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Are Individual Investors Uninformed? Evidence from Trading Behaviors by Heterogeneous Investors around Unfaithful Corporate Disclosure*

Chune Young Chung
School of Business Administration, Chung-Ang University

Jonghyeon Lee
College of Business Administration, Hankuk University of Foreign Studies

Jinwoo Park**
College of Business Administration, Hankuk University of Foreign Studies

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Abstract

This paper examines the trading behaviors of individual investors as well as domestic and foreign institutional investors around a unique corporate event: unfaithful disclosure (non-disclosure, canceling disclosure and changing disclosure of a firm's material information). Our study relied on the daily trading data of different groups of investors in Korea's stock market. We found that the market reacts negatively toward announcements on forewarnings of unfaithful disclosure by the Korea Exchange as well as toward the confirmation of the forewarnings. Further, our finding indicates that firms that are proved to be responsible for the unfaithful disclosure tend to perform poorly prior to the announcement days of the forewarnings. This implies that poor-performing firms are likely to have negative information and thus, have incentives not to disclose or not to correctly disclose bad news. In addition, our result demonstrates that firms performing poorly before receiving the forewarnings subsequently perform poorly after confirmation of the unfaithful disclosure, which is consistent with the incentives of unfaithful disclosure. Most importantly, we found that individual investors constantly buy shares of firms receiving the forewarnings prior to the announcements, whereas both domestic and foreign institutional investors sell them. Even after the confirmation of unfaithful disclosure, individual investors continue to buy shares of unfaith-

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**Corresponding author: Jinwoo Park, College of Business Administration, Hankuk University of Foreign Studies, 270 Imun-dong Dongdaemun-gu, Seoul 130-791, Korea. Tel: +82-2-2173-3175, Fax: +82-2-9594-645, email: jwp@hufs.ac.kr.

ful firms and domestic and foreign institutional investors continue to sell them. Because institutional investors are considered to be better informed and/or more sophisticated investors than individual investors, this finding adds to the evidence of information asymmetry among different types of investors prior to the news release as well as to the evidence of trading behaviors by individual investors who are unsophisticatedly following the news release.

Keywords Unfaithful disclosure; Information asymmetry; Investor trading behaviors

JEL Classification: G14

1. Introduction

Are individual investors less informed and/or more naive than other groups of investors in financial markets? Individual investors are often viewed as uninformed traders due to their informational disadvantages and psychological biases; thus, their returns on investment tend to be inferior compared to those of others.[1] However, direct empirical evidence of uninformed trading by individual investors is scant because access to high-frequency trading data of individual investors is unavailable and limited at most. In the present study, we examined whether individual investors have informational shortcomings and whether they are too unsophisticated to interpret the material information of a firm compared to other types of investors, such as domestic and foreign institutional investors. To do so, we directly observed and compared the daily trading behaviors of different groups of investors around a unique corporate event, unfaithful disclosure, in Korea's stock market.

Informational discrepancy between firms and investors or among different groups of investors can cause financial markets to lose faith. Information asymmetry among participants in a stock market is particularly critical because high risks are associated with investment in stocks. Hence, numerous systems and policies for more transparent and fair financial markets have been designed and executed in order to mitigate information asymmetry. One such effort is Regulation Fair Disclosure, commonly referred to as Reg FD. Publicly traded firms must reveal to all investors the material information that may affect the firm's value. Corporate disclosure plays an important role in mitigating information asymmetry among different types of investors and thus helps to create an efficient and transparent capital market. Since August 2001, firms listed on the Korea Exchange (KRX) receive forewarnings from the KRX when they are subject to "unfaithful disclosure" by the Reg FD. Broadly, unfaithful corporate disclosure includes non-disclosure, canceling disclosure and changing disclosure of a firm's significant information. Firms that have received forewarnings are able to refute the claims; the final decision is made after reviewing the process. Depending on the degree of unfaithfulness, firms determined to be unfaithful receive pecuniary and/or non-pecuniary penalties.

[1]See, for example, Odean (1998), Grinblatt and Keloharju (2000), Barber and Odean (2000), Hvidkjaer (2008), Barber *et al.* (2009a,b), and Bae *et al.* (2011).

As corporate disclosure helps to build a firm's credibility and facilitate the environment for fair trading, the market could negatively react to the discovery of a firm's unfaithful disclosure. Unfaithful disclosure is generally associated with bad news and, consequently, it could also negatively influence a firm's value. In particular, unfaithful disclosure is not announced regularly or frequently; hence, predicting the occurrence of unfaithful disclosure is difficult and may require private information. However, if individual investors are less informed compared to other groups of investors due to their lack of ability to assess private information of a firm and/or lack of sophisticated skills in interpreting information, information asymmetry between individual investors and others could be pronounced before the unfaithful disclosure. Owing to the asymmetric expectation, trading patterns among different groups of investors could be idiosyncratic prior to the negative corporate event. Therefore, investigating the trading activities between individual investors and others before an unfaithful disclosure can provide unique insights into the informational disadvantages of individual investors.[2]

Examining the idiosyncratic trading behaviors of different groups of investors around certain events demands short-term high frequency buying and selling activities on the part of investors. Using U.S. data, many attempts have been made to indirectly measure the high-frequency institutional and individual trading volume because such trading data by investor type is not available in the U.S. market. The most common procedure is to partition trades by dollar size (identifying orders above (below) the cutoff size as institutional (individual)) with an intermediate buffer zone of medium-size trades, which are not classified, as in Hvidkjaer (2008) and Malmendier and Shanthikumar (2007). This methodology sometimes misclassifies institutional trading as an individual one because institutions have incentives to avoid detection by intermediaries and instead use order-splitting techniques to disguise their trades (Campbell *et al.*, 2009).[3]

[2]Many studies provide evidence of information asymmetry among heterogeneous groups of investors and the consequent difference in their trading behaviors around the release of public information about firms. In particular, the literature frequently considers earnings announcement as a specific corporate event for public information release and shows that certain groups of investors (mostly institutional investors) tend to have informational advantages before and after the earnings announcement and acquire profits by exploiting them (see, e.g. Bernard and Thomas, 1990; Utama and Cready, 1997; Walther, 1997; Bhattacharya, 2001; Battalio and Mendenhall, 2005; Ashiq *et al.*, 2008; Campbell *et al.*, 2009).

[3]Alternatively, to infer individual investor ownership or trading, the literature attempts to use institutional quarterly ownership data based on file 13-F forms, in which they report institutional equity holdings to the Securities and Exchange Commission (SEC). This approach assumes that a firm's partial ownership not held by the institutions is owned by individual investors, and thus, predictions regarding individual investors should be opposite to the empirical results using institutional ownership data. However, institutional ownership based on 13-F forms is only limited to large institutional equity ownership of more than $100 million. Therefore, utilizing the restricted institutional ownership data may significantly mislead studies regarding the sophistication of small individual investors.

Furthermore, trading behaviors and performances of individual investors in the U.S. market cannot be applied to those in the emerging markets. Unlike the U.S. stock market, where the financial system is relatively transparent and efficient, and large institutional holdings and trading dominate, emerging markets typically do not pronounce a sound financial system. Moreover, they show weak protection for individual investors, although the participation of small individual investors in the market is significant. Hence, studying the informational disadvantages of individual investors can be more fruitful in the emerging markets. Despite the significant presence of individual investors in emerging markets, little evidence has been provided regarding the trading behavior of individual investors. Therefore, investigating information asymmetry prior to unfaithful disclosure in Korea's stock market is particularly important because the trading volume of individual investors is higher and the market is less transparent than that in developed countries such as the U.S.A.[4]

By using unique daily trading data for each type of investor (individual, domestic institutional and foreign institutional),[5] this study investigated the trading behaviors of different groups of investors around the announcement and confirmation days of unfaithful corporate disclosure. Specifically, our study was based on 719 announcements of unfaithful disclosures (including 110 disproven unfaithful disclosures on confirmation days) on firms listed on the KRX or Korea Securities Dealers Automated Quotation (KOSDAQ) for the period between 2001 and 2010. We calculated the abnormal stock returns of the firms around the public announcement and confirmation of forewarnings in order to see the corresponding market response and firm performance. Most importantly, we investigated the daily net trading volumes of different groups of investors around the event periods. This allowed us to see the trading decisions of heterogeneous investors around the unique and negative corporate event, not only ex ante, but also ex post. Furthermore, the investigation consequently helped to identify information asymmetry and information processing skills between individual investors and other groups.

We found that the market negatively responds to firms that receive the final decision of unfaithful disclosure on both the announcement and confirmation days of the unfaithful disclosure. Our results reveal that the corresponding abnormal

[4]The trading volume of individual investors in Korea's stock market is significantly higher than that of the U.S. market, which is dominated by institutional investors. According to the KRX, over the period January 2001 to December 2009, the trading volume of individual investors accounted for 88.19% of total market activities. Also, the trading value of individual investors was 61.32% of the total trading value.

[5]The KRX provides the daily buy and sell trading volumes of each type of investor classified as "individuals", "institutions" and "foreigners" for all the firms listed on the KRX. Because most foreign investors are institutions, in this paper "institutions" are domestic institutional investors, whereas "foreigners" are foreign institutional investors. Thus, institutional investors denote both domestic and foreign institutional investors.

stock returns are −3.04% and −2.11% on the announcement and confirmation days, respectively. However, our findings show that the market negatively reacts to the disproven unfaithful disclosure only on announcement days. The negative consequence of the announcement on firms is not reverted sufficiently by the withdrawal of the unfaithful disclosure announcement. The corresponding abnormal stock returns are −2.49% and 0.49% on the announcement and confirmation days, respectively. Overall, the findings imply that the market views the announcement and confirmation of a firm's unfaithful disclosure unfavorably.

Further, we documented that the cumulative abnormal stock returns of firms, which have eventually been proved to be unfaithful disclosures, are increasingly negative for 30 days before the announcement day of the unfaithful disclosure and for 30 days after the confirmation day. For approximately two months of such a period, on average, a cumulative abnormal return (CAR) of −16% was observed. In contrast, the cumulative abnormal stock returns of firms, which have been disproved to be unfaithful disclosures, did not seem to show a significant pattern for 30 days before the announcement day and for 30 days after the confirmation day. Hence, the findings suggest that poor-performing firms are likely to receive the final notification of unfaithful disclosure because such firms may be prone to conceal the bad news. In addition, their poor performance after the confirmation of the unfaithful disclosure could partly be due to the subsequent bad reputation of firms.

Our findings also indicate that the trading volumes of firms subject to unfaithful disclosure increase significantly around both the announcement and confirmation days of the unfaithful disclosure. This implies that there could be different expectations among investors around such event days. More importantly, we found that there is a clear difference in the trading patterns of firms that receive the final notification of unfaithful disclosure between individual and (both domestic and foreign) institutional investors. For 30 days prior to the announcement days of the unfaithful disclosure, both domestic and foreign institutional investors consistently tend to sell their shares while individual investors tend to buy shares. This implies information asymmetry between individual and institutional investors. Even for 30 days after the confirmation day, the cumulative net buys are negative for both domestic and foreign institutional investors, but are positive for individual investors. This may reflect the fact that individual investors possess unsophisticated skills in interpreting the released information. Based on the −16% average CAR for the time period between 30 days before the announcement day and 30 days after the confirmation day, the results overall suggest that individual investors tend to make significantly inferior investment decisions compared to other investors around unfaithful corporate disclosure.

However, we could not find any particular trading patterns in firms that did not receive the final notification of unfaithful disclosure around the announcement and confirmation days. This result suggests that the unfaithful disclosure of poor-performing firms is of particular importance to investors because such firms are likely to pronounce a high level of uncertainty associated with the bad news, and consequently perform badly after the confirmation. In particular, this finding implies that

domestic and foreign institutional investors proactively sell their shares as they expect forewarnings of the unfaithful disclosure itself along with the related bad news from poor-performing firms as well as their aftermath after the confirmation. In contrast, individual investors who tend to have inferior access to a firm's material information as well as biased processing skills in utilizing the released corporate news buy shares.

This paper adds to the literature documenting the uninformed and unsophisticated trading behaviors of individual investors surrounding corporate events. The existing literature examining the trading behaviors of individual investors is highly limited due to the reliance on a small sample of firms for a short period or by indirectly inferring individual trading from trade size. As in Sias *et al.* (2006), the availability of high-frequency return data demands the corresponding high-frequency investor trading data to better identify the trading behaviors of investors and their impacts on asset prices. Our study relied on each daily trading data of individual, institutional and foreign investors in Korea's stock market, where trading by individual investors is very active and significant. In addition, we specifically examined the trading behaviors of different groups of investors around a unique and irregular corporate event, unfaithful disclosure, while the existing literature typically studied the expected and regular corporate events, such as earnings announcements.

This paper is organized as follows. Section 2 discusses unfaithful disclosure in Korea's stock market. Section 3 reviews the related literature and develops the testable hypotheses. Section 4 describes the data and variable construction. Section 5 presents the empirical results. Section 6 concludes the paper.

2. Unfaithful Disclosure

Public information release facilitates market efficiency as it enables market participants to move prices to equilibrium through trading. In addition, corporate disclosure helps mitigate information asymmetry among different groups of investors. In the U.S.A., the SEC introduced Reg FD in August 2000. This regulation requires that all publicly traded firms must disclose material information to all investors simultaneously. Prior to the ratification of Reg FD, large institutional investors frequently obtained market-moving information earlier than small individual investors. For example, large institutional investors received selectively disclosed material information through conference calls, during which a firm's management would disclose the results of the quarter and provide the firm's future prospects. Nonetheless, most firms did not allow small investors to attend the conference calls. Hence, Reg FD dramatically led to more transparent and more frequent and timely communications between firms and all investors.

Following Reg FD in the U.S.A., the Korean government enacted Korea's Reg FD in August 2001 in order to create an efficient and transparent capital market as well as to protect small individual investors. Korean firms listed on the KRX must disclose material information to the Data Analysis, Retrieval, and Transfer System (DART), which is administered by the Korean Financial Supervisory Service. The

material information becomes public through DART and includes, for example, a firm's increase or decrease in capital, performance forecast, plan for mergers and acquisitions, and dividend payment. In particular, the KRX monitors whether or not corporate disclosures are being conducted well by the firms in the KRX based on the Securities Trading Act and Exchange Disclosure Provision. Further, it announces the forewarnings of "unfaithful disclosure" when firms violate the disclosure. According to the classification of unfaithful disclosure by the KRX, there are three types of violations: non-disclosure, canceling disclosure and changing disclosure of a firm's significant information, which could be related to the firm's value.

The initial announcement of an unfaithful disclosure can be reputed by firms within seven days after the forewarnings. The KRX reviews the claim and determines whether the forewarnings of the unfaithful disclosure can be proved within 15 days of the forewarnings. Thus, the period between the announcement day and the confirmation day of unfaithful disclosure is different across firms that receive forewarnings. Once the forewarnings are proved, firms being proved of the unfaithful disclosure receive penalty points depending on the extent of their violation. Based on the combination of penalty points and the number of occurrences, not only are firms officially announced to be unfaithful firms in trading terminals as well as in the KRX journal, but they are also restricted to trade in the market and/or are fined. Moreover, firms considered to be highly unfaithful could be delisted from the exchange. In the U.S.A., however, the New York Stock Exchange (NYSE), which is in charge of monitoring a firm's unfaithful disclosure, does not normally punish an unfaithful firm, but instead attempts to resolve the violation with the firm's manager through direct reconciliation. Also, the NYSE believes that issues related to a firm's unfaithful disclosure can be resolved by shareholders' compensation suit rather than its direct enforcement. Such an environment leads to the lack of documentation for cases and consequences of violating Reg FD or for unfaithful disclosures in the U.S. financial market. Hence, accessibility to cases of unfaithful disclosure in Korea's stock market along with investor daily trading data provide a unique opportunity to study the different trading behaviors between individual and institutional investors around the announcement and confirmation days of unfaithful disclosure.

3. Related Literature and Testable Hypotheses

Asymmetric information and diverse information processing skills among different groups of investors have become increasingly important to both academics and practitioners because the informational variation among investors influences investors' trading behaviors and subsequently affects the prices of assets. This is crucial because informed investors may make abnormal profits and/or prevent abnormal losses while uninformed investors may not make the abnormal profits and/or rather experience abnormal losses in market clearing. In particular, numerous studies have documented the empirical evidence that institutional investors are better informed and/or more sophisticated than individual investors by comparing their trading behaviors and

performances (see, among others, Nofsinger and Sias, 1999; Bartov *et al.*, 2000; Cohen *et al.*, 2002; Jiambalvo *et al.*, 2002; Collins *et al.*, 2003; Gibson *et al.*, 2004; Amihud and Li, 2006; Choi and Sias, 2012). These studies primarily relied on the quarterly net demand of institutional investors in order to infer their trading behaviors, although direct use of high-frequency data is more informative. Sias *et al.* (2006) point out that the existing literature typically addresses the relationship between quarterly changes in institutional ownership and the corresponding quarterly returns; they found a strong association between them, although high-frequency return data are available. This casts an open question as to the actual source of such a strong relationship. Further, their fundamental assumption is that institutional investors' net demand is significantly offset by individual investors' net demand in market clearing, even though foreign investors also play in the market.[6]

Literature directly utilizing individual trading data documents that individual investors are typically uninformed traders as a result of their informational disadvantages and psychological biases; moreover, their returns on investment tend to be inferior to other types of investors (see, e.g. Odean, 1998; Grinblatt and Keloharju, 2000; Barber and Odean, 2000; Hvidkjaer, 2008; Barber *et al.*, 2009a,b; Bae *et al.*, 2011). In contrast, Kaniel *et al.* (2012) provided evidence that individual investors pronounce informed trading behaviors around earnings announcement. However, these results concerning the trading behaviors of individual investors are highly limited because they investigated a small portion of the market for a short period of time or indirectly inferred individual trading from trade size.

Few studies have investigated the trading patterns of diverse groups of investors around corporate disclosures and link them to information asymmetry. Kim and Verrecchia (1991) suggest that information asymmetry may exist among investors prior to corporate announcements, which affects investors' trading behaviors. They consider that investors search for private information before and at earnings announcements, and their different expectations lead to different post-announcement trades. Nofsinger (2001) documents that the trading behaviors of institutional and individual investors around firm-specific news releases and macro-economic announcements are not different from one another. However, in general, it has been found that trading behaviors of institutional investors are superior to those of individual investors, suggesting that institutional investors may have an informational advantage. Welker and Sparks (2001) examined the trade activities of institutional and individual investors around good and bad corporate disclosures. They show the trading imbalance between two diverse groups. In addition, Campbell *et al.* (2009) found that trading by institutional investors is profitable prior to earnings announcements.

[6]Foreign ownership has dramatically increased in Korea since 1998, when foreign investors were allowed to purchase stocks of listed corporations freely with the exception of a few state-owned corporations. On the strength of a series of liberalization measures, the Korean stock market is now among the world's most globalized market. As of the end of 2010, foreign investors own 31% of the capitalization of Korean stocks.

Few studies have documented the trading behaviors of foreign investors compared to those of individual and domestic institutional investors. Using Finnish stock market data, Grinblatt and Keloharju (2000) demonstrate that foreign investors tend to be sophisticated momentum traders and moreover, they outperform domestic individual investors. However, Choe *et al.* (2005) found that the trading performances of foreign investors are no better than those of domestic institutional investors in the Korean stock market. In addition, studies on the trading patterns of foreign investors around specific corporate events are scant. T. J. Park and R. K. Song (Unpublished Manuscript) studied the buying and selling volume of individual, institutional and foreign investors around corporate earnings announcements in the Korean stock market. They found that foreign investors do not have informational advantage over domestic investors.

In the present study we used unfaithful disclosure as a specific corporate event to primarily examine whether individual investors have an informational disadvantage compared to domestic and foreign institutional investors, based on their trading behaviors around the announcement and confirmation days of the unfaithful disclosure. Because foreign investment in emerging markets, such as Korea's stock market, is mostly implemented by foreign institutional investors, our examination focuses on different trading behaviors between individual and institutional investors.

We first predicted that the market negatively views forewarnings of unfaithful disclosure because the discovery of unfaithful disclosure could cast doubt on a firm's transparency and credibility. Thus, we may observe negative abnormal stock returns around the announcement days of unfaithful disclosure forewarnings. However, because the forewarnings may not be proved as an unfaithful disclosure after reconsideration by the KRX, the market reaction around the announcement days may not fully incorporate the negative effect of the unfaithful disclosure. Hence, we should see additional negative abnormal stock returns around the days when the unfaithful disclosure is proved. In contrast, positive abnormal stock returns may be shown around the days when the unfaithful disclosure is disproved, as the negative market reaction around the announcement days recovers.

Extending our first prediction on the market reaction around the announcement and confirmation days of unfaithful disclosure, we then predicted that forewarnings on the unfaithful disclosure of poor-performing firms are more likely to be proved than forewarnings on the unfaithful disclosure of well-performing firms. Poor-performing firms have a higher incentive not to disclose and correctly convey unfavorable information compared to well-performing firms. Lang and Lundholm (1993) document that successful firms tend to provide more information (mostly good news) to investors than unsuccessful firms, suggesting that there could be higher information asymmetry among investors in poor-performing firms, particularly before negative corporate events. This also implies that the unfaithful disclosure of poor-performing firms is subject to bad news, possibly resulting in not only negative abnormal stock returns around the announcement days of forewarnings, but also in the subsequent long-run poor performance of such firms. Together, we expected that there could be higher information asymmetry and significantly different trading

behaviors between individual and (both domestic and foreign) institutional investors before the announcement days of the proven unfaithful disclosure. In particular, we predicted that more informed institutional investors would sell their shares of firms prior to the announcement days of the proven unfaithful disclosure, whereas less informed individual investors would buy shares of such firms.

If the unfaithful disclosure of unsuccessful firms is, in fact, related to the bad news affecting firms' long-run performances, the long-run cumulative abnormal stock returns of such firms, after confirmation of the unfaithful disclosure, would be negative. In addition, we expected that the trading behaviors of individual and institutional investors, even after the confirmation of the unfaithful disclosure, would be different. Field and Lowry (2009) argue that individual investors tend to imprecisely recognize and/or unsophisticatedly analyze the information released from a firm compared to institutional investors; thus, they appear to make a negative return on investment. Hence, our last prediction was that individual investors tend to buy shares of firms showing poor performance after the confirmation of an unfaithful disclosure while institutional investors tend to sell such shares.

4. Data and Variable Construction

The presented study investigated KOSPI- and KOSDAQ-listed firms, which were subject to unfaithful disclosure under monitoring by the KRX for the period from August 2001 to December 2010. We excluded firms that received forewarnings to unfaithful disclosure more than twice within the six months from our consideration because the subsequent forewarning to the unfaithful disclosure and the consequences of the first forewarning could become entangled. This also allowed us to avoid overlapping event periods between 30 days before and after the announcement and confirmation days of the unfaithful disclosure. Detailed information about unfaithful disclosures of firms was collected from the Data Analysis Retrieval and Transfer (DART) database of the Korea Financial Supervisory Service. We obtained the daily trading data for each type of investor (individuals, institutions and foreigners), stock returns and accounting data for the firms subject to unfaithful disclosure from the Data Guide Pro provided by FnGuide. This left us with 719 sample firms, of which 110 firms were eventually disproved to be unfaithful.[7]

Table 1 reveals that 174 and 545 sample firms received forewarnings to unfaithful disclosure in the KOSPI and KOSDAQ, respectively. This implies that compared to large firms in KOSPI, small firms listed on the KOSDAQ tend to be associated with higher uncertainty among investors of small firms. Out of a sample of 719 firms, 458

[7]Of the 719 sample firms, approximately 150 firms are under supervision in the market. Because supervised firms are consistently regulated by the KRX and are exposed to market participants, information associated with unfaithful disclosure of such firms may not be particular news to investors. In order to address this issue, we conducted our empirical tests without the 150 firms under supervision; however, our results did not materially change.

Table 1 Sample of unfaithful corporate disclosure

This table reports the sample statistics for unfaithful corporate disclosure. The values in parentheses indicate the number of sample unfaithful disclosures, which are eventually disproved.

Type of unfaithful disclosure	Number of firms in KOSPI	Number of firms in KOSDAQ	Total
Non-disclosure	135 (10)	323 (64)	458 (74)
Canceling disclosure	32 (2)	179 (27)	211 (29)
Changing disclosure	7 (1)	43 (6)	50 (7)
Total	174 (13)	545 (97)	719 (110)

firms (including 74 firms disproved to be unfaithful) were subject to non-disclosure, and 211 sample firms (including 29 firms disproved to be unfaithful) were related to canceling disclosure. Only 50 sample firms, of which seven were disproved to be unfaithful, were related to the changing disclosure.[8] In both the KOSPI and KOSDAQ, unfaithful disclosures based on non-disclosure were most frequent during our sample period, suggesting that firms may have high incentives for not disclosing their material and providing (possibly negative) information to investors.

To analyze the market reaction around the announcement and confirmation days of unfaithful disclosure, we constructed the abnormal stock returns of firms. In particular, we calculated the average abnormal return (AR) for sample firms based on the market adjusted return model as follows:

$$\mathrm{AR}_t = \frac{1}{n}\sum_{i=1}^{n}\mathrm{ER}_{i,t},$$

where $\mathrm{ER}_{i,t} = R_{i,t} - R_{m,t}$. $R_{i,t}$ and $R_{m,t}$ denote the return on stock i at time t and the corresponding value-weighted market index return at time t for different markets, KOSPI and KOSDAQ, respectively.[9] In addition, we computed the CARs for sample firms by adding the daily AR during the event period. We defined CAR as:

[8]We combined the samples of the cancelling disclosure and changing disclosure into one sample and analyzed it because each sample was small and both types of closures have similar effects on both firms and investors. In fact, our empirical results did not materially change even when we separated the sample.

[9]We also considered the equally weighted market index return instead of the value-weighted market index returns for the robustness check. In addition, we analyzed our sample based on the size-adjusted abnormal returns for an additional robustness check. For the size-adjusted abnormal return, we first formed five portfolios based on firm size (market value of equity) at every end of the calendar year and found a size-matching firm that was subject to unfaithful corporate disclosure in the subsequent year. Then, the size-adjusted abnormal return was calculated as the return on the size-matching unfaithful firm minus the return on the corresponding portfolio. Even using the equally weighted market index return or size portfolio return to compute the abnormal return, our results were still consistent in order for us to make our conclusion. Both results are available upon request.

$$\mathrm{CAR}_t = \sum_{i=1}^{n} \mathrm{AR}_t.$$

We then constructed CARs up to 30 days before and after the events in order to measure the performance of sample firms.

The important question of this study was: how do investors react to the announcement and confirmation of unfaithful disclosure? Thus, we were interested in investigating whether investors showed unusual trading activities around the news releases. In particular, we calculated the abnormal trading volume (ATV) for a firm on each event day as:

$$\mathrm{ATV}_{i,t} = \frac{\text{Trading Volume}_{i,t} - \frac{1}{25}\sum_{t=-30}^{-6}\text{Trading Volume}_{i,t}}{\frac{1}{25}\sum_{t=-30}^{-6}\text{Trading Volume}_{i,t}}.$$

Notice that this measure is standardized to adjust the fact that each firm has a different amount of trading volume due to its characteristics. For example, large firms are more actively traded in the market than are small firms. Also, the trading volume can depend on the number of shares outstanding for each firm. We used the daily average of ATV on any given day for five days before and after the announcement and confirmation of unfaithful disclosure. In addition, to investigate the trading patterns of different groups of investors around the event days, we calculated the ratios of the net buy (NB) for individual, institutional and foreign investors of each firm as:

$$\mathrm{NB}_{i,t} = \frac{\text{Buy Volume}_{i,t} - \text{Sell Volume}_{i,t}}{\text{Number of Shares Outstanding}_{i,t}}.$$

For each type of investor, we considered the averages of NBs for the sample firms for up to 30 days before and after the announcement and confirmation of unfaithful disclosure.

5. Empirical Results

5.1. Market Reaction around the Announcement and Confirmation Days of Unfaithful Disclosure

We first analyzed the market reaction around the announcement and confirmation days of unfaithful disclosure by using the CARs for the sample firms. Table 2 shows that the average ARs on the announcement days of unfaithful disclosure are significantly negative for both non-disclosure and canceling/changing disclosure, which are proved to be unfaithful. The 5-day CARs[−5,−1] for non-disclosure and canceling/changing disclosure are significantly negative at about −3.29% and −1.85%, respectively. These results imply that the market views unfaithful disclosure to eventually be confirmed unfavorably, and such a negative view is reflected in the stock prices of firms. The average ARs on confirmation days for both non-disclosure and

Table 2 Abnormal returns and 5-day CARs around announcement and confirmation days of proven unfaithful disclosure

This table reports the ARs and 5-day CARs around announcement and confirmation days of proven unfaithful corporate disclosure. Panel A presents ARs and CARs around announcement days of unfaithful disclosure forewarnings, and panel B presents ARs and CARs around their confirmation days. ***, ** and * indicate significance at the 1%, 5% and 10% levels as to whether the estimates are different from zero, respectively. The unit is in percentages.

Day	Non-disclosure	Canceling and changing disclosure	Total
Panel A: ARs and CARs around announcement days of proven unfaithful disclosure			
−5	−0.417	0.032	−0.275
−4	0.002	−0.742*	−0.273
−3	−0.413*	−0.314	−0.376**
−2	−0.964***	0.255	−0.514**
−1	−1.498***	−1.021**	−1.322***
0 (Announcement day)	−2.845***	−3.377***	−3.041***
+1	−0.863**	−0.022	−0.552**
+2	−0.620*	0.598	−0.170
CAR[−5,−1]	−3.290***	−1.854*	−2.759***
Panel B: ARs and CARs around confirmation days of proven unfaithful disclosure			
−2	0.053	−0.238	−0.055
−1	−0.035	0.129	−0.026
0 (Confirmation day)	−2.411***	−1.585**	−2.105***
+1	−0.268	−0.555	−0.374*
+2	−0.573*	−0.771*	−0.647***
+3	−0.250*	−0.092	−0.191
+4	−0.393	−0.219	−0.328
+5	0.231	0.350	0.275
CAR[+1,+5]	−1.241*	−1.287*	−1.258**

canceling/changing disclosure are also significantly negative, suggesting that around the announcement days, the negative information, such as bad corporate news from unfaithful disclosure that may hurt a firm's operation, is not fully reflected in the market.

Table 3 shows that even when forewarnings to unfaithful disclosure are disproved, the average ARs on the announcement days of the disproven disclosure are significantly negative for both non-disclosure and canceling/changing disclosure. However, the average ARs on the confirmation days of disproven unfaithful disclosure are insignificantly positive for both non-disclosure and canceling/changing disclosure. Nevertheless, this positive reaction on the confirmation days of disproven unfaithful disclosure is not sufficient to recover −2.48% of the average ARs on the announcement days of disproven disclosures. This suggests that forewarnings to

Table 3 Abnormal returns and 5-day CARs around announcement and confirmation days of disproven unfaithful disclosure

This table reports the ARs and 5-day CARs around announcement and confirmation days of disproven unfaithful corporate disclosure. Panel A presents ARs and CARs around announcement days of unfaithful disclosure forewarnings and panel B presents ARs and CARs around their confirmation days. ***, ** and * indicate significance at the 1%, 5% and 10% levels as to whether the estimates are different from zero, respectively. The unit is in percentages.

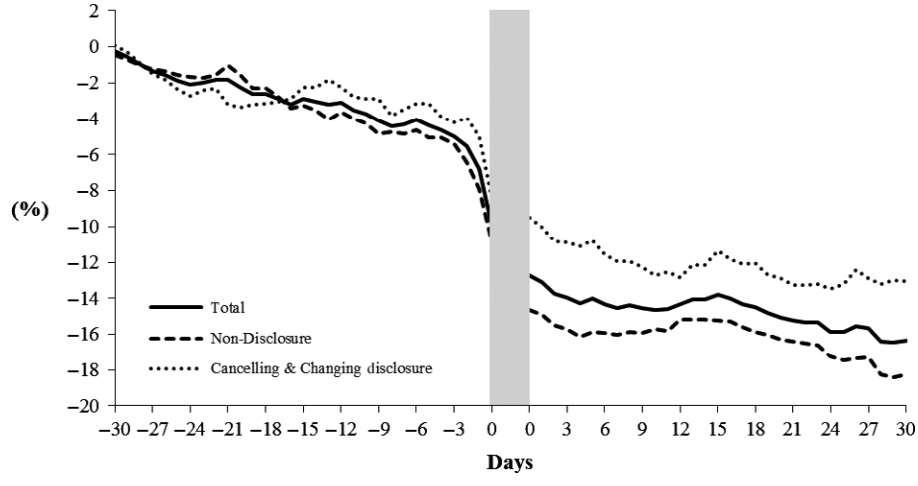
Day	Non-disclosure	Canceling and changing disclosure	Total
Panel A: ARs and CARs around announcement days of disproven unfaithful disclosure			
−5	0.360	−0.501	0.045
−4	−0.451	0.127	−0.258
−3	0.590	0.476	0.572
−2	−0.686	−1.821*	−0.927*
−1	−0.174	1.301*	0.407
0 (Announcement Day)	−1.854***	−3.542***	−2.485***
+1	−0.265	−0.976*	−0.503
+2	0.716	−1.023*	0.124
CAR[−5,−1]	−0.361	0.273	−0.160
Panel B: ARs and CARs around confirmation days of disproven unfaithful disclosure			
−2	−0.469	−0.578	−0.127
−1	−0.212	−0.535	0.032
0 (Confirmation Day)	0.116	1.261*	0.491*
+1	0.001	0.759	0.249
+2	−0.068	−0.229	−0.121
+3	0.484	0.282	0.418
+4	0.131	−0.085	0.060
+5	0.199	0.304	0.234
CAR[+1,+5]	0.747	1.031	0.840

unfaithful disclosure negatively affect the stock prices of corresponding firms even when the firms are disproved to be unfaithful. Our sample in Table 1 shows that more than 15% of firms receiving forewarnings of unfaithful disclosure are disproved to be unfaithful. Therefore, forewarnings should be announced more carefully so that firms and investors are not unfairly damaged.

5.2. Thirty-day CARs around the Announcement and Confirmation Days of Unfaithful Disclosure

Next, we analyzed firms' stock performance by using the 30-day CARs. Figure 1 presents the 30-day CARs around the announcement and confirmation days of the proven unfaithful disclosure. The 30-day CARs of total unfaithful disclosure before the announcement days and after the confirmation days are about −7% and −6%,

Figure 1 Cumulative average abnormal return for 30 days before announcement and after confirmation of proven unfaithful disclosure



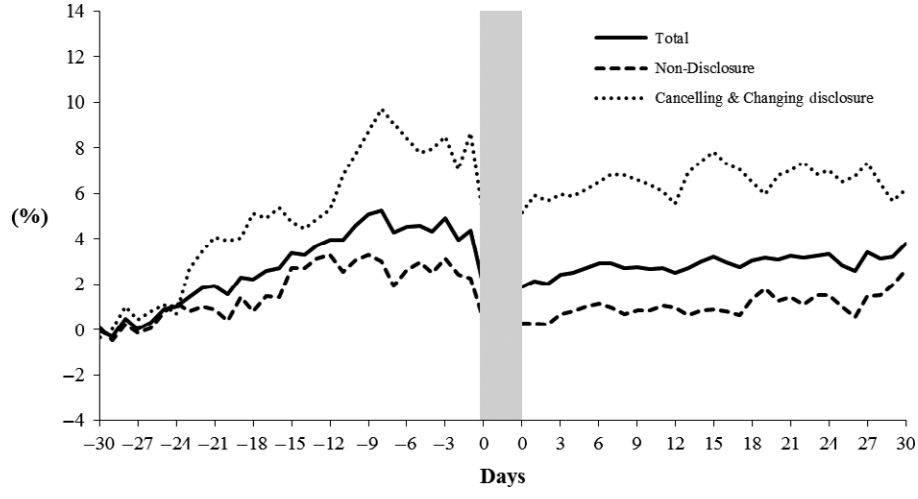
This figure presents the CARs for 30 days before announcement days and after confirmation days of proven unfaithful disclosure. The grey area in the figure indicates the period between the announcement day (the first day 0) and the confirmation day (the second day 0); the period is different for each sample firm.

respectively. For about 60 days before the announcement day and after confirmation day, the CAR is approximately −16%.[10] This result implies that investors who have held or recently purchased shares of these firms during the 60-day window period experience considerable negative returns. In addition, we found that such negative performance is more pronounced in firms with non-disclosure than in firms with canceling and changing disclosure, suggesting that firms associated with non-disclosure perform more poorly.

In contrast, our finding indicates that 30-day CARs around the announcement and confirmation days of disproven unfaithful disclosure are materially different from those of proven unfaithful disclosure. Figure 2 reports that 30-day CARs for disproven unfaithful disclosure before the announcement days are significantly and increasingly positive, and such positive cumulative returns stay positive even after the confirmation days. The positive performance is more pronounced in firms with canceling and changing disclosure than in firms with non-disclosure. Compared to the results in Figure 1, here firms disproved of unfaithful disclosure generally perform better than firms proved of unfaithful disclosure, suggesting that poor-performing firms are likely to be subject to the forewarnings of unfaithful disclosure and be proved of them. This could be because poor-performing firms are likely to

[10]We do not include the period between the announcement day and the confirmation day of unfaithful disclosure because the period is different for each sample firm. Thus, we use the grey area for such period in the figure.

Figure 2 Cumulative average abnormal return for 30 days before announcement and after confirmation of disproven unfaithful disclosure



This figure presents the CARs for 30 days before announcement days and after confirmation days of disproven unfaithful disclosure. The grey area in the figure indicates the period between the announcement day (the first day 0) and the confirmation day (the second day 0); the period is different for each sample firm.

have bad news materially affecting the firm's value; hence, they have more incentive to conceal or incorrectly report bad news. Thus, our finding implies that proven unfaithful disclosure is, in fact, associated with bad performance of firms, while disproven unfaithful disclosure does not seem to be related to performance.

5.3. Five-day and 30-Day CARs Categorized by the Content of Disclosure around The Announcement and Confirmation Days of Proven Unfaithful Disclosure

Because the CARs amount of −16% for 60 days before and after the announcements of proven unfaithful disclosures is substantial, it is worth examining further the results by classifying the sample into categories based on the contents of unfaithful disclosures. We divided our sample of 609 proven unfaithful corporate disclosures into seven categories. Each category is based on the contents of unfaithful disclosures. The description of each category is summarized in Table 4.

We calculated the 5-day CARs and 60-day CARs around announcement and confirmation days of proven unfaithful corporate disclosures for each category. We display the 5-day CARs in Table 5. Our finding shows significantly negative 5-day CARs around announcement and confirmation days in most categories. In particular, we find the most substantial 5-day CARs in category A. This implies that investors recognize the contents associated with category A very negatively. Category A includes the contents associated with favor for the largest shareholder. It is well known that in the emerging markets, large shareholders typically engage in direct

Table 4 Description of categories by content of proven unfaithful disclosure

This table summarizes the description for each category of proven unfaithful disclosure categorized by the contents of unfaithful disclosure.

Category	Contents of unfaithful disclosure
A	Unfaithful disclosure associated with favors for largest shareholders (e.g. liabilities guarantees, loans, collateral offers, provisional payments etc.)
B	Unfaithful disclosure associated with acquisition or disposal of affiliated company's securities
C	Unfaithful disclosure associated with failure to increase capital (e.g. issue of new shares, convertible bonds, bonds with warranty, exchangeable bonds, etc.)
D	Unfaithful disclosure associated with change or cancelation of sales contract
E	Unfaithful disclosure associated with corporate misconduct (e.g. embezzlement, breach of duty, tax evasion, etc.) and issues relating to lawsuits
F	Unfaithful disclosure associated with issues relating to corporate financial and investment policies
G	Unfaithful disclosure associated with violation of disclosure procedures or regulations

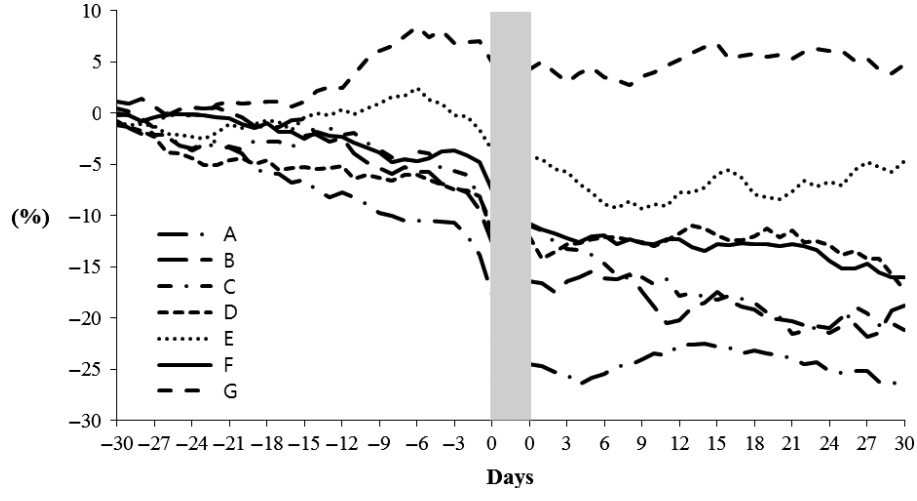
Table 5 Five-day CARs categorized by content of disclosure around announcement and confirmation days of proven unfaithful disclosure

This table reports the 5-day CARs around announcement and confirmation days of proven unfaithful corporate disclosure depending on the content of disclosures. CAR_{Ann} denotes CARs around announcement days, and CAR_{Conf} denotes CARs around confirmation days. The categorized contents of unfaithful disclosure are as follows (see Table 4 for details): [A] favor for largest shareholder; [B] acquisition or disposal of affiliated company's securities; [C] failure to increase capital; [D] change or cancelation of sales contract; [E] corporate misconduct; [F] issues relating to corporate financial and investment policy; and [G] violation of disclosure procedure or regulation. ***, ** and * indicate significance at the 1%, 5% and 10% levels as to whether the estimates are different from zero, respectively. The unit is in percentages.

Category	$CAR_{Ann}[-2,+2]$	$CAR_{Conf}[-2,+2]$	No. observations
A	−9.684***	−4.820***	153
B	−6.910***	−3.360***	70
C	−3.779**	−3.225*	94
D	−3.863*	−2.287	53
E	−4.598*	−0.567	69
F	−4.866***	−3.202**	107
G	−0.739	−2.133	63

management or control over the material decisions of the firm because ownership and management is not strongly separated. Hence, in Korea's stock market, investors may not be comfortable with a firm's unfaithful behavior, giving favor to the largest shareholder, because such favor could be a firm-value-decreasing decision, particularly when the firm is not performing well.

Figure 3 Cumulative average abnormal return categorized by content of disclosure for 30 days before announcement and after confirmation of proven unfaithful disclosure



This figure presents the CARs of categories A–G depending on the content of disclosures for 30 days before announcement days and after confirmation days of proven unfaithful disclosure. The categorized contents of unfaithful disclosure are as follows (see Table 4 for details): [A] favor for largest shareholder; [B] acquisition or disposal of affiliated company's securities; [C] failure to increase capital; [D] change or cancelation of sales contract; [E] corporate misconduct; [F] issues relating to corporate financial and investment policy; and [G] violation of disclosure procedure or regulation. The grey area in the figure indicates the period between the announcement day (the first day 0) and the confirmation day (the second day 0); the period is different for each sample firm.

We also examined the 60-day CARs in order to see the long-run performances of firms in each category. The results are shown in Figure 3. We found that the 60-day CAR for category A is about −26%, which is materially large. Also, the 60-day CARs in categories B, C, D and F are between −15% and −20%. However, the 60-day CARs in categories E and G are between 5% and 5%. This result implies that the significantly negative average long-run performance in Figure 1 seems to depend on the contents of unfaithful disclosures. In particular, the contents in categories A and B appear to be substantial.

5.4. Trading Patterns by Investor Type around the Announcement and Confirmation Days of Unfaithful Disclosure

In the subsections above, there is evidence that the market reacts negatively to the announcement and confirmation of the proven unfaithful disclosure. Also, the average performance of firms that eventually confirms the unfaithful disclosure is significantly poor before announcement days. This implies that poor-performing firms tend to be proved of the unfaithful disclosure, as they are likely to have more bad news uncovered and distorted compared to well-performing firms. Before announcement days, such poor-performing firms tend to display significantly negative performance even after the confirmation days of the proven unfaithful disclosure. This

suggests that before announcement days, poor-performing firms in fact have more unfavorable news for investors; such bad news is associated with poor performance after confirmation. In addition, the contrasting results for firms that are not proved of the unfaithful disclosure support our conjectures. Therefore, investigating trading patterns by investor type around the announcement and confirmation days of proven and disproven unfaithful disclosure can enlighten us to whether one type of investor is better informed and/or more sophisticated than others.

Before examining the information asymmetry among different types of investors, we first documented the abnormal trading volume (ATV) in order to see the level of informational uncertainty around the announcement and confirmation days of unfaithful disclosure.[11] An ATV that is greater than 0 means that the trading volume on a specific day is higher than the ordinary trading volume of a firm. Table 6 reports that ATVs are significantly positive for 5 days before the announcement days of unfaithful disclosure and for 5 days after their confirmation days, regardless of the type of unfaithful disclosure. Also, ATVs on both the announcement and confirmation days are significantly positive. These findings suggest that investors' uncertainty levels around the announcement and confirmation days of unfaithful disclosure are abnormally high. This may be associated with the information asymmetry among different groups of investors, as their information and/or ability to process information related to corporate unfaithful disclosure could be heterogeneous, both ex ante and ex post.

In order to capture the information asymmetry among different groups of investors, we investigated the ratios of the net buy (NB) for individual investors as well as for domestic and foreign institutional investors of each firm around the announcement and confirmation days of unfaithful disclosure. We were particularly interested in whether individual investors had informational shortcomings and if they were not sophisticated enough to interpret the material information of a firm compared to institutional investors. Table 7 reports the 60-day cumulative NBs of investors for 30 days before the announcement days and 30 days after the confirmation days of proven and disproven unfaithful disclosure. For both proven and disproven unfaithful disclosure, domestic and foreign institutional investors tend to sell their shares, whereas individual investors tend to buy shares over the 60 days. However, the magnitude of the cumulative NBs for each type of investor are greater for the proven unfaithful disclosures than for disproven ones. The cumulative NBs are consistently negative for domestic and foreign institutional investors; however, they are consistently positive for individual investors for 60 days, even when we break down the period into three categories: [−30, −1], [−30, −11] and [−10, −1] before the announcement days and [+1,+30], [+1,+10] and [+11,+30] after the confirmation days of proven unfaithful disclosure. Also, such differences between individual and institutional investors are significantly pronounced.

[11]Beaver (1968) and Karpoff (1987) document that increases in trading volumes around corporate events reflect the heterogeneous expectations of investors with regard to information related to the events.

Table 6 Abnormal trading volumes around announcement and confirmation days of unfaithful disclosure

This table reports the ATV around announcement and confirmation days of corporate unfaithful disclosure. Panel A presents ATVs around the announcement days of unfaithful disclosure forewarnings and panel B presents ATVs around their confirmation days. An ATV higher (lower) than 0 means the trading on each day is more active (less active) than usual. ***, ** and * indicate significance at the 1%, 5% and 10% levels as to whether the estimates are different from zero, respectively.

Day	Non-disclosure	Canceling and changing disclosure	Total
Panel A: ATVs around announcement days of unfaithful disclosure			
−5	0.301***	0.251***	0.283***
−4	0.421***	0.232***	0.351***
−3	0.383***	0.335***	0.365***
−2	0.397***	0.916***	0.588***
−1	0.601***	0.832***	0.686***
0 (Announcement day)	0.717***	1.442***	0.984***
+1	0.514***	0.893***	0.653***
+2	0.607***	0.879***	0.707***
Panel B: ATVs around confirmation days of unfaithful disclosure			
−2	0.939***	1.133***	1.010***
−1	0.700***	1.167***	0.873***
0 (Confirmation day)	0.889***	1.229***	1.014***
+1	0.528***	1.054***	0.721***
+2	0.437***	1.120***	0.688***
+3	0.937***	1.088***	0.993***
+4	0.578***	1.366***	0.868***
+5	0.542***	1.639***	0.945***

Figures 4 and 5 display the 60-day cumulative NBs for 30 days before the announcement days and 30 days after the confirmation days of proven and disproven unfaithful disclosure, respectively. Based on our previous finding, that the CAR for 60 days before the announcement days and after confirmation days of proven unfaithful disclosure is about −16%, the positive and consistent cumulative NB of individual investors for the corresponding 60 days is related to the material loss of individual investors.[12] However, both domestic and foreign institutional investors

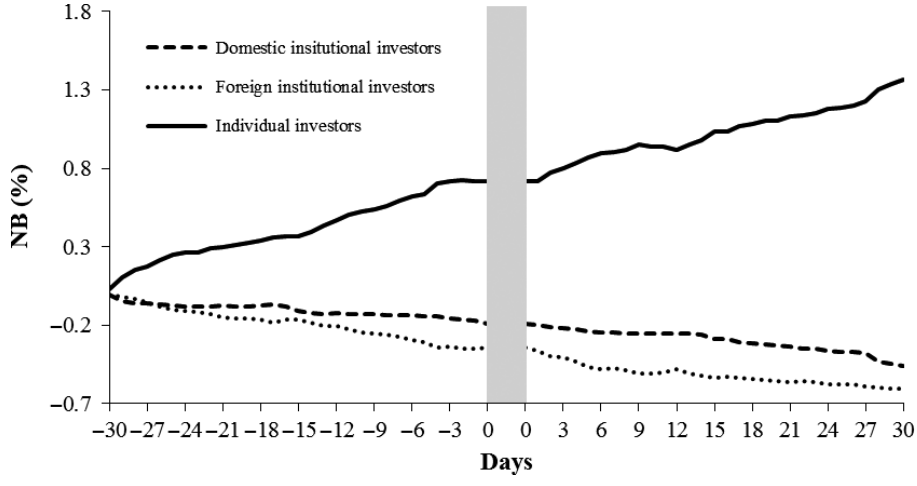
[12]We related the performance by individual investors to their trading patterns indirectly, and infer that poor performance is due to information disadvantages. This inference, which is based on our event study, may be admissible in a short investment horizon. However, it is also possible that some individual investors could buy shares at low prices over the bad news event periods and sell them later at higher prices, yielding superior performances in a long investment horizon.

Table 7 Cumulative net buy by individual investors and domestic and foreign institutional investors for 30 days before announcement and 30 days after confirmation of unfaithful disclosure

This table reports the cumulative average net buy (NB) by (domestic) individual investors and domestic and foreign institutional investors for 30 days before announcement and 30 days after confirmation of corporate unfaithful disclosure. Panels A and B present the cumulative NBs by investor type for proven and disproven unfaithful disclosure, respectively. *p*-values are provided in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% two-tailed levels as to whether NBs for domestic and foreign institutional investors are different from NB for individual investors, respectively.

	Overall	Before announcement			After confirmation		
	[−30,+30]	[−10,−1]	[−30,−11]	[−30,−1]	[+1,+10]	[+11,+30]	[+1,+30]
Panel A: Cumulative NBs for proven unfaithful disclosure							
Individual Investors	+1.784	+0.233	+0.545	+0.778	+0.262	+0.441	+0.703
Domestic Institutional Investors	−0.324	−0.059	−0.107	−0.167	−0.095	−0.177	−0.272
	(0.000)***	(0.027)**	(0.001)***	(0.001)***	(0.035)**	(0.001)***	(0.000)***
Foreign Institutional Investors	−1.012	−0.129	−0.293	−0.422	−0.151	−0.150	−0.300
	(0.000)***	(0.001)***	(0.000)***	(0.000)***	(0.019)**	(0.001)***	(0.000)***
Panel B: Cumulative NBs for disproven unfaithful disclosure							
Individual Investors	+0.682	+0.324	−0.015	+0.309	+0.115	+0.276	+0.391
Domestic Institutional Investors	−0.128	−0.067	0.005	−0.062	0.042	−0.213	−0.171
	(0.013)**	(0.025)**	(0.137)	(0.057)*	(0.120)	(0.001)***	(0.001)***
Foreign Institutional Investors	−0.061	−0.112	0.067	−0.045	−0.061	0.076	0.015
	(0.021)**	(0.001)***	(0.091)*	(0.065)*	(0.079)*	(0.103)	(0.053)*

Figure 4 Cumulative average net buy for 30 days before announcement and after confirmation of proven unfaithful disclosure by different groups of investors

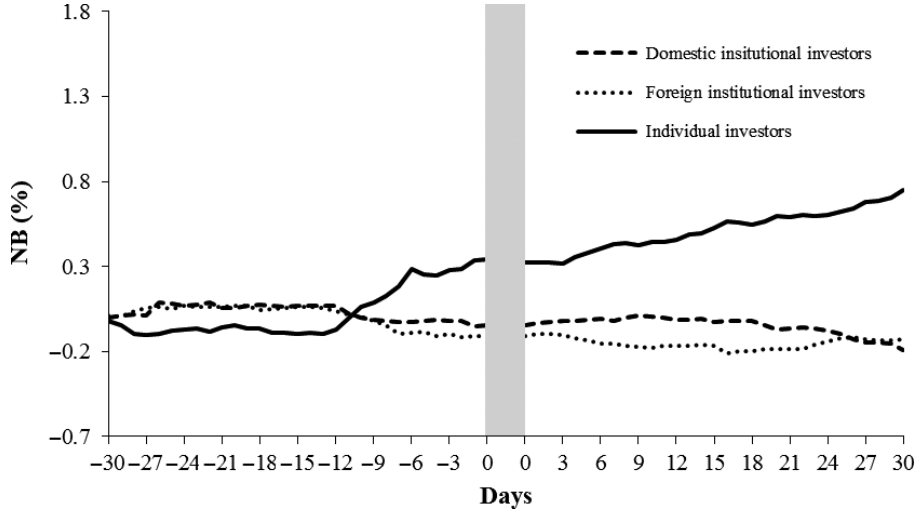


This figure presents the cumulative average net buy (NB) for 30 days before announcement days and after confirmation days of proven unfaithful disclosure by (domestic) individual investors and domestic and foreign institutional investors. NB (%) denotes the average percentage of cumulative net buy (buy volume minus sell volume) relative to the number of shares outstanding of the sample firms. The grey area in the figure indicates the period between announcement day (the first day 0) and confirmation day (the second day 0); the period is different for each sample firm.

have avoided the loss as they consistently sell their shares. More specifically, the positive NB of individual investors for 30 days before the announcement days, as opposed to the negative NB of domestic and foreign institutional investors, suggests that individual investors may have an informational disadvantage before the forewarnings of proven unfaithful disclosure, which is clearly bad news for investors. Unlike other important corporate events, such as earnings announcements, unfaithful disclosure is an irregular event and therefore unexpected. Predicting the occurrence of unfaithful disclosure could be more difficult to individual investors, as it may require private information and/or active research on related firms. Hence, our finding seems to support the information asymmetry hypothesis between informed and uninformed investors.

However, this result should be considered with caution. Because we indirectly infer the relationship between CARs and NBs, our result may rely on the story of the superior trading strategy by some individual or institutional investors. The literature documents that individual investors tend to be contrarian traders, whereas institutional investors tend to be momentum traders (see Choe *et al.*, 1999; Nofsinger and Sias, 1999; Grinblatt and Keloharju, 2000; Kaniel *et al.*, 2008). The positive (negative) net buy by individual (institutional) investors of poor-performing firms may result from the hypothesis that individual (institutional) investors tend to be contrarian (momentum) traders. If the contrarian (momentum) trading

Figure 5 Cumulative average net buy for 30 days before announcement and after confirmation of disproven unfaithful disclosure by different groups of investors



This figure presents the cumulative average net buy (NB) for 30 days before announcement days and after confirmation days of disproven unfaithful disclosure by (domestic) individual investors and domestic and foreign institutional investors. NB (%) denotes the average percentage of cumulative net buy (buy volume minus sell volume) relative to the number of shares outstanding of the sample firms. The grey area in the figure indicates the period between announcement day (the first day 0) and confirmation day (the second day 0); the period is different for each sample firm.

strategy by individual (institutional) investors explains our story, we should also observe the selling (buying) pattern by individual (institutional) investors in Figure 5. Lang and Lundholm (1993) document that successful firms provide more information than unsuccessful firms. Because proven (disproven) unfaithful disclosure is associated with negative (positive) performance by firms, more information asymmetry should be pronounced on firms proven to be unfaithful. The trading patterns between individual investors and domestic and foreign institutional investors are not significantly different before the forewarnings of disproven unfaithful disclosure. The different trading patterns by investor type are only pronounced in the proven unfaithful disclosures, as shown in Figure 4. Therefore, our results seem to be more consistent with the information story, even though we are still cautious about drawing our conclusion.

Furthermore, the positive NB of individual investors for 30 days, even after confirmation days, implies that individual investors could be less sophisticated to digest the released bad news. Field and Lowry (2009) document that individual investors are not sophisticated enough to correctly recognize the public information that could affect firm value and thus, tend to make negative returns on investment. Another potential explanation for individual investors' NB after the confirmation is that the announcement and confirmation of unfaithful disclosure by the KRX may

not be effectively delivered to individual investors. However, this explanation is less likely because firms being proved of unfaithful disclosure are officially notified to be unfaithful firms in individual trading terminals.

6. Conclusion

Around a firm's news release, are the trading behaviors of different groups of investors heterogeneous? We investigated the daily trading behaviors of individual investors as well as domestic and foreign institutional investors around a unique and bad corporate event, unfaithful disclosure, in Korea's stock market.

First, we found that the market reacts negatively to announcements on the forewarnings of unfaithful disclosure by the KRX and to the final approval of the forewarnings, confirming that unfaithful disclosure is indeed a bad corporate event. Second, we showed that firms actually conducting unfaithful disclosure tend to perform poorly before the announcement days of their forewarnings. This result suggests that poor-performing firms are expected to have firm-value-decreasing information, and thus have incentives not to disclose or incorrectly disclose such bad information. Third, our findings suggest that firms performing poorly before the forewarnings and being proved of unfaithful disclosure subsequently perform poorly after confirmation of the unfaithful disclosure. This is consistent with the incentives of a firm's unfaithful disclosure.

Lastly and most importantly, we found that individual investors constantly buy shares of firms receiving the forewarnings before announcements, whereas domestic and foreign institutional investors sell shares. Even after confirmation of unfaithful disclosure, individual investors continuously buy shares in unfaithful firms, whereas domestic and foreign institutional investors sell those shares. The literature suggests that institutional investors are better informed and/or more sophisticated investors compared to individual investors. Therefore, this finding not only supports the evidence of information asymmetry among different types of investors before corporate events, but also supports the evidence of unsophisticated trading behaviors of individual investors even after the information released from the events becomes public.

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