경영학석사학위논문

Cash-Flow Uncertainty, Investor Types, and Payout Policy

현금흐름의 불확실성, 투자자유형,

그리고 배당 정책

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Abstract

Cash-Flow Uncertainty, Investor Types, and Payout Policy

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This paper investigates the effect of cash-flow uncertainty and investor types on payout policy. Firms with cash-flow uncertainty would have the incentive to decrease dividend payouts due to precautionary reason. Foreign investors prefer cash dividends so as to avoid information asymmetry risk. On the other hand, major investors prefer dividends because they could utilize profits from dividend revenues that are derived from their subsidiaries and their dividend tax rates are lower than individual investors.

The paper conducts a test of non-financial companies in the KOSPI and KOSDAQ market from 2000 to 2017, when the investment of foreign investors and domestic institutional investors has increased since the foreign exchange crisis. Based on the 5% rule of the US Securities Exchange Act and the Korea Securities and Exchange Act, each investor was considered to be a large shareholder with independence and monitoring incentives for the management of the firm.

As a result of the empirical analysis, cash-flow uncertainty, as proxied by stock return volatility, has a negative relation with dividend payouts. There is no significant relationship between foreign investors' ownership and dividend payouts within cash-flow uncertainty. On the other hand, even if the cash-flow uncertainty is high, there is a positive correlation between major investors' ownership and dividend policy. From this study, it is expected to provide implications for the issue of holding companies' preference of dividend, their dividend tax rate regime and responsible management of investors.

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1. Introduction

Firms facing with cash-flow instability have a high probability of paying low dividends and retaining their earnings for their precautionary reason. External financing would be much more expensive than internal financing when firms are facing cash-flow uncertainty because these firms are more likely to be financially constrained. Therefore, cash-flow uncertainty would have the incentive to decrease the dividend payout policy. Moreover, dividend policy is sticky because dividend payout could be a signal to investors about the firms' financial stability. Thus, firms with high cash-flow uncertainty are less likely to pay more dividends because firms are not confident to maintain the high dividends after all. For the reasons, there would be a negative relationship between cash-flow uncertainty and dividend payouts.

There exist several theories that interpret why dividend payout policies are different from each firm: agency cost theory, tax clientele theory, information asymmetry, and signaling theory.

In terms of agency costs theory, dividend payout is one of the effective internal control measures to solve the manager's overinvestment problem. In other words, dividends could reduce agency costs because they have the effect of reducing free cash flow available to managers who act in a different direction from shareholder interests.

Furthermore, empirical pieces of evidence suggest that a firm's payout policy tends to attract different types of investors (different clienteles). Especially, there exists a tax clientele that different types of investors with different dividend tax rate prefer different

dividend payout policies. In Korea, institutional investors have benefits from dividend tax that they are assigned to fewer tax rates than individual investors. They are not taxed on most dividend income due to an income tax deduction system, dividend income deduction system, etc. However, capital gains are taxed in the same amount as the income of general corporations. With the diverse types of investors with various dividend tax rates, the effect of taxpayers' attributes on payout policy is closely related to investors' investment decisions.

Table 1 shows dividend tax rates with different types of investors from 2000 to 2017. Withholding tax rate of individual investors includes residence tax. Since 2005, if revenue from interests and dividends exceeds 2 million won, the dividend tax rate is 14%. However, along with the purpose of increasing dividend revenue of investors, if individual investors invest in the high-dividend paying firms, their dividend tax rate become 9%.

In the case of general corporations, if their ownership exceeds more than 30%, 50% of after exclusion from gross income is applied. If their ownership is less than 30%, 30% of after exclusion from gross incomes is assigned. In the case of institutional investors, 90% of after exclusion from gross incomes is applied. Compared to individual investors, institutional investors have more benefits from dividend tax rate so that they are more likely to prefer receiving dividends.

Table 1.
Dividend tax rates with different types of investors
The table reports dividend tax rates with different types of investors from 2000 to 2017. Withholding tax rate of individual investors includes residence tax. In case of general corporations, 30% of after exclusion from gross income is applied. In case of institutional investors, 90% of after exclusion from gross incomes is applied. Unit of the table is represented as %.

Period	Individual investors	General corporations		Institutional investors
	Withholding tax rate	Corporate tax rate	After exclusion from gross revenue	After exclusion from gross revenue
2000	16.5	28.0	19.6	2.8
2001 – 2003	16.5	27.0	18.9	2.7
2004	16.5	25.0	17.5	2.5
2005-2008	15.4	25.0	17.5	2.5
2009 – 2014	15.4	22.0	15.4	2.2
2015 – 2017	14.0	22.0	15.4	2.2

Information asymmetry problem exists between insiders and outsiders of the firm. The manager, who knows the actual value of the company better than the investor, wants to distribute information to the market through a dividend distribution method. If the information asymmetry becomes larger, outsiders, who have less information than insiders, are more likely to receive cash dividends in order to avoid future risk and prefer safety. As a result, there is a positive relationship between information asymmetry and dividend payouts.

Finally, there is a dividend signaling theory based on the information effect of dividends that managers inform the market through private information about profitability or forecast of company if the information is asymmetry between manager and investor. According to the dividend signaling theory, dividend acts as a signal that the

manager with the internal information of the company delivers the information about the firm to the market. In other words, only firms with good prospects for future profitability can increase their dividends, while those without them cannot increase dividends because future dividend reductions will have a negative impact on entrepreneurial value. Therefore, the announcement of dividend increase is accepted as good news for the market. On the contrary, the decrease in dividend means the decrease of the future profitability of the company.

In the case of foreign investors, an increase in the ownership of the investee company may have a positive effect on the dividend of the company. According to the information asymmetry hypothesis, if the information asymmetry becomes larger, outsiders, who have less information than insiders, are more likely to receive cash dividends in order to avoid uncertainty in the future. Foreign investors are known to face the problem of information asymmetry because they are placed in information disadvantage compared with local investors in Korean stock markets. Foreign investors prefer early withdrawal of investment funds due to the information asymmetry and difference in risk perception of the overall management of listed companies. Therefore, they seek to achieve a stable return in the near future rather than long-run profit. For this reason, foreign investors prefer cash dividends so as to avoid information asymmetry risk.

Furthermore, with more than 5% ownership of investee firms, the investors are regarded to have large ownership who could have the power to control over firms. Also, they are empowered to designate the board of directors and have a responsibility to declare the change of their ownership. Therefore, foreign investors with more than 5%

ownership of investee firms, they are more likely to put pressure on firms in order to increase dividend payouts. As a result, foreign shareholders' ownership has a positive effect on dividends.

The largest shareholder in Korea includes the major shareholder, related parties, and institutional investors. According to the tax clientele hypothesis, different types of investors with different dividend tax rate prefer different dividend payout policies. On the purpose of increasing revenue from dividend, Korean administration implements a new law that dividend tax rate decreases from 15.4% to 14% and investors who have ownership in high dividend-paying firms are applied to 9% of dividend tax rate. With this law, major shareholder and his related parties could be the main beneficiary to increase their revenue from the dividend. Therefore, the major shareholder and related parties are more likely to increase dividend payouts. Furthermore, as shown in Table 1, institutional investors are assigned less dividend tax rates than individual investors. With the tax regime, institutional investors have high opportunities to prefer high dividend-paying firms. Hence, major investors, including the major shareholder, related parties, and institutional investors, have incentives to increase cash dividends.

In terms of a defense of management, major shareholders in Korea could increase cash dividends. According to Jensen and Meckling (1976), corporate internal shareholders or executives can take private benefits from the firm, and the lower the cash flow rights, the more incentive to pursue private profits. If the controlling shareholder's ownership is low or the controlling shareholder is low, the controlling shareholders can not only pursue the private interests in the short term, but also have the incentive to

protect the position so that it can continuously take private profit. In particular, in Korea, the benefits of management rights are very high. With the dominance of controlling shareholders, including founding family members, the need for procuring management rights will be higher. For this reason, if controlling stake ownership is high, management rights are relatively easy to secure, and it is highly likely to prefer cash dividends rather than treasury stock purchases.

Finally, in Korea, major investors are concentrated in holding companies. Holding companies were introduced since 1999 in order to solve the problem of circulating capital of large corporations and to increase the transparency of corporate governance. It was expected to play a positive role in promoting corporate restructuring and taking over the entire business based on the shares of subsidiaries. However, unlike the original intention, change of the firms' structure into holding companies enables major investors including the family of CEO to expand dominance and take profits by utilizing the holding company. One of the reasons why companies prefer to switch to a holding company is because they can minimize the cost of family business succession. Furthermore, holding companies depend on the service cost, dividend, and royalties received from their subsidiaries. In other words, holding companies' profits are derived from dividend revenue and royalties of their subsidiaries. Hence, major investors in the holding companies prefer cash dividends.

Therefore, in this study, the effects of foreign investors and largest shareholders on dividend policy according to the uncertainty of cash flow are empirically examined. The organization of this paper is as follows. In Section 2, early literature of cash-flow

uncertainty, foreign investors, and major investors are presented. Hypotheses are argued in Section 3. Data and methodology to test the impact of investors and cash-flow uncertainty on dividend payouts are described in Section 4. Section 5 conducts empirical analysis and shows the results. Section 6 concludes the paper.

2. Early Literature

2.1. Cash-flow uncertainty

There would be a negative relationship between cash-flow uncertainty and dividend payouts. Firms facing with cash-flow instability have a high probability of paying low dividends and retaining their earnings for their precautionary reason. Also, firms with high cash-flow uncertainty are less likely to pay more dividends because firms are not enough to maintain the high dividends after all.

Linter (1956) argues that earnings stability is a major factor to decide payout policy. Furthermore, Brav, Graham, Harvey, and Michaely (2005) insists that most of the managers of dividend-paying firms regard stability of future cash flows as an important determinant which affects dividend payout policy. Chay and Suh (2009) contend that cash-flow uncertainty is the most important factor affecting dividend payout.

2.2. Foreign investors

Park et al. (2003) examine the relationship between foreign investors' ownership and dividend payout with listed firms. According to them, the foreign ownership ratio shows a positive relationship with the dividend rate, and shows a positive effect on the total amount of dividends. As a result of analyzing the relationship between foreign investors and dividend payouts within non - financial firms, it is found that the increase of foreign shareholder's ownership increases the dividend, and also the increase of foreign shareholder's ownership increases the dividend yield of total assets (Lee, 2006). Furthermore, Sul and Kim (2006) analyze the relationship between foreign shareholders and dividend levels in 110 manufacturing industries with foreign ownership of 5% or more for 3 consecutive years. They argue that the higher the stake of foreign investors with more than 5%, the more dividend payouts increase respectively. Also, according to Kim and Joh (2008), as a result of analyzing the relationship between foreign shareholders' ownership and amount of dividend payout, the relationship between dividend level and foreign ownership has a positive relationship, and the increase in foreign investors increases dividend payouts but decreases investment.

2.3. Major investors

According to the tax clientele hypothesis, different types of investors with different dividend tax rate prefer different dividend payout policies. The hypothesis may lead major investors in Korea to increase dividend payouts because of a low dividend tax rate.

According to Black and Scholes (1974), they argue that there are clientele effects on dividends because the preference for dividends depends on the characteristics of investors. Grinstein and Michaely (2005), Graham and Kumar (2006), and Rantapuska (2008) show that tax clientele effect exists for institutional investors, investors with high income, and investors with low dividend tax rates. Moreover, Allen et al. (2000) analyze the effect of dividend on the tax clientele of the investor and suggest that institutional investors with a relatively low dividend tax rate tend to prefer dividends.

In addition, major shareholders in Korea could increase cash dividends in order to defend their rights of management. According to Jensen and Meckling (1976), corporate internal shareholders or executives can take private benefits from the firm, and the lower the cash flow rights, the more incentive to pursue private profits. If the controlling shareholder's ownership is low or the controlling shareholder is low, the controlling shareholders can not only pursue the private interests in the short term but also have the incentive to protect the position so that it can continuously take private profit. In particular, in Korea, the benefits of management rights are very high (Nenova, 2003; Dyck and Zingales, 2004). With the dominance of controlling shareholders, including founding family members, the need for procuring management rights will be higher. For this reason, if controlling stake ownership is high, management rights are relatively easy to secure, and it is highly likely to prefer cash dividends rather than treasury stock purchases (Ko and Joh, 2009). The higher the ownership of the largest shareholder, the more likely it is to seek long-term profit maximization, which affects both dividend and investment in a positive way. According to Sul, Min, and Kang (2006), as the foreign investors' ownership increases, the shareholding of the largest shareholder is also

increasing. The higher the ownership of the largest shareholder, the higher the probability of seeking to maximize long-term profit. Also, Yang (2018) argues that the largest shareholder's ownership has a significant positive coefficient with a cash dividend. This indicates that the larger the shareholding of large shareholders, the more cash dividend is paid.

Finally, major investors who invest in the holding companies prefer dividends because of the dividend revenue from their subsidiaries. According to Lee (2008), from the perspective of the holding company's shareholders, the subsidiary's business performance and dividend payout are the main sources of profits. Moreover, holding companies have the incentive to reduce tax payments from dividend revenue that are derived from their subsidiaries. (Kwak and Choi, 2008).

2.4. 5% Rule

If foreign investors and major investors own more than 5%, they are meant to have monitoring incentives and have a power to bear monitoring costs. Securities Exchange Commission (SEC) in the US and Securities and Exchange Act in South Korea have a standard of 5% rule. Investors who own more than 5% are regarded to have large ownership who could have power to control over invested firms. Also, they are empowered to designate board of directors and have a responsibility to declare the change of their ownership (Lee and Lee, 2018).

3. Hypothesis

3.1. Cash-flow uncertainty

There exists a negative relationship between cash-flow uncertainty and dividend payouts. According to Chay and Suh (2009), cash-flow uncertainty is the most important factor affecting dividend payout. Firms facing with cash-flow instability have a high probability of paying low dividends and retaining their earnings for their precautionary reason. Also, firms with high cash-flow uncertainty have less opportunity to pay more dividends because firms are not confident to keep the high dividends after all.

H1: There is a negative relationship between cash-flow uncertainty and dividend payouts.

3.2. Foreign investors' ownership

Foreign investors are known to face the problem of information asymmetry because they are placed in information disadvantage compared with local investors in foreign stock markets. Foreign investors prefer early withdrawal of investment funds because of the information asymmetry and difference in risk perception of the overall management of listed companies. They seek to achieve a stable return in the near future rather than long-run profit. In addition, foreign investors, who own more than 5% ownership, induce firms to pay more dividends because they have the power to monitor and control the investing firms. Sul and Kim (2005) insists that foreign investors' ownership with more

than 5% of the firm have a positive correlation with dividend rate. Therefore, foreign investors are one of the important investors who could monitor and control the investing firms to pay high dividends, their ownership and dividend payouts would be positively correlated even with cash-flow uncertainty.

H2: Foreign investors' ownership and dividend payouts are positively correlated even with cash-flow uncertainty.

3.3. Major investors' ownership

Korean largest shareholders including the major investor, related parties, and institutional investors have benefited from tax reduction because their dividend tax rates are lower than individual investors. This could lead largest shareholders to increase cash dividends. Furthermore, inside investors or executives of the firm have incentives to get private benefits and this would be more evident when they have low cash flow rights. Major investors who have low ownership and rights to the firm would be likely to seek private profits. In Korea, benefits from the rights of management are huge and major investors' rights including the family of founders are inherited within their family. Therefore, they are more likely to protect their rights of management from outside threats. Furthermore, major investors are more likely to pursue long-run profit maximization so that they will increase both dividends and investments. Finally, in Korea, major investors in the holding companies would prefer cash dividends because the change of the firms' structure into holding companies enables major investors including the family of CEO to

expand dominance and take profits by utilizing the holding company. They take profits from dividend revenue and royalties of their subsidiaries. With the reason, with high major investors' ownership, it is more useful and easy to secure their rights of management. Hence, the more major investors' ownership, the higher cash dividend payouts would be.

H3: Major investors' ownership and dividend payouts are positively correlated even with cash-flow uncertainty.

4. Data and Methodology

4.1. Data

This empirical study was conducted for a total of 18 years from 2000 to 2017 for companies excluding the financial companies, utility companies, and capital incapacitating firms in KOSPI and KOSDAQ markets. The period of the study analysis was selected from 2000, when the share of foreign investors and domestic institutional investors gradually increased after the financial crisis. Financial and utility firms are excluded from the sample because the nature of accounting standards or financial statement data is different from non - financial companies. Capital incapacitated firms,

which are in financial distress, are excluded from the sample because they also differ in the nature of financial statement data from those that do not.

The types of investors are classified into foreign investors and major investors, and each investor has to have a large share of 5% or more. The ownership of investors, holding more than 5% of ownership in individual companies, were collected from TS-2000 and FnGuide. Also, dividend payouts and other key variables are collected from FnGuide.

4.2. Methodology

In order to examine the effect of investors and uncertainty of cash flow on firm's payout policy, regression models such as the following equations (1), (2), and (3) were established. Dependent variables are: DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. Independent variables are set by the type of investors and the uncertainty of cash flow. Each investor's ownership is tested only for investors with a stake of more than 5%. Stock return volatility is used as a proxy for cash-flow uncertainty. According to Chae and Suh (2009), cash-flow uncertainty is the most important factor affecting dividend payout. Firms facing with cash-flow instability have high probability of paying low dividends and retaining their earnings for their precautionary reason. The reason why stock return volatility could be a proxy for cash-flow uncertainty is that stock prices have a tendency to fluctuate more volatile when cash flows are unstable.

The explanatory variables which have impact on dividends are: (1) ROA, operating income divided by total asset, (2) CASH, cash and cash equivalent divided by total asset, (3) Log(TA), log of total assets, (4) LEV, total debt divided by total asset. Furthermore, year dummy and industry dummy are used as control variables.

The dividend payout has a positive value only and has a distribution with a cut off value of 0 or less. Tobit regression model should be used as an appropriate method for the dependent variable with a cut-off value of less than a certain level. This method can solve the problem when the dependent variable is observed only in a certain region. It could provide convenience and solve the problem when the ordinary least squares (OLS) estimation fails to provide a coincidence estimator.

The details of dependent variables, independent variables and control variables are shown in the table below. Independent variables are (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) SRVOL * FOREIGN, interaction term between stock return volatility and foreign investors' ownership, , (3) SRVOL * LARGEST, interaction term between stock return volatility and major investors' ownership, (4) FOREIGN, foreign investors ownership, (5) LARGEST, major investors ownership, (6) ROA, operating income divided by total asset, (7) CASH, cash and cash equivalent divided by total asset, (8) Log(TA), log of total assets, (9) LEV, total debt divided by total asset. Fama and French (2001) and DeAngelo, DeAngelo, and Stulz (2006) use Log(TA), ROA, and CASH as independent variables in order to examine whether those factors have impact on dividend payouts. Furthermore, Year dummy and Industry dummy are control variables.

Table 2.
Description of variables

Dependent Variables		
DIV/E	Cash dividends/ net income	
DIV/TA	Cash dividends/ total asset	
DIV/TE	Cash dividends / total equity	
Independent Variables		
SRVOL	Cash flow uncertainty	Standard deviation of monthly stock returns over the recent two years including the current fiscal year (t, t-1)
ROAVOL	Cash flow uncertainty	Standard deviation of ROA over the recent four years including the current fiscal year (t, t-1, t-2, t-3)
FOREIGN	Foreign investors' ownership	Foreign investor's ownership which owns more than 5%
LARGEST	Major investors' ownership	Major investor's ownership which owns more than 5%
Log(TA)	Firm size	Log of total asset
ROA	Return on assets	EBIT / total assets
LEV	Leverage	total debt / total asset
CASH	Cash holdings	Cash and cash equivalents / total asset
Control Variables		
Year dummy		
Industry dummy		

First of all, the study will be analyzed how firms' dividend payout policy is affected by cash-flow uncertainty. The regression analysis models are as follows. In this case, the investor's ownership means the foreign investor's ownership and the largest shareholder's ownership, respectively.

(1) $DIV/E_{i,t+1}$
$$= \beta_0 + \beta_1 \cdot (SRVOL_{i,t}) + \beta_2 \cdot (Investors'ownership_{i,t}) + \beta_3$$
$$\cdot ROA_{i,t} + \beta_4 \cdot Log(TA)_{i.t} + \beta_5 \cdot CASH_{i,t} + \beta_6 \cdot LEV_{i,t} + \beta_7$$
$$\cdot Year\ dummy_{i,t} + \beta_8 \cdot Industry\ dummy_{i,t} + \varepsilon_{i,t}$$

(2) DIV/TA$_{i,t+1}$

$$= \beta_0 + \beta_1 \cdot \left(SRVOL_{i,t}\right) + \beta_2 \cdot \left(Investors'ownership_{i,t_{i,t}}\right) + \beta_3$$
$$\cdot ROA_{i,t} + \beta_4 \cdot Log(TA)_{i.t} + \beta_5 \cdot CASH_{i,t} + \beta_6 \cdot LEV_{i,t} + \beta_7$$
$$\cdot Year\ dummy_{i,t} + \beta_8 \cdot Industry\ dummy_{i,t} + \varepsilon_{i,t}$$

(3) DIV/TE$_{i,t+1}$

$$= \beta_0 + \beta_1 \cdot \left(SRVOL_{i,t}\right) + \beta_2 \cdot \left(Investors'ownership_{i,t_{i,t}}\right) + \beta_3$$
$$\cdot ROA_{i,t} + \beta_4 \cdot Log(TA)_{i.t} + \beta_5 \cdot CASH_{i,t} + \beta_6 \cdot LEV_{i,t} + \beta_7$$
$$\cdot Year\ dummy_{i,t} + \beta_8 \cdot Industry\ dummy_{i,t} + \varepsilon_{i,t}$$

In order to analyze the effect of uncertainty of cash flow and investors' ownership on the payout policy of a company, interaction term of uncertainty of cash flow and investors' ownership is set. The investors' ownership is divided into foreign investors and the largest shareholder. The regression models are as follows in equations (4), (5) and (6).

(4) $DIV/E_{i,t+1}$

$$= \beta_0 + \beta_1 \cdot \left(SRVOL * Investors'ownership_{i,t_{i,t}}\right) + \beta_2 \cdot (SRVOL_{i.t})$$
$$+ \beta_3 \cdot \left(Investors'ownership_{i,t_{i,t}}\right) + \beta_4 \cdot ROA_{i,t} + \beta_5 \cdot Log(TA)_{i.t}$$
$$+ \beta_6 \cdot CASH_{i,t} + \beta_7 \cdot LEV_{i,t} + \beta_8 \cdot (Year\ dummy) + \beta_9$$
$$\cdot (Industry\ dummy) + \varepsilon_{i,t}$$

(5) $DIV/TA_{i,t+1}$

$$= \beta_0 + \beta_1 \cdot \left(SRVOL * Investors'ownership_{i,t_{i,t}}\right) + \beta_2 \cdot (SRVOL_{i.t})$$
$$+ \beta_3 \cdot \left(Investors'ownership_{i,t_{i,t}}\right) + \beta_4 \cdot ROA_{i,t} + \beta_5 \cdot Log(TA)_{i.t}$$
$$+ \beta_6 \cdot CASH_{i,t} + \beta_7 \cdot LEV_{i,t} + \beta_8 \cdot (Year\ dummy) + \beta_9$$
$$\cdot (Industry\ dummy) + \varepsilon_{i,t}$$

(6) $DIV/TE_{i,t+1}$

$$= \beta_0 + \beta_1 \cdot \left(SRVOL * Investors'ownership_{i,t}{}_{i,t}\right) + \beta_2 \cdot (SRVOL_{i,t})$$
$$+ \beta_3 \cdot \left(Investors'ownership_{i,t}{}_{i,t}\right) + \beta_4 \cdot ROA_{i,t} + \beta_5 \cdot Log(TA)_{i,t}$$
$$+ \beta_6 \cdot CASH_{i,t} + \beta_7 \cdot LEV_{i,t} + \beta_8 \cdot (Year\ dummy) + \beta_9$$
$$\cdot (Industry\ dummy) + \varepsilon_{i,t}$$

To examine whether the increase in cash-flow uncertainty has impact on the increase in dividend payouts within specific groups of the investors' ownership, investors' ownership has to be divided into two groups; high investors' ownership and low investors' ownership. Then change of dividend payouts and cash-flow uncertainty should be considered. The regression models are in equation (7), (8), and (9).

(7) $\Delta\ DIV/E_{i,t+1}$

$$= \beta_0 + \beta_1 \cdot \left(\Delta\ SRVOL_{i,t}\right) + \beta_2 \cdot \left(Investors'ownership_{i,t}{}_{i,t}\right) + \beta_3$$
$$\cdot ROA_{i,t} + \beta_4 \cdot Log(TA)_{i,t} + \beta_5 \cdot CASH_{i,t} + \beta_6 \cdot LEV_{i,t} + \varepsilon_{i,t}$$

(8) $\Delta\ DIV/TA_{i,t+1}$

$$= \beta_0 + \beta_1 \cdot \left(\Delta\ SRVOL_{i,t}\right) + \beta_2 \cdot \left(Investors'ownership_{i,t}{}_{i,t}\right) + \beta_3$$
$$\cdot ROA_{i,t} + \beta_4 \cdot Log(TA)_{i,t} + \beta_5 \cdot CASH_{i,t} + \beta_6 \cdot LEV_{i,t} + \varepsilon_{i,t}$$

(9) $\Delta\ DIV/TE_{i,t+1}$

$$= \beta_0 + \beta_1 \cdot \left(\Delta\ SRVOL_{i,t}\right) + \beta_2 \cdot \left(Investors'ownership_{i,t}{}_{i,t}\right) + \beta_3$$
$$\cdot ROA_{i,t} + \beta_4 \cdot Log(TA)_{i,t} + \beta_5 \cdot CASH_{i,t} + \beta_6 \cdot LEV_{i,t} + \varepsilon_{i,t}$$

$\triangle$ DIV: $\triangle DIV/E_{i,t+1} = DIV/E_{i,t+1} - DIV/E_{i,t},$

$$\triangle DIV/TA_{i,t+1} = DIV/TA_{i,t+1} - DIV/TA_{i,t},$$

$$\triangle DIV/TE_{i,t+1} = DIV/TE_{i,t+1} - DIV/TE_{i,t}$$

$\triangle SRVOL_{i,t} = \triangle SRVOL_{i,t} - \triangle SRVOL_{i,t-1}$

5. Empirical Results

5.1. Financial characteristics of the data

The empirical results start with summary statistics and correlation analysis to investigate statistics of each variables and correlations among factors from 2000 to 2017.

Table 3 provides summary statistics for three dividend payout variables and other key variables. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) FOREIGN, foreign investors ownership, (3) LARGEST, major investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. The table presents mean, standard deviation, min, and max values for each variable.

Table 3.

Summary statistics.

The table shows the summary statistics of dividend payout variables and key variables from 2000 to 2017. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) FOREIGN, foreign investors ownership, (3) LARGEST, major investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. The table presents mean, standard deviation, min, and max values for each variable. Obs. is the number of observations. All variables are presented in percentage.

	Mean	St.dev	Min.	Max.	Obs.
DIV/E	17.41	1.17	0	61.09	10,929
DIV/TA	0.59	0.90	0	3.85	10,929
DIV/TE	0.98	1.43	0	6.20	10,929
SRVOL	3.41	1.92	0	36.31	10,929
LARGEST	38.58	17.91	6.95	79.01	10,929
FOREIGN	6.57	12.44	0	49.27	10,929
Log(TA)	18.92	1.80	13.10	26.70	10,929
ROA	1.96	10.88	-53.6	27.4	10,929
CASH	7.35	7.35	0.06	32.63	10,929
LEV	49.13	23.93	7.83	115.92	10,929

In the Table 3, average of DIV/E is 17.41%, DIV/TA is 0.59%, and DIV/TE is 0.98%. Also, the average of major investors' ownership is 38.58% and the average of foreign investors' ownership is 6.57%. Mean of the Size of the firm is 18.92, ROA is 1.96%, CASH is 7.35%, and leverage is 49.13%.

Table 4 shows the result of correlation analysis between dividend payout variable and other independent variables. The dependent variable is DIV/E, the dividend-to-net income ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) FOREIGN, foreign investors ownership, (3) LARGEST, major investors ownership, (4) ROA, operating income divided by total asset,

(5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset.

The hypothesis is that dividend payout is negatively correlated with SRVOL, which represents cash-flow uncertainty. Also, dividend payout is positively correlated with FOREIGN and LARGEST. The Table 4 gives results that dividend payout variable and SRVOL have a negative relationship with coefficient of -0.05. It is statistically significant at the 1% level. Furthermore, there is a positive relationship between FOREIGN and dividend payout with coefficient of 0.02 and it is statistically significant at the 5% level. LARGEST is also positively correlated with dividend payout with coefficient of 0.06 which is statistically significant at the 1% level. It means that LARGEST is much more correlated with dividend payout rather than with FOREIGN. Moreover, log(TA), ROA, and CASH have positive relationship with dividend payout. On the other hand, although LEV is expected to be negatively correlated with dividend payout, in the Table 4, it is positively correlated with dividend payout.

In summary, the correlation analysis presents that dividend payout is negatively correlated with cash-flow uncertainty. On the other hand, dividend payout is positively correlated with foreign investors' ownership and major investors' ownership.

Table 4.

Correlations between dividend payout and key variables

The table shows the correlations between dividend payout variables and key variables. The dependent variable is DIV/E, the dividend-to-net income ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) FOREIGN, foreign investors ownership, (3) LARGEST, major investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

	DIV/E	SRVOL	LARGEST	FOREIGN	log(TA)	ROA	CASH	LEV
DIV/E	1	-0.05***	0.06***	0.02**	0.002	0.008*	0.007*	0.008
SRVOL		1	-0.24***	-0.008*	-0.07***	-0.04***	-0.02**	-0.04***
LARGEST			1	0.02**	0.03**	0.03**	0.002	-0.03**
FOREIGN				1	0.05***	0.01**	-0.008	-0.013**
Log(TA)					1	0.29***	-0.13***	-0.22***
ROA						1	0.10***	-0.28***
CASH							1	-0.28***
LEV								1

5.2. Multiple Tobit regressions on dividend payouts

Multiple Tobit regression model is adopted in order to examine the simultaneous impact of independent variables on the dividend payouts. Distribution of dividend payouts is limited that they are no less than 0. Regarding the distribution of dependent variable, ordinary least square (OLS) model would have bias and it has a problem to require consistent estimator. Therefore, with the dependent variable which has a value above a threshold (here is 0), Tobit regression model is appropriate to be utilized.

Table 5 illustrates results of multiple Tobit regression model with dividend payout variables and other key factors. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) FOREIGN, foreign investors ownership, (3) LARGEST, major investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables.

Panel A of the Table 5, shows the results from Tobit regression model in order to examine first dividend payout variable, DIV/E, and other dependent variables with control variables. SRVOL, which is a proxy for cash-flow uncertainty, is negatively correlated with DIV/E with coefficients of -7.40 and -7.39. Also it is statistically significant at the 1% level. FOREIGN is not statistically significant with DIV/E, which means foreign investors' ownership has less impact on dividend

payout. LARGEST is statistically significant with DIV/E at the 1% level with the coefficient of 0.49.

In Panel B, it represents the results of Tobit regression model to examine the second dividend payout variable, DIV/TA, and other factors. It shows the same results as the Panel A. SROVOL has a negative impact on DIV/TA with coefficients of -3.59 and -3.16, and they are statistically significant. Also, although FOREIGN has no impact on dividend payout, LARGEST has statistically significance with DIV/TA with the coefficient of 2.08. Panel C has also same results as the Panel A and Panel B. Therefore, from the Table 4, SRVOL has a negative impact on dividend payouts and LARGEST has a positive impact on dividend payouts. However, FOREIGN has no impact on dividend payouts.

Table 6 presents the results of Tobit regression model so as to analyze the impact of cash-flow uncertainty and types of investors on dividend payouts. As mentioned in the Table 5, cash-flow uncertainty and dividend payouts are negatively correlated and major investors' ownership and dividend payouts are positively correlated. In order to show the impact of cash-flow uncertainty and each type of investors on dividend payouts, interaction term (SRVOL * FOREIGN and SRVOL * LARGEST) is added to the Tobit regression model.

In the Table 6, interaction term of cash-flow uncertainty and foreign investors' ownership (SRVOL * FOREIGN) has no impact on dividend payouts. It is statistically insignificant. On the other hand, interaction term of cash-flow uncertainty and major investors' ownership (SRVOL * LARGEST) is statistically significant with dividend payouts and they are positively correlated with the

coefficient of 0.10, 5.10, and 8.15. Similarly, cash-flow uncertainty (SRVOL) is negatively related with three dividend payouts, major investors' ownership (LARGEST) is positively correlated with the dividend payouts, and foreign investors' ownership (FOREIGN) has no impact on dividend payouts.

Results of the Table 6 imply that major investors are significant factors with dividend payouts even though cash-flow uncertainty exists and it is negatively correlated with the dividend payouts. However, foreign investors have no impact on the dividend payouts and only cash-flow uncertainty has significant impact on the dividend payout policy.

Table 5.

Tobit regressions to explain the dividend payouts

The table reports Tobit regression results on dividend payout over the period from 2000 to 2017. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) FOREIGN, foreign investors ownership, (3) LARGEST, major investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

Panel A. DIV/E as the dependent variable			Panel B. DIV/TA as the dependent variable			Panel C. DIV/TE as the dependent variable		
	(1)	(2)		(1)	(2)		(1)	(2)
Intercept	1.57	0.16	Intercept	2.11***	1.07**	Intercept	3.72***	2.14***
	(1.71)	(1.72)		(5.5)	(2.82)		(6.22)	(3.60)
SRVOL	-7.40***	-7.39***	SRVOL	-3.59***	-3.16***	SRVOL	-5.70***	-5.05***
	(-27.11)	(-27.11)		(-31.51)	(-27.79)		(-31.59)	(-27.94)
FOREIGN	-4.19		FOREIGN	7.74		FOREIGN	6.31	
	(-0.15)			(0.63)			(0.01)	
LARGEST		0.49***	LARGEST		2.08***	LARGEST		3.19***
		(23.47)			(23.61)			(22.71)
ROA	3.51	0.04	ROA	4.52**	4.06*	ROA	7.82**	7.08*
	(0.85)	(0.85)		(2.58)	(2.35)		(2.81)	(2.58)
CASH	-0.08	-0.08	CASH	6,91	1.56	CASH	-0.03	9.79
	(-1.56)	(-1.56)		(0.32)	(0.73)		(-0.09)	(0.29)
Log(TA)	5.01*	4.99*	Log(TA)	-2.73	-2.80	Log(TA)	-1.34	-9.49
	(2.25)	(2.24)		(-0.29)	(-0.3)		(-0.09)	(-0.06)
LEV	-9.26	-0.09	LEV	0.06	9.55	LEV	1.88	2.29*
	(-0.06)	(-0.05)		(0.94)	(1.35)		(1.64)	(2.04)
Year dummy	Yes	Yes	Year dummy	Yes	Yes	Year dummy	Yes	Yes
Industry dummy	Yes	Yes	Industry dummy	Yes	Yes	Industry dummy	Yes	Yes
Obs.	10,929	10,929	Obs.	11,375	11,375	Obs.	11,375	11,375

Table 6.

Tobit regressions to explain the impact of cash flow uncertainty and investors on payout policy

The table reports Tobit regression results on dividend payout over the period from 2000 to 2017. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL * FOREIGN, interaction term between stock return volatility and foreign investors' ownership, (2) SRVOL * LARGEST, interaction term between stock return volatility and major investors' ownership, (3) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (4) FOREIGN, foreign investors ownership, (5) LARGEST, major investors ownership, (6) ROA, operating income divided by total asset, (7) CASH, cash and cash equivalent divided by total asset, (8) Log(TA), log of total assets, (9) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

	DIV/E	DIV/TA	DIV/TE
Intercept	0.30**	1.76***	3.28***
	(3.16)	(4.54)	(5.41)
SRVOL*FOREIGN	-0.02	-1.13	-1.45
	(-0.80)	(-1.30)	(-1.06)
SRVOL*LARGEST	0.10***	5.10***	8.35***
	(7.57)	(9.08)	(9.35)
SRVOL	-11.32***	-5.11***	-8.25***
	(-18.34)	(-19.78)	(-20.15)
FOREIGN	0.04	2.34	3.94
	(0.63)	(0.80)	(0.85)
LARGEST	0.16***	4.40*	4.94
	(3.49)	(2.20)	(1.55)
ROA	0.05	4.54**	7.89**
	(1.09)	(2.63)	(2.86)
CASH	-8.20	1.47	8.37
	(-1.59)	(0.69)	(0.25)
Log(TA)	0.46*	-4.43	-4.12
	(2.06)	(-0.47)	(-0.28)
LEV	0.13	-1.04	-0.02*
	(0.08)	(-1.47)	(-2.17)
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Obs.	10,929	11,375	11,375

Table 7.

Tobit regressions to explain the dividend payout ratio with foreign investors' ownership

The table reports Tobit regression results on dividend payout over the period from 2000 to 2017. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) SRVOL * FOREIGN, interaction term between stock return volatility and foreign investors' ownership, (3) FOREIGN, foreign investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

	DIV/E	DIV/TA	DIV/TE
Intercept	4.18	1.05**	3.73***
	(0.08)	(2.75)	(6.06)
SRVOL * FOREIGN	-1.99	-1.06	-5.43
	(-1.72)	(-1.24)	(-0.39)
SRVOL	-2.73***	-3.94***	-5.78***
	(-16.26)	(-24.76)	(-27.97)
FOREIGN	9.06*	2.31	1.91
	(2.33)	(0.80)	(0.40)
ROA	1.77	4.10*	8.15**
	(0.12)	(2.38)	(2.85)
CASH	-2.98	1.58	6.40
	(-1.00)	(0.74)	(0.18)
Log(TA)	1.32	2.54	3.03
	(1.03)	(0.27)	(0.20)
LEV	0.06	0.09	-2.42*
	(0.60)	(1.34)	(-2.06)
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Obs.	10,929	11,375	11,375

Table 7 presents the results of Tobit regression model to inspect the impact of cash-flow uncertainty and foreign investors' ownership (SRVOL * FOREIGN) on dividend payouts. In the Table 7, cash-flow uncertainty and foreign investors' ownership have no impact on dividend payouts. Although cash-flow uncertainty (SRVOL) is negatively related with dividend payouts, there are no impact between

foreign investors and dividend payouts.

Table 8.

Tobit regressions to explain the dividend payout ratio with major investors' ownership

The table shows Tobit regression results on dividend payout over the period from 2000 to 2017. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) SRVOL * LARGEST, interaction term between stock return volatility and major investors' ownership, (3) FOREIGN, foreign investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

	DIV/E	DIV/TA	DIV/TE
Intercept	6.05	1.79***	3.27***
	(1.14)	(4.61)	(5.24)
SRVOL * LARGEST	3.79***	5.09***	7.93***
	(5.15)	(9.06)	(8.55)
SRVOL	-4.39***	-5.17***	-8.26***
	(-13.12)	(-20.42)	(-19.96)
LARGEST	8.40**	4.42*	5.81
	(3.17)	(2.20)	(1.74)
ROA	1.96	4.50**	8.06**
	(0.90)	(2.60)	(2.86)
CASH	-0.03	1.46	1.81
	(-1.07)	(0.68)	(0.51)
Log(TA)	1.29	0.05	-0.06
	(1.00)	(0.51)	(-0.38)
LEV	0.06	0.02	0.03*
	(0.65)	(1.48)	(2.56)
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Obs.	10,929	11,375	11,375

Table 8 presents the results of Tobit regression model so as to analyze the impact of cash-flow uncertainty and major investors' ownership on dividend payouts.

In the Table 8, cash-flow uncertainty and major investors' ownership have significantly positive impact on dividend payouts with coefficients of 3.79, 5.09, and 7.93. Cash-flow uncertainty (SRVOL) is negatively related with dividend payouts and major investors are positively correlated with the dividend payouts. Hence, it implies that the more major investors' ownership, the more dividend payouts, even though cash-flow uncertainty increases. However, it is difficult to interpret that positive coefficients of the interaction term (SRVOL*LARGEST) have positive effects on dividend payouts. Therefore, marginal effect analysis with partial differentiation should be considered to find out how dividend payouts change with the cash-flow uncertainty and increase in each type of investors per unit.

Firstly, marginal effect of dividend payout should be examined with the change of the cash-flow uncertainty (∂DIV/ ∂SRVOL). For example, in the case of DIV/E, if the dividend payout takes partial differentiation with the cash-flow uncertainty, -4.39 + 3.79 $\times$ LARGEST will remain in the Tobit regression model. Moreover, if the mean of the LARGEST which is 38.58, is plugged in, it comes out to be 141.83. It means that with the major investors' ownership, increase in cash-flow uncertainty per unit could increase dividend payout. Similarly, in the case of DIV/TA, -5.17 + 5.09 $\times$ LARGEST remains and if the mean of the LARGEST is plugged in, it comes out to be 191.20. In the case of DIV/TE, partial differentiation of ∂DIV/ ∂SRVOL, -8.26 + 7.93 $\times$ LARGEST, results in 297.68. Therefore, with regarding the major investors' ownership, increase in cash-flow uncertainty per unit could increase dividend payout. In other words, dividend payout policy could depend on the existence of the major investor even though cash-flow uncertainty

rises.

Likewise, with the similar partial differentiation but with the change of the major investors' ownership (∂DIV/ ∂LARGEST), it comes out positive values which implies the more the major investors' ownership, the higher the dividend payouts even with the cash-flow uncertainty.

5.3. Logit regressions on the probability of paying dividends

Logit regression model could examine whether each type of investors with cash-flow uncertainty explain the probability of paying dividends. To construct the dependent variables to the Logit regression model, firms with paying dividends are assigned to be 1 and firms without paying dividends are assigned to be 0 during the fiscal year.

Table 9 presents the results of Logit regression model so as to analyze whether foreign investors' ownership could have impact on the probability of paying dividends. The results appear to be same as Tobit regression model. SRVOL is significantly negatively related with dividend payouts, which infers that firms facing high cash-flow uncertainty are less likely to pay dividends. FOREIGN has no impact on the probability of paying dividends. Also SRVOL * FOREIGN is no significant relationship with paying dividends. Thus, the Table 9 refers that foreign investors are not significantly correlated with probability of paying dividends.

Table 9.

Logit regressions to explain the likelihood of paying dividends with foreign investors' ownership

The table shows Logit regression results on dividend payout over the period from 2000 to 2017. The dependent variable is the log odd of a firm paying dividends; dividend-payers take 1 and non-dividend-payers take 0. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) SRVOL * FOREIGN, interaction term between stock return volatility and foreign investors' ownership, (3) FOREIGN, foreign investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

	DIV/E	DIV/TA	DIV/TE
Intercept	2.83***	3.04***	2.97***
	(5.27)	(5.76)	(5.46)
SRVOL * FOREIGN	-3.49	-4.03	-2.35
	(-0.30)	(-0.35)	(-0.20)
SRVOL	-4.73***	-4.95***	-5.06***
	(-27.17)	(-28.55)	(-27.86)
FOREIGN	2.59	3.75	3.72
	(0.63)	(0.92)	(0.88)
ROA	1.32	2.26	2.72
	(0.61)	(0.96)	(1.12)
CASH	-0.03	-0.04	-0.02
	(0.61)	(-1.04)	(-0.80)
Log(TA)	4.41***	4.23***	4.12**
	(3.40)	(3.31)	(3.09)
LEV	-1.13	-7.76	-4.88
	(-1.17)	(-0.80)	(-0.49)
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Obs.	10,929	11,375	11,375

Table 10 shows the results of Logit regression model in order to examine whether major investors' ownership could have impact on the probability of paying dividends.

Table 10.

Logit regressions to analyze the likelihood of paying dividends with major investors' ownership

The table presents Logit regression results on dividend payout over the period from 2000 to 2017. The dependent variable is the log odd of a firm paying dividends; dividend-payers take 1 and non-dividend-payers take 0. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) SRVOL * LARGEST, interaction term between stock return volatility and major investors' ownership, (3) FOREIGN, foreign investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

	DIV/E	DIV/TA	DIV/TE
Intercept	2.10***	2.33***	2.18***
	(5.66)	(4.17)	(3.78)
SRVOL * LARGEST	5.02***	5.13***	4.75***
	(6.14)	(6.15)	(5.42)
SRVOL	-6.25***	-6.48***	-6.43***
	(-17.03)	(-17.57)	(-16.75)
LARGEST	1.29***	1.28**	1.40***
	(4.38)	(4.25)	(4.40)
ROA	9.30	2.07	2.41
	(0.42)	(0.86)	(0.97)
CASH	-0.03	-0.02	-0.12
	(-0.80)	(-0.68)	(-0.40)
Log(TA)	4.48***	4.29**	4.21**
	(3.37)	(3.27)	(3.09)
LEV	-7.27	-3.29	-2.97
	(-0.73)	(-0.33)	(-0.03)
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Obs.	10,929	11,375	11,375

Results of the Table 10 appear to be same as Tobit regression model. SRVOL is significantly negatively related with dividend payouts, which infers that firms facing high cash-flow uncertainty are less likely to pay dividends. Coefficients of LARGEST are significant and positive on the probability of paying dividends.

Furthermore, SRVOL * LARGEST has significantly positive relationship with paying dividends. Thus, the Table 10 indicates that major investors are significant factor that is positively correlated with probability of paying dividends with cash-flow uncertainty.

5.4. Impact of cash-flow uncertainty with high or low investors' ownership on dividend payouts

To examine whether cash-flow uncertainty has impact on the dividend payouts within specific groups of the investors' ownership, investors' ownership has to be divided into two groups; high investors' ownership and low investors' ownership.

Table 11 classifies major investors into high LARGEST, constructed by major investors' ownership which is higher than the median and low LARGEST, constructed by major investors' ownership which is lower than the median in order to investigate how cash-flow uncertainty has impact on the dividend payouts within specific groups of the investors' ownership.

In the table 11, coefficients of SRVOL in the high LARGEST group are -5.05, -2.17, and -3.40 which are statistically significant. Also, coefficients of SRVOL in the low LARGEST group are statistically significant and are -1.04, -4.46, and -7.22. Impacts of SRVOL on dividend payouts (DIV/TA and DIV/TE) in the high LARGEST group are less than those in the low LARGEST group. It means that cash-flow uncertainty has less impact on dividend payouts with the high major investors' ownership.

Table 12 classifies foreign investors into high FOREIGN, constructed by foreign investors' ownership which is higher than the median and low FOREIGN, constructed by foreign investors' ownership which is lower than the median to investigate how cash-flow uncertainty has impact on the dividend payouts within a specific group of the investors' ownership.

In the table 12, coefficients of SRVOL in the high FOREIGN group are -8.63, -3.45, and -5.48 which are statistically significant. Also, coefficients of SRVOL in the low FOREIGN group are statistically significant and are -8.30, -3.61, and -5.75. Impacts of SRVOL on dividend payouts in the high FOREIGN group are similar to those in the low FOREIN group. It means that cash-flow uncertainty has not distinctive impact on dividend payouts with the high foreign investors' ownership.

Table 11.

Relationship between dividend payout and cash-flow uncertainty with different group of major investors' ownership

The table reports Tobit regression results on dividend payout over the period from 2000 to 2017 with different group of major investors' ownership. Panel A. reports High LARGEST, constructed by major investors' ownership which is higher than the median. Panel B. reports Low LARGEST, constructed by major investors' ownership which is lower than the median. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) ROA, operating income divided by total asset, (3) CASH, cash and cash equivalent divided by total asset, (4) Log(TA), log of total assets, (5) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

Panel A. High LARGEST				Panel B. Low LARGEST			
	DIV/E	DIV/TA	DIV/TE		DIV/E	DIV/TA	DIV/TE
Intercept	3.20**	1.97***	3.40***	Intercept	-1.26	-5.26***	-8.54***
	(2.85)	(4.24)	(4.71)		(-1.85)	(-3.24)	(-2.77)
SRVOL	-5.05***	-2.17***	-3.40***	SRVOL	-1.04***	-4.46***	-7.22***
	(-13.46)	(-13.99)	(-13.98)		(-24.57)	(-25.16)	(-25.23)
ROA	5.63	2.89	4.06	ROA	1.11	6.53*	1.22**
	(0.10)	(1.24)	(1.11)		(1.75)	(2.45)	(2.83)
CASH	-0.04	5.24	6.05	CASH	-1.44	-2.48	-4.80
	(-0.56)	(1.82)	(1.33)		(-1.84)	(-0.75)	(-0.90)
Log(TA)	1.50	2.92*	3.33	Log(TA)	7.21*	1.83	2.17
	(0.50)	(2.34)	(1.70)		(2.14)	(1.28)	(0.93)
LEV	-4.55	0.03	0.01	LEV	0.07	1.51	3.27
	(-0.20)	(0.37)	(0.85)		(0.03)	(1.37)	(0.82)
Year dummy	Yes	Yes	Yes	Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Industry dummy	Yes	Yes	Yes
Obs.	5142	5404	5404	Obs.	5787	5971	5971

Table 12.

Relationship between dividend payout and cash-flow- uncertainty with different group of foreign investors' ownership

The table reports Tobit regression results on dividend payout over the period from 2000 to 2017 with different group of foreign investors' ownership. Panel A. reports High FOREIGN, constructed by foreign investors' ownership which is higher than the median. Panel B. reports Low FOREIGN, constructed by foreign investors' ownership which is lower than the median. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (2) ROA, operating income divided by total asset, (3) CASH, cash and cash equivalent divided by total asset, (4) Log(TA), log of total assets, (5) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

Panel A. High FOREIGN				Panel B. Low FOREIGN			
	DIV/E	DIV/TA	DIV/TE		DIV/E	DIV/TA	DIV/TE
Intercept	0.73*	3.03*	6.86**	Intercept	41.00***	2.23***	3.84***
	(2.00)	(2.15)	(3.12)		(4.13)	(5.27)	(5.78)
SRVOL	-8.63***	-3.45***	-5.48***	SRVOL	-8.30***	-3.61***	-5.75***
	(-15.38)	(-16.04)	(-16.18)		(-26.56)	(-27.00)	(-27.07)
ROA	-0.04	1.53	2.00	ROA	0.08	5.81**	9.33**
	(-0.50)	(0.05)	(0.38)		(1.62)	(2.83)	(2.85)
CASH	-9.81	-2.23	1.54	CASH	-7.98	1.97	-0.08
	(-0.94)	(-0.56)	(0.25)		(-1.32)	(0.76)	(-0.18)
Log(TA)	0.29	5.30	1.07	Log(TA)	0.49	-0.07	-0.07
	(0.64)	(0.31)	(0.39)		(1.89)	(-0.63)	(-0.40)
LEV	6.77*	4.16**	8.08***	LEV	-2.71	-4.11	-1.78
	(1.97)	(3.20)	(3.93)		(-1.36)	(-0.48)	(-0.13)
Year dummy	Yes	Yes	Yes	Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Industry dummy	Yes	Yes	Yes
Obs.	2648	2791	2791	Obs.	8281	8865	8584

5.5. Impact of cash-flow uncertainty increment with high or low major investors' ownership on the rise of dividend payouts

To examine whether the increase in cash-flow uncertainty has impact on the increase in dividend payouts within specific groups of the investors' ownership, investors' ownership has to be divided into two groups; high major investors' ownership and low major investors' ownership.

Table 13 analyzes how changes in cash-flow uncertainty have influence on the changes of dividend payouts in the two groups of the major investors' ownership. The results of the table show that there is no significant relationship between changes in cash-flow uncertainty and changes in the amount of dividend payouts, in the High LARGEST group. On the other hand, there are significantly negative relationship between changes in cash-flow uncertainty and changes in the amount of dividend payouts, in the Low LARGEST group. With those results, only with low major investors' ownership, increase in the cash-flow uncertainty has significantly negative effects on the increase in dividend payouts. Therefore, cash-flow uncertainty has no impact but major investors' ownership has significant influence on the amount of dividend.

Table 13.

Tobit regressions model of relationship between the increase in dividend payout and cash-flow- uncertainty with different group of major investors' ownership

The table reports Tobit regression results on dividend payout over the period from 2000 to 2017 with different group of major investors' ownership. Panel A. reports High LARGEST, constructed by major investors' ownership which is higher than the median. Panel B. reports Low LARGEST, constructed by major investors' ownership that is lower than the median. The dependent variables are △DIV/E, change of the dividend-to-net income ratio, △DIV/TA, change of the dividend-to-total asset ratio, and △DIV/TE, change of the dividend-to-equity ratio. The explanatory variables are: (1) △SRVOL, change of the stock return volatility which is a proxy of cash-flow uncertainty, (2) ROA, operating income divided by total asset, (3) CASH, cash and cash equivalent divided by total asset, (4) Log(TA), log of total assets, (5) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

Panel A. High LARGEST				Panel B. Low LARGEST			
	△DIV/E	△DIV/TA	△DIV/TE		△DIV/E	△DIV/TA	△DIV/TE
Intercept	-0.20	-2.72	-4.16	Intercept	-1.15**	-4.60***	-4.07***
	(-1.73)	(-0.79)	(-0.67)		(-2.55)	(-7.76)	(-7.24)
△SRVOL	-0.33	1.34	3.93	△SRVOL	-1.36**	-2.17**	-4.23**
	(-0.77)	(0.99)	(1.59)		(-2.84)	(-2.37)	(-2.56)
ROA	-0.11	2.45	2.24	ROA	0.07	5.96*	8.12*
	(-1.78)	(1.29)	(0.65)		(0.98)	(2.46)	(1.97)
CASH	0.18	8.75	2.25	CASH	-0.13	2.09	-0.06
	(0.02)	(0.37)	(0.53)		(-1.44)	(0.71)	(-0.12)
Log(TA)	0.01	1.15	2.02	Log(TA)	0.72	-5.67	-9.07
	(0.04)	(1.15)	(1.13)		(1.88)	(-0.45)	(-0.42)
LEV	-0.68	-8.35	-1.98	LEV	-3.31	1.37	7.82
	(-0.29)	(-1.13)	(-1.48)		(-1.08)	(0.01)	(0.46)
Year dummy	Yes	Yes	Yes	Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Industry dummy	Yes	Yes	Yes
Obs.	4381	4647	4647	Obs.	4885	5062	5062

6. Conclusion

This paper analyzes the relationship between the types of investors and the payout policy within cash-flow uncertainty, even though there is a negative correlation between cash-flow uncertainty and dividend payout. It shows that cash-flow uncertainty, with a proxy of stock return volatility through the last two years, has a significantly negative impact on dividend payouts. Furthermore, foreign investors' ownership and major investors' ownership have a positive relationship with dividend payout policy.

In order to examine how different types of investors have an impact on dividend payouts even with the cash-flow uncertainty, respectively, the interaction term of cash-flow uncertainty and investors (SRVOL * TYPES OF INVESTORS) is added to the Tobit regression and Logit regression model. Consequently, while foreign investors have no impact on payout policy with cash-flow uncertainty, major investors have the significantly positive impact on dividend payouts. However, it is difficult to interpret positive coefficients of the interaction term of cash-flow uncertainty and major investors' ownership (SRVOL*LARGEST) has the positive effects on dividend payouts. So, marginal effect analysis is conducted to figure out how dividend payouts change with the cash-flow uncertainty and increase in each type of investors per unit. With the analysis, dividends increase when major investors' ownership increase even with the cash-flow uncertainty.

To investigate the impact of major investors on dividend payout policy further, major investors are categorized as two groups: high major investors' ownership and low major investors' ownership. In the group of high major investors' ownership,

change of cash-flow uncertainty has no impact on the amount of dividends. On the other hand, the change of cash-flow uncertainty has a significantly negative impact on the dividend payouts in the group of low major investors' ownership. This result implies that the amount of dividends is significantly affected by major investors' ownership even though cash-flow uncertainty increases.

As a result, even though foreign investors have less impact on dividend payouts when they face with cash-flow uncertainty, major investors have significantly positive effects on dividend policy even with the cash-flow uncertainty. It means that major investors have more incentive to increase dividends because of low dividend tax rates although cash-flow uncertainty exists. Furthermore, major investors in holding companies are more willing to increase dividends because they could exploit profits from dividend revenue and royalties from their subsidiaries. Major investors, including CEOs and their related parties such as families, are more concentrated in holding companies to expand their management controls. With the structure, it is easy for the largest shareholders to take control over their subsidiaries and exploit them by increasing dividend revenue and royalties. With the reasons, major investors are more likely to increase dividend payments. Therefore, major investors' ownership has a significantly positive impact on the dividend payouts although cash-flow uncertainty exists.

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APPENDIX

A.1. Alternative proxy for cash-low uncertainty with Tobit regressions model

As mentioned, stock return volatility is a fundamental proxy for cash-flow uncertainty. On the other hand, ROA volatility which is a standard deviation of ROA over the recent four years including the current fiscal year (t, t-1, t-2, t-3) could be an alternative proxy for cash-flow uncertainty. Therefore, I analyze whether volatility of operating profitability has a consequential influence on the amount of dividend payouts.

Table A.1 illustrates results of multiple Tobit regression model with dividend payout variables and other key factors. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) ROAVOL * LARGEST, interaction term between ROA volatility and major investors' ownership, (2) ROAVOL, volatility of operating profitability which is an alternative proxy of cash-flow uncertainty, (3) LARGEST, major investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables.

The results of Table A.1 are similar to the Tobit regression model of SRVOL. ROAVOL, which is an alternative proxy for cash-flow uncertainty has significantly

negative influence on dividend payouts. Furthermore, major investors' ownership

also has positive impact on the amount of dividend.

Table A.1.

Tobit regressions to explain the dividend payout with major investors' ownership

The table reports Tobit regression results on dividend payout over the period from 2000 to 2017. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) ROAVOL, ROA volatility which is an alternative proxy of cash-flow uncertainty, (2) ROAVOL * LARGEST, interaction term between ROA volatility and major investors' ownership, (3) LARGEST, major investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

	DIV/E	DIV/TA	DIV/TE
Intercept	-2.30*	-7.10	-6.35
	(-2.53)	(-1.88)	(-1.06)
ROAVOL * LARGEST	-0.06	2.71*	4.34*
	(-0.02)	(2.36)	(2.21)
ROAVOL	-1.41 ***	-5.85***	-1.03***
	(-11.58)	(-12.45)	(-12.94)
LARGEST	4.22***	1.63***	2.32***
	(16.39)	(15.30)	(12.99)
ROA	9.39***	5.20***	7.21***
	(22.27)	(28.58)	(24.71)
CASH	-0.07	1.15	2.69
	(-1.43)	(0.55)	(0.78)
Log(TA)	6.69***	1.52	2.91*
	(3.33)	(1.79)	(2.09)
LEV	-3.55	0.04	0.02
	(-0.67)	(0.57)	(1.66)
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Obs.	11,755	12,196	12,196

Table A.2.

Tobit regressions to explain the dividend payout with foreign investors' ownership

The table presents Tobit regression results on dividend payout over the period from 2000 to 2017. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) ROAVOL, ROA volatility which is an alternative proxy of cash-flow uncertainty, (2) ROAVOL * FOREIGN, interaction term between ROA volatility and foreign investors' ownership, (3) FOREIGN, foreign investors ownership, (4) ROA, operating income divided by total asset, (5) CASH, cash and cash equivalent divided by total asset, (6) Log(TA), log of total assets, (7) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

	DIV/E	DIV/TA	DIV/TE
Intercept	-2.30*	-7.76*	-7.33
	(-2.53)	(-2.06)	(-1.23)
ROAVOL * FOREIGN	-1.72	-9.58	-8.71
	(-0.36)	(-0.52)	(-0.28)
ROAVOL	-1.41***	-4.84***	-8.77***
	(-21.13)	(-19.02)	(-20.34)
FOREIGN	1.17	2.50	1.29
	(0.31)	(0.16)	(0.50)
ROA	9.39***	5.23***	7.27***
	(22.29)	(28.72)	(24.92)
CASH	-0.07	1.18	2.75
	(-1.41)	(0.57)	(0.79)
Log(TA)	6.69***	1.54	2.89*
	(3.32)	(1.81)	(2.08)
LEV	-3.50	0.04	0.01
	(-0.23)	(0.55)	(1.66)
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Obs.	11,755	12,196	12,196

Table A.2 shows that ROAVOL also has statistically negative impact on dividend payouts. On the other hand, foreign investors' ownership and dividend payouts have positive relationship but they seem to be statistically insignificant.

A.2. Tobit regressions model only in KOSPI market

Impact of cash-flow uncertainty and types of investors on dividend payouts are examined both in KOSPI and KOSDAQ markets. What should be noticed is that there should be no impact of foreign investors' ownership on dividend payouts because foreign investors are not willing to invest to firms in the KOSDAQ market. Therefore, the relationship between dividend payouts and interaction of cash-flow uncertainty and investors' ownership should be analyzed only in the KOSPI market.

Table A.3 presents the results of Tobit regressions model whether cash-flow uncertainty and investors have impacts on the amount of dividends only in KOSPI market.

Results of the Table A.3 are similar to the results of Tobit regressions model both in KOSPI and KOSDAQ market. Although foreign investors' ownership has significantly positive impact on dividend payouts, there is no significant relationship between the interaction term of cash-flow uncertainty and foreign investors (SRVOL*FOREIGN) and the amount of dividend payouts. On the other hand, there still has strong relationship between interaction term of cash-flow uncertainty and major investors (SRVOL*LARGEST) and the amount of dividend payouts. Hence, major investors' ownership has significant impact on dividend payouts even with the cash-flow uncertainty.

Table A.3.

Tobit regressions to explain the impact of cash flow uncertainty and investors on payout policy in KOSPI

The table shows Tobit regression results on dividend payout over the period from 2000 to 2017. The dependent variables are DIV/E, the dividend-to-net income ratio, DIV/TA, the dividend-to-total asset ratio, and DIV/TE, the dividend-to-equity ratio. The explanatory variables are: (1) SRVOL * FOREIGN, interaction term between stock return volatility and foreign investors' ownership, (2) SRVOL * LARGEST, interaction term between stock return volatility and major investors' ownership, (3) SRVOL, stock return volatility which is a proxy of cash-flow uncertainty, (4) FOREIGN, foreign investors ownership, (5) LARGEST, major investors ownership, (6) ROA, operating income divided by total asset, (7) CASH, cash and cash equivalent divided by total asset, (8) Log(TA), log of total assets, (9) LEV, total debt divided by total asset. Year dummy and Industry dummy are control variables. The numbers in parentheses are t-statistics for the average regression coefficient. ***, **, * represent statistically significance at the 1%, 5%, and 10% level. Obs. is the number of observations.

	DIV/E	DIV/TA	DIV/TE
Intercept	12.50	1.30 ***	1.16***
	(1.65)	(5.97)	(3.05)
SRVOL*FOREIGN	0.01	-9.82	-1.18
	(0.31)	(-1.77)	(-1.19)
SRVOL*LARGEST	0.07***	2.15***	4.17***
	(4.72)	(5.02)	(5.56)
SRVOL	-8.12 ***	-2.26 ***	-4.29***
	(-11.19)	(-10.59)	(-11.54)
FOREIGN	0.05	1.28***	2.09***
	(0.90)	(7.59)	(6.99)
LARGEST	0.03	1.50	9.96
	(0.64)	(0.11)	(0.39)
ROA	1.13***	8.08***	1.40***
	(18.40)	(43.58)	(42.35)
CASH	-5.86	5.58***	9.21**
	(-0.89)	(3.01)	(2.78)
Log(TA)	1.85***	3.22	2.48
	(6.62)	(0.04)	(1.77)
LEV	-41.49***	-1.71***	-1.29 ***
	(-20.42)	(-29.07)	(-12.64)
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Obs.	8940	9459	9459

요약(국문초록)

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경영학과 재무금융전공

　　본 연구에서는 외국인 투자자, 최대주주와 현금흐름의 불확실성이 배당 정책에 미치는 영향을 분석하고자 한다. 현금흐름의 불확실성과 배당 정책 간에는 음의 상관관계가 존재하더라도 투자자의 유형에 따라 배당 정책에 각각 어떤 관계가 있는지 검증하고자 한다. 현금흐름의 불확실성이 존재하면 기업들은 재정적인 어려움으로 배당을 하기보다는 유보를 함으로써 사전 예방을 하려고 한다. 외국인 투자자의 경우, 경영 전반에 대한 정보 비대칭문제와 위험 인식 차이로 장기간의 시세차익보다 안정된 수익 실현을 추구하여 현금 배당을 선호한다. 최대주주의 경우에는 개인 투자자보다 낮은 배당 세율로 인해 배당을 늘리고자 하는 요인이 존재하며, 지주회사의 최대주주는 자회사로부터 배당수익을 얻어 수익을 늘리고자 한다.

　　외환 금융위기 이후부터, 외국인 투자자와 기관투자자의 기업에 대한 투자가 늘어난 2000년부터 2017년까지 한국거래소에 상장된 비금융기업을 대상으로 검증을 실시하고자 한다. 또한, 미국 증권거래위원화와 한국 증권거래법의 5% Rule에 근거하여, 각각의 투자자가 5% 이상의 지분율을 보유한 경우에 한해 투자기업의 경영자에 대한 독립성과 감시 유인을 갖춘 대규모 지분 보유자로 간주하였다.

　　실증분석 결과, 현금흐름의 불확실성은 배당과 유의적으로 음(-)의 상관관계가 존재했다. 현금흐름의 불확실성이 크더라도 외국인 투자자의 지분율과 배당 간에는 유의적인 결과가 나오지 않았다. 그러나, 현금흐름의 불확실성이 크더라도 최대주주의 지분율이 증가하면 배당이 증가하는 양(+)의 상관관계를 나타냈다. 본 연구를 통해 대량 지분을 소유한 유형별 투자자와 현금흐름의 불확실성이 배당에 미치는 영향을 분석함으로써, 투자자들의 배당세율정책, 지주회사의 수익구조, 그리고 책임경영이라는 화두에 시사점을 제공할 수 있을 것이라 기대한다.