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Research Paper

Block Heterogeneity and Korean Firm Value: Chaebol vs. Non-Chaebol

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Abstract

This study investigates the effect of block heterogeneity on corporate value in publicly-listed Korean companies during 2010-19. This study also examines whether there is a difference in the effect of blocks heterogeneity on Chaebol companies and non-Chaebol companies. We use block identities, portfolio sizes, and investment horizons as measures for blocks heterogeneity. We also use Tobin's Q as a proxy for corporate value. The results show that there is a significant positive relationship between blocks heterogeneity and company value. This study also shows that blocks heterogeneity has a stronger influence on non-Chaebol companies than Chaebol companies. This means that there is a difference between Chaebol companies and non-Chaebol companies in the effect of block heterogeneity on firm value. This suggests that there will be both synergies and diversity benefits among blocks of non-Chaebol companies rather than Chaebol companies in the Korean stock market. This study is meaningful in that this study provides investors and business practitioners with information on the relationship between block heterogeneity and company value.

Keywords: Block heterogeneity, Firm value, Ownership, Governance, Chaebol and non-Chaebol firm, Blockholder.

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Introduction

Blockholders are defined as shareholders who hold 5% or more of the total stake (Dlugosz et al., 2006). In Korea's capital market law, the major shareholders are classified into the largest and major shareholders. The largest shareholder is defined as the one who owns the most voting rights of a company. The major shareholders are classified into four categories based on the stocks that the company has voting rights (Article 9 of the Capital Markets Act). Therefore, the major shareholders used in this study are slightly different from the concepts of major shareholders who used in the Capital Markets Act. Block owners are widely used by many domestic and foreign prior studies to distinguish the block types, behavior, competition for control, and heterogeneity. There are many blocks with different personalities within Korean companies. In Korea, there is a growing interest in heterogeneity among blocks. The major blocks of Korean public companies are classified into a family such as affiliated persons and affiliates, non-family members, foreigners, and institutional investors. These blocks are not identical and heterogeneous in terms of identities, portfolio size, and investment horizon.

The prior studies are largely classified into two categories in ownership /governance structure. First, they focus on the effect of 1st block holdings on the company value (or performance). For example, some studies analyze the relationship between the 1st block holdings and firm performance, the total holdings of all blocks and firm value, and the possibility of competition among blocks and the firm value. Second, some studies analyze the effect of blocks differs from each other. For example, large shareholders influence company value differently, hedge funds play a special role in the monitoring activities of large shareholders, companies with diversified large shareholders prefer riskier investments than those that do not, and blocks are the major factor in determining company monitoring activities.

Prior studies mainly focused on the relationship between ownership of major shareholders and company value. However, as interest in the diversity of blocks has increased, research on the relationship between block heterogeneity and company value is needed. As a subject of this study, prior studies have contradictory views on the relationship between block heterogeneity and company value. One view is that the benefits of block heterogeneity have a positive effect on company value. The other is that it causes a negative influence on corporate performance in terms of the cost of a diversity of blocks.

The purpose of this study is to investigate whether block heterogeneity has a positive or negative effect on Korean public companies. Unlike developed countries such as the United States, Korean companies are divided into Chaebol and non-Chaebol companies. We examine whether the effect of block heterogeneity on company value is different between Chaebol and non-Chaebol companies. This study presents new findings and the following contributions. First, prior studies have focused on the relationship between company value and block holdings or the existence of blocks. However, few studies have analyzed the effect of block heterogeneity on company value. Second, Volkova (2018) analyze the relationship between block diversity and company value for the U.S. public companies from 1995-2014. As a proxy variable for block heterogeneity, he uses three factors: block identities, portfolio size, and investment horizon. Volkova (2018) categorizes block identities into four categories:

(i) financial institutions, (ii) individuals, (iii) activist investors, and (iv) others. However, ownership of Korea's public company is different from that of countries such as U.S. public companies. Therefore, this study is differentiated in that the majority blocks are divided into (i) family such as affiliated or affiliated persons and affiliates, (ii) non-family, (iii) foreigners, and (iv) institutional investors. Third, this study analyses the difference between Chaebol companies and non-Chaebol companies in the effect of block heterogeneity on company value.

Literature Review

The Relationship between Block Heterogeneity and Company Value

In this chapter, we look at previous studies on the relationship between major shareholders and company value. We seek theoretical and empirical grounds for establishing an empirical analysis model through prior studies. First, there is a study on the effect of the actions of large shareholders on companies. One is that major shareholders can exert influence on governance through direct intervention (Shleifer and Vishny, 1986; Admati et al., 1994). The other is that major shareholders can influence management through the threat of exit (Admati and Pfeiderer, 2009; Bharath et al., 2013; Edmans, 2009). The rest is that U.S. companies have less than 10% of the total number of companies that have only one major block, and most U.S. companies have multiple major blocks, and the interaction between major blocks can control management (Crane et al., 2015).

Second, there are studies on the effect of the characteristics of ownership (or some shareholders) on company value. For example, previous studies have shown that there is a positive (+) relationship between the concentration of blocks and firm value (Konijn et al., 2011). They also have shown that the positive (+) relationship between the existence of the second block and company value (Laeven and Levine, 2007). The presence of a large number of blocks (i) changes in dividend payments (Faccio et al., 2001), (ii) increased risk-taking (Mishra, 2011), (iii) a high level of shareholder protection (Barroso Casado et al., 2016). When there are more diverse major shareholders within a company, the major shareholders can share highly interrelated information. Thus, major shareholders can try different ways to exert greater influence within the company. However, if there are various major shareholders within a company, the major shareholders may have various objections about the company's growth and development strategy. The more diversified the group of major shareholders, the greater the difficulty in adjusting the major shareholders can become. Therefore, control of the governance structure may weaken due to the presence of various major shareholders.

Third, recent literature has examined the effects of multiple financial blocks/ shareholders on both firm performance and governance. He and Huang (2017) show that diversity in director ownership incentives has a negative impact on firm value. Lewellen and Lowry (2019) show that the impacts that some literature has attributed to common ownership are caused by other factors. They find little robust evidence that common ownership affects firm behavior. Schwartz-Ziv and Volkova (2021) show that diversity among large shareholders (i.e., blockholders) is detrimental to firm performance.

Hypothesis Development

We consider two aspects about the influence of block heterogeneity on company value. One is the positive aspect of the company value due to heterogeneity benefits. The other is the negative aspect of the company value due to the heterogeneity cost.

We consider synergies, level of expertise, and valuation aspects of the positive impact of heterogeneity among blocks on company value. First, block heterogeneity can have a positive effect on company value due to synergies. The organizational behavioral literature argues that heterogeneous groups of agents have a greater advantage in problem-solving. For example, Hoffman and Maier (1961) argue that heterogeneous groups of agents have higher company performance than homogeneous groups of agents. Hong and Page (2004) show that the heterogeneous group of agents is superior to the homogeneous group in problem-solving abilities. Dhillon and Rossetto (2014) argue that heterogeneous blocks can cross-monitor each other's actions and thereby decrease potential negative influence.

Second, blocks in more heterogeneous groups are likely to have greater variance in their levels of expertise. For example, passive mutual funds can impact management through private communication. In addition, some individual blocks have expertise in the ability to collect information about a company. As a result, various block groups both can share more information and have more expertise in monitoring companies. A variety of blocks can strengthen governance control. For example, Appel et al. (2016) report that passive institutional investors play an important role in governance choices. Third, heterogeneous blocks can also vary in the valuation of a company. Miller (1977) argues that the higher heterogeneity of blocks in evaluating company value, the more advantageous they can take a short position. Chen et al. (2002) and Diether et al. (2002) report that the heterogeneity of blocks has a positive effect on company value in terms of both analyst disagreement and mutual fund position.

It is a cost perspective of heterogeneity that blocks heterogeneity negatively impacts company value. This view is explained via three main channels: Conflict of interest between blocks, difficulties of coordination/communication between them, and "exit" mechanisms. The heterogeneity among large shareholders means that they will be diverse in their beliefs, capabilities, and preferences. Blocks' views may vary as to which projects should be undertaken or whether new policies should be adopted. For example, managers of public pension funds prefer to invest in R&D, while managers of investment funds prefer M&A (Hoskisson et al., 2002). Second, obstacles to coordination among various blocks deteriorate corporate monitoring activities. When there are many types of major blocks, the possibility of cooperation is reduced (Laeven and Levine, 2007), and closely linked group investors have a greater opportunity to improve corporate governance (Crane et al., 2015). The problem of coordination among blocks can arise even within the same investors. Huang (2011) reports that communication gradually increases as institutional investors' monitoring activities become easier. Third, the higher the homogeneity of major blocks, the more likely they are to choose the same "exit" strategy. Edmans and Manso (2010) argue that the "exit" strategy strengthens corporate governance. Kandel et al. (2011) report that investors with homogeneity (e.g: age, wealth, and location) are more profitable. Adams et al. (2018) report that company performance increases when board members have high

commonalities. Knyazeva et al. (2009) also show that board heterogeneity negatively affects company value.

As discussed above, there are different views on the effect of block heterogeneity on company value. We expect block heterogeneity to have a positive impact on company value in terms of block' problem-solving ability, synergies through monitoring activities, and expertise in controlling governance through information-gathering capabilities. This is because the family is the largest block in Korea's ownership/governance structure. Family blocks can quickly solve problems, collect information, and are more likely to control governance. Therefore, the following hypothesis is established.

H1 There is a positive relationship between block heterogeneity and company value.

Chaebol companies have not only driven the rapid growth of the Korean economy in the past but also occupied a very important part in the Korean economy. In 2001-11, the top five Chaebols (Samsung, Hyundai Motors, SK, LG, and Lotte) accounted for 49% to 61% of Korea's total GDP, respectively. In 2012, the total assets of the top 10 companies accounted for 84% of Korea's total GDP. Unlike non-Chaebol companies, Chaebol companies both have relatively small ownership and exert strong control over the entire affiliated companies. According to previous studies, the total number of Chaebol companies properly utilizes the stocks of affiliated companies to exercise control over the entire business group. In addition, the Tycoon(chairman) of the Chaebol is also used as a means to send signals about the company value to external stakeholders or to defend management control rights. Chaebol companies also differ from non-chaebol companies in their management decision-making behavior. Since Chaebol companies have an owner of the group Tycoon, the CEO is bound to be influenced by the Tycoon's decision-making. In chaebol companies, the higher the controlling shareholder value, the higher Tobin’s Q. However, previous studies report that EBITDA, which indicates short-term business performance, decreases. In the case of Chaebol companies, it can be inferred that CEO decision-making is induced in the direction of increasing firm value from a long-term perspective rather than short-term corporate performance. In this way, there is a difference between Chaebol and non-Chaebol companies in both ownership structure and management decision-making. There will be a difference in the impact of block heterogeneity on Chaebol and non-Chaebol firms. Therefore, the following hypothesis is established.

H2 There is a difference between Chaebol and non-Chaebol firms in the influence of block Heterogeneity on company value.

Methodology

Sample and Data Collection

This study collects samples from January 1, 2010, to December 31, 2019. We use the following criteria to construct our sample:

1. Shares of the company are traded on both KOSPI and KOSDAQ exchanges.
2. We use the following variables in my analysis: (i) both number and price of shares at the year-end; (ii) sales; (iii) total assets; (iv) tangible assets; (v) Tobin’s Q.

3. We exclude companies in the finance industries.
4. We include companies with two or more blocks within the company.
1. We obtain not only the financial data but also the ownership structure related to the block from TS-2000 of KOCinfo. We also obtain stock price data from KIS Value II of Korea Credit Rating Co., Ltd.

Table 1 shows the annual companies-year status of the sample company. Of the total samples, 655 observations-years belong to Chaebol, and 2,014 observations-years belong to non-Chaebol. The total number of observations-years is 2,669.

Table 1: Sample

Year	Total	Chaebol	non-Chaebol
2010	276	58	218
2011	271	58	213
2012	265	65	200
2013	265	66	199
2014	274	66	208
2015	274	71	203
2016	281	71	210
2017	265	66	199
2018	258	67	191
2019	240	67	173
Total	2,669	655	2014

Model and Variables Measures

We analyze using panel regression analysis based on panel data. To analyze the impact of block heterogeneity on company value, we use a multivariable regression defined by the following equation (1) by referring to Volkova (2018).

$$TQ_{i,t}=\alpha_0+\beta_1 BD_{i,t}+\beta_2 BH_{i,t}+\beta_3 X_{i,t}+\mu_t+\lambda_t+\varepsilon_{it} \quad (1)$$

Where $TQ_{i,t}$ is Tobin's Q of firm i in a year t, $BD_{i,t}$ corresponds to one out of three heterogeneity measures: blocks' identities, portfolio size, and investment horizon. $BH_{i,t}$ is the percent of stocks outstanding controlled by all blocks. $X_{i,t}$ is a set of firm-specific controls. μ and λ correspond to firm characteristic effect and time characteristic effect. We control for the aggregate level of institutional holdings to separate its influence from the effect of block ownership. According to Volkova (2018), other firm-specific controls use sales growth, firm size, tangible assets, leverage, and Amihud's (2002) illiquidity.

We use Tobin Q as a proxy for company value (Morck et al., 1988; Yermack, 1996; Kaplan and Zingales, 1997; Gompers et al., 2003). This study measures Tobin Q as shown in Equation (2).

$$\text{Tobin's Q} = MVA/BVA \quad (2)$$

Where *MVA* means the market value of assets (=book value of assets + market value of equity - market value of equity), *BVA* means book value of assets.

We use the block heterogeneity scale used by Blau (1977) and Volkova (2018). Equation (3) is a formula for measuring block heterogeneity. The value of block heterogeneity will be between 0 and 1. If the value of block heterogeneity is close to 1, it means that block heterogeneity is high. The closer the value of block heterogeneity to zero, the lower the block heterogeneity.

$$BD_c = 1 - \sum_{k=1}^{N_c} \left(\frac{H_{k,c}}{BH}\right)^2 \quad (3)$$

Where BD_c is one of three heterogeneity measures (c $\in$ {identities, portfolio size, investment horizon}), N_c is the number of groups in component c, $H_{k,c}$ is a percent of stocks outstanding controlled by the group k. BH is a percent of stocks outstanding controlled by all blocks in a company.

The block identity (HI) is measured as shown in Equation (4). Volkova (2018) identifies four types of blocks of U.S. companies according to Barclay and Holden (1989): (i) financial institutions, (ii) individuals, (iii) activist investors, and (iv) others. However, blocks identity of the Korean public company is different from that of the U.S. public company. For example, the 1st block in the U.S. public companies is an institutional investor (Volkova, 2018). However, 1st block is a family block including affiliated persons and affiliates in Korean public companies. Therefore, we classify blocks as family, non-family, foreigners, and institutional investors.

$$HI = 1 - \sum_{k=1}^{4} \left(\frac{H_k}{BH}\right)^2 \square \quad (4)$$

Where H_1, H_2, H_3, H_4 is family, non-family, foreigners, and institutional investors, respectively.

Blocks' portfolio size (HS) is measured as shown in Equation (5). The reason for using block portfolio size is that block portfolio size affects both diversification preferences (Facio et al., 2001) and surveillance activities (Edmans et al., 2016).

$$HS = 1 - \sum_{k=1}^{4} \left(\frac{H_k}{BH}\right)^2 < \square \quad (5)$$

Where H_1, H_2, H_3, H_4 is a block holding of 1st, 2nd, 3rd, and 4th. We use weighted average portfolio share turnover as a proxy for the block investment horizon (HH). The investment horizon is measured as shown in Equation (6). Investment horizon is used because investors with different horizons vary in both investment and dividend policy (Derien et al., 2013), views on acquisitions (Gaspar et al., 2005), and monitoring styles (Chen et al., 2007; Galagher et al., 2013).

$$HH = 1 - \sum_{k=1}^{4} \left(\frac{H_k}{BH}\right)^2 < \quad (6)$$

Where H_1, H_2, H_3, H_4 are the holdings of each portfolio turnover. To measure the investment horizon among blocks, this study uses portfolio stock turnover. Portfolio stock turnover is calculated as a weighted average of the absolute changes in all block' positions. The turnover of each block is measured as shown in Equation (7).

$$Turnover_{i,t} = \frac{\sum_{i=1}^{n} M_{j,t} \cdot |B_{i,j,t} - B_{i,j,t-1}|}{\frac{1}{2} \cdot \sum_{i=1}^{N} (M_{j,t} \cdot B_{i,j,t} + M_{j,t-1} \cdot B_{i,j,t-1})} \quad (7)$$

Where $Turnover_{i,t}$ is a turnover measure of block i in the year t, that holds N blocks, $M_{j,t}$ is a market capitalization of company j in the year t, $B_{i,j,t}$ is the percent of shares outstanding controlled by block i in the company j at the end of the year t.

We use the percent of stocks outstanding controlled by all blocks as a proxy for the ownership. Prior studies show that there is no consistent link between the percent of shares outstanding controlled by all blocks and company value. However, Volkova (2018) reports that there is a negative relationship between the percent of shares outstanding controlled by all blocks and company value. This study uses control variables as institutional holdings, sales growth, firm size, tangible asset, leverage, and Amihud's (2002) illiquidity (Dhilon and Rossetto, 2015). An institutional block means an investor with a stake of more than 5% in banks, securities, insurance, and national pensions within a company. We expect to show a positive (+) relationship between institutional holdings and company value (Volkova, 2018).

Sales growth is measured by $[(sales_t - sales_{t-1})/sales_{t-1}]$. If the sales growth is high, the company's performance will be higher due to the high growth potential. Firm size is measured by ln (total assets, million won). Prior studies show that there are mixed results between firm size and company value. As Volkova's (2018) results, we expect that the larger the firm size, the higher its performance. Tangible assets are measured by the ratio of tangible assets to total assets. We expected to show a positive relationship between tangible assets and company value (Volkova, 2018). Leverage is measured by the ratio of debt to equity. Prior studies do not show a consistent view between leverage and company value. We use Amihud's (2002) illiquidity as a proxy for market liquidity (Equation 8). Amihud's (2002) illiquidity is defined as the annual average of $10^9 \times$ (ratio weekly(d) absolute return to volume measured by weekly(d) trade amount). We expect to show a negative relationship between Amihud's (2002) liquidity and company value (Fang et al., 2009).

$$AL_{it} = \frac{1}{D_{it}} \sum_{d=1}^{D_{it}} \frac{|Return_{idt}|}{TradAmt_{idt}} \times 10^9 \quad (8)$$

Where $|Return_{idt}|$ i s weekly(d) absolute return over of firm i, $TradAmt_{idt}$ is weekly(d) trade amount over t of firm i.

Results

Descriptive

Table 2 shows both the results of descriptive statistics and the t-test excluding companies with fewer than two blocks.

The Average (median) of Tobin's Q was 1.1458 (0.9635), which is slightly smaller than the 2.025 (1.494) of US public companies analyzed by Volkava (2018). The average (median) of blocks' identities (HI) is 51.30% (51.81%), which is slightly larger than 34.4% (40.9%) of US public companies. The average (median) of the portfolio size

(HS) is 50.18% (45.42%), which is also larger than the 4.3% (4.8%) of US public companies. However, the average (median) investment horizon (HH) is 7.58% (3.15%), which is much smaller than the 48.3% (50.0%) of US public companies. The average (median) of the block holdings is 52.50% (52.50%), which is higher than 34.6% (31.5%) of US public companies. However, the average (median) of institutional holdings is 5.80% (2.59%), which is much smaller than the 53.7% (59.9%) of US companies. This suggests that Korean companies have a relatively smaller proportion of institutional investors than U.S. public companies. The average sales growth, firm size, and tangible assets are 4.5%, 13.1324, and 28.6%, respectively, which are asymmetrical distributions greater than the median 2.80%, 12.8526, and 27.82%. The average leverage is 98.26%, which is higher than 21.0% of US companies. The average of Amihud's (2002) Illiquidity is 16.56%, which has a larger asymmetric distribution than the median of 2.23%. All variables in my sample are winsorized at the 1% level from the top to the bottom.

Table 2: Descriptive Statistics and T-test

Variables	Total		Chaebol(a) (n=655)		Non-Chaebol(b) (n=2014)		Mean Difference	t-value
	Mean	Median	Mean	Median	Mean	Median	(b-a)	
TQ	1.1458	0.9635	1.2009	1.0373	1.1279	0.9389	-0.073	-2.428**
HI	0.513	0.5181	0.5399	0.5733	0.5042	0.5017	-0.0357	-5.610***
HS	0.5018	0.4542	0.5296	0.4919	0.4928	0.4434	-0.0368	-3.478***
HH	0.0758	0.0315	0.0635	0.0272	0.0798	0.0332	0.0163	2.897***
BH	0.525	0.525	0.4965	0.4765	0.5343	0.5396	0.0378	5.757***
IH	0.058	0.0259	0.0726	0.0499	0.0532	0.0113	-0.0194	-5.374***
SG	0.0455	0.028	0.0352	0.0284	0.0489	0.028	0.0137	1.403
FS	13.1324	12.8523	14.9073	14.9377	12.5552	12.5172	-2.3521	-44.328***
TA	0.2866	0.2782	0.2639	0.2694	0.294	0.2796	0.0301	3.714***
LV	0.9826	0.6329	1.2686	0.8492	0.8896	0.5782	-0.379	-6.961***
AL	0.1656	0.0223	0.0777	0.0021	0.1942	0.0342	0.1165	4.568***

Note: TQ=Tobin's Q, HI=Blocks' Identities, HS=Portfolio Size, HH=Investment Horizon, BH=Block Holdings, IH=Institutional Holdings, SG=Sales Growth, FS=Firm Size, TA=Tangible Asset, LV=Leverage, AL=Amihud's (2002) Illiquidity. ***, ** indicate significance at the 1%, 5% level. All variables are winsorized at the top to bottom 1 percentile to mitigate the impact of outliers.

As a result of the difference test between Chaebol and non-Chaebol companies, the average Tobin's Q (1.1279) of non-Chaebol companies is significantly smaller than that of Chaebol companies (1.2009). Blocks' identities (53.99%) and portfolio size (52.96%) of Chaebol companies are larger than non-Chaebol blocks' identities (50.42%) and portfolio size (49.28%). However, the investment horizon (6.35%) of Chaebol companies is significantly smaller than that of non-Chaebol companies (7.98%). Chaebol companies' block holdings (BH), tangible assets (TA), and Amihud's (2002) illiquidity (AL) are significantly less than those of non-Chaebol companies. However, Chaebol companies' institutional holdings (IH), firm size (FS), and leverage (LV) are significantly greater than those of non-Chaebol companies. This suggests that there is a difference between Chaebol companies and non-Chaebol companies in the influence of block heterogeneity on company value.

Correlation Matrix and VIF

<Table 3> shows the correlation among variables as Pearson's correlation coefficient. First, there is a significant positive correlation at the 1% level between Tobin's Q (TQ) and blocks identities (HI), portfolio size (HS), investment horizon (HH). Block holdings (BH) have a significant negative correlation with Tobin's Q at the 1% level. The sales growth (SG) has a significantly positive (+) correlation with Tobin's Q at the 1% level. There is a significantly negative correlation between the tangible assets (TA) or Amihud's (2002) illiquidity (AL) and Tobin's Q. There is a significantly positive (+) correlation among the three measures of block heterogeneity at the 1% significance level. This study shows that there is a mixture of cases where there is no significant correlation among the control variables. However, even in the latter case, the absolute value of the correlation coefficient does not exceed 0.5. As a result of measuring the coefficient of VIF for the regression coefficient, the value of blocks' identities (HI) is 4.20. However, the maximum value of VIF is statistically much smaller than 10, which is determined by the criterion of multicollinearity. Therefore, we are not concerned about the multicollinearity problem that often occurs in regression analysis.

Table 3: Correlation Matrix and Multicollinearity

	TQ	HI	HS	HH	BH	IH	SG	FS	TA	LV	AL	VIFs
TQ	1											
HI	0.145**	1										4.20
HS	0.138**	0.303**	1									1.48
HH	0.139**	0.116**	0.182**	1								1.11
BH	-0.145**	-0.848**	-0.223**	-0.164**	1							3.73
IH	0.030	-0.172**	0.404**	0.159**	0.096**	1						1.48
SG	0.109**	-0.023	0.002	0.040*	0.015	0.001	1					1.10
FS	0.027	0.091**	0.068**	-0.068**	-0.068**	0.140**	-0.005	1				1.13
TA	-0.119**	0.044*	0.029	-0.022	-0.010	-0.005	-0.020	-0.031	1			1.05
LV	-0.032	0.008	0.123**	0.140**	-0.015	0.235**	0.024	0.133**	0.136**	1		1.25
AL	-0.126**	-0.088**	-0.055**	-0.053**	0.095**	-0.053**	-0.026	-0.183**	0.053**	0.013	1	1.06

Note: TQ=Tobin's Q, HI=Block' Identities, HS=Portfolio Size, HH=Investment Horizon, BH=Block Holdings, IH=Institutional Holdings, SG=Sales Growth, FS=Firm Size, TA=Tangible Asset, LV=Leverage, AL=Amihud (2002) Illiquidity. This table presents the Pearson correlation matrix for all variables. **, * indicate significance at the 1%, 5% level.

The Effect of Block Heterogeneity on Company Value: Total Firms

In this section, we analyze the influence of block heterogeneity on company value using the analysis model. Table 4 shows the relationship between company value and heterogeneity among company blocks. Models 1-3 of Table 4 shows the results of the analysis using the OLS model. Models 4-6 of Table 4 also shows the results of analysis using the fixed-effects model of panel regressions. As a proxy variable for block heterogeneity, Models 1 and 4 use blocks' identities, Models 2 and 4 use the portfolio size of blocks, and Models 3 and 6 use investment horizon. The model's fit is significant at the 1% level for all models. The panel regression model is applied through statistical testing procedures such as the Lagrangian multiplier test and the Hausman test in Models 4-6. Through the Lagrangian multiplier test, the corporate characteristic effect and the time characteristic effect exist significantly at the 1% level. The Hausman test

confirms that the fixed-effects model is more significant at the 1% level than the probability-effects model.

Models 1 and 4 show the results of the regression of company value on diversity in the blocks' identity. The results show that block identity has a significant positive (+) effect on company value at the 1% level (regression coefficient = 0.546, 0.588, t-value = 2.66, 3.27, respectively). It can be seen that block identity has a positive effect on company value. Models 2 and 5 show a significant positive link between the value of the company and heterogeneity in the size of the blockholder portfolio (regression coefficient=0.311, 0.333, t-value=5.44, 4.49, respectively). This means that the portfolio size of the blocks has a positive effect on company value. Models 3 and 6 also show a significant positive link between the value of the company and heterogeneity in his investment horizon (regression coefficient = 0.586, 0.404, t-value = 4.38, 5.65, respectively). This means that the heterogeneity of block investment horizon has a positive effect on company value.

Table 4: The Effect of Block Heterogeneity on Company Value: Total Sample

Variables	Expect Sign	OLS			Fixed Effect Model		
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Block Holdings	(-)	-0.211 (-1.20)	-0.512*** (-5.23)	-0.560*** (-5.87)	0.059 -0.33	-0.476*** (-3.50)	-0.341** (-2.58)
Institutional Holdings	(+)	0.478*** -3.03	-0.03 (-0.19)	0.233 -1.53	0.693*** -3.81	0.169 -0.9	0.499*** -2.89
Sales Growth	(+)	0.334*** -4.12	0.329*** -4.1	0.318*** -3.97	0.181*** -4.68	0.185*** -4.8	0.167*** -4.35
Firm Size	(-)	-0.005 (-0.62)	-0.002 (-0.25)	0.003 -0.42	-0.098*** (-2.69)	-0.098*** (-2.70)	-0.083** (-2.31)
Tangible Assets	(+)	-0.420*** (-6.08)	-0.415*** (-6.06)	-0.388*** (-5.70)	0.09 -0.77	0.072 -0.61	0.1 -0.86
Leverage	(-)	-0.017** (-2.50)	-0.018*** (-2.62)	-0.024*** (-3.31)	-0.015 (-1.18)	-0.014 (-1.10)	-0.012 (-0.93)
Amihud Illiquidity	(-)	-0.119*** (-8.14)	-0.119*** (-8.02)	-0.114*** (-8.04)	-0.035** (-2.02)	-0.035** (-2.04)	-0.034** (-2.00)
Heterogeneity Identity	(+)	0.546*** -2.66			0.588*** -3.27		
Heterogeneity Size	(+)		0.331*** -5.44			0.333*** -4.49	
Heterogeneity Horizon	(+)			0.586*** -4.38			0.404*** -5.65
Constant		1.157*** -5.07	1.419*** -10.17	1.477*** -11.55	1.986*** -4.08	2.434*** -5.17	2.279*** -4.85
Year FE					Yes		
Observations					2669		
R^2		0.0639	0.0707	0.0712	0.0641	0.0681	0.073
F-value		24.06***	25.96***	27.31***	8.82***	9.42***	10.15***
Lagrange multiplier test					3815.56***	3826.26***	3832.06***
Hausman test					39.70***	109.09***	32.82***

Note: t-value is shown in parenthesis. ***, **, * indicate significance at the 1%, 5%, 10% levels, respectively.

In summary, partial correlations indicate a positive relationship between three different measures of block heterogeneity and company value. This is consistent with the hypothesis that block heterogeneity has a positive effect on company value (Hypothesis 1: Adoption). This result support both blockholders' heterogeneity preferences in risk-

taking and different interests. This reason is the different block sizes they hold may lead to cross-monitoring or to synergies. However, the results of this study contradict the findings of Volkova (2018) and Schwartz-Ziv and Volkova (2021) who block diversity has a strong negative influence on the U.S. public companies' value. It seems that the benefits of heterogeneity exist in Korean public companies. Heterogeneity among blocks can have a synergistic impact on the effectiveness of Korean public companies. Blocks in more diverse groups both tend to possess more information and have more potential expertise in monitoring the management. Diversity blocks can also vary in their valuation of the Korean public companies.

The effects of control factors on company value are as follows. Excluding Models 1 and 4, the other models show a significant negative link between the value of the company and block holdings. This means that the block holdings have a negative impact on company value. In the remaining models excepting for Model 2, Models 3 and 5, there is a positive relationship between institutional block holdings and company value. This means that institutional investors have a positive impact on company value. The results show that there is a positive relationship between sales growth and company value. In Models 4, 5, and 6, the results show that there is a negative relationship between firm size and company value. In Models 1, 2, and 3, there was a significantly negative (-) relationship between the tangible assets/leverage and company value. As expected, there is also a negative relationship between Amihud's (2002) illiquidity and company value.

The Effect of Block Heterogeneity on Firm Value: Chaebol vs. non-Chaebol Companies

Table 5 explores the influence of block heterogeneity on both Chaebol companies and non-Chaebol companies. All models of Table 5 shows that block heterogeneity has a significantly positive (+) effect on Tobin's Q for both Chaebol companies and non-Chaebol companies. However, the block heterogeneity coefficients (0.410, 0.318, 0.215) of Chaebol companies are significantly smaller than the block heterogeneity coefficients (0.798, 0.326, 0.448) of non-Chaebol companies. This means that Chaebol companies are much less sensitive to the influence of block heterogeneity on company value than non-Chaebol firms. This seems to be because both Chaebol companies own Tycoon (chairman) and their internal ownership structure are different from that of non-Chaebol companies. Therefore, Q's sensitivity to block heterogeneity decreases by the presence of Tycoon in the Chaebol. However, non-Chaebol companies are more sensitive to the impact of block diversity than Chaebol companies.

Table 5: The Effect of Block Heterogeneity on Company Value: Chaebol Company vs. Non-Chaebol Company

Variables	Expect Sign	Chaebol			Non-Chaebol		
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Block Holdings	(-)	-0.015 (-0.07)	-0.476** (-2.52)	-0.317* (-1.76)	0.35 -1.3	-0.360** (-2.50)	-0.236 (-1.38)
Institutional Holdings	(+)	0.545** -2.28	0.108 -0.46	0.409* -1.85	0.816*** -3.45	0.226 -0.9	0.558** -2.45
Sales Growth	(+)	0.234*** -3.55	0.228*** -3.48	0.229*** -3.46	0.173*** -3.83	0.179*** -3.94	0.156*** -3.46
Firm Size	(-)	-0.04 (-0.74)	-0.046 (-0.86)	-0.027 (-0.51)	-0.148*** (-3.16)	-0.141*** (-3.00)	-0.128*** (-2.75)
Tangible Assets	(+)	0.081 -0.44	0.038 -0.21	0.078 -0.43	0.103 -0.72	0.09 -0.63	0.103 -0.73
Leverage	(-)	-0.016 (-1.13)	-0.02 (-1.38)	-0.019 (-1.34)	-0.022 (-1.27)	-0.017 (-0.97)	-0.012 (-0.70)
Amihud Illiquidity	(-)	-0.068* (-1.96)	-0.068** (-1.98)	-0.070** (-2.02)	-0.021 (-1.05)	-0.022 (-1.12)	-0.02 (-1.04)
Heterogeneity Identity	(+)	0.410* -1.77			0.798*** -3.48		
Heterogeneity Size	(+)		0.318* -1.89			0.326*** -3.54	
Heterogeneity Horizon	(+)			0.215* -1.79			0.448*** -5.29
Constant		1.685** -2.15	2.098*** -2.69	1.858** -2.38	2.230*** -3.7	2.761*** -3.54	2.639*** -4.55
Year FE		Yes					
Observations		655			2014		
R^2		0.1621	0.1617	0.1622	0.0851	0.0853	0.0822
F-value		6.28***	6.73***	6.29***	8.83***	6.73***	6.29***
Lagrange multiplier test		1494.45***	1525.39***	1508.22***	2518.20***	2519.71***	2518.34***
Hausman test		31.44***	41.71***	40.09***	57.46***	46.39***	53.40***

Note: t-value is shown in parenthesis. ***, **, * indicate significance at the 1%, 5%, 10% levels, respectively.

Robustness Check

To reinforce the analysis results of this study, we make several robustness. First, we use these three variables to build an aggregate heterogeneity index, using these three variables (Volkova, 2018). This index is constructed as a first principal component analysis (PCA)of three previously defined variables.

Heterogeneity Index = PCA (Heterogeneity identity; Heterogeneity size; Heterogeneity horizon)

The resulting variable of the PCA explains the highest portion of the variance of three heterogeneity variables. They allow us to control for variation in all three measures at once. As a result of the analysis, PCA appeared to have a significant positive effect on Tobin's Q in both OLS and fixed effect models in Table 4 (OLS: coefficient = 0.073, t-value = 4.38; FE: coefficient = 0.050, t-value = 5.65). PCA appears to have a significant positive effect on Tobin's Q in the same way in both chaebol and non-chaebol companies in Table 5 (Chaebol: coefficient = 0.027, t-value = 1.79; non-Chaebol: coefficient = 0.056, t-value =5.29).

Second, we use Tobin's Q as a proxy for corporate performance. Tobin's Q reflects the market value. We additionally use both ROA and free cash flow as proxy variables for corporate performance. ROA reflects book value while free cash flow reflects cash flow. The results, although not shown here, show that the same sign (+) as in the case of using Tobin's Q as a dependent variable in the analysis of the entire company and Chaebol vs. non-Chaebol. However, both the regression coefficient and statistical significance is slightly changed.

Third, we analyze the system GMM using the lagged value of the differential variable as an additional tool variable as well as the level variable of the dependent variable (Arellano and Bover, 1995; Blundell and Bond, 1998) (panel analysis' command: xtabond2). The results show that heterogeneity identity had a significant positive effect on Tobin's Q (coefficient = 0.288, z-value = 1.96). Heterogeneity size had a significant positive effect on Tobin's Q (coefficient = 0.228, z-value = 2.10). Heterogeneity horizon have a significant positive effect on Tobin's Q (coefficient=0.229, z-value=4.24). We confirm that blocks heterogeneity had a significant positive effect on Tobin's Q in both Chaebol and non-chaebol firms.

Conclusion

This study analyzed the impact of block heterogeneity on company value in Korea-listed companies from 2010 to 2019. This study also examined whether there was a difference in the influence of block heterogeneity on Chaebol companies and non-Chaebol companies. We used three measures as blocks identity, portfolio sizes, and investment horizons as proxy variables for block heterogeneity. We used Tobin's Q as a proxy variable for company value.

We found that there was a positive relationship between the three measures of block heterogeneity and company value. This means that block heterogeneity has a positive influence on the value of Korean listing companies. This seemed to be due to the advantages of block heterogeneity within the company. The advantages of block heterogeneity are both blockholders' heterogeneity preferences (e.g., towards risk-taking) and different interests (e.g., due to the different block sizes they hold). These may lead to synergies or to cross-monitoring (e.g., Dhillon and Rossetto, 2014). We also found that three measures for block heterogeneity have a stronger influence on non-Chaebol than Chaebol companies. This means that there is a difference between Chaebol and non-Chaebol companies in the influence of block heterogeneity on firm value.

Implications for Asian Business

This study examines the influence of block heterogeneity on company value for Korean listing companies whose governance/ownership structure is different from that of the United States. In addition, we found that block heterogeneity has a stronger influence on non-Chaebol companies than Chaebol companies. This study presents a new perspective on governance/ownership structure compared to previous studies. This suggests implications for countries with similar governance/ownership structures to Korea.

The implications of our findings for Asian business can be summarized as follows. First, previous studies have analyzed the factors that determine the corporate performance of advanced companies like the U.S. They mainly analyze the relationship between ownership structure and corporate performance in empirical studies (Konijn et al., 2011; Laeven and Levine, 2008). They mainly used the ownership structure of the largest shareholder, institutional investor, and foreign investor. In addition, recent literature has investigated the impact of multiple financial shareholders/blocks on both firm performance and governance (He and Huang, 2017; Lewellen and Lowry, 2019; Schwartz-Ziv and Volkova, 2021). However, studies on the relationship between blocks heterogeneity and corporate performance have not been conducted in Asian companies. This study suggests that blocks heterogeneity can be a determinant of corporate performance. The possibility that blocks heterogeneity affects corporate performance can also be applied to Asian companies which are similar to those of Korea.

Second, unlike the results of Volkova's (2018), Schwartz-Ziv and Volkova's (2021) research on American companies, this study found that blocks heterogeneity has a positive effect on corporate performance. In other words, it is interpreted that the higher the block heterogeneity within the firm, the higher the firm's performance. These results show different possibilities for the relationship between block heterogeneity and corporate performance among developing countries such as Asia companies and developed countries such as the United States. This result support that both different interests due to the different block size they hold and blocks' heterogeneity preferences towards risk-taking may lead to cross-monitoring or to synergies. In particular, it suggests that Asian corporations like Korean companies can improve corporate performance through various governance structures, enhancing transparency, and improving governance structures.

Third, we examined the effects of blocks heterogeneity on corporate performance by separating them into Chaebol and non-Chaebol companies. In most Asian countries, there are Chaebols like Korea. For example, Ambani in India, Sun Hung Kai Properties in Hong Kong, and CP Group in Thailand (Bloomberg, 2020). The analysis results show that block heterogeneity in non-Chaebol firms has a more positive effect on corporate performance than Chaebol firms. It appears that Chaebol is still contributing to the company's performance. However, in the Korean corporate culture like Asian business, Chaebol appears to be passively responding to governance improvements (CLSA and ACGA, 2020). The results of this study seem to have implications for Asian companies similar to the ownership structures of Korean businesses.

Fourth, in addition to block heterogeneity, this study uses several variables in their impact on corporate performance: blockholder ownership, institutional investor ownership, sales growth rate, firm size, intangible asset, leverage, and Amihud's (2002) illiquidity. In general, the result shows that there was a positive (+) relationship between institutional investor ownership, sales growth rate and corporate performance. The result also shows that there was a negative relationship between blockholder ownership, firm size, intangible assets, leverage, Amihud's (2002) illiquidity ratio and corporate performance. The results of this study can provide a model for Asian companies in the determinants of corporate performance.

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