Research Article

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Foreign Investors and the Peer Effects to Payout Policies

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Abstract: This research studies the influence of foreign investors on payout policies and the peer effect of dividends. We show that peer effects on dividend policies exist in Korea using an instrumental variable approach. Additionally, our results suggest that foreign investor activities intensify the peer effect on dividend policies. Firms with a higher net purchase by foreign investors are more heavily scrutinized to reduce information asymmetry between managers and shareholders. This monitoring behavior affects dividend choices among firms and the responsiveness to peer influence. Further, the impact of foreign investors is prominent for dividend increases but not for decreases.

Keywords: peer effect, foreign investors, dividend policy, payout decision, international finance

JEL Classification: C31, D22, G35, F38

1 Introduction

Dividend payout policies are decided internally by assessing past, current, and future cash flows and profitability. In other words, firm fundamentals are important to decide dividends. However, some studies also show that an external factor also alters dividends, the peer effect (Adhikari & Agrawal, 2018; Brav et al., 2005; Grennan, 2019). Dividend payout affects a firm's stock prices, financing, and peers. Corporate decisions of peer firms, such as dividend policies, play a central role in determining each other's financing decisions. Capital structures and corporate governance are also affected by peer firms' performance and fiscal policies (Chen et al., 2019; Foucault & Frésard, 2014; Francis et al., 2016).

In this research, we investigate the peer effect of payout polices and the role of foreign investors. Our study seeks firm ownership features that intensify the peer effects of dividend payouts. Specifically, we focus on the role of foreign investors and the way that foreign investor activities affect payout policies. Foreign investors effectively monitor corporate governance and demand dividends (Baek et al., 2004; Jeon et al., 2011). As foreign shareholders intervene in dividend decisions, it is important to analyze how foreign investors and the peer effect interactively influence domestic payouts.

We hypothesize that firms with more foreign investor activities are more sensitive to peer firms changing dividend policies. Foreign investors who have a stronger preference for dividends take payout increases of other peer firms as an opportunity to request higher payouts. In addition, foreign investors have broad perspectives instead of focusing on one firm, and they demand higher dividends when other competing firms increase payouts. Morck (2000) also suggests that foreign institutions have a crucial role in monitoring firms as emerging markets integrate with the global economy. We find supporting evidence that foreign investors increase the magnitude of the peer effect for dividend increases.

We use the method presented in Grennan (2019) to identify and estimate peer effects using Korean firms. Peers are firms that share the same three-digit Korean Standard Industrial Classification code. Peer influence can be observed within this classification because firms with the same Standard Industrial Classification code share the same customers, market, material suppliers, and characteristics of managers and investors. We analyze how a firm's likelihood of altering dividends is influenced by its peer increasing or decreasing dividends.

This study contributes to the literature on the peer effects in corporate financial policies. We show that the peer influence in dividend policies is present in emerging financial markets such as Korea at the industry level. Furthermore, the role of foreign investors is imperative in understanding the channel through which peers

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impact payout policies. This study helps explain why peer influences differ by firms based on their foreign ownership level. Korea is an ideal testing ground for this study for three reasons.

First, Korean data allow us to test our hypothesis as it contains detailed information about foreign purchases and sales of each stock. Korean data are unique in that it shows how foreign ownership changes in a panel format. Although there are studies of foreign ownership using other countries, the data sets do not involve all the listed firms in the relevant market. Second, Korea is a geographically small country. Consequently, firms that share the same industry are close to one another geographically and competitively. This environment allows firms to easily observe each other's financial decisions and be exposed to peer effects. Third, Korean firms have different payout traditions than U.S. firms. In 2021, over 48% of U.S. firms paid out dividends, while only 33% of Korean firms paid out. Additionally, cases of dividend decreases are more prevalent in Korea. Because dividend policies are more flexible in Korea, we examine the factors that lead to such changes in corporate decisions and contribute to the literature by showing that peers influence dividends in both directions.

This article is organized as follows. Section 1 reviews related literature. Section 2 explains the data, variables, empirical specifications, and methodology. Section 3 reports the results, and the last section concludes the article.

2 Literature Review

2.1 Peer Effect and Payout Policies

Many studies show the peer effect of corporate financial policies (Brav et al., 2005; Lieberman & Asaba, 2006). There is a learning channel where smaller and newer firms mimic and learn from veteran firms that are better rated and more renowned. Firms mimic other rivals in dividend policy because they learn strategies from incumbent firms.

Chief executive officers send signals to show their competence and the financial stability of the firm (Deshmukh et al., 2013). Managers are also incentivized to compete with other rivals to force them to suffer from financial restraints (Scharfstein & Stein, 1990). Payouts may depend on competitiveness (Hoberg et al., 2014; MacKay & Phillips, 2005), where firms compete in the product and financial markets to attract investors. The peer effect on signaling occurs when firms without the intention to change corporate policies decide to do so to stand out for customers and investors. Large shareholders or institutional investors also monitor firm efficiency and may intervene in dividend payout policies (Shleifer & Vishny, 1986). Grinstein and Michaely (2005) hypothesized that institutional investors who possess superior informational backgrounds and experience exert their authority to achieve the optimal payout policies.

Firms that share a product market indirectly affect each other's characteristics, such as profit margins and stock returns. Additionally, studies show that financial decisions are made not only by internal factors but also by competitors' fiscal decisions that share the market. Firms especially mimic others with desirable credit ratings (Grennan, 2019).

There are two asymmetric sides of dividend payout decisions: payout increase and payout decrease. Grennan (2019) shows that the peer effect exists for dividend increases but not decreases. As the decisions to increase or decrease dividends are driven by different reasons and induce asymmetric consequences, peer influence plays an asymmetric role in such decisions. A dividend decrease is a strong negative signal that shows a firm's financial trouble (Dhillon & Johnson, 1994; Nissim & Ziv, 2001). In contrast, a dividend increase positively affects stock returns, albeit smaller than the negative effect of the decrease. Due to the asymmetry of response for dividend increases and decreases, the decision-making procedure also differs. Our study considers both dividend increases and decreases and finds that peer effect from dividends exists for both of them.

2.2 Ownership and Monitoring in Korea

The ownership structure is known to influence corporate governance. While Choe et al. (2005) point out that foreign investors have informational disadvantages over domestic investors, other researches show that foreign investors are more experienced and sophisticated when coming into developing financial markets. Jeon et al. (2011) show that foreign investors effectively monitor firms using a broad perspective and play a role in determining payout policies. As shareholders exercise their voting rights and actively monitor firm management, agency cost, and information asymmetry are reduced. Many studies find that institutional investors use their vast international experience to monitor more efficiently and objectively and thus improve corporate governance. The channel through which ownership structure enhances governance is dividend payouts. Dividend payout deters earnings management and enhances the accounting data quality

(Dechow & Ge, 2006; Deng et al., 2017; Dichev & Tang, 2009). Consequently, institutional investors prefer firms with dividend payouts and also exert their right to demand dividends. Short et al. (2002) find a positive association between institutional ownership and dividends using a U.K. data set.

More specially, foreign institutional investors play a significant role in monitoring with objectivity. This is important for corporations in Korea because the ownership structure is heavily concentrated (more so for Chaebol firms). Many studies find that family-controlled Chaebol firms show poor performance and lack corporate governance (Campbell & Keys, 2002). The entry of foreign investors alleviates this. Kang and Kim (2013) find that R2, which takes on lower values for lower informational asymmetry and better corporate governance, is negatively associated with payout policies. Furthermore, this relation is more substantial for non-Chaebol firms. Previous findings suggest that the influence of dividends in improving corporate governance depends on the ownership structure. In Korea, foreign institutional investors are expected to be objective and unbounded by local irregularities (e.g., ownership structures such as Chaebol). While many studies examine the relation between Chaebol and corporate governance (Kim & Lee, 2003; Kim et al., 2007), we focus on foreign investors and their role in increasing governance through payouts.

It has been shown that foreign investors prefer firms with specific characteristics beyond conventional profitability, tangibility, and solvency. Kim et al. (2010) show using Korean firms that foreign equity participation is positively related to firm's efforts for better governance. Jeon et al. (2011) show that foreign investors prefer firms with dividend payouts and that foreign owners play a role in influencing payout decisions once they have acquired voting rights. Kang et al. (2010) show that foreign investors impact corporate dividend policy while local institutional investors "play inadequate roles as stakeholders." Studies suggest that foreign investor and payout policies are linked through theories such as dividend clientele, adverse selection, and agency problems.

Overall, our main hypothesis is as follows:

H1: The degree of peer influence from other firms' dividend payouts will increase as monitoring by foreign investors increases.

3 Methodology

3.1 Data and Key Variables

This study uses two data sources: KOCOInfo's *TS2000* and FnGuide's *DataGuide*. *TS2000* provides annual financial statements from the Data Analysis, Retrieval, and Transfer System, monitored by the Financial Supervisory Service. Our sample period is from 2000 to 2018. This sample period was selected to disregard any influence of the dot-com boom. Firm characteristics, payout decisions, and the three-digit industry code of all public firms in Korea are acquired from firm financial statements. Quarterly financial information is limited, and since most Korean firms payout dividends annually, this study conducts yearly analysis.

DataGuide provides information regarding daily stock transactions, which we use to calculate idiosyncratic risk. Using firm idiosyncratic risk, we construct industry risk and our key IV, peer idiosyncratic risk. Explanatory variables used in our study are profitability, life cycle, book-to-market ratio, leverage, tangibility, investment intensity growth rate, cash flow to capital, and size (Grennan, 2019). Variable definitions are provided in the Appendix. Two key variables of interest are foreign ownership share and peer influence. The summary statistics are reported in Table 1. Table 1 shows the differences in firm characteristics for dividend payers and non-payers. Notably, foreign ownership appears to be much higher for dividend payers.

When studying peer effects, difficulties arise when trying to separate market patterns from heterogeneous firm factors. Firms that share the same industry could have similar dividend policy changes due to industry characteristics, not because of peer effects. Additionally, firms may have similar characteristics that attract specific types of investors who demand similar payout policies. To ensure peer effects are correctly measured despite the reasons above, we implement an instrumental variable (IV) approach. Many studies in this field implement this method (Campbell et al., 2001; Grennan, 2019; Hoberg et al., 2014; Leary & Roberts, 2014). We calculate the idiosyncratic risk of each firm and use the idiosyncratic risk of peer firms as an IV. When one firm's risk increases, it increases its cash holding to withstand any adverse shocks. As a consequence, this procedure affects the dividend payout policy. However, the idiosyncratic risk is unique to its firm by construction and has no direct impact on other firms' payout policies. Thus, peer firms' idiosyncratic risks are suitable as an instrumental variable.

This study explores the factors that affect peer influence on dividend payout policies. We hypothesize that foreign ownership alters the level of influence from peers on dividend decisions. One of the key variables in our study observes the changes in dividend policies. DivInc_{ijt} and DivDec_{ijt} represent dividend payout changes that firm i from industry j made in year t. DivInc_{ijt} (DivDec_{ijt}) is an indicator variable that shows whether a firm increased (decreased) its dividend payouts. The dividend change

Table 1: Summary statistics

	Whole sample		No dividend		Dividends	
Variable	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Divi yield	1.4291	1.9019	0.0000	0.0000	2.4330	1.9277
Foreign share	6.8779	11.9161	3.7794	8.7607	9.0543	13.2796
Profitability	0.0343	0.0969	−0.0138	0.1197	0.0681	0.0560
M-to-B	0.1959	0.1942	0.2413	0.2438	0.1640	0.1415
Book leverage	0.8640	0.3236	0.8941	0.2897	0.8429	0.3439
Tangibility	0.3191	0.1905	0.2998	0.2095	0.3326	0.1747
Invest-to-capital	−0.0960	2.0393	−0.0194	3.0996	−0.1497	0.5701
R&D	0.0111	0.0228	0.0135	0.0271	0.0094	0.0191
Cash flow	−0.6613	39.4185	−2.4773	61.1655	0.6142	3.6836
Life cycle	0.0199	0.0607	0.0206	0.0667	0.0194	0.0561
Size	18.8561	1.6551	18.1569	1.4783	19.3473	1.5950
Idio risk	27.3135	40.7423	26.1641	41.1204	28.1209	40.4565
Peer risk	26.4068	39.2765	25.1515	39.5259	27.2885	39.0777
Obs	23,587		9,732		13,855	

This table provides summary statistics for dividend yield, foreign ownership share, idiosyncratic risk, peer idiosyncratic risk, and other firm-specific variables. The sample includes all the public firms listed under KOSPI and KOSDAQ from 2000 to 2018. Whole sample results are provided in the first two columns. Dividend payers and dividend non-payers are separated, and statistics is provided in columns 2–6. Size is the logarithm of sales, profitability is the return on assets, tangibility is tangible assets divided by total assets, R&D intensity is R&D expenditure over total assets, life cycle is real estate owned divided by total assets, and cash flow to capital is net income over tangible assets. Differences in firm characteristics for dividend payers and non-payers are shown.

over the previous year must be greater than 1% to take on a value of 1. Although it would be nice also to have visibility on repurchasing behavior, the process through which stock repurchases are made is different from that of U.S. firms. Thus, we focus on dividend payouts.

Peer influence is measured by $\text{Peer}_{(-i)jt-1}$. This variable is the percentage of peer firms in industry j that increased or decreased payouts in year $t-1$, excluding firm i. Peer firms are competing firms that share the same three-digit industry code. This variable identifies whether rival firms' payout changes affect a firm's dividend decisions. To investigate further, we include the change in foreign ownership share. $\Delta\text{Foreignshare}_{it}$ represents the net purchase of outstanding stocks by foreign investors. Foreigners are essential for this study because they prefer firms with dividend policies and also exert influence in payout decision-making (Jeon et al., 2011). Their involvement indicates active monitoring of the firm and also the industry.

Risk is an important variable that determines payouts. In this study, we find peer idiosyncratic risk using the method proposed by Grennan (2019). We first compute the value-weighted industry excess return using the 90-day Certificate of Deposit (CD) rate, R_{ijt}. Value is weighted using market capitalization. Then, the daily firm-specific residual return (ϵ_{ijdt}) is calculated as below:

$$\epsilon_{ijdt} = R_{ijdt} - R_{jdt}, \tag{1}$$

where R_{ijdt} represents the return of firm i in industry j on day d of year t. Next, the daily firm-specific residual returns are used to construct the annual idiosyncratic risk of each stock.

$$\text{IR}_{ijt} = \sum_{d\epsilon t} \epsilon^2_{ijdt}, \tag{2}$$

where IR_{ijt} represents the idiosyncratic risk of firm i in industry j at time t. Using firm risk constructed using equation (2), two variables are calculated, industry risk and peer idiosyncratic risk. Industry risk is calculated as follows:

$$\text{IR}_{jt} = \sum_{i\epsilon j} \text{IR}_{ijt}{}^{\star}\omega_{ijt}. \tag{3}$$

IR_{jt} represents a risk that industry j bears in year t. ω_{ijt} is the share of the market capitalization of firm i in industry j. In addition, peer idiosyncratic risk (PeerIR) is the average of the idiosyncratic risks of peer firms. We exclude a firm's own risk when calculating peer risk to eliminate possible correlations. Industry risk is used as an explanatory variable in our regressions, while peer idiosyncratic risk is used as an IV.

3.2 Regression Models

Using the variables defined previously, we test our hypothesis that foreign ownership influences the sensitivity of peer effects. First, we set up empirical specifications to show that peer effects exist among Korean firms as

predicted by various prior studies. Following the identification strategy of Grennan (2019), we use peer idiosyncratic risk as our instrument for peer influence. Then, we further study the changes in peer influence by foreign ownership levels. The empirical specification is:

$$\text{Div}_{ijt} = \alpha + \beta\text{Peer}_{(-i)j(t-1)} + \theta X_{ijt} + f_i + \delta_t + \varepsilon_{ijt}. \quad (4)$$

Div_{ijt} is a dummy variable that indicates whether firm i increased or decreased dividend payouts by more than 1% from the previous year. $\text{Peer}_{(-i)j(t-1)}$ represents the fraction of firms that increased or decreased dividends in industry j where firm i operates. X_{ijt} is a vector of control variables that determine the likelihood of changing payout policies. f_i is the firm-fixed effect, δ_t is the time-fixed effect, and ε_{ijt} is the unobservable error term. Peer influence may embed issues regarding endogeneity. Therefore, the IV approach is used. The IV is the average of peer firms' idiosyncratic risks, which is correlated with the payout decisions of peer firms but not with firm i's dividend payouts. We evaluate how β changes as foreign ownership changes.

In addition to the earlier specification, we explore the heterogeneity of the peer effect using foreign ownership and interaction terms as shown below:

$$\begin{aligned}\text{Div}_{ijt} = {} & \alpha + \beta_1\text{Peer}_{(-i)j(t-1)} + \beta_2\text{Peer}_{(-i)j(t-1)} \\ & {}^*\Delta\text{ForeignShare}_{it} + \beta_3\Delta\text{ForeignShare} + \theta X_{ijt} \\ & + f_i + \delta_t + \varepsilon_{ijt},\end{aligned} \quad (5)$$

where $\Delta\text{ForeignShare}_{it}$ represents the change in foreign ownership of firm i in year t. This study considers the asymmetric behavior of payout increases and decreases noted in prior studies and examines the peer effects in dividend increases and decreases separately. We hypothesize that firms with higher foreign ownership will respond more aggressively to dividend changes of peer firms indicated by a positive coefficient for β_2. In addition, we find the industry averages of profitability, life cycle, market-to-book ratio, tangibility, investment-to-capital ratio, and cash flow-to-capital, and size. These industry averages are included as industry control variables. These controls are analogous to the peer firm averages used in the study of Grennan (2019). Industry averages control for industry characteristics that peer firms have, which attract domestic and foreign investors.

4 Results

4.1 Univariate Tests

Our univariate analysis separates our sample into four subgroups by peer influence. The likelihood of a dividend increase is found for each group to represent the level of peer influence. The difference between groups with the highest and lowest levels of peer influence is approximately 10%. In contrast, the difference in dividend decreases is only 5%. Peer firms asymmetrically influence the decision to increase or decrease the dividend, as shown in Grennan (2019). We divide our sample into quartiles by the change in foreign share and form four-by-four subgroups. The 16 subgroups show that the difference in the odds of a dividend increase between the groups with the highest and lowest levels of peer influence is greater in subsamples with higher foreign transactions. In groups with high foreign net purchases (increases in foreign share), the difference was 13%. The difference was only 7% in groups with the lowest change in foreign share. Foreign transactions had no impact on the peer effects of dividend decreases. Empirical evidence suggests that the influence of foreign investors on peer effects is more pronounced for dividend increases than for dividend decreases. Results were consistent using IV regression models. Changes in foreign ownership only impact the influence of peers for dividend increases, not decreases. Firms with high foreign ownership changes are shown to be more sensitive to peer effects.

For the univariate analysis, Table 2 presents the odds of dividend increases and decreases across quartiles of peer influence. The values show that a firm's dividend choices are related to its peers' dividend decisions. Peer influence is the fraction of rival firms that increased or

Table 2: Univariate analysis of dividend change

	Likelihood of dividend increasing		Likelihood of dividend decreasing	
	(1)	(2)	(3)	(4)
Peer Influence	Mean	Std. Dev.	Mean	Std. Dev.
1 (low)	0.2558	0.4363	0.1636	0.3699
2	0.2624	0.4400	0.1875	0.3903
3	0.3044	0.4602	0.217	0.4122
4 (high)	0.3574	0.4793	0.2141	0.4102
High–low	0.1016		0.0505	
t-Value	12.550		7.320	

This table reports univariate analysis of dividend increase and decrease as a function of peer influence. Among dividend payers, we have firms that increased or decreased dividends. They are divided into quartile based on peer influence. Peer influence is the fraction of peer firms within a three-digit industry that increased or decreased dividends in the previous year. The likelihood of dividend change is the mean percentage of firms increasing or decreasing dividends. A test of differences in mean between high and low peer influence for dividend increase and decrease are reported.

decreased dividends in the industry to which firm *i* belongs. Column 1 (3) shows the likelihood of a firm increasing (decreasing) its dividend for each quartile. The probabilities increase as peer influence gets stronger. While Columns 1 and 2 show how the likelihood of increasing dividends changes as peer influence changes, Columns 3 and 4 show the changes in the likelihood of dividends decreasing. The difference between the highest and lowest peer influence groups for a dividend increase and decrease is quite distinct in size. The difference for dividend increase is 0.1016, and for decrease, it is 0.0505. This is consistent with previous findings that dividend increase is affected by peer effects. Dividend decreases induce asymmetric impact and, thus, are decided to know the severe consequences. Due to these reasons, dividend decreases are not driven by peer influences as much as dividend increases.

In addition, the sample is divided into quartiles based on changes in foreign ownership share. Table 3 reports the likelihood of regular dividend payers increasing or decreasing payouts by each quartile of changes in foreign ownership share and strength of peer influence. The groups are divided into a 4×4 matrix according to changes in foreign ownership and peer influence. Across foreign ownership changes, the likelihood of changing payout policies is significantly higher when the peer influences are higher. In other words, the difference in the likelihood of increasing dividends between groups with high and low peer pressure increases as foreign ownership increases. The lowest quartile shows a difference of 0.0772, while that of the highest quartile is 0.1305. This gap increases for dividend-increasing decisions (Panel A) but not for dividend decreases (Panel B). The differences between high and low peer influences are all statistically significant. While we observe apparent increases in the likelihood of the announcement of a dividend increase from low to high peer influence as foreigner activity increases, the difference for dividend decreases remains stable from 0.0507 to 0.0478. The univariate results show that peers' payout policies may influence other firms' dividend policies. However, whether foreign ownership affects dividend decreases through peer influence is questionable, while dividend-increasing decisions are more clearly affected.

4.2 Empirical Results

To better understand the relationship between foreign ownership and peer effects, we present empirical evidence using IV. In this regression, firm characteristics are controlled. The IV specification includes firm-fixed effect, industry-fixed effect, firm risk, and time-fixed effects. Additionally, the firm-specific covariates described in Table 1 are included. Firms are ranked by change in foreign

Table 3: Univariate analysis of dividend change with foreign ownership

Changes in foreign share	Low		2		3		High	
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.
Panel A: Likelihood of dividend increasing								
Peer influence								
Low	0.2398	0.427	0.2155	0.4113	0.2331	0.4230	0.3474	0.4763
2	0.2620	0.4399	0.1912	0.3934	0.2418	0.4283	0.3386	0.4734
3	0.2784	0.4484	0.2407	0.4277	0.2842	0.4512	0.4113	0.4922
High	0.317	0.4655	0.3016	0.4591	0.3454	0.4767	0.4779	0.4997
diff	0.0772		0.0861		0.1123		0.1305	
t-value	4.6395		5.8588		6.7070		7.1030	
Panel B: Likelihood of dividend decreasing								
Peer influence								
Low	0.2005	0.4005	0.1717	0.3772	0.1394	0.3465	0.1431	0.3503
1	0.2220	0.4157	0.1907	0.3930	0.1651	0.3714	0.1727	0.3781
2	0.2995	0.4582	0.2174	0.4126	0.1861	0.3894	0.1580	0.3619
High	0.2512	0.4339	0.2105	0.4078	0.2069	0.4052	0.1909	0.3932
diff	0.0507		0.0388		0.0675		0.0478	
t-Value	3.1902		2.8411		4.7664		3.3986	

This table presents results from univariate analysis of dividend increase and decrease by different foreign ownership levels. Foreign ownership share is divided into quartiles for both dividend increasing and decreasing firms. Then, each group is divided by peer influence as in Table 2. A test of differences in mean between high and low peer influence across four levels of foreign ownership along with its *t*-value is reported.

ownership (net purchase). The upper half of firms are classified as high and the lower half as low. The foreign share dummy is an indicator variable that takes a value of 1 if the foreign ownership change from the previous year is greater than the median and 0 otherwise.

4.2.1 Dividend Increase

The first set of regression results for dividend increases is shown in Table 4. Table 4 presents evidence that peer effects exist in Korea for payout increases. This is true even after the endogeneity issue is resolved using the IV approach. Peer risk is the IV used to identify the true impact of peers on payout policies. Idiosyncratic risk affects the firm's own payout policies. However, idiosyncratic risk by composition does not impact other firms or their dividend policies. We observe how peer influence, which is the percentage of firms that increased their dividend in each industry, contributed to other firms' decisions to increase dividends. Here, one firm's dividend decision is not related to peer risk, as it is the average of the idiosyncratic risks of peer firms excluding that firm, but peer risk impacts our measure of peer influence.

Table 4: Instrumental variable (IV) regression of dividend increasing

			Changes in foreign share			
			Low		High	
Variables	**DivInc**	**DivInc**	**DivInc**	**DivInc**	**DivInc**	**DivInc**
Peer influence ($t-1$)	0.468***	0.614***	0.282	0.558	0.520***	0.612***
	(2.99)	(3.33)	(1.01)	(1.44)	(2.76)	(2.87)
Profitability	0.921***	0.903***	1.016***	0.983***	0.859***	0.855***
	(6.81)	(6.97)	(12.18)	(11.93)	(6.23)	(6.37)
Lifecycle	−0.128**	−0.029	−0.134*	−0.079	−0.121	0.009
	(−2.15)	(−0.48)	(−1.77)	(−0.96)	(−1.52)	(0.11)
MtoB	−0.040	−0.044	−0.073	−0.093**	−0.007	−0.009
	(−0.63)	(−0.68)	(−1.41)	(−2.07)	(−0.05)	(−0.07)
Bookleverage	−0.005	0.000	0.008	0.012	−0.017	−0.010
	(−0.32)	(0.01)	(0.40)	(0.59)	(−0.65)	(−0.38)
Tangibility	−0.116***	−0.132***	−0.094**	−0.101**	−0.129***	−0.144***
	(−3.23)	(−3.59)	(−1.98)	(−2.15)	(−2.62)	(−2.91)
Investment-to-cap	0.002	0.001	0.001	−0.001	0.009**	0.008**
	(1.55)	(0.91)	(0.89)	(−1.28)	(2.15)	(2.06)
Cashflowtocapital	−0.000	−0.000	−0.000	−0.000	−0.000	−0.000
	(−0.99)	(−1.16)	(−0.80)	(−0.93)	(−0.85)	(−1.02)
Idio risk	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(8.34)	(6.43)	(4.06)	(3.24)	(6.61)	(4.87)
Size	0.028***	0.038***	0.003	0.011	0.044***	0.056***
	(3.81)	(5.05)	(0.36)	(1.35)	(5.21)	(6.25)
Industry average	No	Yes	No	Yes	No	Yes
Firm clustering	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed	Yes	Yes	Yes	Yes	Yes	Yes
Kleibergen–Paap Wald *F*-Statistic	66.77	77.58	25.30	17.32	44.68	64.82
Observations	23,510	23,510	9,666	9,666	13,615	13,615
R-squared	0.0419	0.0398	0.0440	0.0378	0.0404	0.0407
Number of firms	1,831	1,831	1,592	1,592	1,753	1,753

This table presents the regression results from IV specification. IV used is the idiosyncratic risks of peers. Divinc is a dummy variable indicating whether a firm increased dividends or not. Peer influence is the ratio of peer firms with increased dividend payments by more than 1%. Size is the logarithm of sales. Profitability is the return on assets, Tangibility is tangible assets divided by total assets, Life cycle is real estate owned divided by total assets, MtoB is book-to-market ratio, and cash flow to capital is net income over tangible assets. Idiosyncratic risk is denoted as Idio Risk. Industry-specific covariates are industry averages of control variables. Columns 1 and 2 report results for the whole sample. Columns 3 and 4 are firms with low changes in foreign shares, while Columns 5 and 6 are firms with high changes in foreign shares. *T*-Statistics calculated with robust standard errors clustered by the firm are shown in parentheses. ***, **, and * indicate statistical significance at 1, 5, and 10% levels, respectively.

We observe how peer influences on dividend increases change owing to foreign ownership changes. We divide the entire sample into low and high changes in foreign share. The low (high) group includes firms with a foreign ownership change that is less (greater) than the median. With these two subsamples, we are able to observe how foreign ownership changes affect peer influence on payout decisions. Columns 1 and 2 of Table 4 show the results for the whole sample. Column 1 does not include industry-specific variables, and Column 2 does. The industry-specific variables are the averages of the control variables by the industry as well as industry risk. Peer influence persists even after the inclusion of industry-specific control variables. The evidence supports the peer effect hypothesis that firms within the same industry respond similarly when peer firms increase their dividends.

Columns 3 and 4 report the results for firms with low foreign ownership changes. Coefficients remain positive but lose statistical significance. However, for firms with increases in foreign ownership, peer influence shows statistical significance. The results show that firms with higher foreign ownership change react to peers' payout increases. The results control for firm size, profitability, investment growth, cash holdings, leverage, market-to-book ratio, tangibility, and firm idiosyncratic risk. The evidence supports the claim that firms with higher foreign ownership experience a stronger peer effect due to the pressure from foreign investors. These investors have

Table 5: Instrumental variable (IV) regression of dividend decreasing

			Changes in foreign share			
			Low		High	
Variables	**DivDec**	**DivDec**	**DivDec**	**DivDec**	**DivDec**	**DivDec**
Peer influence ($t-1$)	0.262***	0.288***	0.293***	0.377***	0.224***	0.235***
	(4.64)	(4.52)	(2.77)	(3.02)	(3.56)	(3.39)
Profitability	−0.500***	−0.543***	−0.515***	−0.563***	−0.464***	−0.518***
	(−7.81)	(−8.41)	(−7.83)	(−8.24)	(−7.47)	(−8.00)
Lifecycle	−0.102*	0.075	−0.051	0.169*	−0.157**	0.022
	(−1.79)	(1.29)	(−0.58)	(1.83)	(−2.28)	(0.32)
MtoB	−0.045	−0.065**	−0.004	−0.046**	−0.099**	−0.116**
	(−1.37)	(−2.01)	(−0.29)	(−2.26)	(−1.98)	(−2.32)
Bookleverage	−0.001	−0.005	−0.015	−0.011	0.010	0.005
	(−0.11)	(−0.37)	(−0.75)	(−0.55)	(0.62)	(0.27)
Tangibility	0.005	0.028	0.034	0.075*	−0.009	−0.002
	(0.16)	(0.98)	(0.77)	(1.68)	(−0.24)	(−0.05)
Investment-to-cap	−0.004**	−0.004**	−0.003**	−0.002*	−0.007**	−0.007**
	(−2.24)	(−2.00)	(−2.01)	(−1.66)	(−2.29)	(−2.23)
Cashflow-to-capital	0.000	0.000	0.000	0.000	0.000	0.000
	(1.44)	(1.49)	(0.99)	(1.03)	(0.83)	(1.00)
Idio risk	−0.000***	−0.001***	−0.000**	−0.001***	−0.000***	−0.000***
	(−4.34)	(−6.26)	(−2.47)	(−4.00)	(−2.64)	(−4.35)
Size	0.014**	0.023***	0.033***	0.041***	0.005	0.017**
	(2.31)	(3.76)	(3.42)	(4.36)	(0.73)	(2.42)
Industry average	No	Yes	No	Yes	No	Yes
Firm clustering	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed	Yes	Yes	Yes	Yes	Yes	Yes
Kleibergen–Paap Wald *F*-Statistic	208.19	239.88	91.92	79.97	118.31	147.22
Observations	23,510	23,510	9,666	9,666	13,615	13,615
R-squared	0.0084	0.0131	0.0083	0.0137	0.0083	0.0128
Number of firms	1,831	1,831	1,592	1,592	1,753	1,753

This table presents the regression results from IV specification. IV used is the idiosyncratic risks of peers. DivDec is a dummy variable indicating whether a firm increased dividends or not. Columns 1 and 2 report results for the whole sample. Columns 3 and 4 are firms with low changes in foreign shares, while Columns 5 and 6 are firms with high changes in foreign shares. *T*-Statistics calculated with robust standard errors clustered by the firm are shown in parentheses. ***, **, and * indicate statistical significance at 1, 5, and 10% levels, respectively.

Table 6: Interaction terms between peer influence and the changes in foreign shares

Variables	(1) DivInc	(2) DivDec
Panel A: Changes in foreign share dummy		
Peer influence ($t-1$)	0.197	0.208***
	(0.76)	(2.60)
Peer influence ($t-1$)*	0.589*	0.112
Changes in Foreign shares dummy	(1.66)	(1.29)
Changes in Foreign shares dummy	−0.112	−0.073***
	(−1.14)	(−3.15)
Profitability	0.880***	−0.523***
	(6.85)	(−8.37)
Lifecycle	−0.026	0.069
	(−0.42)	(1.19)
MtoB	−0.046	−0.063**
	(−0.73)	(−2.02)
Book leverage	−0.001	−0.005
	(−0.04)	(−0.36)
Tangibility	−0.130***	0.025
	(−3.55)	(0.87)
Investment-to-cap	0.001	−0.004**
	(0.88)	(−2.06)
Cashflow-to-capital	−0.000	0.000
	(−1.19)	(1.47)
Idio risk	0.001***	−0.001***
	(6.00)	(−5.91)
Size	0.039***	0.023***
	(5.25)	(3.71)
Industry average	Yes	Yes
Firm clustering	Yes	Yes
Firm fixed	Yes	Yes
Time fixed	Yes	Yes
Observations	23,510	23,510
R-squared	0.0439	0.0160
Number of id	1,831	1,831
Panel B: Changes in foreign share		
Peer influence ($t-1$)	0.634***	0.235***
	(3.53)	(3.20)
Peer influence ($t-1$)*	0.051*	0.040
Changes in Foreign shares	(1.75)	(0.90)
Changes in Foreign shares	−0.009	−0.016
	(−1.06)	(−1.40)
Profitability	0.882***	−0.517***
	(6.96)	(−8.21)
Life cycle	−0.020	0.068
	(−0.33)	(1.18)
MtoB	−0.043	−0.063**
	(−0.70)	(−1.99)
Bookleverage	−0.000	−0.002
	(−0.01)	(−0.17)
Tangibility	−0.129***	0.030
	(−3.55)	(1.05)
Investment-to-cap	0.001	−0.004**
	(0.95)	(−1.97)
Cashflow-to-capital	−0.000	0.000
	(−1.16)	(1.51)
Idio risk	0.001***	−0.001***
	(6.35)	(−5.03)
Size	0.039***	0.020***
	(5.24)	(3.31)
Industry average	Yes	Yes
Firm clustering	Yes	Yes
Firm fixed	Yes	Yes
Time fixed	Yes	Yes
Observations	23,510	23,510
R-squared	0.0439	0.0160
Number of firms	1,831	1,831

This table presents the regression results from IV specification. IV used is the idiosyncratic risks of peers. Divinc (DivDec) is a dummy variable indicating whether a firm increased dividends or not. Changes in foreign shares interacted with the peer influence measure are used to test if foreign ownership changes affect peer effect on dividend payouts. *T*-Statistics calculated with robust standard errors clustered by the firm are shown in parentheses. ***, **, and * indicate statistical significance at 1, 5, and 10% levels, respectively.

significant global experience and accumulated information on emerging financial markets. They are aware that when peers increase dividends, stock returns may suffer if the payout is not matched. Therefore, foreign investors with voting rights will exercise their authority to push managers to pay out more. Domestic investors who favor dividends less play a less significant role in increasing the peer effects.

Agency theory (Jensen, 1986) also explains why firms with high foreign activities are more susceptible to peer influences in dividend decisions. Prior studies show that dividends can be used to reduce agency costs. When competing firms in the same industry increase dividends, it may be due to increased demand or sales for the overall industry. Foreign investors, who monitor more effectively than domestic investors, especially in emerging markets, may use dividends to ensure that managers and other insiders do not exploit the benefits for themselves while other firms increase dividends. This behavior could explain why foreign investors may exert pressure and request increases in dividends based on similar actions of the firms' peers.

4.2.2 Dividend Decrease

Table 5 presents the results for dividend decreases. The evidence suggests that when peer firms decrease

dividends, the likelihood of a firm decreasing dividends also increases. Again, peer influence is identified using peer risk. The result differs from that of Grennan (2019) in that we show a statistically significant peer influence for dividend decreases across all columns. The significance of peer influence on dividend decreases appears because we study Korean firms. While U.S. firms exert great effort to stabilize and smooth dividend payouts, Korean firms have less pressure (Choi et al., 2011). Korean firms show less resistance to decreasing dividends (Appendix).

There are noteworthy findings when comparing the coefficients from Table 5 to those shown in Table 4. First, the results show that peer influence also exists for dividend decreases. Second, foreign ownership change has no impact on peer influence for dividend decreases. Dividend decreases of peer firms relieve pressure to maintain dividends. After observing peers reduce dividends, other firms could follow the herd and decrease payouts together. This response is apparent regardless of foreign ownership. Third, the magnitude of peer influence is different for payout increases and decreases. While the peer influence coefficient is nearly 0.61 for dividend increases, it is only 0.2 for dividend decreases. In this aspect, the results are consistent with those of Grennan (2019) where the peer effects are more pronounced for dividend increases. This finding suggests that firms have a stronger incentive to match dividend increases.

4.3 Interactive Results

In addition to observing the differences in significance and magnitude for high and low changes in foreign

Table 7: Instrumental variable (IV) test of dividend increases for Foreign Net Buy and Others

	Foreign investors			
	Others		Net Buy	
Variables	**DivInc**	**DivInc**	**DivInc**	**DivInc**
Peer influence ($t-1$)	0.331	0.514*	0.561**	0.621**
	(1.47)	(1.90)	(2.50)	(2.40)
Profitability	0.745***	0.707***	1.149***	1.163***
	(4.40)	(4.52)	(12.25)	(12.31)
Life cycle	−0.221***	−0.094	−0.086	0.014
	(−3.14)	(−1.27)	(−0.90)	(0.14)
MtoB	−0.019	−0.026	−0.218***	−0.214***
	(−0.35)	(−0.41)	(−4.90)	(−4.82)
Book leverage	0.000	0.003	0.016	0.023
	(0.01)	(0.14)	(0.81)	(1.14)
Tangibility	−0.135***	−0.147***	−0.079*	−0.096**
	(−3.05)	(−3.25)	(−1.65)	(−2.01)
Investment-to-cap	0.002	0.001	0.003	0.003
	(1.52)	(0.64)	(1.18)	(1.10)
Cashflow-to-capital	−0.000	−0.000	−0.001**	−0.001**
	(−0.57)	(−0.98)	(−2.01)	(−2.10)
Idio risk	0.001***	0.001***	0.001***	0.001***
	(4.66)	(3.58)	(6.55)	(4.78)
Size	0.017*	0.028***	0.035***	0.043***
	(1.72)	(2.89)	(4.02)	(4.70)
Industry average	No	Yes	No	Yes
Firm clustering	Yes	Yes	Yes	Yes
Firm fixed	Yes	Yes	Yes	Yes
Time fixed	Yes	Yes	Yes	Yes
Observations	11,758	11,758	11,513	11,513
R-squared	0.0350	0.0333	0.0528	0.0537
Number of firms	1,634	1,634	1,716	1,716

This table presents the regression results from IV specifications by dividing the sample by whether foreign ownership increased or not. T-Statistics calculated with robust standard errors clustered by firm are shown in the parentheses. ***, **, and * indicate statistical significance at 1, 5, and 10% levels, respectively.

ownership, Table 6 reports the results with the interaction terms in the empirical specification. The results are consistent in that foreign ownership change only affects dividend increases, not decreases. Panel A reports the findings using the indicator variable for change in foreign share. Panel B employs the value of change on foreign shares. Column 1 shows coefficients from the IV regression on dividend increases, while Column 2 covers decreases. Column 1 suggests that peer effects of payout changes only exist in the presence of foreigners. Column 2 shows evidence of peer influence on dividend decreases. This effect is independent of foreign ownership. Peer effects exist for dividend decreases but not through foreign ownership. The evidence suggests that foreign investors are only particularly concerned with peers increasing dividends, not decreasing.

4.4 Robustness Check with Net Purchase

In Table 4, we separated our sample into two groups by ranking the change in foreign share. Firms with a change in foreign ownership share greater than the median were put into the high group, and firms with a change in foreign ownership lower than the median were put into the low group. For a robustness check, we divide the sample according to whether a firm's foreign ownership increased.

Table 8: Instrumental variable (IV) test of dividend increasing for potential channels

Variables	(1) Credit = 0 DivInc	(2) Credit = 1 DivInc	(3) Young = 0 DivInc	(4) Young = 1 DivInc
Peer influence ($t-1$)	0.105	2.491	−0.162	0.113
	(0.44)	(1.02)	(−0.38)	(0.26)
Peer influence ($t-1$)*	0.596*	0.890	1.061*	0.199
Changes in Foreign shares dummy	(1.85)	(0.47)	(1.72)	(0.43)
Changes in Foreign shares dummy	−0.118	−0.187	−0.248	−0.028
	(−1.35)	(−0.33)	(−1.42)	(−0.23)
Profitability	0.842***	1.098***	1.845***	0.375***
	(6.52)	(4.29)	(20.83)	(6.18)
Lifecycle	−0.034	0.237	−0.016	−0.013
	(−0.51)	(0.59)	(−0.19)	(−0.14)
MtoB	−0.015	−0.551***	−0.112**	0.045
	(−0.25)	(−4.92)	(−2.36)	(0.53)
Bookleverage	−0.002	0.060	0.016	−0.012
	(−0.14)	(0.80)	(0.83)	(−0.51)
Tangibility	−0.155***	0.065	−0.097**	−0.205***
	(−3.98)	(0.57)	(−2.27)	(−3.98)
Investment-to-cap	0.001	−0.002	0.001	0.000
	(0.45)	(−0.41)	(0.53)	(0.25)
Cashflow-to-capital	−0.000	−0.003	−0.000	−0.000
	(−1.31)	(−1.19)	(−0.77)	(−0.48)
Idio risk	0.001***	0.001*	0.001***	0.000*
	(5.00)	(1.80)	(4.85)	(1.89)
Size	0.041***	0.041*	0.027***	0.029***
	(5.06)	(1.70)	(3.14)	(3.28)
Industry average	Yes	Yes	Yes	Yes
Firm clustering	Yes	Yes	Yes	Yes
Firm fixed	Yes	Yes	Yes	Yes
Time fixed	Yes	Yes	Yes	Yes
Observations	20,259	3,171	17,047	5,355
R-squared	0.0458	−0.2318	0.0622	0.0390
Number of firms	1,746	382	1,621	861

This table presents the regression results from IV specification. Credit is an indicator which is assigned to be 1 if the firm has the bond credit rating and 0 otherwise. Young is an indicator which is assigned to be 1 if the age of CEO is less than 50, the bottom quintile of the whole sample. T-Statistics calculated with robust standard errors clustered by firm are shown in the parentheses. ***, **, and * indicate statistical significance at 1, 5, and 10% levels, respectively.

If it increased from the previous year, that firm was put into the "Net Buy" group. Firms in this group had positive net purchases by foreign investors. If foreigners exited or the ownership share did not change, those firms were put into "Others." Net purchases for firms put into Others are less than or equal to zero. The results are presented in Table 7 for these two groups separately. Peer influence remains influential for both groups. Consistent with previous results, peer influence is stronger for firms with increased foreign ownership. Peer influence for Others is 0.514, while that for the Net Buy group is 0.621. This difference provides supporting evidence that increases in foreign ownership share induce peer effects to be more pronounced in increasing dividends.

4.5 Potential Channels of the Effect of Foreign Investors on the Dividend Peer Effect

We suspect there could be two channels through which foreign investors and dividend peer effect are related. One is the signaling effect, and the other is the reputation effect. To study the channels, we look at credit ratings and the age of the Chief Executive Officer (CEO) to account for the signaling and reputation effects, respectively. Managers use dividends to signal that the firm is in a stable condition. Signaling is important for firms with high uncertainty or information asymmetry. To account for information asymmetry, we look at firms with and without credit ratings separately. Columns 1 and 2 of Table 8 show how foreign investor participation influence firms without credit ratings more. Evidence suggests that foreign investors play an important role in demanding payouts in industries, with other firms increasing dividends for firms with high information asymmetry. We show that foreign investor activities on peer effect are greater when there is higher information asymmetry.

Ages of CEOs proxy for the reputation effect because younger CEOs have more incentives to build reputations for their own future career paths. While it may be reasonable to assume that younger CEOs mimic other firms' dividend policies, Columns 3 and 4 of Table 8 show otherwise. The results show that peers do not influence the dividend policies of firms with younger CEOs, nor do the degree change due to foreign investor activities. Table 8 suggests that signaling is a more significant channel when addressing foreign investors and the peer effect on dividends.

5 Conclusion

This study helps us understand the disparities of peer influence on dividend payout policies using foreign ownership. Using Korean firm data, we show that peers influence dividend policies. Due to learning motive and the desire to not fall behind on signaling or reputation, firms have incentives to independently reflect other competitors' payout policies. Peer influence is more pronounced for dividend increases than decreases, and the influence of peers differs according to a firm's level of foreign ownership. By observing changes in foreign ownership, we find that firms with increasing foreign ownership share experience strong peer effects on dividend-increasing policies. Foreign ownership changes are found to have no impact on peer influence for dividend decreases. As a robustness check, we divided the firms into groups not based on the median but based on whether the change in foreign ownership was positive or not, and we obtained consistent results. This study contributes to the literature on how foreign investors affect payout policies and peer effects. Using the unique feature of Korean data on foreign investor transactions from 2000 to 2018, we present valuable findings to explain which firms are sensitive to peer influences. The important channel through which peer decisions affect a firm's dividend policies is foreign investors. The effective monitoring practices and dividend preferences of foreigners magnify the impact of peers within an industry.

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com/ and in FnGuide at http://www.dataguide.co.kr/DG5web/eng/index.asp following an embargo from the date of publication to allow for commercialization of research findings.

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Appendix

A Variable definitions

DivInc = An indicator variable equal to 1 if dividend$_t$ > dividend$_{t-1}$ and 0 otherwise

DivDec = An indicator variable equal to 1 if dividend$_t$ < dividend$_{t-1}$ and 0 otherwise

Peer Influence = Percentage of firms that increased or decreased dividends within industry

Profitability = Operating income/Assets

Tangibility = PPE/Assets

MtoB = (Market capitalization + Debt)/Assets

Book leverage = Debt/(Debt + Equity)

Investment-to-Cap = Change of Tangible assets/ Tangible Assets

Cashflowtocapital = (Net Income + Depreciation)/ Tangible Assets

Idiosyncratic Risk = firm-specific risk measured by the deviation of its excess returns from the industry average return

Peer Risk = sum of industry members' idiosyncratic risks

Size = log(Assets)

Foreign share = Percentage of stocks owned by foreign investors

B Additional robustness checks

Table A1: Number of firms increasing, decreasing, or maintaining dividends by year

Year	DivInc	DivDec	No Chg
2001	264	292	290
2002	327	286	332
2003	354	285	353
2004	389	269	369
2005	413	268	410
2006	352	330	473
2007	409	298	507
2008	214	525	521
2009	468	259	604
2010	458	302	644
2011	362	444	561
2012	338	381	783
2013	358	368	703
2014	517	289	825
2015	506	360	869
2016	536	348	953
2017	546	403	988
2018	520	471	1,028