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The Financial Crisis of 2008 and the Impact on Dividend Policy: The Case of Korea

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Abstract: Dividends have been an important topic in financial economic research since Lintner's (1956) study. The unexpected outbreak of the financial crisis of 2008 has had a major impact on the Korean economy. In this paper, we examine the determinants of dividend payouts of Korean firms and the market reaction to dividend announcements post-financial crisis. First, we find that post-financial crisis, firms make lower investments and have lower governance quality. Second, having analyzed the market reactions, we find that the market reacts less favorably to dividend announcements after the financial crisis. The result indicates that dividends continue to play a role as a signaling device but have become less effective post-crisis. Finally, we find a negative and significant relation between investment and dividend, and a positive and significant relation between corporate governance quality and dividend only after the financial crisis. These results suggest that firms with lower investment levels and strong governance are more likely to pay high dividends, in order to match the high standards of corporate governance after the crisis.

Keywords: Dividend policy, Financial crisis of 2008, Investments, Corporate governance, Dividend signaling.

I. INTRODUCTION

Dividends have been an essential aspect of financial economic research since Lintner's (1956) study on dividend distribution. Despite the concern for this topic, the deterministic firm characteristics of dividend payers differ between countries and continue to be debated. In addition, the unexpected outbreak of the financial crisis in advanced economies raged throughout emerging markets. The financial crisis started in the United States, spread to Europe and Asia, and majorly impacted the Korean economy. It is incontrovertible to analyze its causes and effects, and thus has been examined. Moreover, it is essential to discuss its impact on corporate payout policies. In this paper, we identify the determinants of dividend

payouts of Korean firms after the financial crisis and whether investors continue to consider dividend announcements as signals of firms.

Dividend means to share profits with shareholders. Gordon (1962, 1963) introduced the “bird in the hand” theory, where investors prefer cash-in-hand in comparison to a highly uncertain capital gain from a future investment. Even though a number of studies (Miller and Modigliani, 1961; Bhattacharya, 1979) argue that the model fails in a perfect capital market, the “bird in the hand” theory seems to accord well with situation of the financial crisis. A dividend paying firm should balance sharing and retaining, in order to prepare for future growth and risks. Balancing becomes more crucial and dividends become meaningful signals of firms during crisis. The impact of the financial crisis on corporate payouts of Korean firms has not yet been examined. In this study, we address two issues. First, whether firms have increased their dividends since the outbreak of the crisis, and how the market reacts differently to dividend announcements pre- and post-crisis. By examining the market reaction, we identify the existence of dividend signaling effect after the crisis. Further, we hypothesize that firms with low investment levels and higher degrees of corporate governance are likely to pay higher dividends after the crisis.

In order to analyze market reactions to dividend announcements, we compare the cumulative abnormal returns of dividend paying firms for a 3-day window, days -1 through $+1$; for a 5-day window, days -5 through $+5$; and pre-windows of 3 and 11 days. We find that the market generally reacts favorably to dividend announcements, but less favorably to those of post-crisis. The results explain the existence of dividend signaling effect, though less effective after the crisis.

Our research also provides new insights into the various impacts of investments and corporate governance quality on dividends after the crisis. We find that investment has a statistically significant and negative relationship on dividends only after the crisis and that governance quality has a statistically significant and positive relationship on dividends. These results indicate that during financial crisis, firms with lower investment levels and stronger governance are more likely to pay high dividends, in order to match with high standards of corporate governance after the crisis.

The remaining paper is organized as follows. Section 2 develops hypotheses on the dividend behavior and determinants of dividend after the crisis. In Section 3, we describe data, provide summary statistics, and explain how we extract our sample firms from the 2000–2015 period. In Section 4, we present our main results, and Section 5 concludes the paper.

II. HYPOTHESES AND METHODOLOGY

2.1. Hypotheses

H1: After the financial crisis, firms are more likely to decrease investments but increase dividends

The financial crisis majorly impacted the Korean economy. It resulted in credit crunch and uncertainties in the economy. Since the foreign currency crisis of 1997, the Korean capital market widely opened, and there have been no restrictions on foreign capital inflow or outflow. The financial crisis led to the outflow of large amounts of foreign capital, which directly impacted the Korean economy. Korean monetary authorities attempted to provide liquidity to stabilize the financial market and to encourage domestic firms to invest in future growth engines. Campello, Graham, and Harvey (2010) find that financially constrained

firms planned deeper cuts in investments and spending, and engaged in more asset sales during the financial crisis. Under these circumstances, firms place importance on securing sufficient cash to prepare for uncertainties. Contrary to the purpose of liquidity, domestic firms are likely to reserve cash internally to prepare for the uncertain future rather than invest in growth opportunities.

One of the main causes of the financial crisis was the failure of corporate governance, which started in the finance industry of the developed economy and spread to other countries and industries as well as to emerging markets. However, the crisis served a momentum to consider and question the ability of corporate governance, thus monitoring by investors was likely to be tightened, which could reduce the agency problem between investors and the management. Demanding a dividend increase would probably be the result of tightened monitoring, thus firms more likely to yield to investors' demands. Therefore, we conjecture that firms are likely to decrease investments but increase dividends after the crisis.

H2: The stock market will react less favorably to dividend announcements of post-financial crisis in comparison to those of pre-crisis

According to the dividend signaling theory, dividends send signals about the prospect or insider information of the firm. Dividend payouts must be backed with hard cash, requiring additional capital raising (Bhattacharya, 1979) to fill the liquidity gap attributable to dividends. Under the circumstances of the financial crisis, dividends are likely to attract attention as a strong signaling device of firms. On the other hand, raising capital to fill the liquidity gap can be challenging for dividend payers. Thus, we hypothesize that the market is likely to react positively to dividend announcements, but the returns will fall short in comparison to those pre-financial crisis.

H3: After the financial crisis, firms with low investment levels and high degrees of corporate governance are likely to pay higher dividends

Investment can provide both favorable and unfavorable information. Favorable information refers to the firm likely to possess better future growth engines and unfavorable information refers to firms more likely to be managed by insiders who tend to overinvest (Titman, Wei, and Xie, 2004). Investment requires internal and external funds. Since the financial crisis brought about changes in market financing conditions, raising external funds is uncertain. Under these situations, firms are reluctant to make investment decisions, and even likely to discontinue investments. Considering this, firms can bear large amounts of cash assets, which can be subject to agency issues. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000) provide support that agency problems are strong reasons for firms to choose to pay dividends. Therefore, we conjecture a negative association between dividend payouts and investments.

Corporate governance involves checking and balancing shareholders and the management, and thus reducing agency problems: better governance quality effectuates less agency conflicts. The outcome hypothesis suggests that dividend policy is an outcome of governance quality. Managers in weakly governed firms retain more cash than necessary and are more likely to spend for their private benefits at the expense of shareholders. Thus, dividends are expected to be lower in these firms in comparison to those with strong governance mechanisms. The outbreak of the financial crisis can be viewed as the failure of governance mechanisms, resulting in investors forcing high dividends. In order to display the quality of corporate governance and to regain the confidence of investors, firms with strong governance

are more likely to pay high dividends. Thus, we predict a positive relation between dividend and governance quality.

Miller and Rock(1985), Jensen, Solberg, and Zorn (1992), Fama and French (2001), and Li and Zhao (2008) find that paying dividends is positively related to a firm's profitability. Highly profitable firms are likely to hold higher profits available for dividends in comparison to firms with lower profits. As business activities, including operating, investing, and financing, can be constrained by the outbreak of a financial crisis, profits of firms can be impaired. Therefore, we predict a positive relation between dividends and profitability.

Larger firms should not be exposed to as much information asymmetry as smaller firms as the former are better known in the market. Firm size is expected to be negatively correlated with information asymmetry and low information asymmetry is expected to yield a high dividend. Thus, the coefficient of firm size is expected to be positive.

According to the agency theory, tremendous amounts of cash flows can be subject to agency issues (Jensen and Meckling, 1976), which can be reduced by paying high dividends (Jensen 1986). During a financial crisis, significant amounts of cash assets can absorb the unexpected decline in sales or income rather than cause agency problems. Financial slack can also be an important factor in a dividend decision. The existence of financial slack reduces external financing requirements. As a result, cash flow and financial slack are expected to have positive relationships with dividends.

External financing increases interest payment, thus causing cash outflows. Considering the outbreak of the financial crisis, access to external funds can be limited. Dividend increase can also be limited by costly financing or financing constraints. On the other hand, low leverage provides unused debt capacity and increases cash balances. Therefore, leverage is expected to have a negative relationship with dividends.

2.2. Empirical Model

In order to examine the market reaction to dividend announcements, we employ a market adjusted model for stock reaction. We measure the cumulative abnormal returns (CARs) as follows:

$$CAR_{i(t1,t2)} = \sum_{t1}^{t2} (R_{i,t} - R_{m,t}), (t1, t2) = (-1 + 1), (-5 + 5) \quad (1)$$

where $r_{i,t}$ represents the return on security i at date t and $r_{m,t}$ represents the return on market indices m at date t .

The analysis uses the following empirical model:

$$DPS = \alpha_1 + \beta_1 INV + \beta_2 CGI + \beta_3 ROE + \beta_4 SIZE + \beta_5 FCF + \beta_6 SLACK + \beta_7 LEV + IND + YR + \epsilon_i \quad (2)$$

where DPS is dividend per share. We use YR and IND variables to control for year and industry effects.

INV represents a firm's level of investment over a year, measured as the ratio of a firm's capital expenditures to its total assets. CGI represents a firm's corporate governance index from the Korea Corporate Governance Service. In order to measure a firm's profitability, we use return on equity (ROE) and measure this as the ratio of income before extraordinary items divided by shareholder equity. We measure SIZE as a function of the natural log of a firm's total assets. A firm's cash flow (FCF) is the earnings before interest and taxes, plus depreciation less taxes, and normalized with total assets. SLACK represents financial slack,

measured as the ratio of accumulated retained earnings to its total assets. We use leverage (LEV) measured as the ratio of a firm's total liability to total assets. We use year (YR) and industry (IND) variables to control for year and industry effects, respectively.

III. DATA

Our sample includes all listed firms in the Korea Stock Price Index (KOSPI) for the period from 2000 to 2015. Financial statements of firms are extracted from TS-2000 database of the Korea Corporate Information, daily stock indices are from KIS-VALUE database, and corporate governance indices are extracted from the Korea Corporate Governance Service. Firms with zero dividends are excluded. Firms in the financial industry, food industry, real estate industry, education industry, and fine art and sports industries are also excluded. At the end of the excluding process, 6,497 observations (3,415 observations of 503 firms before the crisis and 3,082 observations of 570 firms after the crisis) remained.

Table 1
Summary statistics

| <i>Financial Crisis</i> | <i>DPS</i> | <i>INV</i> | <i>CGI</i> | <i>ROE</i> | <i>SIZE</i> | <i>LEV</i> | <i>FCF</i> | <i>SLACK</i> |
|--------------------------------|------------|------------|------------|------------|-------------|------------|------------|--------------|
| <i>Pre-crisis (2000-2008)</i> | | | | | | | | |
| Avg | 0.467 | 1.171 | 0.053 | 0.098 | 12.586 | 0.033 | 0.076 | 0.285 |
| Stdev | 0.779 | 0.262 | 0.052 | 0.103 | 1.441 | 0.049 | 0.053 | 0.176 |
| Median | 0.203 | 1.120 | 0.038 | 0.088 | 12.290 | 0.012 | 0.070 | 0.258 |
| N | 3415 | 1586 | 3413 | 3415 | 3415 | 3415 | 3415 | 3415 |
| <i>Post-crisis (2009-2015)</i> | | | | | | | | |
| Avg | 0.686 | 1.100 | 0.043 | 0.080 | 13.161 | 0.032 | 0.061 | 0.407 |
| Stdev | 1.396 | 0.232 | 0.048 | 0.131 | 1.449 | 0.051 | 0.049 | 0.257 |
| Median | 0.250 | 1.060 | 0.029 | 0.068 | 12.874 | 0.006 | 0.054 | 0.391 |
| N | 3082 | 2130 | 3055 | 3082 | 3082 | 3082 | 3082 | 3082 |

We provide parametric t-test statistics to test the difference in means between the two groups. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

In Table 1, we compare the characteristics of dividend payers before and after the financial crisis. Preliminary summary statistics for dividends, the dividend per share, is 0.467 and 0.686 pre- and post-crisis, respectively. Firms that payout dividends after the crisis are associated with larger firm sizes and higher financial slacks. Before the crisis, firms invested more, had better corporate governance quality, were more profitable, and had higher leverage and cash flows in comparison to the firms of post-crisis.

Table 2 presents Pearson's correlations and *p*-values of the variables. The results show that a firm's dividend is positively and significantly correlated with its return on equity, size, cash flow, financial slack, and corporate governance quality, while it is negatively and significantly correlated with its leverage. Investment level is positively and significantly correlated with return on equity, size, leverage, cash flow, financial slack, and corporate governance quality. A firm's governance quality is positively and significantly correlated with its investment level, dividend, return on equity, size, and cash flow.

Table 2
Correlation matrix

| | <i>INV</i> | <i>DPS</i> | <i>ROE</i> | <i>SIZE</i> | <i>LEV</i> | <i>FCF</i> | <i>SLACK</i> | <i>CGI</i> |
|--------------|--------------------|---------------------|---------------------|--------------------|---------------------|--------------------|-------------------|------------|
| <i>INV</i> | 1 | | | | | | | |
| <i>DPS</i> | 0.023 (0.065) | 1 | | | | | | |
| <i>ROE</i> | 0.203** (0.000) | 0.117** (0.000) | 1 | | | | | |
| <i>SIZE</i> | 0.040** (0.001) | 0.382** (0.000) | 0.025* (0.045) | 1 | | | | |
| <i>LEV</i> | 0.195** (0.000) | -0.104** (0.000) | -0.078** (0.000) | 0.045** | 1 | | | |
| <i>FCF</i> | 0.174** (0.000) | 0.194** (0.000) | 0.701** (0.000) | 0.013 (0.312) | -0.111** (0.000) | 1 | | |
| <i>SLACK</i> | 0.035** (0.005) | 0.191** (0.000) | 0.343** (0.000) | -0.024 (0.057) | -0.272** (0.000) | 0.153** (0.000) | 1 | |
| <i>CGI</i> | 0.090** (0.000) | 0.297** (0.000) | 0.109** (0.000) | 0.619** (0.000) | -0.014 (0.404) | 0.172** (0.000) | -0.026 (0.109) | 1 |

The Pearson’s correlation matrix measures the strength of the relationship between variables; *p*-values are reported in parenthesis under the value. * and ** denote statistical significance at the 5% and 1% levels, respectively.

IV. EMPIRICAL ANALYSIS

4.1. Market Reactions To Dividend Announcements

In order to confirm our hypotheses, we analyze market reactions to dividend announcements based on the financial crisis. We examine the CARs of pre- and post-financial crisis for the 3-day-window (days -1 through +1), 5-day-window (-5 through +5), and the pre-window of 3 days (day -4 through -2) and 11 days (-16 through -6). In order to identify the existence of the signaling effect on the event day (dividend announcement date), we compare the CARs of the event-windows with those of the pre-windows¹.

In Table 3, Panel A presents the CARs of dividend payers pre- and post-financial crisis, and pre-event-window CARs (CAR-3D and CAR-11D) of dividend payers. First, we find that the event-window CARs are 0.0075 for the 3-day-window and 0.0175 for the 5-day-window pre-financial crisis, and 0.0034 for the 3-day-window and 0.0061 for the 5-day-window post-crisis. Results indicate that the market reacts positively to both CAR windows pre- and post-crisis, and supports our hypothesis that the market reacts positively to dividend announcements. Results also indicate that the market reacts less favorably to dividend announcements after the financial crisis. Second, by comparing event-window CARs with pre-event-window CARs, we find that event-window CARs are higher than pre-event-window CARs (0.0075 versus 0.0061, 0.0175 versus 0.0115, 0.0034 versus 0.0016, and 0.0061 versus 0.0011). Results indicate that the market reacts more when dividend announcements are delivered to the market in comparison to when they are not delivered.

In order to examine the signaling effect, we divide the sample firms into dividend increase and decrease groups. Panel B presents the CARs based on dividend changes. We find that the market reacts more for dividend increase news (0.0095 and 0.216 pre-crisis, and 0.0050 and 0.0064 post-crisis) in comparison to decrease news (0.0030 and 0.080 pre-crisis, and -0.0015 and 0.0053 post-crisis). Results suggest that dividend

Table 3
Market reaction to dividend announcements

| <i>Panel A : Market reaction to dividend announcements before and after the financial crisis</i> | | | | |
|--|----------------------|---------------|----------------------|----------------|
| <i>Financial Crisis</i> | <i>CAR (- 1 + 1)</i> | <i>CAR-3D</i> | <i>CAR (- 5 + 5)</i> | <i>CAR-11D</i> |
| <i>Pre-crisis (2000-2008)</i> | | | | |
| Avg | 0.0075 | 0.0061 | 0.0175 | 0.0115 |
| Stdev | 0.0561 | 0.0528 | 0.1000 | 0.0961 |
| Median | 0.0033 | 0.0003 | 0.0081 | 0.0027 |
| N | 2629 | 2629 | 2629 | 2629 |
| <i>Post-crisis (2009-2015)</i> | | | | |
| Avg | 0.0034 | 0.0016 | 0.0061 | 0.0011 |
| Stdev | 0.0635 | 0.0582 | 0.1787 | 0.1845 |
| Median | 0.0005 | 0.0000 | 0.0030 | -0.0008 |
| N | 2884 | 2884 | 2884 | 2884 |
| <i>Panel B : Market reaction to dividend changes</i> | | | | |
| <i>Financial Crisis / ΔDPS</i> | <i>CAR (- 1 + 1)</i> | <i>CAR-3D</i> | <i>CAR (- 5 + 5)</i> | <i>CAR-11D</i> |
| <i>Pre-crisis (2000-2008)</i> | | | | |
| <i>Decrease</i> | | | | |
| Avg | 0.0030 | 0.0032 | 0.0080 | 0.0099 |
| Stdev | 0.0541 | 0.0538 | 0.0964 | 0.0916 |
| Median | 0.0005 | -0.0016 | 0.0011 | 0.0033 |
| N | 796 | 796 | 796 | 796 |
| <i>Increase</i> | | | | |
| Avg | 0.0095 | 0.0074 | 0.0216 | 0.0122 |
| Stdev | 0.0568 | 0.0523 | 0.1013 | 0.0979 |
| Median | 0.0048 | 0.0013 | 0.0113 | 0.0021 |
| N | 1833 | 1833 | 1833 | 1833 |
| <i>Post-crisis (2009-2015)</i> | | | | |
| <i>Decrease</i> | | | | |
| Avg | -0.0015 | 0.0025 | 0.0053 | 0.0065 |
| Stdev | 0.0428 | 0.0382 | 0.0763 | 0.0744 |
| Median | -0.0032 | -0.0017 | -0.0004 | -0.0005 |
| N | 726 | 726 | 726 | 726 |

Contd. table 3

Panel B : Market reaction to dividend changes

| Financial Crisis / Δ DPS | CAR (-1 + 1) | CAR-3D | CAR (-5 + 5) | CAR-11D |
|---------------------------------|--------------|--------|--------------|---------|
| <i>Post-crisis (2009-2015)</i> | | | | |
| <i>Increase</i> | | | | |
| Avg | 0.0050 | 0.0013 | 0.0064 | -0.0007 |
| Stdev | 0.0690 | 0.0636 | 0.2018 | 0.2088 |
| Median | 0.0026 | 0.0003 | 0.0043 | -0.0009 |
| N | 2158 | 2158 | 2158 | 2158 |

CAR represents the three(five)-day cumulative abnormal returns during days -1 through +1 (-5 through +5). The cumulative abnormal returns are measured as follows: $CAR_i = \sum_{t=1}^{t_2} (r_{i,t} - r_{m,t})$, where $r_{i,t}$ represents the return on security i at date t and $r_{m,t}$ represents the return on market indices m at date t . CAR(-1 + 1) and CAR(-5 + 5) represent the CARs of event-windows. CAR-3D and CAR-11D represent the CARs of pre-event-windows of CAR(-4 - 2) and CAR(-16 - 6), respectively. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

increase news is perceived as good news in the market, while dividend decrease news is not welcomed, particularly after the crisis. We also compare the event-period CARs with pre-event-window CARs and find that event-period CARs are higher than pre-event-period CARs for dividend increase news (0.0095 versus 0.0074, 0.0216 versus 0.0122, 0.0050 versus 0.0013, and 0.0064 versus -0.0007), while event-period CARs are lower than pre-event-period CARs for dividend decrease news (0.0030 versus 0.0032, 0.0080 versus 0.0099, -0.0015 versus 0.0025, and 0.0053 versus 0.0065). Lastly, we compare dividend increase and decrease announcements for pre- and post-crisis. We find that CARs for dividend increase and decrease news of post-crisis are lower than those of pre-crisis (increase : 0.0095 versus 0.0050, and 0.0216 versus 0.0064) (decrease: 0.0030 versus -0.0015, and 0.0080 versus 0.0053). Results also support our hypothesis and suggest that dividend signaling effects continue to exist despite the financial crisis, but the signaling effect has faded in the Korean market.

4.2. Ordinary Least Squares Regression

Table 4 summarizes the results of ordinary least squares (OLS) regressions pre- and post-financial crisis, which allows an analysis of different roles of investments and corporate governance quality on dividends. In this regression, we control for industry (IND) and year (YR) effects. Each regression explains 23 percent to 27 percent of the cross-sectional variations in dividends. The first three columns represent the regression results of pre-financial crisis and the last three columns represent the results of post-crisis.

Regressions (1) to (3) in Table 4 show positive but insignificant coefficients on INV and CGI. Regressions (4) to (6) show that INV has a negative and significant coefficient, and CGI has a positive and significant coefficient, supporting our hypothesis that firms with low investment levels and higher degrees of corporate governance are likely to pay higher dividends after the financial crisis. Considering market conditions after the financial crisis, firms are reluctant to make investment decisions or are likely to discontinue ongoing investments. In this case, firms are likely to reserve cash assets internally, which can cause agency issues. In order to prevent the agency problem, paying high dividends can be optimal² for firms that invest less. The financial crisis can be considered as the failure of corporate governance, thus as a result, investors

Table 4
OLS Regression, Dependent variable : Dividend per share

| | <i>Pre-Financial Crisis(2000–2008)</i> | | | <i>Post-Financial Crisis(2009–2015)</i> | | |
|----------------|--|-----------------------|-----------------------|---|-----------------------|-----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Const | -24.949*** (-2.596) | 14.361 (0.383) | 14.824 (0.395) | -35.077 (-1.482) | -65.193* (-1.689) | -65.489* (-1.685) |
| INV | 0.197 (0.855) | | 0.288 (0.675) | -1.146** (-2.302)** | | -1.214** (-2.197) |
| CGI | | 0.133 (1.238) | 0.130 (1.205) | | 0.509*** (3.594) | 0.535*** (3.754) |
| ROE | -1.344*** (-5.165) | -1.723*** (-2.991) | -1.729*** (-3.001) | -1.270*** (-5.328) | -1.297*** (-5.105) | -1.194*** (-4.606) |
| SIZE | 0.245*** (29.702) | 0.274*** (13.964) | 0.274*** (13.959) | 0.360*** (22.984) | 0.273*** (12.220) | 0.273*** (12.182) |
| FCF | 4.570*** (8.698) | 6.486*** (6.363) | 6.450*** (6.319) | 7.359*** (13.142) | 7.936*** (12.803) | 8.064*** (12.917) |
| Slack | 0.613*** (8.069) | 0.599*** (4.615) | 0.594*** (4.571) | 1.095*** (9.986) | 0.967*** (7.634) | 0.981*** (7.697) |
| LEV | -0.925*** (-3.668) | -1.077** (-2.532) | -1.152*** (-2.608) | -1.499*** (-3.187) | -1.483*** (-2.938) | -1.188** (-2.278) |
| YR, IND Effect | Y | Y | Y | Y | Y | Y |
| R_sq | 0.264 | 0.268 | 0.268 | 0.225 | 0.241 | 0.243 |

Parametric t-test statistics test the difference in means between the two groups. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

are more likely to strengthen monitoring activity and force high dividends. In order to appease investors and substantiate the quality of corporate governance, firms with strong governance are more likely to pay high dividends. In summary, these results indicate that investments and corporate governance quality are important determinants of dividends only after the financial crisis, while it was not the case before the crisis. This supports our hypothesis that firms with low investment levels and high degrees of corporate governance are likely to pay higher dividends after the financial crisis.

In regressions (1) to (6), regardless of the incident of the financial crisis, ROE has a negative and significant coefficient suggesting that less profitable firms tend to pay higher dividends. Theory suggests that highly profitable firms are likely to hold higher profits available for dividends, and thus pay higher dividends. Contrary to our conjecture, a firm's profitability is negatively associated to its dividends. SIZE has a positive and significant coefficient suggesting that larger firms tend to pay higher dividends. This evidence is consistent with the hypothesis that firm size is negatively correlated with information asymmetry

and low information asymmetry yields high dividends. FCF and SLACK also have positive and significant coefficients suggesting that firms with higher cash flows and more financial slack tend to pay higher dividends. These results are also consistent with our hypothesis that significant cash assets can absorb unexpected income shocks and the presence of financial slack reduces external financing requirements. Thus, firms with higher cash flows and more financial slack tend to pay higher dividends. LEV shows a negative and significant coefficient suggesting that firms with less leverage tend to pay higher dividends. The result of LEV is consistent with our conjecture that low leverage provides unused debt capacity and increases cash balances. Therefore, a firm's low leverage is an important factor in dividend payout. Regression results of SIZE, FCF, SLACK, ROE, and LEV are the same regardless of the incident of the financial crisis.

V. CONCLUSION

The financial crisis began in the U.S. and impacted the Korean economy. It is essential to discuss the impact of the crisis not only on the economy, but also on corporate payout policies. We examine how the market reacts to dividend announcements and identify the determinants of dividend payers in Korea after the financial crisis. First, as we conjectured, we find that firms undertake lower investments and have weaker governance quality after the financial crisis. Second, we analyze the market reactions to dividend announcements, and find that the market reacts less favorably to dividend announcements after the financial crisis. The result indicates that dividends continue to play the role of a signaling device, but have become less effective after the crisis. Finally, consistent with our hypothesis, we find a negative and significant relation between investment and dividends, and a positive and significant relation between corporate governance quality and dividends only for the post-financial crisis. These results suggest that firms with low investment levels and strong governance are more likely to pay high dividends after the crisis.

This study shows that the stock market reacts differently to dividend announcements before and after the financial crisis. It also shows that firms choose different dividend policies based on the importance of investments and corporate governance quality after suffering from the financial crisis. Investigating differential market reactions to dividend announcements based on industry segmentation would be an interesting extension of this study for future research.

NOTES

1. CAR (-1 + 1) and CAR(-5 + 5) represent the CARs of the event-windows. CAR-3D and CAR-11D represent the CARs of pre-event-windows of CAR(-4 - 2) and CAR(-16 - 6), respectively.
2. Jensen (1986).

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