



## **Are The Factors Determining The Size of Block Ownership Different? Evidence from Korea**

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### **ABSTRACT**

The purpose of this study is to investigate the factors that determine the size of block ownership of companies listed on the Korean exchange from Jan. 1, 2005 to Dec. 31, 2017. We use dependent variables as variables associated with block ownership, and use major independent variables as firm size, idiosyncratic risk, Tobin Q, and R&D. This study applies the system GMM model. We find that the key factors that determine the size of block ownership differ in KOSPI and KOSDAQ. In each individual type of blockholder, the key factors that determine the size of the block ownership differ. The determinants of the size of block ownership for all blockholders grouped together also differ in each individual type of blockholder. This suggests that there is substantial blockholder heterogeneity and the role of blockholders in corporate governance differ in Korea stock market. Our findings contribute to investors and policy makers who interested in the determinants of the size of block ownership and blockholder heterogeneity in Korea stock market.

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## INTRODUCTION

In recent years, the role of blockholders in corporate governance is one of the topics of great interest in financial economics. Blockholder is defined as shareholders who hold at least 5% of the stock's ownership in the company (Dlugosz et al., 2006; Hessayri and Saihi, 2018). Various problems in corporate governance can arise when ownership are dispersed. In solving this problem, there are conflicting views on the role of the blockholder. For example, Shleifer and Vishny (1986) explain that blockholder can improve these problems by participating in key corporate decisions such as contestability. Edmans (2013), on the other hand, argues that blockholders' behavior can sometimes negatively affect other blockholders or managers. U.S. companies have, on average, two blockholders and most blockholders are the outside blockholder (Dlugosz et al., 2006). Holderness (2009) also reports that about 96% of 375 firms have at least a blockholder. Barclay and Holderness (1989) and Volkova (2018) categorized the blockholder types of U.S. firms into four categories: financial institutions, individuals, activist investors, and others. In Korea stock markets, blockholder exists in various forms. For example, there are families including affiliated persons or affiliated companies, non-family, foreign, financial institutions, governments, and others.

This study focuses on the factors that determine the size of the block ownership among various topics related to blockholder. Why should this study be done? The motivation of this study is as follows. First, although there are practical empirical literature examining the causes and consequences of blockholder size and existence, they do not provide a consistent view. Second, many studies which is related to ownership have been study not only the specific types of blockholders like total ownership but also simple results or corporate characteristics related to blockholders. Until now, few studies have been investigate the factors that determine the size of block ownership by classify each individual type of blockholder. Our analysis contrasts the previous literature with a detailed description of the variables associated with the size of the block ownership on the left side of the system GMM model.

The main purpose of this study is to answer the following three questions. First, what are the factors that determine the size of block ownership in Korea stock market? Second, what are the factors that determine the size of block ownership for each individual type of blockholder? Third, is there blockholder heterogeneity in Korea stock market?

The analysis period of this study is from January 1, 2005 to December 31, 2017. We use the ownership size of each blockholder type as the dependent variable. We classify the major blockholder type into the Korea stock market, each individual type of blockholder, and others. We use independent variables as firm size, idiosyncratic risk, Tobin Q, R&D, sales growth rate, EBITDA, advertising, tangible assets, leverage, dividend dummy, and 30 largest Chaebol (conglomerate). To control endogenous problems, this study applies the system GMM model. We find that firm size, firm idiosyncratic risk, and Tobin's Q are the key factors that determine the size of block ownership in the Korea stock market. We also find that the factors that determine the size of block ownership differ by market. In each individual type of blockholder, we find that the key factors that determine the size of family block ownership are firm size and Tobin's Q, also find that the key factors that determine the size of financial institution block ownership are firm idiosyncratic risk. This implies that there is blockholder heterogeneity in Korea stock market.

This study is similar to the empirical analysis of Hadlock and Schwartz-Ziv (2019). However, this study differs in several ways. First, this study is different from that of their study in terms of blockholder type. This study classify blockholder type into stock market, family, non-family, foreign, financial institution (FI), government, passive FI, aggressive FI, national pension fund, and institutional investor. Second, this study also is different from that of their study in term of the determinant of the ownership size of blockholders. We employ 30 largest Chaebol (conglomerate) dummy in addition to the factors used in Hadlock and Schwartz-Ziv (2019). Third, this study uses the system GMM model while they use a linear regression to investigate the determinants of the size of block ownership.

## LITERATURE REVIEW

### Studies of determinants of ownership

Many previous studies have focused on the determinants of inside ownership or ownership concentration. For example, Demsetz and Lehn (1985) investigate the cross-sectional determinants of ownership concentration in U.S. listed companies. They find that firm size and instability of profit rate are main determinants of ownership concentration. They also find that concentrated ownership is associated with a high level of company risk. Denis and Sarin (1999) analyze the determinants of ownership structure/board of directors, and the change in ownership/board of directors over time. They report that the determinants of ownership structure /board of directors are the firm size, MTB, leverage. They also show that the changes in ownership/board of directors are strongly related to CEO turnover, previous stock price performance, and firm control threats. Fahlenbrach and Stulz (2009) find that managers tend to decrease their ownership when their firms go well and tend to increase their ownership when their firms become financially constrained. When controlling for past stock returns, they also find a positive relation between managerial ownership and Tobin's Q.

Subsequent authors review or extend the results of Demsetz and Lehn (1985). They focus on predicting changes in inside ownership over time rather than cross-sectional determinants. For example, Himmelberg et al. (1999) analyze the determinants of managerial ownership through panel analysis using panel data. They report that the managerial ownership is explained by the main variables consistent with the predictions of the principal-agent model. Helwege et al. (2007) investigate the evolution of insider ownership over time in order to understand why and how U.S. corporations have their ownership. They find that firm performance plays an important role in forming of insider ownership. They also find that companies with low insider ownership appear to be good performance, high value, and high liquidity. However, they also find that factors suggested by agency theory have not explained the evolution of insider ownership.

Insiders with high ownership are one important form of blockholder. Concentrated ownership generally represents the presence of important blockholders. Previous studies provide evidence for understanding the size of block position. However, prior studies focus on only certain specific types of ownership, while others focus on firm characteristics associated with ownership. There are few studies on the determinants of the size of block ownership.

### Studies of blockholder heterogeneity

There are various blockholders in the firm. Many theories in the past assume that blockholders are relatively homogeneous groups. However, individuals, financial institutions, and corporations represent a substantial part of blockholder (Dou et al., 2018). Cronquist and Fahlenbrach (2008) investigate the effects of heterogeneity of blockholders. They find that blockholder differences in financial, investment, and executive compensation are related to corporate performance. They also find that blockholder who have a board member, a larger blockholder ownership, a directly management involvement are related to the firm policies and performance. There are reasons why these various types of blockholders are expected to play a different role in corporate governance. For example, a family can use ownership as an entrenchment device. Firm (including supplies) blockholder can use ownership positions to enhance or build product market relationships (Allen and Phillips, 2000; Fee et al., 2006). Blockholder of outsider individual or corporation and financial institution play a monitoring role within the firm. Edmans (2013) argues that passive financial blockholder such as mutual funds play an important role in governance by influencing transaction decisions and management incentives.

As we have seen, there are various types of blockholder. However, up to now, previous researches have not been investigated whether decision-making is different for each type of blockholder. Recently, Kang et al. (2018) investigate whether institutions' monitoring effectiveness is related to the number of their blockholdings. They find that the number of blockholders that a firm's large institutions hold is positively related to forced CEO turnover-performance sensitivity, excess returns around forced CEO turnover announcements and 13D filings, and changes in corporate value. Chen et al. (2019) examine the blockholder heterogeneity and conflicts in cross-border acquisitions. They focus on the conflicts between family blockholders and two groups of financial institutional investors – banks and mutual funds. Hadlock and Schwartz-Ziv (2019) investigate the determinants of blockholder presence. They employ firm size, idiosyncratic risk, Tobin's Q, R&D, sales growth, EBITDA, advertising, asset tangibility, capital expenditure,

leverage, and dividend dummy as the determinants of blockholder presence. They find that the determinant of blockholder presence for all blockholders grouped together differs in substantive ways from the mechanism governing each individual type of blockholder. They interpret the result of analysis as the existence of blockholder heterogeneity in U.S. firms.

This study analyzes the determinants of the size of the block ownership using the factors used in the previous studies (Demsetz and Lehn, 1985; Himmelberg et al., 1999; Denis and Sarin, 1999; Fahlenbrach and Stulz, 2009; Helwege et al., 2007; Felício et al., 2017; Hooy and Hooy, 2017; Alvarez et al., 2018; Hadlock and Schwartz-Ziv, 2019). This study uses firm size, idiosyncratic risk, Tobin's Q, and R&D as the main factors of the size of block ownership. This study also uses the sales growth rate, EBITDA, AD, tangible asset, leverage, dividend dummy, and the 30 largest Chaebols as firm characteristics and the unique characteristics in Korean companies.

## RESEARCH METHODS

### Data

This study selects sample firms based on the following criteria among companies listed on the Korea Exchange from January 1, 2005 to December 31, 2017. First, we exclude firms that cannot obtain financial statements and stock price data during the analysis period in TS-2000 and KIS VALUE Library. TS-2000 is provided by Korea Listed Association and KIS VALUE Library is provided by Korea Investors Services. Second, the financial sector is excluded from the sample because it differs from the general manufacturing industry in terms of regulatory supervision, operating methods, and financial statements. Third, this study excludes firms whose settlement day is not December 31. Fourth, we also exclude firms that have been delisted or shut down during the analysis period. The number of observations meeting the above condition is 8374. All variables are winsorized at the top and bottom 1 percentile to mitigate the impact of outliers.

### Empirical model

In order to investigate the determinants of the size of block ownership, this study uses the GMM model which is applied by Arellano and Bover (1995) and Blundell and Bond (1998). The system GMM is known as a more efficient estimator using not only the level variable of the dependent variable but also the lagged value of the differential variable as an additional tool variable. This model can eliminate inconsistencies and biases caused by endogenous problems. The model is shown in Eq. (1).

$$OSB_{it} = \alpha_0 + \beta_1 LI_{it-1} + \beta_2 LN(TA)_{it} + \beta_3 IR_{it} + \beta_4 Q_{it} + \beta_5 RD_{it} + \beta_6 SG_{it} + \beta_7 EBITDA_{it} + \beta_8 AD_{it} + \beta_9 TAN_{it} + \beta_{10} LEV_{it} + \beta_{11} D\_DIV_{it} + \beta_{12} D\_30CB + e_{it} \quad (1)$$

Where, *OSB*= The ownership size of blockholders (Total, KOSPI, KOSDAQ, Family, Non-family, Foreign, Financial Institution, Government, All non-Financial Institution, All Outside non-Financial Institution, Passive Financial Institution, Aggressive Financial Institution, Neo-Government, NPS, Institutional investor); *LI*= Delayed value of each dependent variable; *LN(TA)*= LN (Total assets, Million won); *IR*= Firm idiosyncratic risk; *Q*= Tobin's Q; *RD*= R&D/Total assets; *SG*= Sales growth; *EBITDA*= EBITDA/Total assets; *AD*= Advertising/Total assets; *TAN*= Tangible assets/ Total assets; *LEV*= Total debt/Equity; *D\_DIV*= Dividend dummy; *D\_30CB*=30 largest Chaebols dummy; *e*=Error term; *i*= firm 1,..., *N*; and *t*= 2005- 2017 Yr.

This study uses the size of block ownership as a dependent variable in Eq. (1). The size of block ownership means the sum of ownership held by each blockholder from 1st to 5th blocks. Since it is different between U.S. and Korea in terms of governance and securities market, this study analyzes in more detail than Hadlock and Schwartz-Ziv (2019). Hadlock and Schwartz-Ziv (2019) use nine types of predicted blockholder positions: Any, affiliated individual, unaffiliated individual, public company, private company, strategic investor, generic financial, all non-financial institution, and all outside non-financial institution. However, this study classifies markets as the total (all), KOSPI (The Korea Composite Stock Price Index), and KOSDAQ (The Korea Securities Dealers Association Automated Quotation). This study classify in each individual type of blocks as family blocks with affiliated persons and affiliated company, non-family blocks, foreign investor

blocks, financial institution blocks, government blocks, all non-financial institution blocks, and all outsider non-financial institution blocks. We also classify financial institutions (FI) blocks into passive FI such as banks and insurances, and aggressive FI such as securities and funds. The government blocks also divide it into the pure government and National Pension Service (NPS). We also use an institutional investor that combines NPS with financial institutions. The classification standard refers to the largest shareholder in the company information and shareholder information in the COINS of TS-2000 provided by Korea company information (KOCOinfo).

### Variables

We use various variables as explanatory variables in Eq. (1). This study employ some variables which are used the determinants of insider ownership by Himmelberg et al. (1999) and Helwege et al. (2007) and the determinants of the size of the block ownership by Hadlock and Schwartz-Ziv (2019). We use eleven variables: Firm size, idiosyncratic risk, Tobin's Q, R&D, sales growth, EBITDA, advertising, tangible assets, leverage, dividend pay dummy, and 30 largest Chaebols dummy. This study employs four major variables used by Hadlock and Schwartz-Ziv (2019). Four key variables are firm size, firm idiosyncratic risk, Tobin's Q and R&D intensity. Firm size and firm idiosyncratic risk are the most frequently used and most influential factors in determining ownership. And we use Tobin's Q and R&D intensity to capture the presence of business growth opportunities.

The remaining factors are used as firm characteristics. Firm size is measured by taking the natural logarithm of book assets (in million won). The idiosyncratic risk is estimated through a market model using the daily stock returns and daily market returns for each firm during the year  $t$  (Cao et al. 2008; Dennis and Strickland, 2009; Rossetto and Stagliano, 2012). For this, regression analysis is carried out for each  $i$  firm as in model (2).

$$R_{i,T} = \beta_{1,i} + \beta_2 R_{MKRI,T} + e_{i,T} \quad (2)$$

Where,  $R_{i,T}$ : The stock return of  $i$ -firm's  $T$ -days and  $R_{MKRI,T}$ : The stock return of market portfolio's  $T$ -days.

This study measures residual estimates through model (2). And the size of firm idiosyncratic risk is calculated by the method of Ang et al. (2006) as Eq. (3).

$$IR_{i,l} = \sqrt{\frac{1}{n} \sum_{d=1}^n (e_{i,t,d})^2} \quad (3)$$

Tobin's Q is measured as shown in equation (4) (Kaplan and Zingales, 1997; Gompers et al., 2003).

$$Q_{i,t} = \frac{MVA_{it}}{BVA_{it}} = \frac{RVA_{it} + MVE_{it} - BVE_{it}}{BVA_{it}} \quad (4)$$

Where,  $MVA_{it}$  = the market value of assets at the end of year  $i$  firm at the time  $t$ ;  $BVA_{it}$  = the book value of assets at the end of year  $i$  firm at the time  $t$ ;  $MVE_{it}$  = the market value of equity at the end of year  $i$  firm at the time  $t$ ; and  $BVE_{it}$  = the book value of equity at the end of year  $i$  firm at the time  $t$ .

RD is measured as annual R&D spending divided by total year-end assets. Sales growth (SG) is calculate by sales in the base year sales increase in the comparative year. EBITDA is calculated by the firm's annual earnings before interest, taxes, and depreciation divided by end of year total assets. AD means advertising spending. It calculated by the annual advertising spending divided by total year-end assets. TAN means asset tangibility, which is measured as net property plant and equipment divided by end of year total book assets. LEV means book leverage, which is calculated by the firm's total debt divided by end of year equity. D\_DIV mean dividend pay dummy. This variable assumes a value of 1 if the firm paid cash dividends during the most recent year and 0 otherwise. D\_30CB mean 30 largest Chaebols, assuming a value of 1 if a firm belongs to the 30 largest Chaebols in Korea and 0 otherwise. The 30 largest Chaebols are one of the leading conglomerates in Korea.

## RESULTS

### Descriptive Statistics

Table 1 shows descriptive statistics on the size of block ownership for Korea publicly listed firms from 2005-2017. This study divides blockholder into six categories: family (FA), non-family (NOFA), foreign (FO), financial institution (FI), government (GO), and others. Family blocks include affiliated persons and affiliated companies. Government include national pension fund (NPS). ALNOFI means all non-financial institution. ALOUNOFI means all outside non-financial institution. PAFI means passive FI like bank and insurance, AGFI means aggressive FI like trust, securities, and fund. NGO means government excepting NPS. INS means institutional investor block.

We summarize the results of the descriptive statistics as follows. First, as we report in column 1 of Table 1, we find that 47.7% of all firms have the mean size of block ownership. This figure is higher than what is reported by Hadlock and Schwartz-Ziv (2019). We also find that the largest size of block ownership is family block which include affiliated persons and affiliated company. The size of family block is 41.5%. This is unique in terms of Korea's ownership compared to that of advanced capital markets such as U.S. Second, in column 2 and 3, we also find that net government blocks (NGO) show more block ownership in the KOSPI market(0.354) than in the KOSDAQ market(0.161). Third, in column 4, 5, 6, and 7, foreign investors showed a greater block ownership in the 30 largest non-Chaebols (0.204) and relative small firms (0.255) than the 30 largest Chaebols (0.123) and relative large firms (0.173). Fourth, in column 8 and 9, government blocks tend to hold smaller block ownership in 2017 (0.109) than in 2005 (0.196).

Table 1 Sample Description of the Size of Block Ownership

VARIABLE	All Years	KOSPI	KOSDAQ	30 Largest CB	30 Largest NOCB	Smallest Quintile Firms	Largest Quintile Firms	2005	2017
Number	8374	4928	3446	1062	7312	1674	1674	645	643
<i>ALL</i>	0.477	0.494	0.453	0.482	0.476	0.430	0.498	0.476	0.469
<i>FA</i>	0.415	0.386	0.411	0.402	0.417	0.394	0.402	0.416	0.413
<i>NOFA</i>	0.101	0.112	0.083	0.109	0.100	0.093	0.110	0.117	0.100
<i>FO</i>	0.191	0.179	0.224	0.123	0.204	0.255	0.173	0.188	0.202
<i>FI</i>	0.104	0.105	0.103	0.106	0.104	0.110	0.102	0.101	0.103
<i>GO</i>	0.121	0.124	0.102	0.090	0.142	0.166	0.120	0.196	0.109
<i>ALNOFI</i>	0.445	0.456	0.428	0.448	0.445	0.411	0.450	0.441	0.444
<i>ALOUNOFI</i>	0.168	0.168	0.168	0.113	0.183	0.168	0.163	0.181	0.166
<i>PAFI</i>	0.076	0.074	0.081	0.057	0.080	0.057	0.072	0.072	0.083
<i>AGFI</i>	0.105	0.105	0.103	0.106	0.104	0.112	0.103	0.104	0.103
<i>NGO</i>	0.297	0.354	0.161	0.265	0.300	0.263	0.356	0.308	0.336
<i>NPS</i>	0.088	0.089	0.073	0.085	0.090	0.069	0.083	0.084	0.090
<i>INS</i>	0.113	0.114	0.108	0.113	0.113	0.111	0.106	0.102	0.106

Table 1 reports descriptive statistics on the size of the block ownership for Korea publicly listed firms from 2005-2017. KOSPI mean the Korea Composite Stock Price Index, and KOSDAQ means the Korea Securities Dealers Association Automated Quotation. CB and NOCB mean 30 largest Chaebols (conglomerate), 30 largest non-Chaebols respectively. This study classify a blockholder into six categories: family (FA), non-family (NOFA), foreign (FO), financial institution (FI), government (GO), and others. Family blocks include affiliated persons and affiliated companies. Government include national pension fund (NPS). ALNOFI means all non-financial institution. ALOUNOFI means all outside non-financial institution. PAFI means passive FI like bank and insurance, AGFI means aggressive FI like trust, securities, and fund. NGO means net government excepting NPS. INS means institutional investor block. A blockholder ownership is the mean size of blocks ownership. All variables are winsorized at the top and bottom 1 percentile to mitigate the impact of outliers.

### Predicting the size of the block ownership in market

Table 2 shows the factors that determine of the size of block ownership for all, KOSPI and KOSDAQ. The reason for Korea's stock market is divided into KOSPI and KOSDAQ is that there are differences in the characteristics of the two markets and the listing conditions. We analyze the primary autocorrelation [AR (1)] and the secondary autocorrelation [AR (2)] on the residuals. As a result, the first autocorrelation has time series correlation but the second autocorrelation does not have time series correlation. As a result of the Hansen test, the null hypothesis that there is no correlation between the tool variable and the error term is adopted, and the Wald test shows that the model is significantly at the 1% level.

This study employs various variables to investigate factor that determines the size of block ownership. These variables are those used in the studies of Himmelberg et al. (1999), Helwege et al. (2007), and Hadlock and Schwartz-Ziv (2019). The introduced variables are explained in detail in Eq. (1). This study focuses on the role of four important explanatory variables in predicting the size of block ownership. Four main explanatory variables are firm size, firm idiosyncratic risk, Tobin's Q and R&D intensity. Firm size and firm idiosyncratic risk play an important role in most of the previous studies on ownership structure. Tobin's Q and R&D intensity reflect firm growth opportunities. This study also uses various firm characteristics and 30 largest Chaebols dummy.

Table 2 Determinants of the Size of Block Ownership for All, KOSPI, and KOSDAQ

VARIABLES	All	KOSPI	KOSDAQ
<i>L1</i>	0.634*** (0.018)	0.571*** (0.023)	0.711*** (0.027)
<i>LN(TA)</i>	-0.009*** (0.003)	-0.003 (0.005)	-0.022*** (0.004)
<i>IR</i>	0.176*** (0.049)	0.263*** (0.056)	-0.432*** (0.120)
<i>Q</i>	-0.003* (0.002)	0.002 (0.003)	-0.004* (0.002)
<i>RD</i>	0.060 (0.152)	0.606* (0.315)	0.005 (0.159)
<i>SG</i>	0.009*** (0.002)	0.011*** (0.003)	0.004 (0.003)
<i>EBITDA</i>	-0.011 (0.015)	-0.015 (0.019)	0.016 (0.025)
<i>AD</i>	-0.176 (0.201)	0.430 (0.310)	-0.620*** (0.238)
<i>TAN</i>	0.004 (0.015)	-0.002 (0.021)	-0.020 (0.021)
<i>LV</i>	0.000 (0.000)	-0.000 (0.000)	0.001 (0.001)
<i>D_DIV</i>	-0.002 (0.003)	-0.001 (0.004)	-0.005 (0.004)
<i>D_30CB</i>	0.028* (0.016)	0.016 (0.018)	-0.038 (0.035)
<i>Constant</i>	0.280*** (0.040)	0.236*** (0.060)	0.405*** (0.056)
Observations	7,722	4,543	3,179
Number of i	646	380	266
<i>AR(1)</i>	-6.91***	-4.63***	-6.65***
<i>AR(2)</i>	1.08	0.89	0.41
<i>Hansen test(χ<sup>2</sup>)</i>	96.12	67.66	90.86
<i>Wald test(χ<sup>2</sup>)</i>	1401.33***	663.64***	1089.61***

Table 2 reports the determinants of the size of block ownership for all, KOSPI and KOSDAQ. This study uses the GMM model to investigate the determinants of the size of block ownership. The delayed value of each dependent variable is denoted by L1. Standard error is shown in parenthesis. LN(TA), IR, Q, and RD means natural logarithm of the firm's total asset, idiosyncratic risk, Tobin's Q, and R&D/assets respectively. SG, EBITDA, AD, TAN, LV, D DIV, and D 30CB means sales growth, firm's annual earnings before interest and taxes/assets, advertising spending/assets, asset tangibility, leverage, dividend pay dummy, and 30 largest Chaebols dummy respectively. All variables are winsorized at the top and bottom 1 percentile to mitigate the impact of outliers. AR (1) and AR (2) represent a statistic for testing the presence of the first and second time series correlation of residuals respectively. The Hansen test (Chi2) is a statistic for the overidentifying restrictions test through correlation between instrumental variables and error term. The Wald test (Chi2) represents the statistic of the fitness of model. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 2 shows the results of analyzing the determinants of the size of the block ownership by all, KOSPI, and KOSDAQ. The analysis results and their meanings are as follows.

First, the coefficient on one variable such as firm size of the four main variables is negative and significant excepting KOSPI. This suggests that large firms are relatively less likely to the size of block ownership. The magnitude on the coefficients of this variable range from -0.009 to -0.022, indicating a decrease in the likelihood of detecting the size of block ownership on the order of about 1.5% when this explanatory variable increase by one sample standard deviation. The result of this analysis is similar to that of Hadlock and Schwartz-Ziv (2019). The negative relation between firm size and the size of block ownership is consistent with many prior studies that show that ownership is generally less concentrated at larger firms.

Second, the analysis of second row of Table 2 shows that a positive relation between firm idiosyncratic risk and the size of block ownership at 1% level, excepting KOSDAQ. This means that risky firms are relatively more likely to have the size of block ownership. This result suggests that high risk bearing cost may increase the size of block ownership, especially in KOSPI. However, table 2 shows that a negative relation

between firm idiosyncratic risk and the size of block ownership at 1% level in KOSDAQ. This result means that risky firms are relatively less likely to have the size of block ownership. The negative coefficient on the idiosyncratic risk variable also suggests that high risk bearing costs may limit the size of block ownership in very risky firms. The reason for the difference between KOSPI and KOSDAQ is that KOSPI is mainly a large-scale index, while KOSDAQ is mainly formed by SMEs and venture companies.

Third, the analysis of the third row of Table 2 shows that a negative relation between Tobin's Q and the size of block ownership at 10% level, especially in KOSDAQ. The result of this analysis is also similar to that of Hadlock and Schwartz-Ziv (2019). This means that high Q firms are relatively less likely to have the size of block ownership. This result suggests that the monitoring activities of blockholders are less valued at high performing companies.

### Predicting the size of block ownership in each individual type

We next consider whether the factors that determine the size of block ownership in each block types. The estimation model is also similar to the basic model discussed above. The estimated effects of these system GMM models for five types of each blockholder and two grouped blockholders are shown in columns 1 to 7 of Table 2. To apply the system GMM model, we also analyze the primary autocorrelation [AR (1)] and the secondary autocorrelation [AR (2)] on the residuals. As a result, the first autocorrelation has time series correlation but the second autocorrelation does not have time series correlation in FA, FI, GO, and ALNOFI. As a result of the Hansen test, the null hypothesis that there was no correlation between the tool variable and the error term was adopted in FA, FI, GO, and ALNOFI, and the Wald test showed that the model was significantly at the 1% level.

Table 3 Determinants of the Size of Block Ownership in Each Individual Type

VARIABLES	FA (1)	NFA (2)	FOR (3)	FI (4)	GO (5)	ALNOFI (6)	ALOUNOFI (7)
<i>LI</i>	0.796*** (0.020)	0.082 (0.088)	0.703*** (0.111)	0.333*** (0.064)	0.814*** (0.040)	0.631*** (0.019)	0.656*** (0.040)
<i>LN(TA)</i>	-0.005** (0.002)	0.009 (0.010)	0.004 (0.010)	0.005 (0.007)	-0.008 (0.005)	-0.002 (0.003)	-0.014** (0.006)
<i>IR</i>	-0.011 (0.046)	0.565** (0.278)	-1.012 (0.727)	0.568* (0.325)	0.051 (0.197)	-0.069 (0.049)	-0.153 (0.180)
<i>Q</i>	-0.003* (0.001)	-0.016 (0.013)	-0.016 (0.013)	0.000 (0.008)	0.008 (0.005)	-0.003** (0.002)	0.001 (0.004)
<i>RD</i>	0.087 (0.118)	0.410 (0.581)	1.449 (2.020)	0.623 (0.557)	-0.078 (0.562)	0.025 (0.134)	1.115*** (0.322)
<i>SG</i>	0.005*** (0.002)	-0.002 (0.007)	0.008 (0.022)	-0.008 (0.006)	0.001 (0.015)	0.006*** (0.002)	0.004 (0.003)
<i>EBITDA</i>	-0.002 (0.012)	-0.130* (0.078)	0.328 (0.217)	0.183*** (0.062)	0.233*** (0.074)	-0.010 (0.014)	0.027 (0.032)
<i>AD</i>	-0.329** (0.156)	0.874** (0.380)	-0.701 (0.824)	0.067 (0.522)	0.109 (0.569)	0.041 (0.178)	0.557 (0.384)
<i>TAN</i>	0.007 (0.012)	-0.019 (0.037)	-0.044 (0.080)	-0.050 (0.042)	0.078** (0.038)	-0.003 (0.014)	0.021 (0.029)
<i>LV</i>	-0.001* (0.000)	0.006 (0.005)	0.010 (0.011)	-0.000 (0.001)	-0.001 (0.001)	-0.001** (0.001)	0.001 (0.001)
<i>D_DIV</i>	-0.001 (0.002)	-0.006 (0.008)	-0.0225 (0.016)	-0.004 (0.008)	-0.017** (0.009)	0.002 (0.003)	-0.001 (0.006)
<i>D_30CB</i>	-0.002 (0.013)	0.000 (0.000)	0.025 (0.037)	-0.011 (0.024)	-0.034** (0.017)	0.030** (0.015)	-0.018 (0.024)
<i>Constant</i>	0.150*** (0.032)	-0.015 (0.119)	0.011 (0.129)	-0.005 (0.090)	0.111 (0.083)	0.188*** (0.034)	0.230*** (0.076)
Observations	7,239	92	97	687	652	7,618	1,799
Number of i	622	15	42	208	149	645	327
<i>AR(1)</i>	-3.25***	-0.00	-1.05	-1.98**	-1.65*	-5.36***	-1.17
<i>AR(2)</i>	1.22	0.38	-1.03	-0.60	1.37	1.56	-1.08
<i>Hansen test</i> ( $\chi^2$ )	86.63	0.00	7.65	76.50	69.82	75.59	77.13
<i>Wald test</i> ( $\chi^2$ )	1680.36***	56.48***	65.44***	45.41***	612.56***	1285.07***	287.33***

Table 3 reports the determinants of the size of block ownership for each block. Each column shows that coefficients for system GMM model estimated at the firm-year level for a dependent variable that is set equal to the sum of all blockholdings of the indicated type. Detailed description of each major blockholder is shown in Table 1. The delayed value of each dependent variable is denoted by LI. Standard error is shown in parenthesis. Detailed descriptions of the independent variables are given in Table 2. AR (1) and AR (2) represent a statistic for testing the presence of the first and second time series correlation of residuals, respectively. The Hansen test (Chi2) is a statistic for the overidentifying restrictions test through correlation between instrumental variables and error term. The Wald test (Chi2) represents the statistic of the fitness of model. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels, respectively.



The results of the analysis and suggestions are summarized as follows. First, the analysis of the first row of Table 3 shows that a negative relation between firm size and the size of family block ownership at 5% level. The magnitude on the coefficients of these variables is -0.005, indicating a decrease in the likelihood of detecting a blockholder on the order of about 0.5% when the firm size increases by one standard deviation from the mean. This suggests that large firms are relatively less likely to the size of family block ownership. It also suggests that the ownership of family block is generally less concentrated in large corporations.

Second, the second row of Table 3 shows the analysis of the relation between firm idiosyncratic risk and the size of block ownership. We find that only two blocks such as NFA and FI of the five blockholders shows a statistically significant positive relation. This result is consistent with the findings of Demsetz and Lehn (1985), who investigate the positive relation between ownership concentration and corporate risk. This means that the higher firm idiosyncratic risk, the higher the size of non-family and financial institution block ownership.

Third, the third row of Table 3 shows whether Tobin's Q has a significant effect on the size of block ownership. As a result of the analysis, the coefficient value of Tobin Q shows significant value in only family of five block categories. It is interpreted that Tobin's Q variable is related to the size of family block ownership. This also means that family block is less likely to invest in high Q firms.

Fourth, the fourth row of Table 3 shows that the effect of R&D intensity on the size of block ownership. However, we find that there is no evidence of a relation between R&D intensity and the size of block ownership.

Fifth, we consider a model that predicts the size of block ownership excepting financial institution blocks. Estimates of the model are presented in column 6 in Table 3. We find that non-financial blocks were negatively related to Tobin's Q. We also consider a model that predicts the size of block ownership except family blocks and financial institution blocks. Estimates of the model are presented in column 7 in Table 2. We also find that the size of outsider non-financial blocks ownership is negatively related to firm size and positively related to R&D intensity.

### **Predicting the size of specific block types**

Table 4 shows the result of additional analysis of the determinants of the size of specific type of block ownership. Financial institutions are divided into two types (Brickley, Lease, and Smith, 1988). One is conservative financial institutions such as banks and insurance, and the other is an aggressive financial institution such as securities companies, asset management, and fund. Government agencies are also divided into two types. One is a pure government and the other is a national pension funds (NPS). We also analyze the size of institutional investor blocks, including financial institutions and national pension funds. The estimation model is also similar to the basic model discussed above.

The estimated effects of five specific types of blocks show in columns 1 to 5 of Table 4. To apply the system GMM model, we also analyze the primary autocorrelation [AR (1)] and the secondary autocorrelation [AR (2)] on the residuals. As a result, the first autocorrelation has time series correlation but the second autocorrelation does not have time series correlation in AGFI and INST. As a result of the Hansen test, the null hypothesis that there was no correlation between the tool variable and the error term was adopted and the Wald test showed that the model was significantly at the 1% level.

Table 4 Determinants of Size of block Ownership for Others

VARIABLES	PAFI (1)	AGFI (2)	NGO (3)	NPS (4)	INST (5)
<i>LI</i>	0.565*** (0.101)	0.493*** (0.073)	0.950*** (0.140)	0.765*** (0.036)	0.612*** (0.046)
<i>LN(TA)</i>	0.001 (0.002)	0.004 (0.006)	0.004 (0.009)	-0.015** (0.006)	-0.001 (0.007)
<i>IR</i>	0.015 (0.103)	0.358 (0.349)	0.134 (0.608)	0.054 (0.134)	0.357* (0.216)
<i>Q</i>	0.000	0.001	-0.001	0.010**	0.007
<i>RD</i>	-0.191 (0.395)	0.362 (0.568)	0.396 (1.466)	0.395 (0.377)	0.793 (0.542)
<i>SG</i>	0.017** (0.008)	-0.006 (0.006)	-0.015 (0.039)	-0.007 (0.011)	0.000 (0.005)
<i>EBITDA</i>	0.031 (0.024)	0.163** (0.071)	0.235 (0.148)	0.220*** (0.057)	0.199*** (0.062)
<i>AD</i>	-1.491 (1.001)	0.0511 (0.529)	0.088 (0.895)	-0.345 (0.501)	-0.219 (0.579)
<i>TAN</i>	0.004 (0.013)	-0.002 (0.046)	0.027 (0.073)	0.023 (0.028)	-0.023 (0.043)
<i>LV</i>	0.001 (0.001)	-0.000 (0.000)	0.000 (0.002)	-0.004 (0.005)	0.000 (0.001)
<i>D_DIV</i>	-0.007 (0.006)	-0.004 (0.008)	-0.007 (0.020)	-0.019*** (0.006)	-0.012 (0.008)
<i>D_30CB</i>	0.002 (0.013)	-0.013 (0.022)	0.014 (0.032)	-0.019 (0.012)	-0.032 (0.022)
<i>Constant</i>	0.024 (0.032)	-0.014 (0.085)	-0.067 (0.110)	0.223*** (0.085)	0.049 (0.102)
Observations	59	630	121	535	1,131
Number of i	20	194	21	134	266
<i>AR(1)</i>	-0.30	-2.97***	-0.65	-1.44	-2.81***
<i>AR(2)</i>	0.07	-0.71	0.93	0.63	-1.07
<i>Hansen test</i> ( $\chi^2$ )	2.60	71.50	6.99	59.28	72.83
<i>Wald test</i> ( $\chi^2$ )	94.85***	62.03***	150.18***	921.94***	222.36***

Table 4 also reports the determinants of the size of block ownership of financial institutions, governments, and institutional investors in detail. Each column shows that coefficients for system GMM model also estimated at the firm-year level for a dependent variable that is set equal to the sum of all blockholdings of the indicated type. Detailed description of other blockholder type is shown in Table 1. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels, respectively.

The analysis results and implications are as follows. First, the analysis of the fourth row of Table 4 shows that a negative relation between firm size and the size of NPS block ownership at 5% level. This suggests that large firms are relatively less likely to the size of NPS block ownership. It also suggests that the ownership of NPS blocks is generally less concentrated in large corporations. Second, the analysis of the fifth column of Table 2 shows that a positive relation between firm idiosyncratic risk and the size of institutional investor blocks ownership at 10% level. This means that risky firms are relatively more likely to have the ownership size of institutional investor blocks. Third, we analyze the relationship between Tobin's Q and the size of block ownership. As a result of the analysis, the coefficient value of Tobin Q shows significant value in only NPS. It is interpreted that Tobin's Q variable is positive related to the size of NPS block ownership. However, there is no evidence that exist the relation between four major variables and the size of block ownership in PAFI, AGFI, and NGO.

In summary, we find that the factors that determine the size of block ownership differ for each stock markets, each blocks type, and all blocks grouped together. This suggests that heterogeneity of blockholders exists in Korea listed corporations. These differences offer the sights into of the roles of different blockholders in Korea corporate governance.

### Robust Test

This study tests some robustness. First, we divide the sample in half by whether firm size, firm idiosyncratic risk, and Tobin's Q are above or below the sample median, and examine the model in Equation (1) using the same system GMM model. The results show that it is sensitive to the sample being used in this study in Table 5. Second, we also test the original sample with the same dependent variable and independent variables using OLS (model 1) that contains dummy variables to control for fixed effects from industry and period differences, clustered robust standard errors as prescribed by Pettersen (2009) (model 2), white's test to diagnose heteroscedasticity (model 3), and fixed-effect panel regression (model 4) to control for fixed effects from repeated-observed firms in panel data in table 6. As a result, regression coefficients and standard errors

in OLS are similar between the size of block ownership and key variables (firm size, IR, Tobin's Q, and RD). However, the OLS analysis differs from the panel regression analysis in that there is a positive relation between the size of block ownership and firm size [LN(TA)]. The system GMM in table 2 (all) also differs from the panel regression analysis in that there is a positive relation between the size of block ownership and firm idiosyncratic risk (IR). This may be due to differences in the assumptions of each model and the use of tool variables. All empirical analyzes of this study were done by system GMM. The reason is that the system GMM is known as a more efficient estimator using not only the level variable of the dependent variable but also the lagged value of the differential variable as an additional tool variable, and can eliminate inconsistencies and biases caused by endogenous problems.

Table 5 Robust 1: Determinants of the Size of Block Ownership for All

VARIABLES	LN(TA)> Median (1)	LN(TA)≤ Median (2)	IR> Median (3)	IR≤ Median (4)	Q> Median (5)	Q≤ Median (6)
<i>LI</i>	0.630*** (0.028)	0.627*** (0.027)	0.521*** (0.036)	0.627*** (0.039)	0.621*** (0.031)	0.668*** (0.035)
<i>LN(TA)</i>	0.001 (0.005)	-0.016*** (0.005)	0.009 (0.007)	-0.007 (0.006)	-0.002 (0.006)	-0.006 (0.006)
<i>IR</i>	0.274*** (0.058)	-0.316*** (0.103)	0.295*** (0.061)	0.235 (0.428)	0.514*** (0.093)	-0.032 (0.079)
<i>Q</i>	-0.006 (0.004)	-0.002 (0.002)	0.001 (0.002)	-0.013* (0.007)	-0.002 (0.002)	-0.013 (0.014)
<i>RD</i>	0.351 (0.330)	-0.014 (0.162)	0.048 (0.217)	-0.074 (0.483)	0.071 (0.191)	-0.017 (0.390)
<i>SG</i>	0.014*** (0.004)	0.009*** (0.003)	0.008** (0.004)	-0.005 (0.007)	0.005 (0.004)	0.018*** (0.003)
<i>EBITA</i>	-0.016 (0.030)	0.011 (0.023)	-0.040 (0.031)	0.005 (0.043)	-0.016 (0.022)	-0.068** (0.030)
<i>AD</i>	0.174 (0.339)	-0.164 (0.253)	-0.626* (0.375)	0.205 (0.414)	-0.567** (0.282)	0.585 (0.445)
<i>TAN</i>	-0.069*** (0.025)	0.077*** (0.020)	0.086*** (0.028)	0.001 (0.031)	0.036 (0.030)	-0.007 (0.020)
<i>LV</i>	0.000 (0.000)	-0.005*** (0.002)	-0.002** (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.001 (0.004)
<i>D-DIV</i>	-0.002 (0.005)	9.01e-05 (0.004)	0.001 (0.006)	0.006 (0.006)	0.012* (0.006)	-0.007* (0.004)
<i>D_30CB</i>	0.018 (0.017)	-0.019 (0.073)	0.068* (0.040)	-0.053** (0.022)	0.043* (0.026)	-0.0131 (0.022)
<i>Constant</i>	0.185** (0.073)	0.340*** (0.066)	0.069 (0.086)	0.299*** (0.084)	0.159** (0.075)	0.260*** (0.073)
Observations	3,745	3,725	2,666	2,626	3,117	3,211
Number of i	393	405	535	542	506	499
AR(1)	-6.13***	-3.47***	-3.30***	-4.46***	-2.98***	-3.59***
AR(2)	-1.57	-0.25	-0.05	-1.22	-0.77	-0.08
Hansen test( $\chi^2$ )	82.94*	105.11***	84.28*	71.87	67.53	98.15***
Wald test( $\chi^2$ )	12.26	100.42***	13.14	13.83	13.16	54.32***

Table 5 reports the determinants of the size of block ownership for all samples in half whether firm size, firm idiosyncratic risk, and Tobin's Q are above or below the median. This study uses the GMM model to investigate the determinants of the size of block ownership. The delayed value of each dependent variable is denoted by L1. Standard error is shown in parenthesis. Detailed descriptions of the independent variables are given in Table 2. All variables are winsorized at the top and bottom 1 percentile to mitigate the impact of outliers. AR (1) and AR (2) represent a statistic for testing the presence of the first and second time series correlation of residuals respectively. The Hansen test ( $\chi^2$ ) is a statistic for the overidentifying restrictions test through correlation between instrumental variables and error term. The Wald test ( $\chi^2$ ) represents the statistic of the fitness of model. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 6 Robust 2: Determinants of the Size of Block Ownership for All

VARIABLES	OLS			Fixed-Effect Panel Regression
	Model	Clustered robust standard errors	Robust standard errors	
	(1)	(2)	(3)	
<i>LN(TA)</i>	0.004** (0.002)	0.004* (0.002)	0.007*** (0.002)	-0.018*** (0.003)
<i>IR</i>	-0.001 (0.085)	-0.001 (0.125)	0.001 (0.121)	0.078 (0.052)
<i>Q</i>	-0.025*** (0.002)	-0.025*** (0.004)	-0.025*** (0.004)	-0.003** (0.002)
<i>RD</i>	-0.524*** (0.112)	-0.524*** (0.127)	-1.252*** (0.116)	-0.472*** (0.114)
<i>SG</i>	0.009** (0.005)	0.009* (0.032)	0.012** (0.005)	0.010*** (0.003)
<i>EBITA</i>	0.095*** (0.027)	0.095*** (0.032)	0.063** (0.029)	0.012 (0.017)
<i>AD</i>	0.155 (0.126)	0.155 (0.139)	0.076 (0.113)	-0.083 (0.141)
<i>TAN</i>	-0.027** (0.011)	-0.027** (0.014)	0.008 (0.010)	-0.033*** (0.010)
<i>LV</i>	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.000)
<i>D-DIV</i>	0.063*** (0.004)	0.063*** (0.005)	0.068*** (0.004)	0.008*** (0.003)
<i>D_30CB</i>	-0.021*** (0.006)	-0.021*** (-0.008)	-0.021*** (0.006)	0.023** (0.011)
<i>Constant</i>	0.360*** (0.029)	0.360*** (0.031)	0.394*** (0.022)	0.697*** (0.042)
<i>D_YR</i>	included	included	included	included
<i>D_IND</i>	included	included	-	-
Observations	8,374	8,374	8,374	8,374
F-value	24.27***	25.38***	32.01***	5.44***
R-sq	0.1759	0.1759	0.092	0.016
Lagrange multiplier test	-	-	-	24335.40***
Hausman test	-	-	-	192.68***

Table 6 also reports the determinants of the size of block ownership for all. This study also uses OLS (include clustered robust standard errors and robust standard errors) and Fixed-Effect Panel regression to check whether or not the results are sensitive to the statistical methods. Cluster variable is the total size ownership of blockholder. Detailed descriptions of the independent variables are given in Table 2. All variables are winsorized at the top and bottom 1 percentile to mitigate the impact of outliers. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels, respectively.

## CONCLUSION

This study investigates the determinants of the size of block ownership for companies listed on the Korean Exchange. The main results are as follows. First, we find that the key factors that determine the size of block ownership in the Korea stock market are firm size, firm idiosyncratic risk, and Tobin's Q. We also find that the factors that determine the size of block ownership differ by market. The factors that determine the size of block ownership are firm idiosyncratic risk and R&D intensity in KOSPI, while the factors that determine the size of block ownership are firm size, firm idiosyncratic risk, and Tobin's Q. Second, in each individual type of blockholder, we find that the key factors that determine the size of family block ownership are firm size and Tobin's Q, also find that the key factor that determine the size of financial institution blocks ownership is firm idiosyncratic. This study also shows that the key factors that determine the size of all outside non-financial institution ownership are firm size and R&D. However, there is no evidence the relation between foreign/government and main variables. This suggests that there is blockholder heterogeneity in Korea stock market.

This study is meaningful in that it investigates the determinants of the size of block ownership in Korean listed companies, and we finds that they differ among the markets and each type of major blockholder. This study is also meaningful in finding that blockholder heterogeneity exists in the Korea stock market. However, it is necessary to study about the interactions of all blocks, the determinants of blockholder exit, and the determinants of blockholder entries for investigating the role of blockholder in detail.

## REFERENCES

- Allen, JW & Phillips, GM 2000, "Corporate equity ownership, strategic alliances, and product market relationships", *The Journal of Finance*, vol. 55, no. 6, pp. 2791-2815.
- Alvarez, R, Jara, M & Pombo, C 2018, "Do institutional blockholders influence corporate investment? Evidence from emerging markets", *Journal of Corporate Finance*, vol.53, pp.38-64.
- Ang, A, Hodrick, RJ, Xing, Y & Zhang, X 2006, "The cross-section of volatility and expected returns", *The Journal of Finance*, vol. 61, no. 1, pp. 259-299.
- Arellano, M & Bover, O 1995, "Another look at the instrumental variable estimation of error-components models", *Journal of Econometrics*, vol. 68, no.1, pp. 29-51.
- Barclay, MJ & Holderness, CG 1989, "Private benefits from control of public corporations", *Journal of Financial Economics*, vol. 25, no. 2, pp. 371-395.
- Blundell, R & Bond, S 1998, "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics*, vol. 87, no. 1, pp. 115-143.
- Brickley, JA, Lease, RC & Smith Jr, CW 1988, "Ownership structure and voting on antitakeover amendments", *Journal of Financial Economics*, vol. 20, pp. 267-291.
- Cao, C, Simin, T & Zhao, J 2008, "Can growth options explain the trend in idiosyncratic risk?", *The Review of Financial Studies*, vol. 21, no. 6, pp. 2599-2633.
- Chen, VZ, Hobdari, B & Zhang, Y 2019, "Blockholder heterogeneity and conflicts in cross-border acquisitions", *Journal of Corporate Finance*, vol. 57, pp. 86-101.
- Cronqvist, H & Fahlenbrach, R 2008, "Large shareholders and corporate policies", *The Review of Financial Studies*, vol. 22, no. 10, pp. 3941-3976.
- Demsetz, H & Lehn, K 1985, "The structure of corporate ownership: Causes and consequences", *Journal of Political Economy*, vol. 93, no. 6, pp. 1155-1177.
- Denis, DJ & Sarin, A 1999, "Ownership and board structures in publicly traded corporations", *Journal of Financial Economics*, vol. 52, no. 2, pp. 187-223.
- Dennis, P & Strickland, D 2004, "The determinants of idiosyncratic volatility", working paper, Darden School of Business, University of Virginia, Charlottesville, 27 January.
- Dlugosz, J, Fahlenbrach, R, Gompers, P & Metrick, A 2006, "Large blocks of stock: Prevalence, size, and measurement", *Journal of Corporate Finance*, vol. 12, no. 3, pp. 594-618.
- Dou, Y, Hope, OK, Thomas, WB & Zou, Y 2018, "Blockholder exit threats and financial reporting quality", *Contemporary Accounting Research*, vol. 35, no. 2, pp. 1004-1028.
- Edmans, A, Fang, VW & Zur, E 2013, "The effect of liquidity on governance", *The Review of Financial Studies*, vol. 26, no. 6, pp. 1443-1482.
- Fahlenbrach, R & Stulz, RM 2009, "Managerial ownership dynamics and firm value", *Journal of Financial Economics*, vol. 92, no. 3, pp. 342-361.
- Fee, CE, Hadlock, CJ & Thomas, S 2006, "Corporate equity ownership and the governance of product market relationships", *The Journal of Finance*, vol. 61, no. 3, pp. 1217-1251.
- Felício, JA, Rodrigues, R, Grove, H & Greiner, A 2018, "The influence of corporate governance on bank risk during a financial crisis", *Economic research-Ekonomska istraživanja*, vol. 31, no.1, pp. 1078-1090.
- Gompers, P, Ishii, J & Metrick, A 2003, "Corporate Governance and Equity Prices", *Quarterly Journal of Economics*, vol. 118, no. 1, pp. 107-155.
- Hadlock, CJ & Schwartz-Ziv, M 2019, "Blockholder heterogeneity, multiple blocks, and the dance between blockholders", *The Review of Financial Studies*, Forthcoming.
- Helwege, J, Pirinsky, C & Stulz, RM 2007, "Why do firms become widely held? An analysis of the dynamics of corporate ownership", *The Journal of Finance*, vol. 62, no. 3, pp. 995-1028.
- Hessayri, M & Saihi, M 2018, "Ownership dynamics around IFRS adoption: emerging markets context", *Journal of Accounting in Emerging Economies*, vol. 8, no.1, pp. 2-28.
- Himmelberg, CP, Hubbard, RG & Palia, D 1999, "Understanding the determinants of managerial ownership and the link between ownership and performance", *Journal of Financial Economics*, vol. 53, no. 3, pp. 353-384.

- Holderness, CG 2009, "The myth of diffuse ownership in the United States", *The Review of Financial Studies*, vol. 22, no. 4, pp. 1377-1408.
- Hooy, C & Hooy, G 2017, "The Impact of Corporate Governance Reform on Firms' Control Mechanisms and Performance: Evidences from Malaysia", *International Journal of Economics & Management*, vol. 11, no. 1, pp. 205-224.
- Kang, JK, Luo, J & Na, HS 2018, "Are institutional investors with multiple blockholdings effective monitors?", *Journal of Financial Economics*, vol. 128, no. 3, pp. 576-602.
- Kaplan, SN & Zingales, L 1997, "Do investment-cash flow sensitivities provide useful measures of financing constraints?", *The Quarterly Journal of Economics*, vol. 112, no. 1, pp. 169-215.
- Petersen, MA 2009, "Estimating standard errors in finance panel data sets: Comparing approaches", *The Review of Financial Studies*, vol. 22, no. 1, pp. 435-480.
- Rossetto S & Stagliano, R 2012, "The existence of blockholders and corporate governance, empirical evidence from U.S.", *SSRN Library*.
- Shleifer, A & Vishny, RW 1986, "Large shareholders and corporate control", *Journal of Political Economy*, vol. 94, no. 3, pp. 461-488.
- Volkova, E 2018, "Blockholders diversity: Effect of polyphony on the power of monitoring", *SSRN Library*.