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Family names of firms help investors pay attention to the family

기업집단명(名)이 관계회사의 실적공시에 대한 투자자 주의에 미치는 효과

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고 민 수

Abstract

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Exploiting the unique institutional background of South Korea, we examine the ways in which investors pay attention to the earnings announcements of other firms in business groups depending on the similarity of company names. Results show that firms respond to earning announcements of affiliated firms that do not share a family name 36% less sensitively, after controlling firm characteristics and fundamental relationships. This phenomenon is pronounced in business groups to which investors pay less attention. The trading volume of individual investors underreacts to the positive news of an affiliated firm if the two firms do not share the same family name. Furthermore, we determine that return of stock responds to the earnings announcements of other firms if they have similar names, even if these firms are not fundamentally related.

Keywords: limited attention, business group, behavioral finance, corporate governance

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1. Introduction

In the literature of traditional asset pricing, investors can gather and process information without any limitations. However, investors have limited resources for attention (Sims (2003), Peng and Xiong (2006)), and how the information is produced and delivered affects the attention of agents (Hossain and Morgan (2006), and Dellavigna and Pollet (2009))

When do investors pay more attention to the stocks that they hold? This empirical question has been extensively examined in recent decades. Studies suggest that the attention level changes when stocks are attention-grabbing (Barber and Odean (2008)), when stocks are covered by the media (Fang and Peress (2009)), and when a market-wide and noticeable event occurs (Yuan (2015)). In addition, investor demographics, such as gender and age, affect the level of attention (Sicherman, Loewenstein, Seppi and Utkus (2016)). These studies focus on the attention paid to news about stocks that investors currently hold or news about market-wide variation.

There is little research, however, on how much investors pay attention to news regarding related firms. Although the traditional literature assumes that returns are determined by firms' own risk exposure and market-wide risk quantity, studies indicate that news about other individual firms is also important to investors, even if these investors do not hold those firms' stocks. Specifically, the return of a holding stock is influenced by other individual stocks such as stocks of industry peers (Hou (2007) and Kaustia and Rantala (2015)) or stocks with similar investor composition (Anton and Polk (2014)). Bae, Cheon and Kang (2008), whose study is closely related to the current work, determined that stock returns are positively correlated with affiliated firms in a business group because of shared cash flow. According to them, increased earnings of a firm can benefit affiliated firms in the same business groups via the internal capital market. Almeida, Kim and Kim (2015) also posit that the increased cash flow of a firm benefits other firms in the same business group, particularly when they are in financial distress. These studies provide fundamental

reasons for why the stock returns of specific firms are influenced by other firms in business groups.

However, if there is an obstacle that deters price adjustment, then the price will slowly incorporate the information of related firms. For example, if investors have limited cognitive ability and cannot rapidly process information about related firms, the stock price will not be fully adjusted in a timely manner. Therefore, significant attention given by investors to related firms is a necessary condition for the aforementioned fundamental relationship to be incorporated into stock prices. If the attention of investors is limited, delay or underreaction to the news of related firms may occur.

We exploit the unique institutional setting of South Korea and demonstrate that the "family name" of firms influences how sensitively stock returns are affected by the news of affiliated firms. Here, *affiliated firms* refer to related firms that are members of the same business groups. In the current study, *family name* refers to the name part that is commonly used by member firms of a Korean business group, e.g., "Samsung." Names of firms can significantly influence stock performance. Various studies have determined that investors make concise guess about an industry by observing company names (Cooper, Dimitrov and Rau (2001)) and that stock returns subsequently increase after company names are changed (Horsky and Swyngedouw (1987)).

We posit that the absence of a shared family name among members of business groups deters the attention of investors. As Bae, Cheon, and Kang (2008) reports, increased resources in the internal capital market benefit affiliated firms. Therefore, when firms announce positive (negative) earnings news, the stock prices of affiliated firms increase (decrease). However, the absence of a family name may prevent investors from recognizing such news. For example, when Samsung Electronics reports positive earnings news, investors can easily realize that this news will positively influence Samsung Life Insurance Company, a member of the

Samsung business group. Thus, these investors will likely buy stocks of Samsung Life Insurance Company, and the stock price will increase. However, investors may not easily realize that the same news will also positively affect a company called Cheil Worldwide, another member of the Samsung business group. This is because Cheil Worldwide does not have "Samsung" – the family name of the Samsung business group – in its company name. Hence, these investors may not be aware that the firm is a member of the Samsung business group. As a result, in the short term, the stock price of Samsung Life Insurance Company is more likely to increase than the stock price of Cheil Worldwide, despite both firms being members of the Samsung business group. We show that if firms do not share the same family name with affiliated firms, they respond 36% less sensitively to the earnings of affiliated firms after controlling for firm characteristics and the fundamental relationship between the two firms. This result is robust when various subsamples and different filtering criteria are employed.

Second, we show that the limited attention of investors contributes to this phenomenon. This phenomenon is more evident in groups to which investors pay less attention, such as groups with small market capitalization, a low turnover rate and less trading activity involving institutional investors. Previous research shows that the above variables are proxies for less investor attention. Additionally, trading volume is also influenced by the shared family name. In particular, the trading activity of individual investors significantly differs depending on the name similarity. This phenomenon is pronounced when affiliated firms release positive news, which is consistent with the argument of Barber and Odean (2008). Since high trading activity is accompanied by high investor attention, it indicates that the driving force is the limited attention of individual investors. To conclude, limited investor attention is the driving force of the suggested phenomenon.

Third, we provide the opposite version of the phenomenon, which we call "false attention." Stock returns of specific firms respond to the earnings announcement of other firms with similar names even though these firms do not

belong to the same business group. For example, when Samsung Electronics announces positive earnings news, the stock return of Samsung Books will likely increase, even though the latter does not belong to the Samsung business group. This analysis is consistent with that of Rashes (2001), who provided an anecdotal example that the similar tickers of two firms (tickers: MCI and MCIC) incur irrational trading activities and abnormal stock returns. His study focuses on the errors of investors as a result of making false orders when they confuse the ticker of the larger firm with MCIC. In contrast, the current study uses a market-wide dataset and company names. We suggest that investors' knowledge about the institutional background influences the phenomenon.

This study contributes to the research on investor attention and demonstrates that investor attention influences how investors process news about related firms. The study shows how attention to other firms is occasionally misguided by cognitive deterrents. We also provide implications for corporate finance papers about peer effects, which interpret positive stock returns as the improvement of firms' fundamentals when related firms release positive earnings announcements. As we show, limited attention may alleviate the perception of news about related firms. Thus, several findings on peer effect may be underestimated.

The paper proceeds as follows. Section 2 discusses the institutional background of the Korean stock market and the fundamental relationship within business groups. Section 3 describes the data and sample construction. Section 4 provides the main empirical results concerning family name effect within the same business groups. Section 5 discusses how the limited attention of investors contributes to the main result. Section 6 explains the analysis of firms with similar names in different groups. Section 7 summarizes and concludes the paper.

2. Institutional background

Although diversified business groups are rare in the United States, business groups are prevalent in various countries, such as Japan, Spain, Argentina, Indonesia, and Korea (Khanna and Palepu (2000), and Khanna (2000)). Members of business groups are related to each another. On the one hand, they are fundamentally related. Bae, Cheon and Kang (2008) suggest that members of a business group benefit each another because the increased cash flow of one firm can help another firm to deal with future financial difficulties. Almeida, Kim and Kim (2015) indicate that the cash flow sharing of Korean business groups helped member firms to overcome the Asian financial crisis in the late 1990s. On the other hand, stocks of members in business groups are correlated because of non-fundamental reasons, such as categorization and habitat-driven stock comovement (Kim, Kim and Lee (2015)).

The fundamental relationship among members of business groups is prevalent worldwide, yet the institutional background of South Korea provides the best setting to examine the suggested behavioral bias in this relationship. First, business groups are very common in South Korea. According to Khanna and Rivkin (2001), 51% of Korean firms belong to business groups, which ranked third among 14 countries in their sample. In the sample in the current study, 85% of total market capitalization of KOSPI and KOSDAQ, which are the two major exchanges in Korea, is occupied by firms of business groups. In our definition, business groups comprise more than one firm of one same owner, and these firms are traded in the stock exchange. Prevalent business groups are important for the current analysis because of the abundant samples and because investors are familiar with the concept of business groups. As a result, we use a more robust analysis setting whose implication can be applied to other countries where investors are less familiar with and are thus less likely to pay attention to business groups.

Second, individual investors are active in the Korean stock market. These investors account for 81% of the total market trading volume, which is only 70% in

Taiwan and is lower in other major markets where institutional investors dominate (Gao and Lin (2015)). Therefore, the behavioral bias of individual investors can significantly influence stock return. Also, data about the trading activities of individual investors are publicly available on a daily-firm level. Thus, we can directly check whether the trading of individuals contributes to the proposed phenomenon.

Third, the structure of the Korean language makes investors identify firms in an efficient manner. A syllable of the Korean language is a combination of three components. Thus, 11,172 different forms can be produced. Therefore, two or three syllables are sufficient for firms to differentiate themselves from others. For example, Samsung (삼성) is composed of two syllables in Korea. In 2015, 87% of firms that do not use English name have two or three Korean syllables as their name except industry-related name terms, such as "bank" and "chemical," or proper nouns, such as "group" and "industries." In this setting, investors can efficiently identify firms based on names.

Table 1 summarizes the time-series mean of the cross-sectional characteristics of business groups and stand-alone firms. The table indicates that members of business groups are typically larger and more profitable than those which are not. The difference is statistically significant at the 1% level. The table also shows that these firms comprise a substantial portion of the Korean stock market.

[INSERT TABLE 1 HERE]

3. Data and sample construction

Our sample includes all stocks that are traded on KOSPI or KOSDAQ from January 2002 to December 2015. Quarterly accounting data are available after 2000, and there was a significant change in the method to designate large business groups by the Korea Fair Trade Commission in 2002. Market and accounting data are obtained from Fn-Guide, and company names are constructed from the Korea Exchange database. Ownership data are provided by TS-2000 and Korea Fair Trade Commission.

Multiple sources are used to classify firms into business groups. First, the Korea Fair Trade Commission designates large business groups to regulate tunneling within the groups each year. Their criterion has depended on the size of book asset since 2002. Second, for firms other than large business groups, the Korea Listed Companies Association has provided group classification since 2014. We use these data and manually construct business groups for firms before 2014 by examining their annual reports and company websites. The total number of groups is 278, and the average number of listed firms in a group is 3.20.

To examine the effect of sharing family names, firms are classified as having a family name by using the following criteria. The Korea Fair Trading Commission and Korea Listed Companies Association provide the group names. We set group names except industry terms, such as “bank” and “chemical,” as family names. If group names are not provided, then the name of the firm with the largest market capitalization is set as the family name. The industry terms for these groups were also omitted. 81.6% of the groups have two to three Korean syllables as their family name. A specific firm was classified to share the family name if a firm bears at least two Korean syllables that is same with the family name. For example, Samsung Electronics (삼성전자) has a family name because it bears Samsung (삼성). However, Cheil Worldwide (제일기획) does not have the family name because it

does not have Samsung (삼성) in its name. The name status can be changed if the firm announces the change in name.

Table 2 shows summary statistics of the sample. Panel A reports the mean, median, and standard deviation of all the samples. Because the Korean stock market grew throughout the sample period, we use the time-series average of cross-sectional statistics. *SharingName* is a dummy variable that is equal to one if the firm has a family name in a given firm-quarter. The mean of *SharingName* is 0.65, which indicates that 65% of the sample firms have family names in their names. Therefore, the variation for the dummy is sufficient. Panel B presents the Pearson correlation coefficients. The correlation of *SharingName* with other variables is low. Thus, the variable will not likely proxy other firm characteristics. However, the stock characteristic variables are controlled in the main analysis.

[INSERT TABLE 2 HERE]

4. Return sensitivity to the news firm depending on family name sharing

We use the quarterly earnings announcement events in the analysis to clarify the news source and to obtain appropriate sample sizes. The dates of the earnings announcements are hand-collected from the Korea Exchange database by employing the method of Choe and Lee (2012). If the earnings are announced after 15:00, then the next trading day is considered as the announcement day. A total of 17,678 earnings announcements occurred throughout the sample period.

We use two-firm-paired observations in the main regression. If an earnings report was produced by a firm (hereafter called “news firm”), then its effect on

another member firm in the same group (hereafter called "no-news firm") is one observation. For example, when an earnings announcement was released by Samsung Electronics in one day, its effect on the return of Samsung C&T is one observation, and its influence on the return of Samsung Life Insurance is another observation. If Samsung C&T presented an earnings announcement six days later, then the effect of Samsung C&T's on Samsung Electronics and Samsung Life Insurance result in two additional observations. However, if a firm's announcement falls within five days before or after the earnings announcement in another firm in the same group, this observation is not included in the main analysis to rule out the influence of the of the firm's own announcements. For instance, if Samsung Card announced its earning three days after Samsung Electronics, we filter out this observation. This procedure deletes 47% of the total observations. However, the result remains unchanged even if no filters or different filters are implemented. The result of using different filters is in the robustness check section. Bae, Cheon and Kang (2008) uses similar regression forms and filtering criteria, but they use annual earnings news and average the return impact on other firms.

Standardized unexpected earnings (SUE) denotes the earnings news of news firms on the announcement day. We set the three-day cumulative abnormal returns of the news firms as the earnings news because it does not depend on assumptions on how markets expect earnings (Frazzini (2006)). The abnormal returns are added up from one day before the announcement day to one day after the announcement day.

Abnormal returns are calculated by using the market model.

$$AR_{i,t} = R_{i,t} - \left(\hat{a}_i + \hat{\beta}_i R_{m,t}\right) \tag{1}$$

where $AR_{i,t}$ is the abnormal return, $R_{i,t}$ is the daily return of firm i, and $R_{m,t}$ is the daily market return of day t. Coefficients $\hat{\alpha}_i$ and $\hat{\beta}_i$ are estimated from the market model regression for each firm from *t – 210* to *t – 10*. The values of these

coefficients are determined to be missing if the observation is less than 100 during the estimation period. The empirical results of this paper remain unchanged, although the market-adjusted model or the three-factor model is used to calculate abnormal returns.

The dependent variable of the main regression is the cumulative abnormal returns (CAR) of no-news firms. The cumulative abnormal returns are measured in a similar manner. That is, we employ the market model to calculate abnormal returns, and the abnormal returns of no-news firms from -1 to +1 are added from the announcement day.

To sum up, the analysis is a typical event study with two-firm-paired observations using the following regression form. The coefficient of interest is β_2, which measures how much the return sensitivity of no-news firms (firm *j*) to the earnings news of news firms (firm *i*) is affected by shared family names.

$$CAR_{j,t} = \beta_0 + \beta_1 SUE_{i,t} + \boldsymbol{\beta_2 SUE_{i,t} \times SharingName_{i,j,t}} + \beta_3 SharingName_{i,j,t} + controls_{j,t} + \varepsilon_{i,j,t} \quad (2)$$

Here, *SharingName* is equal to one if both a news firm and a no-news firm have the same family names. For example, in the observation where the news firm is Samsung Electronics and the no-news firm is Samsung C&T, *SharingName* is one. In the observation where the news firm is Samsung Electronics and the no-news firm is Cheil Worldwide, *SharingName* is zero. The control variables are the stock characteristics of no-news firms, such as beta, book-to-market equity, idiosyncratic volatility, and turnover. These control variables are measured at the end of the previous year. The definitions of the control variables of the no-news firms are explained in Appendix A1. A more important control variable is *ownership*, which is the percentage ownership of news firms held by no-news firms. We include this

control variable because, if there is ownership held by a no-news firm, the increased earning of news firms should be the positive news for the no-news firms.

We use clustered standard error to obtain the robust standard error (Petersen (2009)). Although typical event studies use unadjusted standard error, we assume that the earning news of news firms is stochastic and that correlation across firm and time horizons may exist because repetitive events are used. Therefore, we employ the standard error clustered by no-news firms and by quarters.

4.1. Main results

Table 3 reports the main analysis. We use the above regression model and examine whether there is a different sensitivity of returns of no-news firms to the earnings news of news firms depending on shared family names.

[INSERT TABLE3 HERE]

As predicted, the coefficient of the interaction term of *SharingName* and SUE is significantly positive. Therefore, when both a news firm and a no-news firm have the same family name, the earnings announcements of the news firm affect the returns of the no-news firm more than when the firms do not share the same family name. However, the coefficient of the stand-alone SUE term remains significantly positive. Thus, the cash flow sharing documented by Bae, Cheon and Kang (2008) seems to exist even though the names do not share the same family name. In the regression (5), the coefficient of the interaction term and the stand-alone SUE term are 0.048 and 0.087, respectively. If the two firms share the family names, the return sensitivity is 0.135. However, the sensitivity is 0.087 for two firms that do not share the family names. Therefore, when the two firms do not share the same family names,

the return sensitivity of no-new firms to earnings news of news firms is 36% less than when the two firms share the family names.

This result does not indicate that the cashflow-sharing behavior among business groups is less if firms do not share the family name. Behavioral bias may influence in this mechanism, and we will look into the underlying mechanism in Section 5.

4.2. Robustness check

Subsamples or other filtering criteria are used for the robustness check in Table 4. The coefficient of interest is constantly significant.

[INSERT TABLE 4 HERE]

First, the result is not affected by the adoption of a new accounting standard. Before 2009, all the Korean firms used the Korea Generally Accepted Accounting Principles (K-GAAP) as the accounting principle. From 2009 to 2013, firms started to adopt the International Financial Reporting Standards (IFRS), which was mandated for all firms after 2013. IFRS sets consolidated financial statements as the main financial statements instead of a separate statements. Therefore, the financial statement under IFRS focuses more on the business group concept than that under the K-GAAP. Investors may identify the structures of business groups after adopting IFRS. In this analysis, the samples were divided into two subsamples. One subsample contains observations where the news firm and the no-news firm did not adopt IFRS. The other subsample includes observations where the news firm and the no-news firm adopted IFRS. The coefficient of the interaction term remains significantly positive before and after IFRS is adopted.

For the main regression, we filter samples whose no-news firms announce their own earnings within five days from the announcement day of a news firm. Here, different filtering criteria are used. Zero-day filtering means that samples are filtered only if the announcement dates of a news firm and a no-news firm are on the same day. The result does not change, although no filters or different filtering criteria are implemented from zero day to 10 days.

Two or more announcements can be released on the same day. Its influence on the third firm is the combined effect of these announcements. Therefore, we average out the earnings news on the same day depending on their name status. For regressions (7) and (8), the result remains unchanged even if the influence of the different announcements is averaged.

Bae, Cheon and Kang (2008) use a slightly different specification. When a firm releases an earnings announcement, they take a value-weighted average of the return reaction of all affiliated firms. They also include industry dummies into the regression. We follow their specification and take a value-weighted average for each name group. We show that the result in regression (9) does not change even though the number of samples decreases.

In addition, two firms whose names do not share a family name but have similar names may exist. For example, two Samsung group firms, Cheil Worldwide and Cheil Industries, have "Cheil" but not "Samsung," which is the family name. In the main regression, the *SharingName* dummy of this firm-pair is zero because no firm bears the family name. For regression (10), these samples are set as having *SharingName.* The result remains unchanged.

Finally, we conduct the same analysis using only the firms designated by the Korea Fair Trade Commission. We manually classified groups for firms that are not designated by the government branch, so there can be random error for these firms. However, errors do not occur in classifying groups for designated firms because the government agency designates a firm for regulation purposes. For

regression (11) and (12), the result is the same for the most part in the samples only with the designated firms and the samples excluding the designated firms. The coefficient of the interaction term (0.044) is lower in the samples with the designated firms, because the designated firms are typically large firms. Thus, the possible errors in the hand-collecting process do not affect the result.

4.3. Analysis of firms that underwent name changes

In this part, we focus on the firms that experienced name changes throughout the sample period. This analysis can alleviate the issue on endogeneity because samples with consistent fundamental relationships and name similarities are excluded. To be specific, we searched firms that have experienced name changes. Firms that changed names within two years after becoming members of business groups are filtered out. As a result, a total of 56 firms are obtained. Out of these firms, 49 firms initially without a family name eventually adopted a family name, and seven firms with a family name adopted a name without a family name. *FamilyNamePeriod* is equal to one if firms are in the period when they bear a family name and zero if otherwise. We examine the effect of earnings news within the groups.

[INSERT TABLE 5 HERE]

Table 5 shows the result of the analysis above. A subsample analysis is conducted for the first two columns by using only the samples that are in a family name period or without a family name period. The result shows that the effect of earnings news of news firms is reinforced after changing to a name with a family name (or before changing to a name without a family name). In the third column, we pool all the observations and use the interaction term to examine the significance.

The interaction term is significantly positive. Therefore, a company name that has a family name will likely affect or be affected by affiliated firms when earnings news is released.

The magnitude of the coefficient of the interaction term is 0.084, which is larger than the coefficient in the main regression (0.048), because firms that changed their names are usually small. The average market capitalization is 0.90 trillion won (approximately 0.8 billion US dollars), whereas the mean of the total samples is 1.16 trillion won. Therefore, the sensitivity is likely aligned with small firms, which are highly sensitive on the interaction term, as shown in Table 6.

5. Investigating underlying mechanism of sensitivity difference

This section examines why the sensitivity to earnings news of affiliated firms is low if a name differs. The possible diving factors include limited investor attention and trading friction, which are explained as follows:

Kahneman (1973) theorizes that attention is a scarce cognitive resource. Various psychological research show that the human brain has a limited central cognitive-processing capacity (Pashler and Sutherland (1998)). The fields of economics and finance adopt this principle and show that investors are constrained to process information. This idea is theorized by Sims (2003), Hirshleifer and Teoh (2003) and Peng and Xiong (2006). The empirical studies further demonstrate that investors have a limited capability to process information (Huberman and Regev (2001), Dellavigna and Pollet (2009), and Bali, Peng, Shen and Tang (2014)). If the absence of a family name functions as a cognitive deterrent for investors to understand the structure of business groups, limited investor attention lessens sensitivity to the earnings news of affiliated firms. In addition, this effect will be

strengthened if investors pay less attention to business groups because the cognitive deterrent will affect more groups that investors care less about.

Trading fiction is also a potential driving force that lessens the sensitivity of different firm names. If the trading fiction, such as illiquidity and arbitrage risk, is high, then eliminating the aforementioned sensitivity is difficult. The findings will be pronounced in the group whose trading friction is higher than that of other groups.

5.1. Triple interaction using group characteristics

To begin with, we employ the subsample analysis by using group characteristics to identify the major factor. If investor attention is the driving factor, then groups with low attention will have lower sensitivity for observations that do not share a family name. Hirshleifer and Teoh (2003), Peng (2005), and Hirshleifer, Hsu and Li (2013) contend that low size leads to low attention. Thus, the total size of a group is adopted as an attention variable. Also, average turnover in the group is employed as the attention variable because frequent trading indicates high attention. Lastly, the trading activities of institutional investors can be a proxy for investor attention because institutional investors typically have the expertise and willingness to gather information. We use institutional buy and sell Won (Korean currency) trading volume instead of institutional ownership, which is not publicly available. We scale the variable by total Won trading volume.

If the trading friction is the underlying mechanism, groups with a high average idiosyncratic volatility (IVOL) and high average illiquidity will have a strong result. Pontiff (2006) theorized that idiosyncratic volatility denotes arbitrage risk for investors. Stambaugh, Yu and Yuan (2015) theoretically and empirically show that idiosyncratic volatility works as an arbitrage risk. Stock liquidity refers to how fast and easily investors trade stocks without a significant price shift. If a stock

has high illiquidity, then the trading cost is high because trading causes a substantial price shift and implicit costs for searching the limit order.

Table 6 analyzes how the effect of firm names is influenced by group characteristics. The triple interaction term is used to examine the statistical significance between two subsamples. The coefficient of interest is β_5 in the following regression.

$$\begin{aligned} CAR_{j,t} = {} & \beta_0 + \beta_1 SUE_{i,t} + \beta_2 SUE_{i,t} \times SharingName_{i,j,t} \\ & + \beta_3 SharingName_{i,j,t} \times GroupChar_{j,t} + \beta_4 SUE_{i,t} \times GroupChar_{j,t} \\ & + \boldsymbol{\beta_5 SUE_{i,t} \times SharingName_{i,j,t} \times GroupChar_{j,t}} \\ & + \beta_6 GroupChar_{j,t} + \beta_7 SharingName_{i,j,t} + controls_{j,t} + \varepsilon_{i,j,t} \end{aligned} \quad (4)$$

To be specific, we divide two-firm-paired observations into two subsamples depending on the characteristics of the group. In this analysis, we only use business groups whose number of members is more than two. For example, the group characteristic dummy (*GroupChar)* for the average group size is equal to one if a group to which a news firm and a no-news firm belong has an above-median average market capitalization. Three attention variables, namely, average group size, average turnover, and institutional investor trading volume, are used. Next, two trading friction variables, namely, idiosyncratic volatility and illiquidity, are used. Idiosyncratic volatility is measured using the method of Ang, Hodrick, Xing and Zhang (2006), and illiquidity is measured using the method of Amihud (2002).

[INSERT TABLE 6 HERE]

The result is consistent with the limited attention hypothesis but is inconsistent with the trading friction hypothesis. First, the sensitivity for the large size subsample is lower than that of the small size subsample. For regression (2), the difference of the coefficient is -0.064, which is approximately two thirds of the interaction term of SUE and *SharingName* when the interaction term of SUE and *GroupChar* and the interaction term of *SharingName* and *GroupChar* are included. Second, the sensitivity is significantly lower for the high turnover group, and the coefficient is significant. Lastly, the sensitivity is significantly lower for groups with high institutional investor trading volume. Therefore, the result is stronger for the subsample with low investor attention. Thus, limited attention is a crucial factor that influenced the findings.

However, trading friction does not contribute to the outcomes. The coefficient of the triple interaction term is not statistically significant. Thus, the result is statistically indifferent for the subsamples with high and low trading fiction.

5.2. Analysis of trading volume.

Trading volume shows how much investors pay attention to firms. In this subsection, we show that trading volume is related with sharing a family name between news firms and no-news firms.

We use a similar regression specification, but we employ the abnormal trading volume of no-news firms instead of abnormal returns. The Korea Exchange announces the daily trading volume by investor types, namely, individual investors, institutional investors, and foreigners. The trading volume of foreigners is the sum of the trading volume of foreign institutional investors and that of foreign individual investors. The daily abnormal trading volume (ATVOL) for each investor type is calculated as

$$ATVol_{i,p,t} = \frac{TVol_{i,p,t} - AvgTVol_{i,p,t}}{AvgTVol_{i,p,t}} \quad (5)$$

where TVol is the scaled sum of buying trading plus selling trading of firm *i* of investor type *p* on day *t*. It is scaled by market capitalization at the end of the previous year. The average trading volume is defined using the method of Choe and Lee (2012).

$$AvgTVol_{i,p,t} = \frac{1}{T} \sum_{n=10}^{\substack{250 \text{ days without} \\ \text{adjacent} \\ \text{annoucnemnt}}} TVol_{i,p,t-n} \quad (6)$$

where *T* is the number of trading days that do not have an adjacent (within five days) own earnings announcements.

In the end, the following equation is regressed:

$$\begin{aligned} ATVOL_{j,p,t} = {} & \beta_0 + \beta_1 SUE_{i,t} + \beta_2 SUE_{i,t} * SharingName_{i,j,t} + \beta_3 SharingName_{i,j,t} \\ & + controls_{j,t} + \varepsilon_{i,j,t} \end{aligned} \quad (7)$$

[INSERT TABLE 7 HERE]

Table 7 shows the result of the above regression. The samples are divided into all samples, samples with positive SUE, and samples with negative SUE, depending on the direction of the earnings news. The dependent variables are the abnormal trading volume for each investor.

We start with the regression from (1) to (4), which include samples with both directions of the news. A positively significant coefficient exists for the interaction between SUE and *SharingName* in regressions (1) and (2). However, the result is difficult to interpret because SUE is likely to have a non-linear effect on abnormal trading volume. That is, extremely good news and extremely bad news both cause a high trading volume (Barber and Odean (2008) and An (2016)). Therefore, we divide samples based on the type of news.

The regression from (5) to (8) shows that family-name sharing between a news firm and a no-news firm clearly influences the differences in individual trading volume. The significantly positive coefficient of the interaction term in regression (6) shows that individuals trade more if the news firm and no-news firm share the family name. This effect cannot be observed in regressions (7) and (8). Thus, foreigners and institutional investors are not affected by the cognitive deterrent.

Regressions from (9) to (12) show that sharing a family name does not affect the trading volume of no-news firms when negative earnings news is released by a news firm. The insignificant coefficient of the interaction term can be found for all types of investors. This finding is consistent with that of Barber and Odean (2008). The authors claim that individual investors will likely buy attention-grabbing stocks, but their selling activity is not related with the attention-grabbing characteristics of stocks. This is because investors have information about the stocks they hold. Considering that Korean investors seldom short-sell (around 4%), the same argument can be applied to our result. Negative news of affiliated firms does not cause selling activity because investors are familiar with firms of which they have ownership.

This analysis on trading volume further shows that investor attention significantly affects the finding of the main analysis. Investors are less likely to pay attention and trade stocks if two firms do not share a family name.

To conclude, the triple interaction and trading volume by agents show that limited investor attention is the driving force for the findings of the primary analysis.

6. Return sensitivity to a news firm that has a similar name but is not in a same group

In the above analysis, investors have limited attention to the structures of business groups because different names deter attention. The opposite case is considered in this section. When a firm releases earnings news, do abnormal returns occur for a firm whose name is similar but actually belongs to different groups?

Various anecdotal evidence illustrate this issue. For example, on September 30, 2016, managers of a company called Hanmi Pharmaceutical Company were accused of massive insider trading. During the following four trading days, the stock price dropped by 32%. In the same period, the stock price of Hanmi Global and Hanmi Semiconductor Company decreased by 3% and 5%, respectively. These three companies were not related, nor did they have ownership for others' shares. On October 4, 2016, the investor relation department of Hanmi Global reported that the company was not related with Hanmi Pharmaceutical Company[1].

This misperception is prevalent in South Korea partly because investors are familiar with the business group concept. Table 1 shows that the business groups in South Korea constitute a large portion of the market and the economy. In addition, 92% of similar name firm pairs actually belong to the same business groups. In this institutional setting, investors perceive two firms whose names are similar as the members of the same business groups. Here, we call this phenomenon as "false attention" because investors falsely pay attention to firms that are not related.

This analysis is consistent with that of Rashes (2001), who examines the two firms whose tickers are similar. The author posits that investors do not know the exact ticker of MCI Communication (Ticker: MCIC), which is one of the famous

[1] The Financial News, October 4, 2016,
http://www.fnnews.com/news/201610052215454274

telecommunication companies. Thus, investors order a different stock whose ticker is MCI, which is a small closed-end fund. The study focuses on investor confusion and mistakes. However, the current analysis focuses on investor attention and the names as the reason for false attention.

The sample structure is similar to that in the previous analysis. We set news firm as the actual member of a business group and set the no-news firm as the firms that have a group name of news firms in their first two or three Korean syllables. No-news firms can be stand-alone firms or members of other business groups. For example, Samsung Books (삼성출판사) has Samsung (삼성) in its name and is a stand-alone firm that is completely unrelated to Samsung business groups. The return reactions of Samsung Books to the quarterly earnings news of Samsung Electronics are included in the samples.

Several filters are applied to examine the real effect of name similarity. First, the samples where the earnings announcement of no-news firms is within five days are filtered from the earnings announcement of news firms. Second, the observations that have ownership in either way are filtered out. Third, the samples are removed if the group name is related to a region name or country name. Fourth, samples are deleted if the group name is proper noun, such as "future" ("Mirae" in Korean). Fifth, the samples are deleted if the group name has two or three English syllables. Sixth, the observations are filtered out if the owner of a news firm is a relative of the owner of a no-news firm, as they can share cash flow even though they belong to different groups. Seventh, the observations are removed if the news firm and no-news firm are members of the same business groups. For the fourth and fifth filtering criteria, country, region, and proper nouns are listed in Appendix A2. As a result, the total number of two-firm-paired observation is 16,526. The clustered standard error is used to erase the possible firm and time effect. Industry dummies are employed to control the possibility that a similar name represents an industry effect.

[INSERT TABLE 8 HERE]

Table 8 shows the result of the event study. We divide cases into three categories depending on the definition of news firms and the position of a similar part of a name. However, the coefficient of interest, which is the coefficient of SUE, is consistently positive and statistically significant.

For regressions (1), (2), (5), and (6), we include firms that do not have group names as news firms. For example, Cheil Worldwide, which is a member of the Samsung business group, is included in the regression and is matched with Samsung Books. For regressions (4), (5), (7), and (8), we do not include those observations.

For regressions (1) to (4), we only use the observation that the similar name part of the no-news firm is located at the very first of the name of the no-news firm. However, for regressions (5) to (8), we include the samples where one different syllable exists before the part of a similar name.

The consistently positive coefficient of SUE means that the earnings news of news firms can affect no-news firms if they have a similar name even though these firms are not in the same business group. Therefore, a similar name can generate false attention for unrelated firms.

7. Conclusion

To become a theoretically perfect investor, an individual must consider the risk factors and daily news. Previous literature has shown that investors pay limited attention to news about holding stocks and news about market-wide variation. This paper uses a simple cognitive deterrent, which is the absence of family name, to extend the research. We highlight that investors also have a limited cognitive ability to process news of other individual firms.

This finding also offers an implication for several research on corporate finance. The papers that examine the dynamics among firms, such as peer effect,

consider that the positive return reaction of a firm represents a fundamental improvement. However, investors have a limited ability to process the news of other individual firms. Thus, the effect may be underestimated, and the true interaction between firms may be stronger than the value in the empirical studies.

Additional cognitive deterrents may exist when investors process the information of related firms. For example, not all investors are aware of the fundamental relationship between two firms. These investors are also insensitive to intangible news such as the stock liquidity of related firms. In addition, future research can examine whether investors have limited attention to other types of firms, particularly whether investors have a limited ability to process news about competitors, which remains unknown.

[INSERT TABLE A1 HERE]

[INSERT TABLE A2 HERE]

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Table 1. Summary statistics of member firms of business groups and stand-alone firms

This table reports the time-series average of the cross-sectional statistics of business groups and stand-alone firms. We divide samples into two types, namely, firms belonging to any group and stand-alone firms. For monthly return, size, beta, ROA, and Q, we calculate the time-series average of cross-sectional mean, median, and standard deviation for each sample type. The number of members refer to the number of firms within one business group. The total firm observation, total size, and total trading volume refers to the gross number of firms, market capitalization, and trading volume for each sample type. The size, total size, and total trading volume are denoted in trillion KRW.

	Firms in business groups			Stand-alone firms		
	Mean	Median	Std	Mean	Median	Std
Monthly return	1.75	-0.01	15.98	1.28	-0.77	19.87
Size	1.16	0.12	5.70	0.17	0.04	0.85
Beta	1.05	1.02	0.49	1.02	0.99	0.52
ROA	0.02	0.03	0.12	-0.04	0.02	0.23
Q	1.11	0.94	0.68	1.25	1.00	1.08
Number of members	3.20	2.06	2.21			
Total firm observation	561			1090		
Total Size	688			182		
Total trading volume	79244			45877		

Table 2. Summary statistics for sample characteristics

Panel A shows the time series average of the cross-sectional mean, median, and standard deviation of firm characteristics. *SharingName* is a dummy variable, which is equal to one if the firm bears a name that has at least two same Korean syllables as the family names. Panel B shows the Pearson correlation coefficient of *SharingName* and other variables. The definition for control variables is presented in Appendix A1.

Panel A: Monthly statistics for all sample firms

	Mean	Median	Std
Monthly return	1.75	-0.01	15.98
Size	1.16	0.12	5.70
SharingName	0.65	1.00	0.48
BTMA	1.12	1.08	0.47
IVOL	2.33	2.01	1.26
Beta	1.05	1.02	0.49
TV	0.13	0.00	0.46
N of firm	957		
N of firm-quarter	31556		

Panel B: Pearson correlation coefficient

	Monthly return	Size	*Sharing Name*	BTMA	IVOL	RETVOL	Beta	TV
Monthly return	1.00	0.00	0.01	0.03	0.27	0.00	0.00	-0.03
Size	0.00	1.00	0.10	-0.12	-0.09	-0.10	-0.03	-0.05
SharingName	0.01	0.10	1.00	-0.01	-0.10	-0.07	0.07	-0.08
BTMA	0.03	-0.12	-0.01	1.00	-0.05	-0.06	-0.10	-0.07
IVOL	0.27	-0.09	-0.10	-0.05	1.00	0.41	0.05	0.27
RETVOL	0.00	-0.10	-0.07	-0.06	0.41	1.00	0.23	0.30
Beta	0.00	-0.03	0.07	-0.10	0.05	0.23	1.00	0.06
TV	-0.03	-0.05	-0.08	-0.07	0.27	0.30	0.06	1.00

Table 3. Event study of family name effect (Main result)
This table presents the regression results of the return of no-news firms on the earning news of news firms, *SharingName* dummy, and control variables.

$$CAR_{j,t} = \beta_0 + \beta_1 SUE_{i,t} + \boldsymbol{\beta_2 SUE_{i,t}} \times \boldsymbol{SharingName_{i,j,t}} + \beta_3 SharingName_{i,j,t} + controls_{j,t} + \varepsilon_{i,j,t} \quad (2)$$

Dependent variable is a cumulative abnormal return of no-news firms from an event window -1 day to +1 day. We use a typical event-study setting and two-way clustered standard errors to address time-series and cross-sectional correlation. SUE stands for standardized unexpected earnings, which are calculated as cumulative abnormal return of news firms from -1 day to +1 day from the announcement dates. *SharingName* is a dummy variable, which is equal to one if no-news firms bear the name which have at least two same Korean syllables as the group names. Ownership is defined as the percentage ownership of news firms held by no-news firms. The control variables are estimated at the end of the previous year. *, **, and *** are the significance levels of 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)
Intercept	-0.064	-0.115	0.985	1.253	-0.425
	(-1.05)	(-1.52)	(1.19)	(1.35)	(-0.48)
$SUE_{i,t}$	0.106***	0.086***	0.085***	0.087***	0.087***
	(9.17)	(7.97)	(7.09)	(6.81)	(6.71)
$SUE_{i,t}$ * SharingName		**0.041*** **	**0.043*** **	**0.048*** **	**0.048*** **
		(2.65)	**(2.70)**	**(2.83)**	**(2.79)**
SharingName		0.1	0.137*	0.089	0.068
		(1.41)	(1.83)	(1.15)	(0.86)
Ownership			0.006***	0.007***	0.007***
			(2.65)	(3.22)	(3.37)
Beta			-0.168**	-0.123	-0.190**
			(-2.28)	(-1.52)	(-2.13)
Ln(SIZE)			-0.035	-0.047	-0.009
			(-1.20)	(-1.39)	(-0.29)
Ln(BTME)				-0.002	0.019
				(-0.04)	(0.29)
IVOL					0.387***
					(3.72)
TV					-0.609***
					(-3.17)
R-square	0.015	0.016	0.016	0.018	0.025
N of obs	50811	50811	48603	42955	42922

Table 4. Robustness check using subsamples

This table presents the regression results of the return of no-news firms on the earning news of news firms, *SharingName* dummy, and control variables.

$$CAR_{j,t} = \beta_0 + \beta_1 SUE_{i,t} + \boldsymbol{\beta_2 SUE_{i,t}} \times \boldsymbol{SharingName_{i,j,t}} + \beta_3 SharingName_{i,j,t} + controls_{j,t} + \varepsilon_{i,j,t} \quad (2)$$

Dependent variable is a cumulative abnormal return of no-news firms from an event window -1 day to +1 day. We use two-way clustered standard errors to address time-series and cross-sectional correlation. The control variables are estimated at the end of the previous year. *, **, and *** are the significance levels of 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	IFRS related		Different filtering for own announcement				Combined shock		BCK (2008) Method	Different definition for similar names	KFTC related	
	Before adopting IFRS	After adopting IFRS	No filter	0 day	5 day	10 day	Equally weighted	Value weighted			KFTC	Excluding KFTC
Intercept	0.68	-1.27	-0.657	-0.381	-0.425	-0.901	-0.292	-0.278	-0.845	-0.454	-0.778	4.017**
	(0.49)	(-1.11)	(-0.80)	(-0.50)	(-0.48)	(-0.88)	(-0.42)	(-0.40)	(-0.61)	(-0.52)	(-0.76)	(2.20)
$SUE_{i,t}$	0.079***	0.100***	0.111***	0.092***	0.087***	0.093***	0.096***	0.093***	0.100***	0.087***	0.079***	0.102***
	(4.05)	(7.25)	(10.20)	(8.25)	(6.71)	(7.82)	(7.06)	(6.80)	(6.59)	(6.72)	(4.79)	(5.92)
$SUE_{i,t}$ * SharingName	**0.055****	**0.050*****	**0.065*****	**0.046*****	**0.048*****	**0.043****	**0.056*****	**0.059*****	**0.053*****	**0.048*****	**0.044*****	**0.099*****
	(2.02)	**(2.95)**	**(4.03)**	**(3.02)**	**(2.79)**	**(2.27)**	**(3.41)**	**(3.53)**	**(3.09)**	**(2.80)**	**(2.41)**	**(4.37)**
SharingName	0.047	0.086	0.132*	0.118*	0.068	0.037	0.034	0.032	0.129	0.049	0.055	0.171
	(0.41)	(0.86)	(1.93)	(1.83)	(0.86)	(0.44)	(0.51)	(0.49)	(1.11)	(0.64)	(0.58)	(1.24)
Ownership	0.004	0.009***	0.005***	0.006***	0.007***	0.007***	0.007***	0.007***	0.008***	0.007***	0.005*	0.013***
	(1.55)	(2.87)	(2.87)	(3.94)	(3.37)	(2.94)	(3.31)	(3.19)	(3.00)	(3.37)	(1.89)	(3.50)
Beta	-0.238	-0.154	-0.241***	-0.195**	-0.190**	-0.166*	-0.185***	-0.185***	-0.201	-0.188**	-0.244**	-0.024
	(-1.58)	(-1.40)	(-2.66)	(-2.10)	(-2.13)	(-1.70)	(-2.41)	(-2.40)	(-1.64)	(-2.12)	(-2.01)	(-0.18)
Ln(SIZE)	-0.047	0.018	-0.008	-0.019	-0.009	0.009	-0.014	-0.015	-0.014	-0.008	0.014	-0.208***
	(-0.97)	(0.43)	(-0.26)	(-0.69)	(-0.29)	(0.23)	(-0.58)	(-0.60)	(-0.31)	(-0.25)	(0.38)	(-2.88)
Ln(BTME)	0.065	-0.062	0. 018	0.02	0.019	0.068	0.029	0.03	-0.083	0.02	0.111	-0.282***
	(0.64)	(-0.69)	(0.28)	(0.34)	(0.29)	(0.89)	(0.55)	(0.56)	(-0.95)	(0.31)	(1.32)	(-2.63)
IVOL	0.333**	0.456***	0.474***	0.471***	0.387***	0.373***	0.390***	0.389***	0.449***	0.387***	0.297**	0.533***
	(2.19)	(3.18)	(5.10)	(5.11)	(3.72)	(3.45)	(4.11)	(4.10)	(3.35)	(3.72)	(2.12)	(4.52)
TV	-0.465*	-0.816***	-0.708***	-0.670***	-0.609***	-0.659***	-0.618***	-0.618***	-0.494***	-0.611***	-0.679*	-0.692***
	(-1.94)	(-2.42)	(-4.67)	(-4.05)	(-3.17)	(-3.15)	(-3.55)	(-3.55)	(-2.48)	(-3.18)	(-1.67)	(-4.40)
R-square	0.021	0.034	0.038	0.030	0.025	0.025	0.029	0.028	0.040	0.025	0.020	0.046
N of obs	20789	18356	81648	67478	42922	31322	36375	36375	18917	42922	29639	11341

Table 5. Samples that experienced name change

This table presents the regression results of the return of no-news firms on the earning news of news firms, SharingName dummy, and control variables. The sample is restricted to business groups that include firms that underwent name changes throughout the sample period. The following regression is run:

$$CAR_{j,t} = \beta_0 + \beta_1 SUE_{i,t} + \boldsymbol{\beta_2 SUE_{i,t}} \times \boldsymbol{FamilyNamePeriod_{i,j,t}}$$
$$+\beta_3 FamilyNamePeriod_{i,j,t} + controls_{j,t} + \varepsilon_{i,j,t}$$

Dependent variable is a cumulative abnormal return of no-news firms from an event window -1 day to +1 day. We use a typical event-study setting and two-way clustered standard errors to address time-series and cross-sectional correlation. SUE stands for standardized unexpected earnings, which are calculated as cumulative abnormal return of news firms from -1 day to +1 day from the announcement dates. *FamilyNamePeriod* is a dummy variable, which is equal to one if either no-news firms or news firms adopts a name with a family name (or opts not to include a family name in its name). Ownership is defined as the percentage ownership of news firms held by no-news firms. The control variables are estimated at the end of the previous year. *, **, and *** are the significance levels of 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)
	In family name period	Not in family name period	All observations
Intercept	2.885	2.877	2.781*
	(1.63)	(1.14)	(1.74)
$SUE_{i,t}$	0.148***	0.069**	0.068**
	(7.75)	(2.18)	(2.16)
$\boldsymbol{SUE_{i,t}}$ **** FamilyNamePeriod***			**0.084*** **
			(2.73)
FamilyNamePeriod			0.039
			(0.21)
Ownership	0.004	0.003	0.003
	(0.60)	(0.44)	(0.64)
Beta	-0.342	-0.598	-0.438***
	(-1.18)	(-1.58)	(-2.33)
Ln(SIZE)	-0.140**	-0.113	-0.124**
	(-2.08)	(-1.19)	(-2.04)
Ln(BTME)	-0.055	-0.192	-0.102
	(-0.25)	(-1.18)	(-0.73)
IVOL	0.555**	0.27	0.398***
	(2.20)	(1.10)	(2.38)
TV	-1.848***	-0.393	-1.024***
	(-3.24)	(-1.58)	(-2.72)
R-square	0.053	0.012	0.031
N of obs	3328	2648	5976

Table 6. Triple interaction by using group characteristics

This table presents the regression results of the return of no-news firms on the earning news of news firms, *SharingName* dummy, and control variables.

$$CAR_{j,t} = \beta_0 + \beta_1 SUE_{i,t} + \beta_2 SUE_{i,t} \times SharingName_{i,j,t} + \beta_3 SharingName_{i,j,t} \times GroupChar_{j,t} + \beta_4 SUE_{i,t} \times GroupChar_{j,t}$$
$$+\boldsymbol{\beta_5 SUE_{i,t} \times SharingName_{i,j,t} \times GroupChar_{j,t}} + \beta_6 GroupChar_{j,t} + \beta_7 SharingName_{i,j,t} + controls_{j,t} + \varepsilon_{i,j,t} \quad (4)$$

Dependent variable is a cumulative abnormal return of no-news firms from an event window -1 day to +1 day. We use a typical event-study setting and two-way clustered standard errors to address time-series and cross-sectional correlation. SUE stands for standardized unexpected earnings, which are calculated as cumulative abnormal return of news firms from -1 day to +1 day from the announcement dates. *SharingName* is a dummy variable, which is equal to one if no-news firms bear the name which have at least two same Korean syllables as the group names. Ownership is defined as the percentage ownership of news firms held by no-news firms. *GroupCharacteristics* is a dummy variable that is equal to one if the groups that news firms and no-news firms belong to have a particular group character variable that is more than the median of all the groups. The average size of the group is the average market capitalization of firms in the group. Group average turnover is the equal average of the turnover for member firms. The group average IVOL is the equally weighted average of idiosyncratic volatility. Group average illiquidity is the equally weighted average of the illiquidity measure of Amihud (2002). All the *GroupCharacteristics* and the control variables are estimated at the end of the previous year. *, **, and *** are the significance levels of 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Group Average Size		Group Average Turnover		Institutional Investor Trading Volume Percentage		Group Average IVOL		Group Average Illiquidity	
Intercept	0.285	0.21	-0.509	-0.514	-0.087	-0.094	-0.171	-0.16	-0.16	-0.149
	(0.28)	(0.21)	(-0.56)	(-0.56)	(-0.09)	(-0.10)	(-0.18)	(-0.17)	(-0.14)	(-0.13)
$SUE_{i,t}$	0.079***	0.095***	0.078***	0.085***	0.078***	0.092***	0.078***	0.060***	0.078***	0.069***
	(5.67)	(5.74)	(5.62)	(4.92)	(5.62)	(6.16)	(5.63)	(3.66)	(5.60)	(3.90)
$SUE_{i,t}$ * *SharingName*	0.107***	0.090***	0.103***	0.096***	0.094***	0.080***	0.051**	0.069***	0.021	0.03
	(4.46)	(3.37)	(3.93)	(3.59)	(4.13)	(3.36)	(2.08)	(3.00)	(1.03)	(1.32)
*SharingName** *GroupChar*		-0.082		-0.022		0.001		0.016		0.078
		(-0.48)		(-0.15)		(0.01)		(0.10)		(0.48)
$SUE_{i,t}$ * *GroupCha*		-0.045***		-0.012		-0.038**		0.032*		0.014
		(-2.51)		(-0.65)		(-2.19)		(1.70)		(0.90)
$SUE_{i,t}$ * SharingName * GroupChar	**-0.109*** **	**-0.064** **	**-0.102*** **	**-0.089*** **	**-0.091*** **	**-0.054* **	**0.001**	**-0.03**	**0.061*** **	**0.047**
	(-4.08)	(-1.98)	(-3.73)	(-2.88)	(-3.82)	(-1.88)	(0.05)	(-1.01)	(2.33)	(1.45)
GroupChar	0.300***	0.341**	-0.055	-0.043	0.209**	0.212*	-0.228***	-0.239*	-0.112	-0.153
	(2.59)	(2.31)	(-0.57)	(-0.35)	(2.29)	(1.87)	(-2.56)	(-1.86)	(-1.03)	(-0.98)
SharingName	0.08	0.12	0.09	0.102	0.089	0.087	0.096	0.088	0.085	0.044
	(0.99)	(0.91)	(1.08)	(0.91)	(1.08)	(0.77)	(1.16)	(0.70)	(1.04)	(0.43)
Ownership	0.009***	0.009***	0.007***	0.007***	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***
	(4.06)	(4.05)	(3.59)	(3.58)	(3.87)	(3.87)	(3.68)	(3.68)	(3.73)	(3.72)
Control variables	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
R-square	0.026	0.027	0.025	0.025	0.025	0.026	0.024	0.024	0.024	0.024
N of obs	38579	38579	38579	38579	38579	38579	38579	38579	38579	38579

Table 7. Trading activity of no-news firm when there is earnings news of news firms

This table presents the regression results of the abnormal trading volume of no-news firms on the earning news of news firms, *SharingName* dummy, and control variables.

$$ATVOL_{j,p,t} = \beta_0 + \beta_1 SUE_{i,t} + \beta_2 SUE_{i,t} \quad SharingName_{i,j,t} + \beta_3 SharingName_{i,j,t} + \varepsilon \quad (7)$$

Dependent variable is the standardized cumulative abnormal trading volume of no-news firms from event window -1 day to +1 day. We use a typical event-study setting and two-way clustered standard errors to address time-series and cross-sectional correlation. SUE stands for standardized unexpected earnings, which are calculated as cumulative abnormal return of news firms from -1 day to +1 day from the announcement dates. *SharingName* is a dummy variable, which is equal to one if no-news firms bear the name which have at least two same Korean syllables as the group names. Ownership is defined as the percentage ownership of news firms held by no-news firms. The control variables are estimated at the end of the previous year. *, **, and *** are the significance levels of 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All News				Positive news (SUE ≥ 0)				Negative news (SUE < 0)			
Dependent variable	All	Individual	Foreigner	Institutional	All	Individual	Foreigner	Institutional	All	Individual	Foreigner	Institutional
Intercept	-0.547***	-0.588***	0.085	0.292***	-0.471***	-0.492***	0.115	0.328***	-1.060***	-1.131***	0.078	0.274**
	(-4.51)	(-4.72)	(1.18)	(2.56)	(-3.41)	(-3.60)	(1.02)	(2.60)	(-4.46)	(-4.36)	(0.85)	(2.32)
$SUE_{i,t}$	0.001	0.001	0.000	0.000	-0.001	-0.001	-0.002	0.002	0.005	0.004	-0.002	0.001
	(1.51)	(1.06)	(0.34)	(0.16)	(-0.93)	(-0.94)	(-1.02)	(0.53)	(1.39)	(1.12)	(-0.78)	(0.71)
$SUE_{i,t}$ * *SharingName*	**0.004***	**0.004****	**0.000**	**-0.001**	**0.006****	**0.006****	**0.002**	**-0.004**	**-0.004**	**-0.004**	**0.002**	**0.001**
	(1.91)	**(2.07)**	**(-1.16)**	**(-0.45)**	**(2.25)**	**(2.24)**	**(1.01)**	**(-1.09)**	**(-1.29)**	**(-1.25)**	**(0.76)**	**(0.61)**
SharingName	0.01	0.009	-0.005	0.011	-0.005	-0.004	-0.019	0.032	-0.038	-0.043*	0.019	0.014
	(0.63)	(0.58)	(-0.77)	(0.79)	(-0.29)	(-0.26)	(-1.05)	(1.24)	(-1.54)	(-1.75)	(1.07)	(0.77)
Beta	-0.060***	-0.062***	-0.019	-0.021	-0.071**	-0.072**	-0.024	-0.02	-0.058**	-0.061***	-0.016	-0.023
	(-2.46)	(-2.55)	(-1.19)	(-1.60)	(-2.06)	(-2.10)	(-1.04)	(-1.63)	(-2.23)	(-2.45)	(-1.31)	(-1.49)
Ln(SIZE)	0.009***	0.010***	-0.003	-0.012***	0.007**	0.008***	-0.004	-0.013***	0.020***	0.023***	-0.004	-0.011***
	(2.88)	(3.09)	(-1.30)	(-2.71)	(2.32)	(2.45)	(-1.08)	(-2.80)	(2.87)	(3.07)	(-1.13)	(-2.42)
Ln(BTME)	0.021**	0.018*	0.008	0.008	0.018**	0.016*	0.009	0.002	0.042*	0.033	0.013	0.013
	(2.26)	(1.82)	(1.49)	(0.93)	(1.99)	(1.71)	(1.14)	(0.25)	(1.65)	(1.26)	(1.32)	(1.18)
IVOL	0.174***	0.182***	0.009	0.021**	0.164***	0.169***	0.011	0.017	0.297***	0.303***	0.01	0.025*
	(4.63)	(4.81)	(1.21)	(2.03)	(3.30)	(3.42)	(1.01)	(1.45)	(6.25)	(5.64)	(0.82)	(1.91)
R-square	0.035	0.038	0.000	0.001	0.032	0.034	0.000	0.001	0.095	0.098	0.001	0.001
N of obs	42758	42758	42369	41935	21460	21460	21251	21046	21298	21298	21118	20889

Table 8. Analysis of similar name firms that are not in the same groups

This table presents the regression results of the return of no-news firms on the earning news of news firms, SharingName dummy, and control variables. Samples are restricted to firm pairs that have similar names but do not belong in the same business groups. A firm-pair is considered to have a similar name if no-news firms have two or three syllables of the group name of news firms.

$$CAR_{j,t} = \beta_0 + \beta_1 SUE_{i,t} + controls_{j,t} + \varepsilon_{i,j,t}$$

Dependent variable is a cumulative abnormal return of no-news firms from an event window -1 day to +1 day. We use a typical event-study setting and two-way clustered standard errors to address time-series and cross-sectional correlation. SUE stands for standardized unexpected earnings, which are calculated as cumulative abnormal return of news firms from -1 day to +1 day from the announcement dates. The control variables are estimated at the end of the previous year. *, **, and *** are the significance levels of 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	-0.007	1.613	0.004	1.38	-0.013	2.631	0.006	2.419
	(-0.06)	(0.85)	(0.03)	(0.74)	(-0.11)	(1.50)	(0.05)	(1.27)
$\boldsymbol{SUE_{i,t}}$	**0.034*** **	**0.032*** **	**0.033** **	**0.030***	**0.032*** **	**0.029*** **	**0.031** **	**0.026***
	(2.88)	**(2.84)**	**(1.99)**	**(1.94)**	**(3.03)**	**(2.75)**	**(2.09)**	**(1.92)**
Beta		0.145		0.144		0.047		0.113
		(0.58)		(0.47)		(0.21)		(0.40)
Ln(SIZE)		-0.066		-0.05		-0.103		-0.09
		(-0.92)		(-0.66)		(-1.53)		(-1.17)
Ln(BTME)		0.048		0.001		0.009		-0.004
		(0.33)		(0.01)		(0.07)		(-0.03)
IVOL		-0.036		-0.097		-0.042		-0.105
		(-0.23)		(-0.63)		(-0.28)		(-0.70)
TV		0.352		0.479		0.289		0.49
		(1.06)		(1.18)		(0.93)		(1.31)
Industry dummies	Y	Y	Y	Y	Y	Y	Y	Y
News firm w/ Group name	Y	Y	Y	Y	Y	Y	Y	Y
News firm w/o Group name	Y	Y	N	N	Y	Y	N	N
Position of Similar name	1	1	1	1	2	2	2	2
R-square	0.002	0.003	0.001	0.003	0.002	0.002	0.001	0.003
N of obs	14837	12731	10779	9112	16526	14181	11860	10037

Table A1. Appendix 1: Construction methods for control variables

This appendix table presents how we constructed the control variables. All the control variables are constructed by using the information of no-news firms.

Notation	Variables	Description
Beta	Market beta	Following Fama and French (1992), the market beta of a stock is estimated by running following regression with monthly observations from t-60 to t-1. $$R_{i,t} - R_{f,t} = \alpha_i + \beta_i\left(R_{m,t} - R_{f,t}\right) + \varepsilon_{i,t}$$ where $R_{i,t}$, $R_{m,t}$, and $R_{f,t}$ are the monthly return of stock *i*, the market return, and monthly risk-free return. The risk-free return is monthly return of 364 days monetary stabilization bond of the Bank of Korea. If the observation in the rolling regression is less than 24 months, the variable is set as missing.
Ln(Size)	Log of market capitalization	The log of market capitalization is the natural logarithm of the market capitalization (in trillion KRW) of stock *i* at the end of each month.
Ln(BTME)	Log of book-to-market equity	Following Fama and French (1992), the log of book-to-market equity is the natural logarithm of the ratio of book equity to market equity at the end of June. The book equity is calculated using the method of Kho and Kim (2014).
IVOL	Idiosyncratic volatility	Following Ang, Hodrick, Xing and Zhang (2006), idiosyncratic volatility is calculated as the standard deviation of the residuals from the following regression with daily observation in month t. $$R_{i,d} - R_{f,d} = \alpha_i + \beta_i\left(R_{m,d} - R_{f,d}\right) + \gamma_i SMB_d + \varphi_i HML_d + \varepsilon_{i,d}$$ where $R_{i,d}$, $R_{m,d}$, $R_{f,d}$, SMB_d, and HML_d are the monthly return of stock *i*, the market return, monthly risk-free return, daily small-minus-big factors, and daily high-minus-low factors of Fama and French (1993), respectively. If the daily observations are less than 15, we set the variable as missing.
TV	Turnover	Turnover is defined as the monthly trading volume divided by the number of outstanding stocks.

Table A2. Appendix 2: Word list of three filters for analysis of similar name firms that are not in the same groups

This appendix table presents the detailed lists of words that we use to filter in the analysis of firms with similar names but do not belong in the same groups.

Filtering criteria	Filtering words	Filtering words in Korean language	Meaning in English
3. Country name or region name	Hanguk	한국	"Korea"
	Daehan	대한	"Great Korea"
	Gyeongnam	경남	The name of a province in Korea
	Jeonbuk	전북	The name of a province in Korea
4. Proper noun	Mirae	미래	"future"
	Wuri	우리	"our"
	Saneop	산업	"industry"

국문 초록

기업집단명(名)이 관계회사의 실적공시에 대한 투자자 주의에 미치는 효과

서울대학교 대학원
경영학과 재무금융전공
고 민 수

본 연구는 한국의 특수적인 기업 환경과 한글의 특성을 이용하여, 투자자들이 관계회사의 실적공시 정보를 받아들이는 정도에 제한적 합리성이 존재하는지 살펴보았다. 연구를 진행한 결과, 동일 기업집단 내의 기업집단명(名)을 공유하지 않는 기업이 실적공시를 하는 경우, 기업집단명을 공유하는 기업이 실적공시를 하는 경우보다, 기업집단 내의 다른 소속기업의 주가가 36% 덜 민감하게 반응하는 것으로 나타났다. 3중 교차항 분석 및 거래량 분석을 통해, 투자자의 제한된 주의력이 이러한 현상을 야기하는 것을 밝혀냈다. 또한, 동일 기업집단 소속이 아니지만 회사명 중 일부를 공유하는 기업이 실적공시를 하는 경우에도 다른 기업의 주가가 반응하는 것으로 나타났다.

주요어: 투자자 주의, 기업집단, 행동재무, 기업지배구조
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