The Effect of Loss and Gain Firms' Dividend Payout on Trading Volume*

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This study examines the effects of dividend payments on trading volume of loss and gain firms. In this study, three hypotheses were established and empirical analysis was conducted.
The results of studying 5,963 firms (firms - years) listed on the securities market in 2002-2013 are as follows. The trading volume of a loss firm that does not pay dividends is higher than the trading volume of a gain firm that does not. The trading volume of a loss firm that does not pay dividends is higher than the trading volume of a loss firm that provides dividends. The results of this study suggest that firms that pay dividends, even if they are loss firms, are experiencing high earnings quality, which reduces trust among investors.
However, the analysis of only the firms paying dividends showed no relationship between loss and trading volume. In other words, if the sample is limited to firms that pay dividends, the loss is unrelated to the trading volume.
In this sense, this study contributes to the profitability of individual firms in analyzing the information effect of dividends. This study also adds to what is known about using trading volume for information effect.

Key words: Dividend Payout, Trading Volume, Loss Firms, Gain Firms

Ⅰ. Introduction

The purpose of this study is to analyze the effect of dividend payout of loss and gain firms on the trading volume of listed firms (excluding financial business) from 2002 to 2013. Previous studies of past dividends have focused on the factors affecting dividend decision making and the signal effects of dividends (Zeckhauser and Pound, 1990; Eckbo and Verma, 1994; Lintner, 1956; DeAngelo et al., 1992; Baker et al., 1985; Ambarish et al., 1987; Nissim and Ziv, 2001; Benartzi et al., 1997).

In the accounting literature, the signal effect of dividends has been related to earnings quality (Tong and Miao, 2011; Skinner and Soltes, 2011; Liu and Espahbodi, 2014; Lawson and Wang, 2016; Park and Jung,

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2018). These studies are concerned with the relationship between dividend payout and earnings quality. According to the results of the analysis, firms that pay dividends show higher earnings quality (accruals quality, earnings smoothing and earnings persistence) than firms that do not.

Previous studies have reported that trading volume decreases with earnings quality (Jung and Lee, 2016; Jung and Kim, 2017). However, trading volumes increase when there is a large amount of information and when both information risks and unexpected earnings increase (Bamber, 1987; Choi and Shin, 1997; Chung, 1990; Ziebart, 1990; Ajinkya et al., 1991). However, dividends are influenced by accounting earnings, which are the sources of those dividends. Research on dividends does not consider the profitability of individual firms by studying the information effect of dividends.

In other words, the information effect of dividends is expected to be differentiated by loss firms and gain firms. However, previous studies have not considered the profitability of individual firms. In this study, we examine the information effect of dividend according to loss and profit firms in relation to trading volume.

The trading volume used in the empirical analysis was the daily average trading volume and the abnormal trading volume. The dividend payment was measured as a dummy variable (1 if the firm paid cash dividends and 0 otherwise). The results are as follows: 1) the trading volume of a loss firm that does not pay dividends is higher than the trading volume of a gain firm that does not pay dividends.

2) the trading volume of a loss firm that does not pay dividends is higher than the trading volume of a loss firm that provides dividends. The results of this study suggest that there are few differing beliefs among investors in the investment firm because of the high earnings quality of the loss firms that pay dividends.

However, the analysis of only the firms paying dividends showed no relationship between loss and trading volume. In other words, if the sample is limited to firms that pay dividends, the loss is unrelated to the trading volume.

In the analysis of the signal effects of dividends, the information effect of dividends is analyzed without considering the profitability of individual firms that pay those dividends. This study is concerned with the information effect of dividend considering the profitability of individual firms. This study also contributes to the literature on the information effect using trading volume instead of stock price.

Beaver (1986) and Ziebart (1990) explain that changes in stock prices reflect changes in market-wide expectations, and changes in trading volume reflect expectations of individual investors. In this regard, Beaver

(1986) explains that changes in trading volume and stock prices can occur in opposite directions.

According to microeconomics theory, trade volume affects price. This suggests that trading volume precedes stock prices. However, studies of accounting generally analyze information effects using only stock price changes. Therefore, this study has implications for analyzing the information effect of dividends through trading volume. In other words, the results of this study are expected to show = that the information effects of dividends are analyzed from the microscopic perspective of the capital market.

This study is structured as follows. In Chapter Ⅱ, we review the literature and present our hypotheses. Chapter Ⅲ describes the research model, variable measurement and sample selection. Chapter Ⅳ, presents the results of empirical analysis. Finally, Section V gives the implications.

Ⅱ. Preliminary Research and Hypothesis

2.1 Factors Affecting Trading Volume

According to previous research, trading volume increases when investors disagree on the intrinsic value of the investee (Karpoff, 1986; Bamber, 1987; Chung, 1990; Ajinkya et al., 1991; Jung, 2016b). High earnings quality (accruals quality, earnings smoothing and earnings persistence) appears to be a factor in resolving these disagreements; information risk and unexpected earnings increase them.

Bamber (1987) and Choi and Shin (1997) explain that unexpected earnings constitute information that investors cannot recognize in advance. Chung (1990) explains that unexpected earnings induce a variety of interpretations among investors on future cash flows. This reflects a positive relationship between unexpected earnings and trading volume.

However, Sohn et al. (2009) report that high accruals quality weakens the relationship between unexpected earnings and trading volume. This suggests that high-quality accounting information reduces investors' interpretations of unexpected earnings.

Jung and Lee (2016) and Jung and Kim (2017) analyzed the effect of earnings quality on trading volume by measuring earnings smoothing and earnings persistence, respectively. As a result, earnings smoothing and earnings persistence are negatively related to trading volume. Bharath et al. (2008) report that firms with higher earnings quality prefer public to private debt when raising funds. Based on this logic, Jung (2016b) reports that the private debt (public debt) ratio has a positive (negative) relationship to trading volume.

Beak (2011) suggests that high matching enhances earnings quality. This suggests that

better matching may reconcile differing beliefs among investors and consequently reduce the trading volume. Based on this, Jung and Moon (2017) examined the relationship between matching level and trading volume. As a result of the analysis, a high level of matching decreased trading volume.

According to Bhattacharya et al. (2012), high earnings quality lowers information risk. This suggests that information risk may be related to trading volume. Therefore, previous studies of trading volume analyzed the relationship between trading volume and variables that may cause information risk.

Ziebart (1990) and Ajinkya et al. (1991) examined the relationship between financial analyst earnings forecasting and trading volume. The analysis shows that the variance of the analysts′ earnings forecasts is positively related to abnormal trading volume. This is also consistent with the study by Shin (1997), which analyzes Korean firms as subjects.

Chung (1990) reported that the size and history of firms are inversely related to trading volume. These results suggest that the information environment can be excellent for large firms with a long history. Conversely, small firms with shorter histories do not have such a good information environment.

Jung and Lee (2016) and Jung (2015) report that abnormal audit time (fee) and related party transactions are positively related to trading volume. Byun and Jung (2017) and Jung (2016a) report that foreign ownership and industry auditors are instrumental in reducing trading volume. According to Jung and Kim (2017) another factor in reducing trading volume is competition within an industry.

2.2 Previous Studies of Dividends

Previous studies of past dividends have focused on factors that affect dividend decision making and on the signal effects of dividends. Dividends can be affected by accounting choice, corporate governance (voting power of owner-managers), cash holdings and earnings (loss) (Zeckhauser and Pound, 1990; Eckbo and Verma, 1994; Lintner., 1956; DeAngelo et al., 1992).

Analyses of the signal effects of dividends examine the effect of dividends on future management performance and firm value (Baker et al., 1985; Ambarish et al., 1987; Nissim and Ziv, 2001; Benartzi et al., 1997). In other words, studies of the signal effect of dividends are concerned with whether managers use dividends to inform the market of future management performance.

Studies have also found that the signal effect of dividends is related to earnings quality (Tong and Miao, 2011; Skinner and Soltes, 2011; Liu and Espahbodi, 2014; Lawson and Wang, 2016; Park and Jung, 2018). These studies examine the relationship between

dividend payout and earnings quality.

Liu and Espahbodi (2014) empirically examined the earnings-smoothing behavior of firms paying dividends. Their results show that dividend payout firms have higher earnings-smoothing behavior than non-dividend payout firms. This is consistent with the research by Lee et al. (2005) and Skinner and Soltes (2011). Lee et al. (2005) and Skinner and Soltes (2011) examined the effect of dividend policy on earnings persistence. They found that the earnings persistence of firms that pay dividends is higher than the earnings persistence of firms that do not.

In addition, Tong and Miao (2011) report that dividend-paying status has a positive relationship with earnings quality. Tong and Miao (2011) add that the absolute value of discretionary accruals is low and the value relevance of earnings is high for firms that pay dividends. Similarly, Park and Jung (2018) report that dividends increase future earnings quality.

On the basis of this logic structure, Lawson and Wang (2016) explain that firms that pay dividends have higher earnings quality, and therefore a lower audit risk. Thus, Lawson and Wang (2016) report that auditors' fees for dividend-paying firms may be lower than for firms that do not pay dividends.

2.3 Hypothesis

〈Figure 1〉 shows the dividend payout of loss and gain firms. 〈Figure 1〉 shows a loss firm, a gain firm, a dividend-paying firm and a firm that does not pay dividends to set the hypothesis.

In previous studies of trading volume, high earnings quality (accruals quality, earnings smoothing and earnings persistence) has been shown to reduce differing beliefs among investors, resulting in decreased trading volume. Lee et al. (2008) and Nam (2016) suggest that the earnings persistence of loss firms is lower than that of gain firms. This suggests that loss firm (A), which does not pay dividends, may generate a higher trading volume than gain firm (B) which also does not pay dividends. Based on these studies, we set hypothesis 1 as follows.

Hypothesis 1: The trading volume of a loss firm that does not pay dividends (A) will be higher than the trading volume of a gain firm that does not pay dividends (B).

	Loss firm	Gain firm
Non-dividend payout	(A)	(B)
Dividend payout	(C)	(D)

〈Figure 1〉 Dividend payout of loss and gain firms

Beak (2011) reports that a high matching level improves the quality of earnings. Jung and Byun (2018) report that a positive relationship between dividend payments and matching. This suggests that firms that pay dividends may have higher quality of earnings than firms that do not pay dividends.

Nam (2016) explains that firms with high earnings quality (accruals quality) convey their performance to the market through dividend payment even if loss occurs. Nam (2016) suggests that firms with high accruals quality are more likely to pay dividends even if they are loss firms. This means that a loss firm that pays dividends has higher earnings quality than a loss firm that does not. In this case, a loss firm that does not pay dividends is expected to show a higher trading volume than a loss firm that does pay dividends. This leads to hypothesis 2.

Hypothesis 2: The trading volume of a loss firm that does not pay dividends (A) will be higher than the trading volume of a loss firm that does pay dividends (C).

Lee and Lee (2007) explain that the information effect of dividend on earnings persistence may be higher for loss firms that pay dividends than for gain firms. This suggests that the trading volume of the loss firm that pay dividends may be lower than the trading volume of the gain firm that does pay dividends.

However, Lee et al. (2008) report that the earnings persistence of loss firms is lower than that of gain firms. Jung and Lee (2018) also report that loss firms paying dividends are more optimistically biased in analysts' earnings forecasts than gain firms paying dividends.

Sohn et al. (2008) explains that if the analysts' earnings forecasts are optimistic, this could indicate substantial information asymmetry. Expanding this logic suggests that the loss firm paying dividends have a greater degree of information asymmetry than the gain company paying dividends.

In this case, the trading volume of the loss firm that pay dividends may be higher than the trading volume of the gain firms that pay dividends. Hypothesis 3 is set as the null hypothesis based on the opposite logic.

Hypothesis 3: The trading volume of the loss firm paying dividends (C) will not be different from the trading volume of the gain firm paying dividends (D).

Ⅲ. Research Design

3.1 Research Model

Equations (1.1) and (1.2) are models for testing hypothesis 1, hypothesis 2, and hypothesis 3. When empirically analyzing Equation

(1.1) for firms that do not pay dividends, β_2 in Equation (1.1) is the regression coefficient for Hypothesis 1. β_2 in Equation (1.1) is expected to have a positive value.

When empirical analysis is limited to loss firms only, β_2 in equation (1.2) is the regression coefficient for hypothesis 2. Given a result consistent with Hypothesis 2, β_2 in equation (1.2) is expected to have a negative value.

When empirically analyzing Equation (1.1) only for firms that pay dividends, β_2 in Equation (1.1) is the regression coefficient of Hypothesis 3. In this study, hypothesis 3 was set as the null hypothesis. Therefore, the expected sign of β_2 in Equation (1.1) is not predicted.

$$\begin{aligned} TV_{i,t+1} = {} & \beta_0 + \beta_1 LOSS_{i,t} + \beta_2 VD_{i,t} + \beta_3 EQ_{i,t} \\ & + \beta_4 BOD_{i,t} + \beta_5 UE_{i,t} + \beta_6 AGE_{i,t} \\ & + \beta_7 CFS_{i,t} + \beta_8 HI_{i,t} + \beta_9 BIG_{i,t} \\ & + \beta_{10} LEV_{i,t} + \beta_{11} SIZE_{i,t} + \beta_{12} YD_{i,t} \\ & + \beta_{13} IND_{i,t} + \epsilon_{i,t} \qquad \text{Equation (1.1)} \end{aligned}$$

$$\begin{aligned} TV_{i,t+1} = {} & \beta_0 + \beta_1 DIV_{i,t} + \beta_2 VD_{i,t} + \beta_3 EQ_{i,t} \\ & + \beta_4 BOD_{i,t} + \beta_5 UE_{i,t} + \beta_6 AGE_{i,t} \\ & + \beta_7 CFS_{i,t} + \beta_8 HI_{i,t} + \beta_9 BIG_{i,t} \\ & + \beta_{10} LEV_{i,t} + \beta_{11} SIZE_{i,t} + \beta_{12} YD_{i,t} \\ & + \beta_{13} IND_{i,t} + \epsilon_{i,t} \qquad \text{Equation (1.2)} \end{aligned}$$

TV : Trading volume (See '3.2. Trading volume measuring')
- TV1: Trading volume1
- TV2: Trading volume2
- TV3: Trading volume3

DIV : Dividend payout(1 if the firm paid (cash) dividends, 0 for others)

LOSS: LOSS (1 If the net income is negative, 0 if the net profit is positive)

VD : Voluntary disclosure
(Total voluntary disclosure level for 1-year/ total assets at the end of fiscal year t-1)

EQ : Earnings quality
(The absolute value of the residuals($|\epsilon_{i,t}|$) calculated by the model of Dechow and Dichev (2002) × (-1))

BOD : Outside directors ratio
(The number of outside directors - (The number of registered directors x Legal minimum outside directors * ratio) / The number of outside directors))
* 50% (25)% of listed directors if assets are over 2 trillion won (less)

UE : Unexpected Earnings
((EPS_t - EPS_{t-1})/stock price at the end of fiscal year t)

AGE : Ln (listed months)

CFS : Consolidated financial statements
(1 if the firm discloses consolidated financial statements or 0 otherwise)

IC : Competition in the commodity market (Herfindahl-Hirschman Index(HHI×(-1))[1)]

BIG : Auditor size (1 if the auditor is one of the Big 4, 0 for others)

1) In this study, the degree of competition of the commodity market (IC) was measured by the Heupindal - Hirschman index (HHI) (below) based on Jung and Kim (2017). If the value of HHI in the following equation increases, it means that the degree of competition in the commodity market is lowered. In this study, the degree of competition (IC) of the

LEV : Debt ratio
(Total liabilities at the end of fiscal year t / total assets at the end of fiscal year t-1)
SIZE : Ln (total assets at the end of fiscal year t)
YD : Year dummy
IND : Industry dummy

The model includes the following control variables. Jung and Moon (2017) report that the a firm's amount of information or level of disclosure increases its trading volume. The amount of information or disclosure level of individual firms was measured here by voluntary disclosure level (VD). The VD is expected to be positively related to the trading volume in this study.

Sohn et al. (2009) argue that the high earnings quality is an incentive to reduce trading volume. In this study, the quality of earnings (EQ) is measured by the accrual quality (Dechow and Dichev's 2002 model) and the regression coefficient of the earnings quality is expected to be negative.

Outside directors ratio (BOD) was included in the model to control the effect of corporate governance on trading volume. Ko et al. (2012) report that information risk decreases when corporate governance is superior. This implies that the BOD may have a negative relationship to trading volume. Kim (2006) describes an incentive for an outside director system in Korea to act the manager's shield (yes man). This implies that the BOD can be positively related to trading volume. We included the BOD in this study, but the signs are not as expected.

Han (2001) reports that unexpected earnings include the most information among financial variables. As a result of this incentive, unexpected earnings consistently have a positive relationship with trading volume (Beaver, 1968; Jung, 2015; Jung, 2016a; Jung, 2016b; Jung and Moon, 2017). Unexpected earnings (UE) were included in the model to control the effect of unexpected earnings on trading volume.

Chung (1990) explains that the information environment can be excellent if the firm has a long history. In this study, the age of the firm (AGE) is included in the model and its sign is expected to be negative. Hwang (1995) explains that consolidated financial statements provide information that individual financial statements cannot. When this is the case, the sign of the consolidated financial statement (CFS) is expected to be positive.

Jung and Kim (2017) explain that the competitiveness of the commodity market has a role in external governance and thus affects

commodity market was measured by multiplying HHI by '(-1)' for convenience of interpretation. The larger value of IC means that the competition of commodity market is high.

$HHI = \sum_{i=1}^{N} S_{ijt}^2$, S is the share of i-firm in j industry based on current sales by industry

market discipline. To control the effect of competition on trading volume, we include the degree of competition (IC) in the commodity market; it is expected to have a negative relation with the trading volume.

According to Becker et al. (1998), Big Six auditors provide higher audit quality than non-Big Six auditors. In this study, auditor size (BIG) is included in the model to control the effect of audit quality on trading volume, BIG is expected to have a negative relationship with trading volume.

The debt ratio (LEV) is included to control for the impact of bankruptcy risk on trading volume and is expected to be positively related to trading volume. SIZE is included to control for the influence of the size on the trading volume and is expected to have a negative relation. The yearly dummy (YD) and industry dummy (IND) were included to control for year and industry effects.

3.2 Trading Volume(TV, differing beliefs among investors) measuring

The trading volume (TV) was measured based on Jung (2016a) and Jung (2016b). Jung (2016a) measures trading volume as trading volume for one year as shown in Equations (2), (3) and (4).

Equation (2) is the daily average stock trading volume (TV1) of individual firms for one year. However, the average daily trading volume (TV1) cannot confirm whether the trading volume of an individual firm is abnormal or not. To compensate for these limitations, Equation (3) and Equation (4) measure the abnormal trading volume of individual firms.

$$TV1_{i,NF} = \left[\sum_{t=1}^{n} V_{it}\right] \times \frac{1}{T_{NF}} \qquad \text{Equation (2)}$$

$$TV2_{i,NF} = \left[\sum_{t=1}^{n} (V_{it} - V_{mt})\right] \times \frac{1}{T_{NF}} \qquad \text{Equation (3)}$$

$$TV3_{i,NF} = \left[\sum_{t=1}^{n} \epsilon_{it}\right] \times \frac{1}{T_{NF}} \qquad \text{Equation (4)}$$

$TV1$: Average daily trading volume

$V_{i,t}$: Amount of trading volume of i firm for t-day/Number of shares of firm i as of the t-day

T_{NF} : The number of trading days for 1-year

$TV2$: Trading volume 2 (abnormal trading volume1)

V_{mt} : Total trading volume in market for t-day/ The number of listed shares in the market as of t-day

$TV3$: Trading volume 3 (abnormal trading volume2)

$\epsilon_{i,t}$: $V_{it} - (\hat{\alpha}_i + \hat{\beta}_i V_{mt})$ (Market model, $\hat{\alpha}_i + \hat{\beta}_i V_{mt}$))

Equation (3) and Equation (4) represent abnormal trading volume of individual firms. If trading volume 2 (TV2, equation (3)) and trading volume3 (TV3, equation (4)) values are larger (less) than zero, this indicates a positive (negative) abnormal trading volume.

3.3 Sample composition

In this study, firms that satisfy the following conditions were selected as the sample.

(1) From 2002 to 2013, the securities listed firm (fiscal year: December).
(2) Firms that can collect financial data and trading volume data from NICE Kis-Value.
(3) Modified audit opinion and an impairment of capital enterprise are excluded.
(4) Firms that can collect the number of registered (outside) directors and the number of voluntary disclosures[2] in the Data Analysis, Retrieval and Transfer System.

And 8,738 firms (firm-year) were included in condition (1). Of the 8,738 (firm-year) firms, 2,775 (firm-year) did not meet conditions (2), (3) and (4). Thus, 5,963 firms (firm-year) were the final sample. The selection of the sample is shown in 〈Table 1〉.

Ⅳ. Empirical results

4.1 Descriptive Statistics and Correlation Analysis

〈Table 2〉 presents the descriptive statistics of each variable for the final sample. The mean (median) of Trading Volume 1 (TV1), Trading Volume 2 (TV2) and Trading Volume 3 (TV3) were 0.0131 (0.0061), -0.0031 (-0.0077) and -0.0005 (-0.0037), respectively. The median of Trading Volume 2 (TV2) and Trading Volume 3 (TV3), representing abnormal trading volume, is negative. According to these results, more than half of the sample in this study suggests a negative abnormal trading volume.

In Jung's (2016b) study, the mean (median) of TV1 and TV2 are reported as 0.0133 (0.0064) and -0.0030 (-0.0074), respectively. The mean (median) of TV3 is reported as -0.0003 (-0.0034). The mean and median of the trading volume in this study is similar to Jung (2016b).

〈Table 1〉 Sampling process

Unit: (firm-year)

Sampling process	the number of samples
The firms included in the condition (1)	8,738
- Of the 8,738 firms, those not included in conditions (2), (3) and (4)	2,775
Final sample	5,963

2) The voluntary disclosure data was extracted from the disclosure items (occasional disclosures) of the disclosure documents search of the Financial Supervisory

The mean and median of dividend payout (DIV) were 0.7411 and 1.0000, respectively. In a study by Ki et al. (2018), the mean (median) of DIV was as 0.536 (1.000). We based our study on firms listed on the securities market. However, Ki et al. (2018) collected samples for firms listed on the securities market and the KOSDAQ market. The DIV mean of this study is somewhat different from Ki et al.'s (2018). The mean (median) of LOSS was 0.1368 (0.0000).

In the descriptive statistics of other control variables, the mean (median) of the voluntary disclosure level (VD) was 0.0408 (0.0000) and the mean (median) of earnings quality (EQ) was -0.0657 (0.0448). Sohn et al. (2008) and Sohn et al. (2009) reported 0.031 (0.000) and 0.067 (0.049) for the mean (median) of

〈Table 2〉 Descriptive Statistics

Variables	Mean	Standard Deviation	Min	25%	Median	75%	Max
TV1	0.0131	0.0233	0.0000	0.0025	0.0061	0.0135	0.3442
TV2	-0.0031	0.0233	-0.0376	-0.0124	-0.0077	-0.0010	0.3296
TV3	-0.0005	0.0213	-0.1383	-0.0086	-0.0037	0.0014	0.3182
DIV	0.7411	0.4381	0.0000	0.0000	1.0000	1.0000	1.0000
LOSS	0.1368	0.3437	0.0000	0.0000	0.0000	0.0000	1.0000
VD	0.0408	0.0880	0.0000	0.0000	0.0000	0.0394	1.6822
EQ	-0.0657	0.0711	-0.7988	-0.0855	-0.0449	-0.0197	0.0000
BOD	0.0038	0.1298	-0.5000	-0.0500	0.0000	0.0833	0.5500
UE	0.0429	0.5936	-8.7987	-0.0422	0.0000	0.0660	9.2229
AGE	5.1187	0.9536	0.0000	4.7274	5.3471	5.8186	6.5236
CFS	0.5811	0.4934	0.0000	0.0000	1.0000	1.0000	1.0000
IC	-0.1327	0.1479	-1.0000	-0.1596	-0.0873	-0.0406	-0.0049
BIG	0.6299	0.4829	0.0000	0.0000	1.0000	1.0000	1.0000
LEV	0.4651	0.2086	0.0005	0.3058	0.4649	0.6173	0.9979
SIZE	26.4264	1.4907	22.7122	25.3905	26.1412	27.2084	32.3983

Definition of variables: TV=Trading volume (TV1, TV2 and TV3), LOSS (1 If the net income is negative, 0 if the net profit is positive), VD=Voluntary disclosure (Total voluntary disclosure level for 1-year/ total assets at the end of fiscal year t-1), EQ=Earnings quality (The absolute value of the residuals ($|\epsilon_{i,t}|$) calculated by the model of Dechow and Dichev (2002) × (-1)), BOD=Outside directors ratio (The number of outside directors - (The number of registered directors x Legal minimum outside directors ratio) / The number of outside directors)), UE=Unexpected Earnings ((EPSt - EPSt-1)/stock price at the end of fiscal year t), AGE=ln (listed months), CFS=Consolidated financial statements (1 if the firm discloses consolidated financial statements or 0 otherwise), IC=Competition in the commodity market (Herfindahl-Hirschman Index (HHI×(-1)), BIG=Auditor size (1 if the auditor is Big 4, 0 for others), LEV=Debt ratio (total liabilities at the end of fiscal year t / total assets at the end of fiscal year t-1), SIZE=ln (total assets at the end of fiscal year t).

voluntary disclosure level and earnings quality, respectively. The EQ used in this study was measured by multiplying the absolute value of the residual (calculated from the model of Dechow and Dichev (2002)) by -1. Therefore, the EQ value of this study suggests a negative value. Except for negative values of EQ, VD and EQ have a similar distribution to Sohn et al. (2008) and Sohn et al. (2009).

The mean and median of the outside directors ratio (BOD) were 0.0038 and 0.0000, respectively. This suggests that more than half of the sample firms in this study meet the legal minimum outside directors. The mean (median) of unexpected earnings (UE) and AGE were 0.0429 (0.0000) and 5.1187 (5.3471), respectively. The median (median) of the competition in the commodity market (IC) is -0.1327 (-0.0873), which is similar to the median of Jung and Kim (2017). Jung and Kim (2017) report that the mean (median) of IC is -0.1290 (-0.0857).

The mean (median) of auditor size (BIG) was 0.6299 (1.0000) and the mean (median) of the debt ratio (LEV) was 0.4651 (0.4649). Finally, the mean (median) of SIZE was 26.4264 (26.1412).

〈Table 3〉 presents the Pearson correlation analysis of the main variables. Trading volume proxies (TV) have a positive correlation with dividend payout (DIV) and a negative correlation with LOSS. These results do not take directionality into account. However, trading volume has a positive correlation with dividend payout, suggesting a negative correlation with loss.

TV has a significant positive correlation with VD, UE and LEV. The competition in the commodity market (IC) showed a significant positive correlation with trading volume1 (TV1) among TV.

At the same time, TV has a significant negative correlation with earnings quality (EQ), consolidated financial statement disclosure (CFS), auditor size (BIG) and SIZE. BOD and AGE were found to have a significant negative correlation with trading volume1 (TV1) among TV.

4.2 Regression results

〈Table 4〉 shows the results of analyzing the effect of loss on trading volume by making a sample of companies that do not pay dividends. As a result, the regression coefficient of LOSS was found to be a positive value in each model. According to these results, the trading volume of the loss firm that does not pay dividends can be interpreted as higher than that of the gain firm that does not pay dividends.

〈Table 5〉 shows the result of analyzing the information effect of dividends by making a sample of loss firms. The analysis showed that the DIV regression coefficients were negative in all models. It can be interpreted that the trading volume of the loss firm that does not

〈Table 3〉 Correlation Results

	TV1	TV2	TV3	DIV	LOSS	VD	EQ	BOD	UE	AGE	CFS	IC	BIG	LEV
TV2	0.9480***													
TV3	0.8857***	0.8857***												
DIV	-0.2771***	-0.2701***	-0.2550***											
LOSS	0.1696***	0.1791***	0.1490***	-0.4219***										
VD	0.0256**	0.0711***	0.0494***	-0.0784***	0.0286**									
EQ	-0.1133***	-0.1180***	-0.1071***	0.1844***	-0.1614***	-0.0328**								
BOD	-0.0431***	-0.0010	-0.0098	-0.0024	0.0073	0.0416***	0.0471***							
UE	0.0570***	0.0437***	0.0447***	-0.0192	-0.0481***	0.0201	-0.0278**	-0.0126						
AGE	-0.0230*	-0.0106	-0.0136	-0.0765***	0.0676***	-0.0023	0.1055***	0.0236*	0.0041					
CFS	-0.0620***	-0.0659***	-0.0631***	0.0739***	-0.0763***	0.0545***	0.0942***	0.0743***	0.0039	0.1065***				
IC	0.0228*	0.0197	0.0127	0.0337***	-0.0443***	-0.0512***	-0.0323**	-0.0684***	-0.0118	0.0218**	-0.1258***			
BIG	-0.1328***	-0.0862***	-0.0930***	0.1130***	-0.0647***	0.0691***	0.0582***	0.0929***	-0.0053	-0.0369***	0.1165***	-0.1436***		
LEV	0.0962***	0.0945***	0.0990***	-0.2070***	-0.0127	0.1225***	0.0032	-0.0109	0.0532***	0.0001	0.0372***	-0.0198	0.0603***	
SIZE	-0.2311***	-0.2195***	-0.1833***	0.1872***	-0.1569***	0.1869***	0.1682***	0.1474***	-0.0017	0.1078***	0.3558***	-0.3172***	0.3535***	0.1681***

1) ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
2) See 〈Table 2〉 for a description of the variables.

〈Table 4〉 Analysis of Hypothesis 1 (Sample: Company Not Paying Dividend, n = 1,544)

	MODEL1:TV1		MODEL2:TV2		MODEL3:TV3	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	0.1889	8.60***	0.1731	7.89***	0.1616	7.78***
LOSS	0.0055	2.89***	0.0055	2.89***	0.0046	2.53**
VD	0.0298	3.05***	0.0297	3.05***	0.0294	3.18***
EQ	-0.0220	-2.32**	-0.0220	-2.32**	-0.0221	-2.46**
BOD	0.0035	0.51	0.0035	0.51	0.0037	0.58
UE	0.0016	1.94*	0.0016	1.94*	0.0013	1.72*
AGE	-0.0007	-0.65	-0.0007	-0.65	-0.0005	-0.47
CFS	0.0036	1.66*	0.0036	1.66*	0.0039	1.89*
IC	-0.0124	-1.70*	-0.0124	-1.70*	-0.0110	-1.60
BIG	-0.0028	-1.49	-0.0028	-1.49	-0.0025	-1.39
LEV	0.0040	0.86	0.0040	0.86	0.0031	0.69
SIZE	-0.0061	-7.69***	-0.0061	-7.68***	-0.0060	-7.98***
YD	Included		Included		Included	
IND	Included		Included		Included	
F-값	5.34***		3.89***		3.20***	
Adj.R^2	0.1526		0.1071		0.0836	

1) ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
2) See 〈Table 2〉 for a description of the variables.

〈Table 5〉 Analysis results of Hypothesis 2 (sample: loss company, n = 816)

	MODEL1:TV1		MODEL2:TV2		MODEL3:TV3	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	0.1620	4.64***	0.1364	3.91***	0.1324	4.00***
DIV	-0.0103	-1.97**	-0.0103	-1.97**	-0.0113	-2.30**
VD	0.0268	1.81*	0.0268	1.81*	0.0307	2.18*
EQ	-0.0282	-1.91*	-0.0282	-1.91*	-0.0262	-1.87*
BOD	-0.0012	-0.11	-0.0012	-0.11	0.0004	0.05
UE	0.0034	2.71***	0.0034	2.71***	0.0027	2.28**
AGE	-0.0012	-0.64	-0.0012	-0.64	-0.0008	-0.45
CFS	0.0043	1.31	0.0043	1.31	0.0049	1.58
IC	-0.0094	-0.90	-0.0094	-0.90	-0.0078	-0.78
BIG	-0.0037	-1.21	-0.0037	-1.21	-0.0041	-1.43
LEV	0.0087	1.21	0.0087	1.21	0.0066	0.99
SIZE	-0.0045	-3.65***	-0.0045	-3.65***	-0.0046	-3.91***
YD	Included		Included		Included	
IND	Included		Included		Included	
F-값	3.64***		2.66***		2.15***	
Adj.R^2	0.1673		0.1121		0.0807	

1) ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
2) See 〈Table 2〉 for a description of the variables.

pay dividends is higher than that of the loss firm that pays dividends.

〈Table 6〉 shows the results of analyzing the effect of loss on trading volume for firms paying dividends. The results showed that the regression coefficients of the LOSS were not significant in each model. For companies paying dividends, loss does not appear to be related to trading volume.

Looking at the results of the control variables, unexpected earnings (UE) is significantly positive in all models of 〈Table 4〉, 〈Table 5〉 and 〈Table 6〉 except for Model 3 of 〈Table 6〉. This is consistent with expectations and high unexpected earnings can be interpreted as increasing trading volume.

The consolidated financial statement (CFS) presents a significant positive value only in 〈Table 4〉. For companies that do not pay dividends, consolidated financial statements can be interpreted as a factor in increasing trading volume.

The competition in the commodity market (IC) suggests a negative value only in Model 1 and Model 2 of 〈Table 4〉. The negative relationship between competition in the commodity market and trading volume appears to be limited in companies that do not pay

〈Table 6〉 Analysis of Hypothesis 3 (Sample: Companies Paying Dividends, n = 4,419)

	MODEL1:TV1		MODEL2:TV2		MODEL3:TV3	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	0.0862	15.72***	0.0480	8.75***	0.0300	5.72***
LOSS	0.0010	1.07	0.0010	1.06	0.0011	1.18
VD	0.0048	1.77*	0.0047	1.75*	0.0040	1.55
EQ	-0.0022	-0.62	-0.0025	-0.69	-0.0040	-1.13
BOD	-0.0032	-1.74*	-0.0032	-1.73*	-0.0017	-0.97
UE	0.0013	1.97**	0.0013	1.96**	0.0009	1.41
AGE	-0.0001	-0.81	-0.0002	-0.97	-0.0001	-0.59
CFS	-0.0001	-0.36	-0.0002	-0.38	-0.0002	-0.51
IC	-0.0002	-0.14	-0.0002	-0.10	0.0009	0.49
BIG	-0.0016	-3.36***	-0.0016	-3.39***	-0.0015	-3.31***
LEV	0.0126	10.73***	0.0126	10.75***	0.0117	10.45***
SIZE	-0.0020	-10.00***	-0.0020	-9.96***	-0.0019	-9.91***
YD	Included		Included		Included	
IND	Included		Included		Included	
F-값	12.07***		20.84***		9.59***	
Adj.R^2	0.1456		0.2339		0.1168	

1) ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
2) See 〈Table 2〉 for a description of the variables.

dividends.

Auditor size (BIG) and debt ratio (LEV) are significant negative and positive values in 〈Table 6〉, respectively. This suggests that the auditor's size of companies paying dividends is negatively related to trading volume. However, the debt ratio of companies paying dividends can be interpreted as having a positive relationship with trading volume.

SIZE shows significant negative values in each model of 〈Table 7〉, 〈Table 8〉 and 〈Table 9〉. Therefore, size can be interpreted as having a negative relationship with trading volume.

According to the above results, the trading volume of non-dividend paying companies is higher than that of non-loss companies paying dividends. The trading volume of a loss company that does not pay dividends is higher than the trading volume of a loss company that pays dividends. However, for companies paying dividends, loss can be interpreted as having no additional effect on trading volume.

4.3 Additional Test

In this study, we additionally test whether the effect of dividends on trading volume was more significant in the loss company than in the non-loss company for the full sample (n = 5,963). For this purpose, equation (5) is set. β_3 of equation (5) is the variable of interest for additional analysis, where equation (5) is a difference in differences estimate. it is appropriate to test additional analysis.

$$\begin{aligned} TV_{i,t+1} = {} & \beta_0 + \beta_1 DIV_{i,t} + \beta_2 LOSS_{i,t} \\ & + \beta_3 DIV \times LOSS_{i,t} + \beta_4 VD_{i,t} + \beta_5 EQ_{i,t} \\ & + \beta_6 BOD_{i,t} + \beta_7 UE_{i,t} + \beta_8 AGE_{i,t} \\ & + \beta_9 CFS_{i,t} + \beta_{10} HI_{i,t} + \beta_{11} BIG_{i,t} \\ & + \beta_{12} LEV_{i,t} + \beta_{13} SIZE_{i,t} + \beta_{14} YD_{i,t} \\ & + \beta_{15} IND_{i,t} + \epsilon_{i,t} \qquad \text{Equation (5)} \end{aligned}$$

See equation (1.1) and (1.2) for variable descriptions.

〈Table 7〉 Difference-In-Differences(DID) Test

	Loss	Gain	Difference	Hypotheses
No-dividend	(A) β_2 0.0060, 0.0067, 0.0057	(B) 0.0000, 0.0000, 0.0000	(A)-(B) β_2 0.0060, 0.0067, 0.0057	(H1)
Dividend	(C) $\beta_1 + \beta_2 + \beta_3$ -0.0086, -0.0066, -0.0086	(D) β_1 -0.0083, -0.0074, -0.0086	(C)-(D) $\beta_2 + \beta_3$ -0.0003, 0.0008, 0.0000	(H3)
Difference	(C)-(A) $\beta_1 + \beta_3$ -0.0146, -0.0133, -0.0143	(D)-(B) β_1 -0.0083, -0.0074, -0.0086	{(C)-(A)}-{(D)-(B)} β_3 -0.0063, -0.0059, -0.0057	DID
Hypotheses	(H2)			

〈Table 8〉 is the result of analyzing above equation (5). Model 1 and Model 2 in 〈Table 8〉 are the results of analyzing TV1 and TV2 as dependent variables, and Model 3 is the result of analyzing TV3 as dependent variables. Looking at the results in 〈Table 8〉, In each model, β_1 gives a negative value and β_2 gives a positive value. And β_3 gives significant negative values for each model.

We analyzed the difference-in-differences (〈Table 7〉) based on the regression coefficients in 〈Table 8〉. Specifically, 〈Table 7〉 shows the marginal effect of dividends on loss companies and dividends on gain companies using

〈Table 8〉 The effect of dividend payout of loss and gain firms on trading volume[3)]

$$TV_{i,t+1} = \beta_0 + \beta_1 DIV_{i,t} + \beta_2 LOSS_{i,t} + \beta_3 DIV \times LOSS_{i,t} + \beta_4 VD_{i,t} + \beta_5 EQ_{i,t} + \beta_6 BOD_{i,t} + \beta_7 UE_{i,t} + \beta_8 AGE_{i,t} + \beta_9 CFS_{i,t} + \beta_{10} HI_{i,t} + \beta_{11} BIG_{i,t} + \beta_{12} LEV_{i,t} + \beta_{13} SIZE_{i,t} + \beta_{14} YD_{i,t} + \beta_{15} IND_{i,t} + \epsilon_{i,t}$$

	MODEL 1: TV1		MODEL 2: TV2		MODEL 3: TV3	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	0.1088	15.85***	0.0923	13.39***	0.0704	10.99***
DIV	-0.0083	-9.93***	-0.0074	-8.86***	-0.0086	-11.15***
LOSS	0.0060	5.10***	0.0067	5.66***	0.0057	5.18***
DIV×LOSS	-0.0063	-3.34***	-0.0059	-3.14***	-0.0056	-3.22**
VD	0.0060	1.77*	0.0192	5.61***	0.0127	4.01***
EQ	-0.0103	-2.51***	-0.0127	-3.08***	-0.0127	-3.31***
BOD	-0.0032	-1.45	0.0037	1.66*	0.0035	1.70*
UE	0.0020	4.28***	0.0015	3.19***	0.0013	3.03***
AGE	-0.0004	-1.24	0.0002	0.46	0.0001	0.21
CFS	0.0014	2.17**	0.0008	1.28	0.0007	1.21
IC	-0.0037	-1.47	-0.0038	-1.53	-0.0025	-1.07
BIG	-0.0029	-4.53***	-0.0006	-0.88	-0.0014	-2.30**
LEV	0.0095	6.26***	0.0096	6.30***	0.0089	6.30***
SIZE	-0.0030	-11.86***	-0.0032	-12.68***	-0.0030	-12.64***
YD	Included		Included		Included	
IND	Included		Included		Included	
F-값	18.14***		17.32***		13.79***	
Adj.R^2	0.1471		0.1411		0.1140	

1) ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
2) See 〈Table 2〉 for a description of the variables.

3) In this study, empirical analysis including the current trading volume as a control variable, but the results are consistent with 〈Table 8〉.

〈Table 9〉 Information effect of dividend on dividend Increase or Decrease

Panel: A (group with increased dividends, n = 4,071)

	MODEL1:TV1		MODEL2:TV2		MODEL3:TV3	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	0.1242	13.16***	0.1150	12.19***	0.0157	10.20***
DIV	-0.0074	-7.39***	-0.0074	-7.37***	0.0108	-8.75***
LOSS	0.0060	4.58***	0.0060	4.58***	0.0078	4.35***
DIV×LOSS	-0.0065	-2.46**	-0.0066	-2.46**	-0.0255	-2.48**
VD	0.0188	3.78***	0.0187	3.77***	0.0187	4.03***
EQ	-0.0118	-2.32**	-0.0119	-2.35**	-0.0137	-2.87***
BOD	0.0007	0.21	0.0007	0.22	0.00143	0.48
UE	0.0019	3.47***	0.0019	3.46***	0.0014	2.80***
AGE	-0.0004	-0.99	-0.0004	-1.10	-0.0002	-0.67
CFS	0.0023	2.39**	0.0023	2.38**	0.0020	2.29**
IC	-0.0062	-1.84*	-0.0061	-1.82*	-0.0048	-1.52
BIG	-0.0018	-2.14**	-0.0018	-2.15**	-0.0017	-2.16**
LEV	0.0086	4.22***	0.0086	4.23***	0.0076	4.01***
SIZE	-0.0038	-11.11***	-0.0038	-11.09***	-0.0037	-11.47***
YD	Included		Included		Included	
IND	Included		Included		Included	
F-값	13.25***		12.00***		8.27***	
Adj.R^2	0.1761		0.1610		0.1126	

Panel: B (group with decreased dividends, n=1,892)

	MODEL1:TV1		MODEL2:TV2		MODEL3:TV3	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	0.0477	4.65***	0.0355	3.46***	0.0271	2.58***
DIV	0.0016	0.24	0.0016	0.24	-0.0034	-0.51
LOSS	-0.0069	-0.48	-0.0069	-0.48	-0.0099	-0.66
DIV×LOSS	0.0078	0.53	0.0078	0.53	0.0114	0.76
VD	0.0045	1.35	0.0045	1.35	0.0023	0.68
EQ	-0.0139	-2.38**	-0.0139	-2.38**	-0.0104	-1.75*
BOD	-0.0032	-1.19	-0.0032	-1.19	-0.0017	-0.61
UE	0.0013	0.67	0.0013	0.67	0.0034	1.75*
AGE	0.0006	1.66*	0.0006	1.65*	0.0005	1.14
CFS	-0.0009	-1.16	-0.0009	-1.16	-0.0007	-0.94
IC	-0.0004	-0.17	-0.0004	-0.17	0.0004	0.13
BIG	-0.0014	-2.05**	-0.0014	-2.05**	-0.0015	-2.09**
LEV	0.0122	7.19***	0.0122	7.19***	0.0125	7.20***
SIZE	-0.0017	-6.06***	-0.0017	-6.06***	-0.0016	-5.80***
YD	Included		Included		Included	
IND	Included		Included		Included	
F-값	4.19***		10.50***		4.86***	
Adj.R^2	0.1016		0.2518		0.1203	

1) ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
2) See 〈Table 2〉 for a description of the variables.

〈Table 10〉 Information effect of dividend based on continuous loss over the Past 2 Years

Panel: A (group with two consecutive years of loss, n = 234)

	MODEL1:TV1		MODEL2:TV2		MODEL3:TV3	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	0.2143	2.07**	0.1997	1.93*	0.1696	1.64*
DIV	0.0106	0.40	0.0106	0.40	0.01078	0.42
LOSS	0.0113	1.20	0.0113	1.20	0.00784	0.87
DIV×LOSS	-0.0237	-0.72	-0.0237	-0.72	-0.0255	-0.81
VD	-0.0475	-0.87	-0.0475	-0.87	-0.0648	-1.89*
EQ	-0.0636	-1.77*	-0.0636	-1.77*	0.02836	1.06
BOD	0.0346	1.24	0.0346	1.24	-0.0052	-1.03
UE	-0.0049	-0.92	-0.0049	-0.92	-0.0053	-0.74
AGE	-0.0058	-0.76	-0.0058	-0.76	0.0154	1.73*
CFS	0.0149	1.61	0.0149	1.61	-0.0242	-0.83
IC	-0.0187	-0.63	-0.0187	-0.63	-0.0042	-0.53
BIG	-0.0049	-0.59	-0.0049	-0.59	0.01493	0.81
LEV	0.0223	1.15	0.0223	1.15	-0.0063	-1.71*
SIZE	-0.0062	-1.61	-0.0062	-1.61	-0.0266	-0.95
YD	Included		Included		Included	
IND	Included		Included		Included	
F-값	1.45**		1.12		1.10	
Adj.R^2	0.0877		0.0265		0.0211	

Panel: B (group with no losses in the past two years, n = 5,729)

	MODEL1:TV1		MODEL2:TV2		MODEL3:TV3	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	0.1074	17.85***	0.0819	13.60***	0.0014	1.16
DIV	-0.0081	-10.59***	-0.0081	-10.58***	-0.0089	-12.40***
LOSS	0.0036	3.04***	0.0035	3.04***	0.0029	2.71***
DIV×LOSS	-0.0032	-1.82*	-0.0032	-1.82*	-0.0027	-1.66*
VD	0.0137	4.35***	0.0137	4.34***	0.0138	4.35***
EQ	-0.0070	-1.84*	-0.0072	-1.88*	-0.0080	-2.21**
BOD	-0.0014	-0.63	-0.0013	-0.63	-0.0003	-0.19
UE	0.0019	4.35***	0.0019	4.34***	0.0015	3.70***
AGE	0.0000	-0.10	0.0000	-0.22	-0.0000	-0.09
CFS	0.0006	0.92	0.0006	0.90	0.0004	0.75
IC	-0.0018	-0.82	-0.0018	-0.80	-0.0021	-0.99
BIG	-0.0016	-2.80***	-0.0016	-2.81***	-0.0016	-3.00***
LEV	0.0096	6.84***	0.0096	6.85***	0.0088	6.65***
SIZE	-0.0029	-12.60***	-0.0029	-12.58***	-0.0027	-12.15***
YD	Included		Included		Included	
IND	Included		Included		Included	
F-값	18.23***		19.38**		11.31***	
Adj.R^2	0.1719		0.1813		0.1091	

1) ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
2) See 〈Table 2〉 for a description of the variables.

the regression coefficients of 〈Table 8〉.

According to the analysis results, the values of [{(C)-(A)}-{(D)-(B)}] is -0.0063, -0.0059 and -0.0057 consistent with each model. The effect of dividend on trading volume is more significant when the firm is a loss firm than when the firm is a gain(non-loss) firm 〈Table 9〉 is the result of re-analyzing 〈Table 8〉 by dividing the group into firms with increased dividends and firms with decreased dividends. Panel A in 〈Table 9〉 shows the results of firms with increased dividends; Panel B in 〈Table 9〉 shows the results of firms with reduced dividends.

As a result of the analysis, β_1 and β_3 of panel A were significantly negative, and β_2 was significantly positive. This is consistent with 〈Table 8〉. For firms with increased dividends, the information effect of dividends can be interpreted differently depending on the profitability of the companies. However, β_1, β_2 and β_3 of panel B showed no significance.

According to the results of 〈Table 9〉, the 'DIV' variable and the 'LOSS' variable have an information effect in the case of companies with increased dividends. However, for companies with decreased dividends, the 'DIV' variable and the 'LOSS' variable do not appear to be related with trading volume.

In this context, for companies with increased dividends, the information effect of dividends is more significant in the loss firms than in the non-loss firms. However, for companies with decreased dividends, the information effect of dividends does not differ between loss firms and non-loss firms. Based on 〈Table 9〉, the information effect of dividends differs depending on the increase and decrease of dividends.

〈Table 10〉 is the result of re-analyzing 〈Table 4〉 by dividing the sample based on the last two years of continuous loss. Specifically, Panel A of 〈Table 10〉 shows the results of analyzing firms that have suffered consecutive losses for the past two years. Panel B of 〈Table 10〉 shows the results of the analysis of firms that have not seen continuous losses for the past two years.

The results of the analysis show that panel A(β_1, β_2 and β_3) all seem to be insignificant. β_1 and β_3 of panel B shows significant negative values, and β_2 shows significant positive values. This is consistent with 〈Table 4〉, which indicates that the information effect of dividends is affected by the profitability of firms in the past.

Ⅴ. Conclusion

This study examines the effect of dividend payout of loss and gain firms on trading volume. The trading volume used in our analysis was measured by daily average trading volume and abnormal trading volume. The divi-

dend payment was measured as a dummy variable.

It is reported that the trading volume increases as the investor's differing beliefs about the intrinsic value of the investee are larger. On the one hand, studies of trading volume have analyzed which firm-characteristic variables are an incentive to increase differing beliefs among investors. On the other hand, studies of the information effect of dividends have looked at the information effect of dividends without considering the profitability of individual firms that generate those dividends.

In this study, we examine the information effect of dividend considering profitability of individual firms by meaning the information effect of dividends by trading volume. The results of analyzing 5,963 firms (firms - years) listed on the securities market in 2002-2013 are as follows.

The trading volume of a loss firm that does not pay dividends is higher than the gain volume of a gain firm that also does not pay dividends. In addition, the trading volume of a loss firm that does not pay dividends is higher than the trading volume of a loss firm that does pay dividends. However, the trading volume of the dividend-paying loss firm is higher than the trading volume of the dividend-paying gain firm when trading volume is abnormal.

Previous studies have examined the signal and information effects of dividends without considering the profitability of individual firms that are the sources of dividends. This study has contributed to the profitability of individual firms in analyzing the information effect of dividends. It has contributed to the use of trading volumes rather than analyzing information effects using prices.

References

고대영, 백은영, 안미강(2012), "기업지배구조가 외국인지분율에 미치는 영향," **회계정보연구**, 30(1), pp. 29-59.

김창수(2006), "한국의 사외이사제도 도입과 기업가치," **재무연구**, 19(2), pp.105-153.

남혜정(2016), "배당지급 손실기업의 이익의 질에 대한 연구," **회계학연구**, 41(2), pp.213-241.

박종일, 정설희(2018), "배당이 미래 이익의 질을 전달하는가?," 경영학연구, 47(2), pp.307-348.

백원선(2011), "수익비용대응원칙과 이익의 질," **회계학연구**, 36(2), pp.101-127.

변선영, 정현욱(2017), "외국인지분율과 투자자들 간의 상이한 믿음," **무역학회지**, 42(2), pp.227-249.

손성규, 곽병진, 김연화(2008), "자율공시가 재무분석가 이익예측에 미치는 영향," **회계정보연구**, 26(2), pp.1-26.

손성규, 고재민, 백혜원(2009), "발생액의 질의 회계정보 유용성," **회계정보연구**, 27(2), pp.273-304.

이화득, 고종권, 김종현(2008), "이익기업과 손실기업의 이익지속성과 자본시장의 반응," **세무와 회계저널**, 9(4), pp.85-119.

이화진, 박종국, 김재오(2005), "이익지속성을 통한 배당정보효과의 재조명," **회계학연구**, 30(1), pp.33-166.

이화진, 이계원(2007), "이익지속성을 통한 이익기업과 손

실기업의 배당정보효과," **회계저널**, 16(3), pp. 169-195.

정현욱(2015), "비정상감사시간과 거래량 간의 관련성에 대한 연구," **회계·세무와 감사연구**, 57(2), pp. 1-29.

정현욱(2016a), "산업전문감사인의 정보효과," **회계·세무와 감사연구**, 58(1), pp.39-62.

정현욱(2016b), "부채특성과 거래량 간의 관련성에 대한 연구," **회계정보연구**, 34(2), pp.245-265.

정현욱, 이강일(2016), "특수관계자거래와 투자자들 간의 상이한 믿음," **세무와 회계저널**, 17(5), pp.121-140.

정현욱, 이강일(2018), "손실기업 및 이익기업의 배당지급 여부와 재무분석가의 낙관적인 이익예측편의," **회계정보연구**, 36(4), pp.29-51.

정현욱, 김도연(2017), "상품시장의 경쟁정도와 투자자의 상이한 믿음," **세무와 회계저널**, 18(5), pp.87-110.

정현욱, 변선영(2018), "배당지급 여부와 수익비용대응 수준 간의 관련성에 대한 연구," **회계·세무와 감사연구**, 60(3), pp.149-166.

정혜영(1990), "회계이익 공시시점에서의 주가수익률분산과 거래량변동의 공통성에 관한 연구," **회계학연구**, 10(1), pp.133-150.

최종서, 신성목(1997), "연차이익공시에 대한 거래량반응: 한국증권시장에서의 실증적 증거," **회계학연구**, 22(1), pp.1-35.

한봉희(2001), "비기대이익과 초과주가수익률의 측정," **한국증권학회**지, 29(1), pp.183-214.

황인태(1995), "연결재무제표의 유용성에 관한 실증적 연구: 거래량정보를 이용하여," **회계학연구**, 20(2), pp.59-75.

Ajinkya, B. B., R. K. Atiase, and M. J. Gift(1991), "Volume of Trading and the Dispersion in Financial Analysts' Earnings Forecasts," *The Accounting Review*, 66(2), pp.389-401.

Ambarish. R., K. John, and J. Williams(1987), "Efficient signalling with dividends and investments," *The Journal of Finance*, 42 (2), pp.321-343.

Baker, H. K., G. E. Farrelly, and R. B. Edelman (1985), "A survey of management views on dividend policy," *Financial Management*, 14 (3), pp.78-84.

Bamber, L. S.(1987), "Unexpected Earnings, Firm Size, and Trading Volume around Quarterly Earnings Announcements," *The Accounting Review*, 62(3), pp.510-532.

Beaver. W.(1968), "The Information Content of Annual Earnings Announcements," *Journal of Accounting Research*, 6, pp.67-92.

Becker, C. L., M. L. DeFond, J. Jiambalvo, and K. R. Subramanyam(1998), "The effect of audit quality on earnings management," *Contemporary Accounting Research*, 15(1), pp.1-24.

Benartzi, S., R. Michaely, and R. Thaler(1997), "Do changes in dividends signal the future or the past?," *The Journal of Finance*, 52 (3), pp.1007-1034.

Bharath, S. T., J. Sunder, and S. V. Sunder(2008), "Accounting Quality and Debt Contracting," *The Accounting Review*, 83(1), pp.1-28.

Bhattacharya, N., F. Ecker, P. Olsson, and K. Schipper(2012), "Direct and Mediated Associations among Earnings Quality, Information Asymmetry, and the Cost of Equity," *The Accounting Review*, 87(2), pp.449-482.

Bhushan, R.(1989), "Firm Characteristics and Analyst Following," *Journal of Accounting and Economics*, 11(2-3), pp.255-274.

DeAngelo, H., L. DeAngelo, and D. Skinner(1992), "Dividends and losses," *The Journal of Finance*, 47(5), pp.1837-1863.

Dechow, P. M., and I. Dichev(2002), "The Quality

of Accruals and Earnings : The Role of Accrual Estimation Errors," *The Accounting Review*, 77(Supplement), pp.35-59.

Eckbo, B. E., and S. Verma(1994), "Managerial share ownership, voting power, and cash dividend policy," *Journal of Corporate Finance*, 1, pp.33-62.

Jung, H., and S. Moon(2017), "Matching Level and Investors' Heterogeneous Beliefs," *The Journal of Applied Business Research*, 33(3), pp. 451-465.

Karpoff, J. M.(1986), "A Theory of Trading Volume," *The Journal of Finance*, 41(5), pp.1069-1087

Lawson, B., and D. Wang(2016), "The earnings quality information content of dividend policies and audit pricing," *Contemporary Accounting Research*, 33(4), pp.1685-1719.

Lintner, J.(1956), "Distribution of incomes of corporations among dividends, retained earnings, and taxes," *The American Economic Review*, 46(2), pp.97-113.

Liu, N., and R. Espahbodi(2014), "Does dividend policy drive earnings smoothing?," *Accounting Horizons*, 28(3), pp.501-528.

Nissim. D., and A. Ziv(2001), "Dividend changes and future profitability," *The Journal of Finance*, 56(6), pp.2111-2133.

Skinner, D., and E. Soltes(2011), "What do dividends tell us about earnings quality?," *Review of Accounting Studies*, 16(1), pp.1-28.

Tong, Y. H., and B. Miao(2011), "Are dividends associated with the quality of earnings?," *Accounting Horizons*, 25(1), pp.183-205.

Zeckhauser, R. J., and J. Pound(1990), "Are large shareholders effective monitors? An investigation of share ownership and corporate performance," in R. G. Hubbard(Ed), *Asymmetric Information, Corporate Finance, and Investment*, University of Chicago Press, pp.149-180.

Ziebart, D. A.(1990), "The Association Between Consensus of Beliefs and Trading Activity Surrounding Earnings Announcements," *The Accounting Review*, 65(2), pp.477-488.

손실기업 및 이익기업의 배당지급이 거래량에 미치는 영향*

정현욱**

요 약

본 연구는 손실기업 및 이익기업의 배당지급이 거래량에 미치는 영향을 분석하는데 목적이 있다. 본 연구는 개별기업의 수익성에 따라 배당의 정보효과는 차별적으로 발생할 것으로 판단하여 가설(3가지 가설)을 설정하고 실증분석을 수행하였다. 거래량과 관련된 선행연구에서는 높은 회계이익의 질은 투자대상기업에 대한 투자자들 간의 상이한 믿음(differing beliefs)을 감소시킨다고 보고하고 있다.

한편, 배당과 관련된 회계학연구에서는 배당을 지급하는 기업은 배당을 지급하지 않는 기업보다 높은 회계이익의 질을 보고한다고 설명하고 있다. 하지만, 배당과 관련된 일련의 선행연구에서는 배당의 재원이 되는 개별기업의 수익성을 고려하지 않고, 배당의 정보효과를 분석하고 있다. 이러한 점에서 본 연구는 개별기업의 수익성을 고려하여 배당의 정보효과를 실증분석하였다. 구체적으로, 본 연구에서는 손실기업 및 이익기업의 배당지급이 거래량에 미치는 영향을 실증분석하였다.

2002-2013년 기간 동안 유가증권시장 상장법인 5,963개(기업-년)를 대상으로 분석한 결과는 다음과 같다. 첫째, 배당을 지급하지 않는 손실기업의 거래량은 배당을 지급하지 않는 이익기업의 거래량보다 높은 것으로 나타났다. 둘째, 배당을 지급하지 않는 손실기업의 거래량은 배당을 지급하는 손실기업의 거래량보다 높은 것으로 나타났다. 이러한 결과는 표본을 재구성하여 분석하여도 일관된 것으로 나타났다.

배당을 지급하는 기업만을 대상으로 손실여부가 거래량에 미치는 영향을 분석한 결과에서는 손실여부과 거래량 간에는 관련성이 없는 것으로 나타났다. 이는 배당을 지급하는 기업의 경우 손실 및 이익 여부는 거래량과 관련성이 없는 것으로 해석할 수 있다.

이상의 결과를 종합해 보면, 손실기업일지라도 배당을 지급하는 기업은 회계이익의 질이 높아 투자대상기업에 대한 투자자들 간의 상이한 믿음이 감소시키고 있음을 시사한다. 배당의 신호효과를 분석한 연구에서는 배당의 재원이 되는 개별기업의 수익성을 고려하지 않고 배당의 신호(정보)효과를 분석하고 있다. 이러한 점에서 본 연구는 배당의 정보효과를 분석함에 있어, 개별기업의 수익성을 고려했다는 공헌점이 있다. 특히, 본 연구는 정보효과를 가격을 사용하여 분석하지 않고 거래량을 사용하였다는 점에서 공헌점이 있을 것으로 판단된다.

주제어: 배당지급, 거래량, 손실기업, 이익기업

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