THE IMPACT PF LARGE SHAREHOLDERS ON FIRM RISK-TAKING: EVIDENCE FROM A SMALL MARKET

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Abstract

This paper investigates the impact of active large shareholders on three measures of firm risk-taking. The results suggest a positive relationship between active large shareholding and income instability risk as well as strategy risk. Large shareholding was found not to exert any influence on risk based on stock returns.

Keywords: Agency theory, blockholders, firm risk-taking, large shareholders

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1. Introduction

Corporate ownership is often concentrated in block of securities owned and managed by recognisable parties. Mintzberg (1983) suggests two prime dimensions of ownership. 'Involvement' and its opposite, 'detachment' differentiates between owners who influence the decisions or actions of the firm and those who do not. 'Concentration' and its opposite, 'dispersion' differentiates corporations whose stocks are widely held. Cross-classification of the two dimensions produces four types of ownership: dispersed-detached, dispersed-involved, concentrated-detached, and concentrated-involved. According to the cross-classification, the more involved the owners and the more concentrated their ownership, the greater the power in influencing the corporation. Ownership of a large block of shares of a firm will not automatically confer active control because it does not provide the role or status for directly taking corporate decisions. It does, however, put block holders in a strategic position and provide them with an opportunity to modulate internal strategic choices (Dyer 1985 and Chaganti and Damanpour 1991).

Large shareholdings could be held or controlled by an individual, a family, or an organisation. Whatever the case, an important feature of a large shareholding is that the owners own enough shares to influence corporate policy, for example, through the voting process. A number of studies have examined the impact of large shareholders on firm performance. This literature, generally, concludes that large shareholders do not exert any measurable influence on firm performance (see for instance Holderness and Sheehan 1988, McConnell and Servaes 1990). Another strand of literature has examined the impact of large shareholders on firm risk-taking. Similar to the evidence found on the impact of large shareholders on firm performance, the evidence in this literature also suggests that large shareholders do not exert any measurable influence on firm risk-taking (see for instance Wright et al. 1996). These studies implicitly assume that large shareholders are an identical homogeneous group and pursue the same goals. That is say, irrespective of the differences within each category of large shareholders (be it an individual, family, or institution) they pursue the same goals. The literature, however, suggests otherwise. For example, Jensen and Merkling (1976) demonstrate the variable impact of share ownerships by different groups of shareholders on the firm performance. Other theoretical models (see Shleifer and Vishny 1986) and empirical examinations (see McConnell and Servaes 1990) have also put forward that shareholders are differentiable and pursue different agendas. It is, thus, very valuable to disaggregate large shareholders to study their effects on the firm.

McConnell and Servaes (1990) make an important observation and contend that many large shareholders are passive investors, providing little by way of monitoring. It, therefore, follows that if passive large shareholders dominate, their monitoring role may be small. Hence, the effects they exert on the firm may be minimal, if any. Furthermore Shleifer and Vishny (1986) contend that active shareholders can force value maximization in firms through risk-taking. This paper, therefore, contends that separating large shareholders, into active and passive block owners, might reveal a more significant role for active large shareholders.

The purpose of this paper is to examine the impact of active large shareholdings on firm risk-

taking. Following Shleifer and Vishny (1986), it is proposed here that active large shareholders behave differently from passive large shareholders. Hence, it is important to separate these two classes of large shareholdings to examine the influences they exert on the firm. It is expected that active, not passive, large shareholders actively monitor firms to ensure value maximization through firm risk-taking. A positive relationship should, thus, be observed between active large shareholders and firm risk-taking. The evidence provided in the prior literature suggests the possibility that when all large shareholders (active and passive) are lumped together, their activities cancel out each other; hence their influence of the firm cannot be discerned.

As a contribution to the literature this paper, therefore, disaggregates large shareholders into active and passive large shareholders and examine their effect on three measures of firm risk-taking. Active large shareholders (passive large shareholders) could be considered as the equivalent of the concentrated-involved (concentrated-detached) cross-classifications resulting from Mintzberg's (1983) prime dimensions of ownership mentioned above. Given that large shareholders own substantial equity, it is in their best interest to actively encourage valuable corporate strategies. Interpreting this in view of the issue of importance to this paper, it is anticipated that active large equity block owners would encourage greater firm risk-taking. Following Miller and Bromiley (1990), three firm risk-taking measures are adopted in the empirical investigations in this paper. These are the proxies for income stream risk, strategy or industry risk, and risk based on stock returns.

The findings of this paper suggest that a significant number of passive large shareholders in any sample of large shareholders could skew the results of the study. Considering large shareholders as a monolithic group, large shareholders were found not to exert any measurable impact of firm risk-taking. When only firms with growth opportunities were considered, the same results were obtained. Separating large shareholders into passive and active groups, this paper found a differential impact for the two groups. There was no statistically significant relationship between passive large shareholders and firm risk-taking. On the other hand, the evidence suggested a positive and statistically significant relationship between active large shareholders and firm risk-taking when the relevant risk-taking measures are the proxies for income instability risk and strategy industry risk.

The remainder of the paper is structured as follows: Section 2 looks at the prior literature on the impact of large shareholders. Section 3 develops the Hypothesis to be tested. Section 4 looks at the sample construction and methodology. Section 5 presents the results of the econometric analyses and Section 6 concludes the paper.

2. Prior Studies

Economists have identified several possible organisational roles for large shareholders. Stulz (1988), for example, illustrates how owning large blocks makes it easier for managers to keep their jobs, even if that means resisting a value-increasing tender offer. Shleifer and Vishny (1997) note that block holders represent their own interests, which do not necessarily coincide with the interests of other investors in the firm (or with the interests of employees and managers). Furthermore, in the process of using their control rights to maximize their welfare, large shareholders can redistribute wealth in both efficient and inefficient ways from others.

On this point, Fama and Jensen (1983), for instance, investigate various ways in which a block holder could expropriate or consume corporate wealth. A large block shareholder could, for example, give him or herself an excessive salary, negotiate 'sweetheart' deals with other companies he or she controls, or invest in negative-net-present value projects.

Jensen and Meckling (1976) posit that the ability of large shareholders to expropriate wealth from others is especially great if their control rights are significantly in excess of their cash flow. This occurs if, for example, they own equity with superior voting rights.

The problem of expropriation by large shareholders also becomes potentially more significant when other investors are of a different type, for example if the other investors have a different pattern of cash flow claims in the company. If the block holder is an equity holder, he may have the incentive to force the firm to take on too much risk, since he shares in the upside while the other investors, who might be creditors, bear all the costs of failure. Shleifer and Vishny (1997) also put forward that concentration in share holdings is also a direct way to align cash flow and control rights. They argue that a substantial minority shareholder has the incentive to collect information and monitor the management, thereby avoiding the traditional free rider problem. Additionally, given that each share confers one vote, block owners would have more power than small shareholders.

That is, large shareholders have enough voting control to put pressure on the management in some cases, or perhaps even oust the management through a proxy fight (see for instance Pound 1992, Shleifer and Vishny 1986). In more extreme cases, large block holders have outright control of the firms and their management with fifty-one (51) percent or more percent ownership. Block holders, thus, address the agency problem in that they both have a general interest in profit maximization and enough control over the assets of the firm to have their interests respected.

Shleifer and Vishny (1997) further note that the power of block holders depends on the degree of legal protection of their votes because they govern by exercising their voting rights. Majority ownership only works if the voting mechanism works, and the majority can dictate the decisions of the company. This may require fairly little enforcement by courts, since fifty-one (51) percent ownership is relatively easy to prove, and a vote count is not required once the majority shareholder expresses their preference. With large minority shareholders, matters are more complicated. This is so because they need to make alliances with other investors to exercise control. The power of management and small (as opposed to large) minority shareholders to interfere in these alliances is greatly enhanced. For example, when there are two large minority shareholders each owning forty-nine (49) percent of the firm's equity, an opportunity arises for the small minority investors (and management, in some cases) to change organisational decisions. This is because to create the alliances, the needs of small minority shareholders have to been considered. This consideration enhances their power to change some organisational choices, for instance. In such cases of alliance creation, the burden on courts to protect other large shareholder rights is much greater.

The effectiveness of large shareholders, then, is closely tied to their ability to defend their rights. It should be stated here that there are large shareholders who are not diversified, and, hence, bear excessive risks (see for instance Demsetz and Lehn 1985). Nevertheless, the fact that ownership in firms is so concentrated almost everywhere in the world suggests that lack of diversification is not as great a private cost for block holders to bear as relinquishing control (see Shleifer and Vishny 1997).

Agency theory suggests that owners of large blocks of shares have both the incentive and the power to ensure that managers operate the firm efficiently, regardless of managers' share ownership. Block owners have so much wealth at stake in an individual firm that the benefits of monitoring and disciplining managers outweigh the costs (see Demsetz 1983 for more on this). Tosi and Gomez-Mejia (1989) and McConnell and Servaes (1990) suggest that the presence of a block holder may restrain selfishly driven strategies by firm management. That is, the presence of a major shareholder may hold back detrimental corporate strategies.

Thus, in firms with a major shareholder, acquisitions for instance, may be primarily motivated by their potential financial benefits for stockholders (see Kroll et al. 1997 for more on this point). James and Soref (1981) and Kroll et al. (1997) further note that since block holders can use their power to force corporate change, managers may be reluctant to adopt unprofitable strategies for fear of losing their employment.

3. Hypothesis development

Grossman and Hart (1980) argue that an outsider without shares in a diffusely held firm would never take over in order to improve the firm. This is because if their improvement plans are understood by atomistic incumbent shareholders, they will demand the value of the improvement in return for their shares or else they stay on. If the outsider can only benefit from shares they already own (which are few if any) but have to shoulder all the monitoring and takeover costs, the deal may not be worth the outsider's while. Small shareholders, for the same reason, do not have large enough stakes in the firm to absorb the costs of monitoring management. If the search for improvements is a public good, a question arises as to how its provision can be ensured. Shleifer and Vishny (1986) theorize that improvements could be made by parties who already own a large share of the firm's equity. Their model predicts that, all things being equal, the presence of a large-block equity holder will have a positive effect on the market value of the firm. The value maximization is achieved through firm risk-taking.

Other studies have also suggested that the behaviour of large stockholders may have an effect on shareholder wealth through their influence on corporate risk-taking. Pound (1988), in his efficient-monitoring hypothesis, proposed that large shareholders tend to support managerial decisions that enhance corporate value but were found to oppose strategies harmful to owners' interests. Jensen and Meckling (1976) and Kroll et al. (1997) contend that, theoretically, stockholder concentration should improve firm performance. The findings of Mikkelson and Ruback (1991) support the assertion that large shareholders positively affect stockholder interests.

Bethel and Liebeskind (1993) propose that block holders may restrain managerial predisposition to invest in risk reducing corporate strategies that, thereby, reduce potential shareholder gains. Their empirical results demonstrate that a buy-in by block holders into diffusely-held firms was a significant determinant of downsizing, reductions in total diversification (a risk-reducing strategy), and increases in cash payouts among their sampled firms. Similarly, Hill and Snell (1988) find that shareholder concentration has a constraining influence on diversification. Their results suggest that when stockholders are weak, managerial preferences for diversification dominate. An implication of this is that shareholder concentration may limit the adoption of risk-reducing strategies, e.g. diversification strategies, by managers.

Wright et al. (1996), Holderness and Sheehan (1988), and McConnell and Servaes (1990), as noted above, find no statistically significant relationship between large shareholdings and firm risk-taking. These studies, however, do not distinguish between

different categories of large shareholdings. McConnell and Servaes (1990) contend many block owners are passive investors, providing little by way of monitoring. If passive block owners dominate, their monitoring role may be small. Shleifer and Vishny's (1986) model suggest that active, not passive, large shareholding could force value maximization. Further, other theoretical models (see for instance Jensen and Merkling 1976) demonstrate the variable impact of equity ownerships by different groups on the firm performance.

This paper, thus, contends that separating large shareholders, into active and passive block owners, might expose a more significant role for active block investors. The following hypothesis is, therefore, proposed:

Hypothesis: The relationship between the level of equity ownership by active block holders and corporate risk taking will be positive.

4. Data and Methodology

Data is collected over a nine-year period, from 1990 to 1998, for the empirical analyses with focus on two sample periods, 1994 and 1998. Firms are chosen from publicly traded companies in Finland satisfying two data conditions. The first basic condition is that for a firm to be included, it is required that ownership data be available for each sample year. Data on large shareholding in firms is obtained from the respective firms' annual reports. A further requirement is that firms included in the dataset should have five consecutive fiscal years of stock market and financial statement data, including the focus year, for each sample. The final sample consists of forty-eight (48) firms for 1994 sample and sixty-eight (68) firms for the 1998 sample.

Following Bethel and Liebeskind (1993) and Kroll et al. (1997), large shareholders in this paper refer to equity block holders who own five (5) per cent or more of a firm's total shares. From this grouping, the paper further extracts the large shareholders referred to as either active or passive block holders. Following Woodruff and Glover (1994), active large shareholders include institutions whose functions include the management of investments. Passive large shareholders, on the other hand, include those whose are descendants of a firm's founder, shares held by the State, co-operatives and foundations (McConnell and Servaes 1990, Shleifer and Vishny 1986). Table 1 presents some summary statistics on large share ownership. The mean value for the level of large shareholdings, when all large shareholders are considered, is 14.98% for the 1994 sample and 15.44% for the 1998 sample. For active (passive) large shareholders the corresponding mean values for 1994 and 1998 are 9.98% (15.01) and 10.55% (16.31), respectively. [See appendices, Table 1].

The risk-taking measures that have been used in the literature can be categorised in three groups, namely income stream risk, industry or strategic risk, and risk based on stock returns (Miller and Bromiley 1990). Following that, this paper uses three (3) measures of risk-taking, reflecting the three groups, to examine the hypothesized relationship. The risk measures adopted here are the proxy for income stream risk (the standard deviation of return on equity (ROE)), the proxy for industry or strategic risk (capital intensity), and risk based on stock returns (beta).

Following the methodology employed by Bowman (1980 and 1982), and Miller and Bromiley (1990), the standard deviation of return on equity over a five-year period for each sample is used in calculating the proxy for income stream risk[1]. Capital intensity is calculated as the ratio of total assets to sales. This variable is calculated as the mean value over a five-year period. Capital intensity increases risk in two ways (see for instance Brealey and Myers 1988, Shapiro and Titman 1986). If capital inputs are less variable than labour inputs in the short run, a company choosing to produce a given output with large amounts of capital and low amounts of labour increases its fixed costs and lowers its variable cost. The firm consequently will experience larger variations in profits if demand fluctuates (see Lev 1974 for a detailed derivation of this point). In addition, a firm using large amounts of capital runs a high risk of capital obsolescence-the possibility that technological change will make its capital investment worth little or nothing. Beta, the risk-taking measure for stock returns data, is estimated from the conventional market model regression equation (see Sharpe 1964) over a three-year period using weekly returns. In the capital asset pricing model (CAPM), systematic risk reflects the sensitivity of return on a firm's stock to general market movement. White (1980) is used to test for heteroscedasticity. When the error terms are not homoscedastic, the GARCH (1,1) model is fitted when estimating the market model. Table 2 presents a summary statistics for firm risk-taking variables used in this paper. Table 2 also include summary statistics for firm size and firm growth opportunities. [See appendices, Table 2].

The methodology used here to examine the impact of the board of directors on firm risk-taking is a cross-sectional regression analysis in which three (3) measures of firm risk-taking are regressed against large shareholdings. The control variables introduced in the analyses pertain to firm size and industry effects. The firm size effect is captured by total assets, a proxy used in the financial economics

[1] Hurdle 1974, Solomon and Pringle 1977, Armour and Teece 1978, Shepherd 1979 and Fiegenbaum and Thomas 1985, 1986, and 1988 have also used this measure in their studies. Other studies that have used variance in returns to measure risk include Bettis 1981, Bettis and Hall 1982 and Woo 1987.

literature. Due to the small sample size and the number of firms in each industry in the sample, there is the need to combine the industries to limit the number of industries to fit the data. The combination process yielded three (3) industrial classifications.

The following model, in equation (1), is estimated to test hypothesis presented above:

$$Risk^{z}_{i,t} = \alpha^{z}_{0} + \alpha^{z}_{1} BH_{i,t} + \alpha^{z}_{2} FS_{i,t} + \alpha^{z}_{3} d^{1}_{i,t} + \alpha^{z}_{4} d^{2}_{i,t} + \varepsilon_{i,t} \quad (1)$$

where, $Risk^{z}_{i,t}$ is risk measure for firm i at time t where z =1 for standard deviation of return on equity, z =2 for capital intensity, and z =3 for beta; $BH_{i,t}$ is the level of large share ownership; $FS_{i,t}$ is firm size (natural logarithm of total assets) for firm i at time t; $d^{1}_{i,t}$ is firm i classified in industry 1 at time t; $d^{2}_{i,t}$ firm i classified in industry 2 at time t; $\varepsilon_{i,t}$ error term.

In estimating the regression model of equation (1), observations from both sample periods, 1994 and 1998, are pooled. The model is estimated using ordinary least squares regressions. When the null hypothesis of homoscedasticity is rejected, White (1980) heteroscedasticity-consistent asymptotic covariance matrix is used. These estimates are used to compute heteroscedasticity-consistent t-statistics that are needed to calculate the probability values of the coefficients.

5. Empirical results and discussion

The emphasis in this paper is on a particular classification of large shareholders, active large shareholders. Nevertheless, to mirror the finding of previous studies, for example Wright etc. al (1996), results from estimating equation (1) for all large share holders, passive large shareholders, and large shareholders in firms with growth opportunities are initially presented. The results of this exercise could be seen from Tables 3 to 5. [See appendices, Table 3]. Table 3 reports the results of the estimation models investigating the aggregate effect of all large shareholdings on firm risk-taking. The coefficient for large shareholders is found to be statistically insignificant in the estimation models for all three measures of risk-taking. This indicates that, on average, block owners exert no measurable influence on firm risk-taking. The lack of statistical significance for this variable is consistent with the findings of Holderness and Sheehan (1988) and McConnell and Servaes (1990). From Table 3, it could also be seen that the sign of the coefficient for large share ownership is negative when beta is the risk-taking measure in the estimation model. The coefficient is positive when the standard deviation of return on equity and capital intensity is the relevant risk-taking measure.

The findings reported in Table 4 relate to the models investigating the relationship between large share ownership and firm risk-taking for firms with growth opportunities. The evidence presented in Table 4 indicates that capital intensity and beta relates positively and negatively, respectively, to large shareholdings for firms with growth opportunities. The standard deviation of return on equity relates positively to large shareholdings. None of the relationships are, however, statistically significant. The results support the findings of Wright et al. (1996). They find that the relationship between firm risk-taking and large shareholdings is positive but statistically insignificant. The measure of risk-taking used in their study is a proxy based on income variability. [See appendices, Table 4].

Results from estimating equation (1) for passive large shareholdings are presented in Table 5. The results presented in Table 5 indicated a statistically insignificant relationship between passive block holders and firm risk-taking. Similar to the relationships described above, the standard deviation of return on equity and capital intensity relates positively to passive block ownership. Beta, on the other hand, relates negatively to passive large shareholdings. As indicated above, McConnell and Servaes (1990) assert that passive large shareholders provide little by way of monitoring. This result is, therefore, not surprising. [See appendices, Table 5].

Table 6 present results of the estimation model investigating the impact of active large shareholders on firm risk-taking. Shleifer and Vishny (1986) model suggests that active, as opposed to passive, large shareholders force value maximisation through firm risk-taking. The Hypothesis proposed above suggests a positive and significant relationship between active large shareholders and firm risk-taking. The results indicate that active large share ownership exert a positive and significant effect on firm risk-taking when risk-taking is measured by the proxy for income stream risk and industry or strategy risk. It could be seen from Table 6 that the coefficients for active share ownership are positive and significant for these two risk-taking measures. The coefficients 0.3 (when standard deviation of return on equity is the dependent variable) and 0.12 (when capital intensity is the dependent variable) are significant at 5% and 1% levels, respectively. When risk-taking is measured by beta, the results show a statistically insignificant and negative effect of active block ownership on firm risk-taking. The proposed Hypothesis is, therefore, supported when the risk-taking measures used are the standard deviation of return on equity and capital intensity and not supported when beta is used as the risk measure. [See appendices, Table 6].

Tables 3, 4, 5 and 6 also report results for the control variables. Firm size effects are significant when models for all three measures of firm risk-taking are estimated. However, the sign of the

coefficients are not consistent. The sign and significance of industry effects are found to be inconsistent.

Conclusion

This paper empirically examines the relationship between large share ownership and firm risk-taking. Aggregating large shareholders into a single category, large shareholding is found not to exert any measurable influence on firm risk-taking. This is consistent with the findings of Holderness and Sheehan (1988) and McConnell and Servaes (1990). The relationship between large shareholders and firm risk-taking was also found to be statistically insignificant for firms with growth opportunities. The sign of the coefficient for large shareholders is not consistent across the different risk measures. This result supports the findings of Wright et al. (1996).

The central issue of interest to this paper is that the presence of active large shareholders positively affects firm risk-taking. Consequently, large shareholders are disaggregated into active and passive shareholders and the specific effect of active block holders on firm risk-taking examined. The results of this investigating reveal interesting effects. A statistically significant positive relationship is found between active large shareholders and firm risk-taking when risk-taking is measured by the proxy for income instability risk and the proxy for strategy risk. This result provides support for Shleifer and Vishny's (1986) theoretical representation on the value of active large shareholders. A negative and statistically insignificant relationship is observed between active large share ownership and beta. These results generally contrast the statistically insignificant relationship across all three measures of risk-taking in examining the influence of passive large holders on firm risk-taking. The empirical findings, therefore, offers some support to the Hypothesis proposed. The lack of uniformity in the acceptance or rejection of the Hypothesis reflects Miller and Bromiley (1990) suggestion that different dimensions of risk may relate differently to different measures.

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Appendices

Table 1. Summary statistics: Level of large share ownership (percentages)

Variable	Mean	Median	STDEV	Min.	Max.	Mode	No. of observations
1994 Sample							
All Block Owners	14.98	9.04	16.17	5	91.2	5	126
Active	9.98	8.31	6.85	5	49.01	5	51
Passive	15.01	11.8	11.02	5	43.2	5	37
1998 Sample							
All Block Owners	15.44	9.55	15.01	5	91.15	5	178
Active	10.55	6.68	8.97	5	49.61	5	66
Passive	16.31	12.6	11.19	5	48.76	5	53

Table 2. Summary statistics: Risk-taking, firm size, and growth opportunity

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
1994 Sample					
ROE (STDV)	14.37	9.61	18.47	1.10	98.22
Capital intensity	1.99	1.16	2.84	0.52	14.96
Beta	0.81	0.84	0.30	0.17	1.50
Firm size[a]	1070	423	1422	26	5840
Growth Opportunity[b]	-0.14	-0.002	0.14	-0.28	0.22
1998 Sample					
ROE (STDV)	8.03	4.07	17.15	0.903	43.18
Capital intensity	1.81	0.95	3.37	0.002	19.17
Beta	0.68	0.69	0.33	0.04	1.37
Firm size[a]	1326	345	2840	21	15414
Growth Opportunity[b]	0.09	0.032	0.28	-0.16	1.42

The 1994 and 1998 samples included 48 firms and 68 firms, respectively.
[a] Total assets, millions of Euros
[b] Change in total assets (log differences)

Table 3. Results of pooled cross-sectional regression analyses: Effect of large share ownership on firm risk-taking (all block holders)

Risk-taking measures/ Parameter estimates	STDEV of ROE	Capital Intensity	Beta
Intercept	20.66 (<0.0001)*	7.61 (<0.0001)*	-2.59 (<0.0001)*
Level of Block ownership	0.1 (0.21)	0.009 (0.50)	-0.002 (0.35)
Firm size	-1.84 (0.008)**	-0.98 (<0.0001)*	0.49 (0.05)***
Industry 1	6.26 (0.04)***	0.98 (0.0002)*	-0.66 (0.13)
Industry 2	0.84 (0.7)	3.77 (<0.0001)*	-0.64 (0.06)****
Adjusted R^2	0.052	0.22	0.097
F-Value	5.21	23.51	35.43
Pr>F	0.0005*	<0.0001*	<0.0001*

Pooled regression analyses, model: $Risk_{i,t}^{z} = \alpha_0^z + \alpha_1^z BH_{i,t} + \alpha_2^z FS_{i,t} + \alpha_3^z d_{i,t}^1 + \alpha_4^z d_{i,t}^2 + \varepsilon_{i,t}$, where $Risk_{i,t}^{z}$ is risk measure for firm i at time t where $z=1$ for standard deviation of return on equity, $z=2$ for capital intensity, and $z=3$ for beta, $BH_{i,t}$ is the level of block ownership in firm i at time t, $FS_{i,t}$ is firm size (logarithm of total assets) for firm i at time t, $d_{i,t}^1$ is firm i classified in industry 1 at time t, $d_{i,t}^2$ is firm i classified in industry 2 at time t, $\varepsilon_{i,t}$ error term for firm i at time t. The null hypothesis of homoscedasticity was rejected in the regression analyses. Therefore, White (1980) heteroscedasticity-consistent asymptotic covariance matrix was used. All variance inflation factors were less than 1.7 suggesting that there is no problem with multicollinearity in the empirical analyses (see Judge, Griffiths, Hill, Lutkepohl and Lee 1985).
Probability values are in parentheses: * significance at 0.1%; ** significance at 1%; *** significance at 5%; ****significance at 10%.

Table 4. Results of pooled cross-sectional regression analyses: Effect of large share ownership on firm risk-taking (firms with growth opportunities)

Risk-taking measures/ Parameter estimates	STDEV of ROE	Capital Intensity	Beta
Intercept	32.26 (<0.0001)*	8.84 (<0.0001)*	-3.77 (0.007)**
Level of Block ownership	0.06 (0.48)	0.005 (0.74)	-0.006 (0.28)
Firm size	-3.78 (<0.0001)*	-1.16 (<0.0001)*	0.67 (0.04)***
Industry 1	12.17 (0.0002)*	0.44 (0.16)	-0.49 (0.19)
Industry 2	2.76 (0.05)***	4.5 (<0.0001)*	-0.75 (0.08)****
Adjusted R^2	0.22	0.25	0.38
F-Value	13.66	15.62	33.88
Pr>F	<0.0001*	<0.0001*	<0.0001*

Pooled regression analyses, model: $Risk^z_{i,t} = \alpha^z_0 + \alpha^z_1 BH_{i,t} + \alpha^z_2 FS_{i,t} + \alpha^z_3 d^1_{i,t} + \alpha^z_4 d^2_{i,t} + \varepsilon_{i,t}$, where $Risk^z_{i,t}$ is risk measure for firm i at time t where $z=1$ for standard deviation of return on equity, $z=2$ for capital intensity, and $z=3$ for beta, $BH_{i,t}$ is the level of block ownership in firm i at time t (firms with growth opportunities), $FS_{i,t}$ is firm size (logarithm of total assets) for firm i at time t, $d^1_{i,t}$ is firm i classified in industry 1 at time t, $d^2_{i,t}$ is firm i classified in industry 2 at time t, $\varepsilon_{i,t}$ error term for firm i at time t. The null hypothesis of homoscedasticity was rejected in the regression analyses. Therefore, White (1980) heteroscedasticity-consistent asymptotic covariance matrix was used. All the variance inflation factors were less than 1.6 suggesting no problems with multicollinearity (see Judge, Griffiths, Hill, Lutkepohl and Lee 1985). Probability values are in parentheses: * significance at 0.1%; ** significance at 1%; *** significance at 5%; **** significance at 10%.

Table 5. Results of pooled cross-sectional regression analysis: The effect of passive large share ownership on firm risk-taking

Risk-taking measures/ Parameter estimates	STDEV of ROE	Capital Intensity	Beta
Intercept	20.82 (0.004)**	2.02 (0.005)**	-3.34 (<0.0001)*
Level of passive block ownership	0.09 (0.19)	0.001 (0.86)	-0.002 (0.83)
Firm size	-2.2 (0.04)***	-0.19 (0.05)***	0.61 (<0.0001)*
Industry 1	8.47 (0.04)***	0.51 (0.20)	-1.17 (0.016)
Industry 2	3.9 (0.36)	1.07 (0.01)*	-0.85 (0.08)****
Adjusted R^2	0.05	0.04	0.28
F-Value	2.25	1.97	34.96
Pr>F	0.06	0.09****	<0.0001*
White (1980) χ^2 -test Pr>ChiSq	11.51 (0.40)	0.9 (0.91)	17.93 (0.39)

Pooled regression analyses, model: $Risk^z_{i,t} = \alpha^z_0 + \alpha^z_1 BH_{i,t} + \alpha^z_2 FS_{i,t} + \alpha^z_3 d^1_{i,t} + \alpha^z_4 d^2_{i,t} + \varepsilon_{i,t}$, where $Risk^z_{i,t}$ is risk measure for firm i at time t where $z=1$ for standard deviation of return on equity, $z=2$ for capital intensity, and $z=3$ for beta, $BH_{i,t}$ is the level of passive block ownership in firm i at time t, $FS_{i,t}$ is firm size (logarithm of total assets) for firm i at time t, $d^1_{i,t}$ is firm i classified in industry 1 at time t, $d^2_{i,t}$ is firm i classified in industry 2 at time t, $\varepsilon_{i,t}$ error term for firm i at time t. All the variance inflation factors were less than 2.4 suggesting no problems with multicollinearity in the empirical analyses (see Judge, Griffiths, Hill, Lutkepohl and Lee 1985). Probability values are in parentheses: * significance at 0.1%; ** significance at 1%; *** significance at 5%; ****significance at 10%.

Table 6. Results of pooled cross-sectional regression analysis: The effect of active large share ownership on firm risk-taking

Risk-taking measures/ Parameter estimates	STDEV of ROE	Capital Intensity	Beta
Intercept	29.74 (0.0007)**	4.3 (0.03)****	-3.87 (0.02)***
Level of active block ownership	0.30 (0.05)***	0.12 (0.001)**	-0.01 (0.34)
Firm size	-3.02 (0.007)**	-0.68 (0.008)***	0.72 (0.008)***
Industry 1	10.48 (0.02)****	1.72 (0.09)****	-1.020 (0.05)***
Industry 2	-1.73 (0.63)	2.83 (0.0009)**	-1.09 (0.01)**
Adjusted R^2	0.11	0.17	0.38
F-Value	4.83	7.22	30.69
Pr>F	0.0012**	<0.0001*	<0.0001*
White (1980) χ^2 -test Pr>ChiSq	23.67 (0.142)	16.99 (0.11)	[a]

Pooled regression analyses, model: $Risk_{i,t}^{z} = \alpha_0^z + \alpha_1^z BH_{i,t} + \alpha_2^z FS_{i,t} + \alpha_3^z d_{i,t}^1 + \alpha_4^z d_{i,t}^2 + \varepsilon_{i,t}$, where $Risk_{i,t}^{z}$ is risk measure for firm i at time t where $z=1$ for standard deviation of return on equity, $z=2$ for capital intensity, and $z=3$ for beta, $BH_{i,t}$ is the level of active block ownership in firm i at time, $FS_{i,t}$ is firm size (logarithm of total assets) for firm i at time t, $d_{i,t}^1$ is firm i classified in industry 1 at time t, $d_{i,t}^2$ is firm i classified in industry 2 at time t, $\varepsilon_{i,t}$ error term for firm i at time t. [a] The null hypothesis of homoscedasticity was rejected in the regression analysis. Therefore, White (1980) heteroscedasticity-consistent asymptotic covariance matrix was used. All the variance inflation factors were less than 1.5 suggesting no problems with multicollinearity (see Judge, Griffiths, Hill, Lutkepohl and Lee 1985). Probability values are in parentheses: * significance at 0.1%; ** significance at 1%; *** significance at 5%; **** significance at 10%.