	1.1
DA	+	0.095***	0.091***	0.084***	0.084***	0.082***	0.079***	0.083***
		4.7	4.61	4.32	4.31	4.19	4.03	4.26
PO	-	-0.862	-0.742	-0.156	-0.149	-0.068	-0.240	-0.141
		-1.64	-1.43	-0.3	-0.29	-0.13	-0.46	-0.27
CX	+/-	0.303	0.732	0.528	0.532	0.532	0.410	0.531
		0.92	2.24	1.49	1.5	1.5	1.16	1.49

ST	-		-0.105***	-0.105***	-0.105***	-0.101***	-0.092***	-0.105***
			-5.46	-5.63	-5.63	-5.42	-5.01	-5.53
TobQ	+/-		-0.013***	-0.014***	-0.014***	-0.011**		-0.013**
			-2.9	-3	-2.99	-2.4		-2.63
LIQ	+			3.590***	3.584***	3.723***	4.364***	3.613***
				3.22	3.21	3.22	3.86	3.12
Beta	+/-				0.000	0.000	0.000	0.000
					0.15	0.19	0.12	0.15
S&PCo	+/-					-0.002	-0.016	0.297
						-0.12	-1.41	-0.09
S&P	+/-	-0.003	0.003	0.019	0.019	0.022	0.018	0.020
		-0.05	0.06	0.33	0.33	0.37	0.3	0.33
Int	+/-	0.174	0.174	0.103	0.103	0.101	0.102	0.102
		1.05	1.08	0.64	0.63	0.62	0.62	0.63
Const		0.198***	0.299***	0.299***	0.299***	0.295***	0.251***	0.297***
		4.18	6.06	5.88	5.84	5.48	4.9	5.52
Industry dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		584	584	546	546	546	546	546
R square		0.2575***	0.299***	0.2929***	0.2929***	0.2913***	0.2835***	0.2929***
Adj R square		0.2311***	0.2715***	0.2617***	0.2604***	0.2587***	0.2505***	0.259***

Table 5.9

Multivariate Test-7

Relationship between family controlled businesses and ownership of the sixth to tenth largest institutional investors

Table 5.9 presents the regression estimates of model 4.7. Here 6T10 is the institutional ownership of major investors ranked sixth to tenth within a firm. FC is a dummy variable indicating whether the business in question is family controlled or not, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding. Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs. The regression only considers the firm with dual class shares.

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Dependent Variable: 6T10								
	Expected Sign	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
FC	-	-0.002	-0.003	-0.006	-0.006	-0.003	-0.001	-0.003
		-0.85	-1.22	-2.21	-2.24	-1	-0.51	-0.97
Size	-	-0.003**	-0.005***	-0.005***	-0.005***	-0.011***	-0.008***	-0.011***
		-2.03	-3.03	-2.87	-2.93	-5.5	-4.38	-5.47
ROA	+/-	-0.099	-0.005	-0.036	-0.034		-0.136	-0.023
		-1.34	-0.07	-0.46	-0.43		-1.91	-0.29
DA	+	0.017**	0.016**	0.027***	0.027***	0.033***	0.030***	0.032***
		2.08	1.99	3.39	3.41	4.17	3.8	4.13
PO	-	-0.368*	-0.327	-0.169	-0.185	-0.360*	-0.406*	-0.352*
		-1.7	-1.5	-0.8	-0.87	-1.73	-1.92	-1.68
CX	+/-	0.002	0.110	0.107	0.099	0.117	0.051	0.117
		0.02	0.8	0.73	0.67	0.82	0.36	0.82

ST	+/-		-0.025***	-0.030***	-0.030***	-0.037***	-0.030***	-0.036***
			-3.15	-3.88	-3.86	-4.9	-3.96	-4.76
TobQ	+/-		-0.004	-0.003	-0.003	-0.008***		-0.007***
			-1.96	-1.35	-1.34	-4.07		-3.59
LIQ	+			2.666***	2.679***	2.007***	2.430***	2.019***
				5.79	5.82	4.32	5.32	4.33
Beta	+/-				-0.001	0.000	0.000	0.000
					-0.83	-0.74	-0.76	-0.73
S&PCo	+/-					0.027***	0.019***	0.199***
						5.29	4.06	5.27
S&P	+/-	-0.010	-0.008	0.003	0.003	0.002	0.001	0.002
		-0.39	-0.32	0.12	0.1	0.07	0.04	0.08
Int	+	0.054	0.054	0.016	0.017	0.020	0.019	0.020
		0.79	0.79	0.24	0.26	0.3	0.29	0.3
Const		0.169***	0.194***	0.162***	0.163***	0.199***	0.173***	0.199***
		8.66	9.38	7.69	7.73	9.19	8.37	9.17
Industry dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		584	584	546	546	546	546	546
R square		0.3026***	0.317***	0.3828***	0.3837***	0.4149***	0.4005***	0.415***
Adj R square		0.2778***	0.2902***	0.3557***	0.3553***	0.3879***	0.3729***	0.3868***

Table 5.10

Multivariate Test-8

Relationship between family controlled businesses and ownership of the small institutional investors

Table 5.10 presents the regression estimates of model 4.8. Here SIO is the institutional ownership of small investors within a firm. Small investors are those who do not have ownership over 5% and do not fall into top ten major investors. FC is a dummy variable indicating whether the business in question is family controlled or not, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding. Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs. The regression only considers the firm with dual class shares.

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Dependent Variable: SIO								
	Expected Sign	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
FC	-	-0.017**	-0.015*	-0.020**	-0.021**	-0.014*	-0.015**	-0.015*
		-2.29	-1.88	-2.63	-2.68	-1.77	-1.98	-1.88
Size	+/-	0.022***	0.020***	0.024***	0.024***	0.014**	0.012**	0.014**
		5.1	4.39	5.3	5.16	2.56	2.44	2.5
ROA	+	0.382	0.339	0.217	0.228		0.303	0.247
		1.91	1.52	1.01	1.06		1.56	1.15
DA	+	-0.020	-0.024	-0.002	-0.001	0.006	0.009	0.008
		-0.9	-1.08	-0.08	-0.04	0.27	0.41	0.35
PO	-	-1.772***	-1.956***	-1.531***	-1.610***	-1.798***	-1.857***	-1.884***
		-3.04	-3.31	-2.65	-2.78	-3.12	-3.2	-3.24
CX	+/-	0.015	0.139	-0.287	-0.326	-0.295	-0.263	-0.296

		0.04	0.37	-0.72	-0.82	-0.74	-0.67	-0.75
ST	+/-		-0.046*	-0.054***	-0.053**	-0.060***	-0.067***	-0.064***
			-2.09	-2.58	-2.55	-2.88	-3.3	-3.04
TobQ	+		0.005	0.012**	0.012**	0.006		0.004
			0.97	2.26	2.26	1.23		0.65
LIQ	+			9.038***	9.100***	8.150***	7.814***	8.02***
				7.19	7.25	6.33	6.24	6.21
Beta	+/-				-0.003	-0.003	-0.003	-0.003
					-1.52	-1.42	-1.45	-1.46
S&PCo	+					0.044	0.049	0.153
						3.08	3.81	3.11
S&P	+/-	0.020	0.019	0.058	0.056	0.058	0.055	0.055
		0.29	0.28	0.87	0.84	0.87	0.84	0.83
Int	+	0.111	0.114	-0.022	-0.016	-0.013	-0.012	-0.012
		0.6	0.62	-0.12	-0.09	-0.07	-0.06	-0.07
Const		0.187***	0.217***	0.088	0.095	0.150***	0.165***	0.153**
		3.56	3.86	1.53	1.65	2.5	2.92	2.54
Industry dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		584	584	546	546	546	546	546
R square		0.3372***	0.3446***	0.4131***	0.4157***	0.4249***	0.4259***	0.4264***
Adj R square		0.3137***	0.3189***	0.3873***	0.3888***	0.3984***	0.3995***	0.3988***

Table 5.11

Robustness Test -1

Estimation of regression results based on available shares

Table 5.11 presents the regression estimates of model 5.1, 5.2, 5.3 and 5.4. Here TIOAS, 1T5AS and SIOAS is the total institutional ownership, top five ownership and small institutional ownership expressed as a percentage of available shares. ROAS is the retail investors' ownership in a firm expressed in available shares. We calculate available shares by subtracting shares held by family from total shares outstanding. FC is a dummy variable indicating whether the business in question is family controlled or not, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding. Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs.

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	Dependent Variable: TIOAS		Dependent Variable: 1T5AS		Dependent Variable: SIOAS		Dependent Variable: ROAS	
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
FC	-0.023**	-0.024***	-0.020***	-0.02***	-0.0017	-0.0037	0.023**	0.024**
	-2.55	-2.68	-4	-3.86	-0.3	-0.65	2.55	2.68
Size	-0.013***	-0.011**	-0.023***	-0.02***	0.018***	0.017***	0.013**	0.011**
	-2.57	-2.27	-8.2	-7.56	5.85	5.67	2.57	2.27
ROA		0.602**		-0.01515		0.665***		-0.602**
		2.35		-0.11		4.16		-2.35

DA	0.034	0.038	0.07***	0.067***	-0.051***	-0.041***	-0.034	-0.038
	1.48	1.67	5.55	5.23	-3.58	-2.92	-1.48	-1.67
PO	-0.72***	-0.78***	-0.41**	-0.468***	-0.174	-0.178	0.720**	0.797***
	-2.77	-3.08	-2.84	-3.23	-1.07	-1.1	2.77	3.08
CX	0.114	0.096	-0.338*	-0.374*	0.425*	0.456**	-0.113	-0.096
	0.33	0.28	-1.76	-1.95	1.97	2.13	-0.33	-0.28
ST	-0.172***	-0.183***	-0.080***	-0.08***	-0.067***	-0.078***	0.172***	0.182***
	-6.48	-6.81	-5.39	-5.34	-4.06	-4.63	6.48	6.81
TobQ	-0.00052		-0.01018		0.013271		0.000518	
	-0.08		-2.84		3.29		0.08	
LIQ	19.28***	19.55***	2..50***	3.05***	13.47***	13.00***	-19.28***	-19.55***
	13.4	14.02	3.13	3.92	14.99	14.95	-13.4	-14.02
Beta	0.000858	0.000857	-1.90E-06	8.11E-05	0.000511	0.000397	-0.00086	-0.00086
	0.4	0.4	0	0.07	0.38	0.3	-0.4	-0.4
S&PCo	0.0513***	0.044***	0.007***	-0.003***	0.039***	0.045***	-0.051***	-0.044***
	3.85	3.66	0.89	-0.46	4.68	5.9	-3.85	-3.66
S&P	0.117997	0.115109	0.0096	0.00838	0.09672	0.095289	-0.118	-0.11511
	1.49	1.46	0.22	0.19	1.96	1.94	-1.49	-1.46
Int	0.127715	0.129852	0.11314	0.107188	0.011339	0.021709	-0.12771	-0.12985
	0.57	0.58	0.92	0.86	0.08	0.16	-0.57	-0.58
Const	0.641***	0.614***	0.43***	0.39***	0.042548	0.06435	0.36***	0.386***
	10.26	10.5	12.36	11.98	1.09	1.76	5.75	6.61
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030
R square	0.3248***	0.3285***	0.2618***	0.2559***	0.3627***	0.3668***	0.3248***	0.3285***
Adj R sq	0.3087***	0.3125***	0.2445***	0.2442***	0.3405***	0.3475***	0.3087***	0.3125***

Table 5.12

Robustness Test-2.1

Using Tobit regression for testing the consistency of the results (part 1)

Table 5.12 presents the Tobit regression estimates of model 4.2, 4.3, 4.4 and 4.5. Here TIO is the total institutional ownership. FC is the a dummy variables indicating whether the business in question is family controlled or not, PFO is the ownership of the family members expressed as a percentage total share outstanding, DD is also a dummy variable whether the family controlled firm in question is has dual class shares, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding. Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs

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Dependent Variable: TIO									
	Expected sign	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
FC	-	-0.116***	-0.116***	-0.029***	-0.030***	-0.205***	-0.205***	-0.050***	-0.051***
		-11.73	-11.79	-2.94	-3.01	-17.57	-17.62	-2.98	-3.00
PFO	-			-0.594***	-0.593***			-0.546***	-0.546***
				-17.83	-17.86			-12.03	-12.05
DD	+					0.172***	0.171***	0.027	0.027
						12.46	12.47	1.55	1.52
Size	-	-0.020***	-0.016***	-0.012**	-0.009**	-0.018***	-0.016***	-0.012**	-0.010**
		-3.67	-3.07	-2.41	-2.04	-3.45	-3.23	-2.47	-2.14

ROA	+/-		0.560**		0.463		0.453		0.454*
			2.01		1.9		1.74		1.86
DA	+	0.086***	0.087***	0.046**	0.049**	0.119***	0.121***	0.055**	0.057**
		3.43	3.48	2.1	2.21	5.04	5.15	2.41	2.52
PO	-	-0.810**	-0.926***	-0.733***	-0.806***	-0.886***	-0.956***	-0.751***	-0.821***
		-2.83	-3.25	-2.92	-3.22	-3.31	-3.59	-2.99	-3.28
CX	+/-	-1.156***	-1.208***	-0.120	-0.149	-0.399	-0.426	-0.083	-0.110
		-3.04	-3.19	-0.35	-0.44	-1.11	-1.19	-0.25	-0.33
ST	+/-	-0.195***	-0.206***	-0.148***	-0.156***	-0.200***	-0.208***	-0.153***	-0.161***
		-6.7	-6.97	-5.76	-6.01	-7.34	-7.55	-5.9	-6.15
TobQ	+/-	-0.008		-0.003		-0.002		-0.002	
		-1.11		-0.42		-0.33		-0.34	
LIQ	+	24.31***	24.99***	17.96***	18.32***	19.87***	20.20***	17.77***	18.20***
		15.39	16.32	12.56	13.15	13.1	13.65	12.39	12.93
Beta	+/-	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000
		0.14	0.17	0	0.01	0.48	0.49	0.07	0.08
S&PCo	+	0.071***	0.057***	0.055***	0.048***	0.082***	0.075***	0.059***	0.052***
		4.9	4.39	4.38	4.2	6.09	6.14	4.57	4.43
S&P	+/-	0.145	0.141	0.107	0.104	0.130	0.128	0.108	0.105
		1.69	1.64	1.42	1.38	1.63	1.6	1.43	1.4
Int	+	0.022	0.019	0.113	0.113	0.050	0.050	0.110	0.110
		0.09	0.08	0.54	0.54	0.22	0.22	0.52	0.52
Const		0.714***	0.660***	0.670***	0.641***	0.694***	0.666***	0.671***	0.643***
		10.39	10.26	11.12	11.36	10.82	11.09	11.14	11.41
Industry dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		1,064	1,064	1,064	1,064	1,064	1,064	1,064	1,064
Pseudo R square		-2.0465***	-2.0557***	-2.9571***	-2.9684***	-2.521***	-2.5306***	-2.965***	-2.9759***

Table 5.13

Robustness Test -2.2

Using Tobit regression for testing the consistency of the results (part 2)

Table 5.13 presents the regression estimates of model 4.2, 4.6 and 4.8 but uses Tobit regression and only considers the firm with dual class shares. Here TIO is the total institutional ownership, 1T5 is the institutional ownership of top five major investors within a firm, SIO is the institutional ownership of small investors within a firm. FC is a dummy variable indicating whether the business in question is family controlled or not, size (SIZE) is the log of total asset, return on asset (ROA) is the net income divided by total asset, debt to asset (DA) is the sum of current liabilities and non-current liabilities divided by total asset, payout (PO) is cash dividend divided by total asset, capital expenditure (CX) is the capital expenditure divided by the total assets. Tobin's Q (TobQ) is the sum of market value of common equity, preferred share, current liabilities and non-current liabilities divided by total asset, sales turnover (ST) is net sales divided by total asset, liquidity (LIQ) is the total share traded in that quarter divided by total share outstanding. Beta is the estimated beta using quarterly trading volume and S&PCo is a dummy variable indicating whether a firm is a member of S&P 500 index. S&P 500 is the return on S&P 500 index, used to represent market conditions, and the interest rate is the average of the monthly T-bill rate (geometric mean), used to represent borrowing costs.

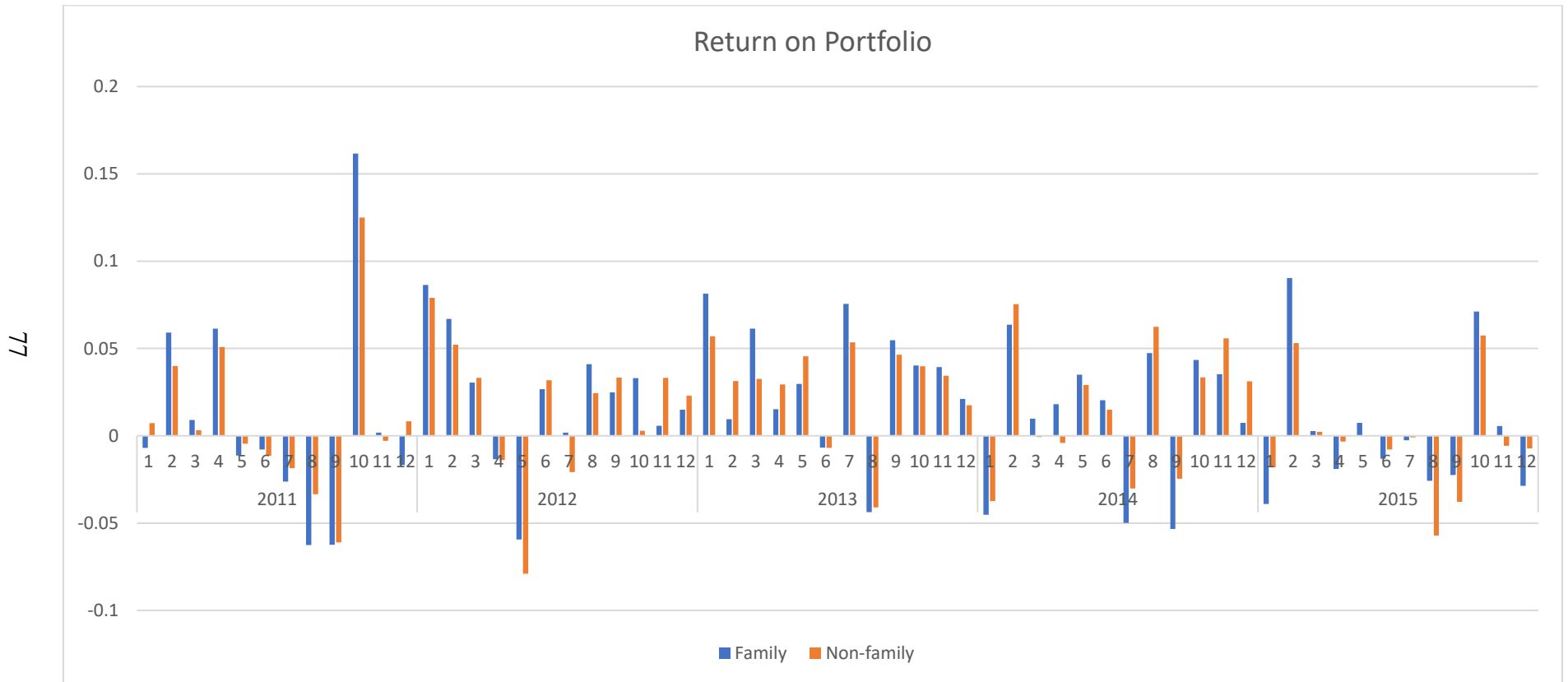
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	Dependent variable: TIO		Dependent variable: 1T5		Dependent variable: SIO	
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
FC	-0.034***	-0.033**	-0.020***	-0.018**	-0.011	-0.013*
	-2.96	-2.85	-2.98	-2.7	-1.53	-1.8
Size	-0.002	0.004	-0.005	0.000	0.015**	0.012**
	-0.2	0.55	-1.15	-0.05	2.77	2.54
ROA		0.175		-0.026		0.339
		0.6		-0.15		1.82
DA	0.121***	0.119***	0.079***	0.076***	0.009	0.013
	3.78	3.71	4.22	4.03	0.43	0.6

PO	-2.226***	-2.494***	-0.203	-0.374	-1.665***	-1.719***
	-2.62	-2.92	-0.41	-0.75	-3	-3.09
CX	0.380	0.232	0.472	0.344	-0.223	-0.180
	0.65	0.4	1.39	1.01	-0.59	-0.48
ST	-0.196***	-0.188***	-0.102***	-0.092***	-0.058***	-0.067***
	-6.42	-6.25	-5.72	-5.21	-2.91	-3.43
TobQ	-0.012		-0.012**		0.008	
	-1.57		-2.78		1.6	
LIQ	13.862***	14.563***	3.702***	4.409***	8.179***	7.756***
	7.32	7.89	3.35	4.07	6.62	6.45
Beta	-0.003	-0.003	0.000	0.000	-0.002	-0.002
	-1.05	-1.11	0.07	0	-1.38	-1.41
S&PCo	0.070	0.052	-0.001	-0.017	0.043	0.049
	3.31	2.74	-0.06	-1.5	3.09	3.96
S&P	0.078	0.071	0.018	0.014	0.061	0.059
	0.8	0.73	0.32	0.25	0.97	0.93
Int	0.097	0.099	0.070	0.071	0.012	0.014
	0.36	0.37	0.45	0.45	0.07	0.08
Const	0.640***	0.587***	0.304***	0.255***	0.140***	0.160***
	7.26	7.02	5.9	5.21	2.42	2.94
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	544	544	544	544	544	544
Pseudo R2	-0.8209***	-0.8158***	-0.1758***	-0.169***	-0.3467***	-0.3475***

Graph 4.1: Return on Portfolio

Graph 4.1 presents the monthly return of family businesses portfolio and non-family businesses portfolio from year 2011 to 2015. The graph presents the return of the portfolios at the end date of the month. Portfolios are equally weighted and the weight is adjusted at the beginning of each month.



Graph 4.2: Value of the Portfolio

Graph 4.2 presents the values of family businesses portfolio and non-family businesses portfolio at the end of each month from year 2011 to 2015. Portfolios are equally weighted and the weight is adjusted at the beginning of each month.

