Corporate Governance, Investor Attention and Post-Earnings Announcement Drift

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Abstract

We study how corporate governance would affect market reactions to earnings surprises: the post-earnings announcement drift phenomenon. We conjecture that both investors' under-reactions and over-reactions to earnings surprises can cause the post earnings announcement drift. For a bad governance firm, we conjecture that investors would under-react to earnings surprises as they are less confident in the earnings announcements and attribute the earnings surprises more to the firm's luck rather than to its ability, and it's this under-reaction that causes the post announcement drift in a bad governance firm. In contrast, for a good governance firm we conjecture that as investors are more confident in its earnings surprises and attribute them more to the firm's ability rather than to its luck, their reactions to earnings surprises could change from under-reaction to over-reaction, and it's this over-reaction that causes the drift in a good governance firm. Using earnings and firm characteristics data from I/B/E/S and Compustat together with corporate governance data we provide results supporting these conjectures.

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1. Introduction

Corporate governance has been a very hot research topic. Most of the related empirical literature examines the relation between firm's performance and some subset of many dimensions of governance, such as insider ownership, board composition, board size, executive compensation, and antitakeover provisions (see, e.g., Morck, Shleifer, and Vishny, 1988; McConnell and Servaes, 1990; Hermalin and Weisbach, 1991; Lee, Rosenstein, Rangan, and Davidson, 1992; Yermack, 1996; Core, Holthausen, and Larcker, 1999; Bhagat and Black, 2002). Several recent papers examine the relation between firm performance and a composite measure of corporate governance.

Gompers, Ishii, and Metrick (2003) investigate the empirical relationship between corporate governance and corporate performance. In this influential article, they combine 24 distinct corporate governance provisions based on the Investor Responsibility Research Center (IRRC) surveys of investor rights and takeover protection and construct a "Governance Index" to proxy for the level of shareholder rights during the 1990s. They find that, in the 1990s, firms with strong shareholder rights have risk-adjusted stock returns that are 8.5% higher per year than those of firms with weak shareholder rights. They also infer that firms with higher governance level had higher firm value, higher profits, higher sales growth, lower capital expenditures, and made fewer corporate acquisitions.

After their paper, a substantial amount of subsequent research has utilized this index (the "GIM index") or similar index as a measure of the quality of firms' governance provisions. Cremers and Nair (2005) investigate how the market for corporate control (external governance) and shareholder activism (internal governance) interact. Core, Guay and Rusticus (2006) extend GIM's comparative investigation of stock returns and operating performance for firms with strong and weak shareholder rights. First, they provide evidence that firms with weak shareholder rights have lower operating performance. Then, using analysts' earnings forecasts and returns around earnings announcements as proxies for investor expectations, they find that analysts

and investors are not surprised by differences in operating performance, that is, analysts are aware of the negative effects of weak investor rights on operating performance.

Brown and Caylor (2006a, 2006b) construct a governance score using ISS governance factors and find that firms with lower governance scores have higher return on equity, higher profit margins, and higher firm valuations. Using principal components analysis, Larcker, Richardson, and Tuna (2007) construct 14 governance factors and find that these are related to future operating performance and stock returns. But they report weak results for abnormal accruals and accounting restatements.

Bebchuk, Cohen, and Ferrell (2009) investigate the relative importance of the twenty-four provisions followed by the Investor Responsibility Research Center (IRRC) and included in the Gompers, Ishii, and Metrick governance index (Gompers, Ishii, and Metrick 2003). They put forward an entrenchment index based on six provisions and conclude that the six entrenching provisions in their E index largely drive the documented negative correlation that the IRRC provisions in the aggregate have with firm valuation and stockholder returns since 1990. Ertugrul and Hegde (2009) examine the relation between corporate governance ratings provided by three premier US rating agencies, TCL, ISS, and GMI, and firm performance.

The literature on market efficiency anomalies is both large in size and broad-based in terms of the topic areas covered. One frequently cited anomaly relates to the behavior of security returns subsequent to earnings announcements by firms, that is, the earnings momentum or the post-earnings announcement drift anomaly. Ball and Brown (1968) were the first to note that even after earnings are announced, estimated cumulative "abnormal" returns continue to drift up for "good news" firms and down for "bad news" firms. Many studies (Foster, Olsen, Shevlin, 1984; Bernard and Thomas, 1989, 1990) also show that there is a tendency for future abnormal returns to drift in the direction of the earnings surprise following the earnings announcement. Specifically speaking, the sign and magnitude of security returns in the post-earnings announcement period are positively correlated with the sign and

magnitude of the unexpected component of the earnings release. A long position in stocks with unexpected earnings in the highest decile, combined with a short position in stocks in the lowest decile, yields a positive abnormal return.

Competing explanations for post-earnings announcement drift fall into two categories. One class of explanations suggests that at least a portion of the price response to new information is delayed. The market does not fully incorporate all information from the earnings announcement immediately. A second class of explanations suggests that, because the pricing models used to calculate abnormal returns is either incomplete or misestimated, researchers fail to adjust raw returns fully for risk. As a result, the so-called abnormal returns are nothing more than fair compensation for bearing risk that is priced but not captured by the pricing models estimated by researchers.

However, based on substantial empirical research (e.g., Rendleman, Jones and Latané, 1987; Bernard and Thomas, 1989, 1990; Ball and Bartov, 1996), the most common explanation is that investors initially underreact to the earnings news due to their limited attention. It is possible that the mispricing occurs because some investors fail to fully appreciate the future implications of the current earnings surprise due to cognitive constraints. For example, Bernard and Thomas (1989) find that post-earnings announcement drift is difficult to reconcile with plausible explanations based on incomplete risk adjustment. However, it is consistent with a delayed response to information. Their tests also suggest an alternative explanation for a delay: those prices are affected by investors who fail to recognize fully the implications of current earnings for future earnings. Some investors at least temporarily neglect the information in earnings surprises about future profitability. Consequently, prices continue to drift in the same direction of the earnings news after the announcements as the information gradually gets impounded into prices.

Focusing on this common under-reaction explanation of the earnings momentum due to investors' limited attention, recent literature also shows that market reactions to earnings announcements are more prompt and complete when there is reason to think investors are paying more attention to earnings: during trading hours rather than

non-trading hours (Francis, Pagach, and Stephan (1992), Bagnoli, Clement, and Watts (2005)), on non-Friday weekdays rather than on Fridays as the weekend approaches (DellaVigna and Pollet (2009)), during up markets rather than down markets (Hou, Peng, and Xiong (2009)) and on days with less earnings announcements rather than more earnings announcements (Hirshleifer, Lim, and Teoh (2009)). All these papers select different variables as a proxy of distraction, and focus on how limited attention among investors affects stock returns.

On the other hand, as argued and shown in Hou, Peng, and Xiong (2009), investor attention can also interact with behavioral biases to generate price over-reaction and explain the price momentum effect. In this paper we are interesting in testing whether this price *over-reaction* behavioral bias can also be used to explain the earnings momentum effect, i.e. the post-earnings announcement drift. Specifically we propose to use corporate governance data to test whether investors' extrapolative expectations to earnings surprises as in De Long et al. (1990) and their over-confidence and self attribution bias as in Daniel, Hirshleifer and Subrahmanyam (1998) can be used to explain the post-earnings announcement drift. We conjecture that if investors over-react to earnings shocks and extrapolate them, this over-reaction and extrapolation bias should be higher for good governance firms because investors have more confidence in their earnings. This suggests that under the *over-reaction* hypothesis, earnings surprises could have both *bigger* immediate price effects and also *bigger* post announcement effect for good governance firms than for bad governance firms. As an alternative hypothesis, if investors only *under-react* to earnings surprises as is typically assumed in the PEAD literature, good governance firms should have *bigger* immediate price effects from earnings surprises but *smaller* post announcement price effect because of their perceived higher earnings quality or less information asymmetry problem.

To our knowledge, there is no other study which examines the link between corporate governance data and PEAD. While almost all current literatures about PEAD assume that the investor *under-react* to the earnings announcement surprises. In this paper we try to argue for a different *over-reaction* explanation using corporate

governances. Specifically, we want to test how corporate governance affects market reactions to earnings announcement. We conjecture that firms with better governance should have more significant market responses to earnings surprises. That is, for a well governed firm, the post-earnings announcement drift should be larger and longer than a bad governed firm: when the positive unexpected earnings surprise comes out, investors would trust the earnings surprise more and attribute it more to the firm's ability rather to its one-time good luck. In other words, investor confidence in a good governance firm's stock will increase more following a good earnings surprise. They will keep purchasing the stock during the period after the earnings announcement, which drives the price even higher resulting in stronger up-drift. The same is also true for a well governed company with negative unexpected earnings surprise. In this case, investor would attribute it more to the firm's management inability rather to a one-time misfortune. As a result, investor confidence in the firm's stock will drop more. They will keep selling the stock after the earnings announcement, which leads to the stronger down-drift.

In contrast, for a firm with bad governance, good or bad earnings surprise would have less effect on investor's confidence in the firm's stock because investors would attribute the surprise more to the firm's one-time fortune or misfortune rather than to its management ability or inability. This smaller change in investor confidence in turn will result in less post announcement price drift.

In summary, we made two contributions to the PEAD literature: first, while most of current literature use under-reaction due to limited investor attention to explain PEAD, our paper proposes an alternative reason of under-reaction: investor's low confidence in bad corporate governance firms' earnings surprises; Second, our paper also shows over-reaction due to investor's over-confidence in earnings surprises can also explain PEAD if the firm has good governance.

In the following three sections, we first discuss the earnings and firm characteristics data from I/B/E/S and Compustat. We then present our analysis of how corporate governance affects the post-earnings announcement drift, followed by the conclusion.

2. Data

Our sources of earnings data are I/B/E/S and Compustat. We begin with all quarterly earnings announcements from I/B/E/S for which at least one analyst forms an earnings forecast in the 60 days before the announcement. We restrict the sample to announcements that have stock return data in CRSP and are reported in both I/B/E/S and Compustat with a difference of at most five calendar days between the reported announcement dates. The resulting sample includes all available announcements from January 1995 to December 2008[1]. We construct a measure of the announcement date using the reported Compustat and I/B/E/S dates. I/B/E/S and Compustat announcement dates may differ. In the case of disagreement, the earlier date is usually the actual date of the announcement, and the later date is the date of publication in the Wall Street Journal. We impute the date to be the earlier one following DellaVigna and Pollet (2009).

While the accuracy of the announcement date is likely to be higher when it is available from both I/B/E/S and Compustat, we include Compustat earnings announcements without matching I/B/E/S data when we compute the number of competing announcements each day because I/B/E/S coverage is for relatively large firms. Our sample firms used for studying post-announcement drifts are limited to those that have I/B/E/S coverage; we therefore expect very accurate announcement dates for our sample even though the number of competing announcements can be slightly noisy.

We use the consensus analyst forecast from I/B/E/S as a proxy for the expectations of investors. The consensus forecast is defined as the median forecast of the earnings announcement. To exclude stale forecasts when we calculate the consensus forecast, we only include 1- or 2-quarter ahead forecasts issued or reviewed in the last 60 calendar days before the earnings announcement. If an analyst has made

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[1] DellaVigna and Pollet (2009) infer that during the more recent years, the accuracy of the earnings date has increased substantially, and is almost perfect after December 1994.

multiple forecasts during that period, we use only the most recent one.

The earnings surprise (SUE_{tq}) is then defined as the difference between announced earnings as reported by I/B/E/S (e_{tq}) and the consensus earnings forecast (F_{tq}), normalized by the stock price at the end of that quarter(P_{tq}).

$$SUE_{tq} = \frac{\left(e_{tq} - F_{tq}\right)}{P_{tq}}$$

I/B/E/S provides two types of earnings per share data. One is the split-adjusted. The other one is unsplit-adjusted. We use the unsplit earnings per share data because they are the historical earnings per share data (eps) as used the investors. Additionally, because the daily stock price data from CRSP is the unsplit price, using the unsplit eps data also makes the announced earnings and earnings forecast comparable with the stock price as reported in CRSP.

We match the announcement dates with information on stock returns from CRSP. We construct cumulative abnormal return for different window around the announcement date using the stock returns of matching size and book-to-market (B/M) portfolio as the benchmark. The cumulative abnormal returns of the announcement window and the post-announcement window are defined as the difference between the buy-and-hold return of the announcing firm and that of a size and book-to-market (B/M) matching portfolio over the windows [0, 1] and [2, 61] in trading days relative to the announcement date,

$$CAR[0,1]_{tq} = \prod_{k=d}^{d+1}(1 + R_{tk}) - \prod_{k=d}^{d+1}(1 + R_{pk})$$

$$CAR[2,61]_{tq} = \prod_{k=d+2}^{d+61}(1 + R_{tk}) - \prod_{k=d+2}^{d+61}(1 + R_{pk}) \text{,}$$

where R_{tk} is the return of the firm t and R_{pk} is the return of the matching size-B/M portfolio on day k where d is the announcement date of quarter q's earnings.

Each stock is matched with one of 25 size - B/M portfolios at the end of June based on the market capitalization at the end of June and B/M, the book equity of the last fiscal year end in the prior calendar year divided by the market value of equity at the end of December of the prior year. The daily returns of 25 size-B/M portfolios are

from Kenneth French's website.[2]

We drop observations with a missing earnings announcement date, or earnings surprise, or in which the earnings announcement e_{tq} or the earnings forecast F_{tq} is larger in absolute value than the price of a share P_{tq}. We also delete those observations when the stock price is less than $1 and eliminate announcements on Saturday or Sunday. After matching each announcement date of every company with the stock return during the event window, the final sample includes 120,007 observations. We then merge them with the corporate governance G-index data from RiskMetrics (formerly IRRC).

3. Empirical Hypothesis and Results

The typical explanation of PEAD is that investors initially under-react to the earnings news due to their limited attention as attention is a scarce cognitive resource. Consequently, prices continue to drift in the same direction of the earnings news after the announcements as the information gradually gets impounded into prices.

On the other hand, as argued and shown in Hou, Peng, and Xiong (2009), investor attention can also interact with behavioral biases to generate price overreaction and explain the price momentum effect. In this paper we test whether this price over-reaction behavioral biase can also be used to explain the earnings momentum effect. Specifically we use corporate governance data to test whether investors' extrapolative expectations to earnings surprises as in De Long et al. (1990) and their over-confidence and self attribution bias as in Daniel, Hirshleifer and Subrahmanyam (1998) model overconfidence and self attribution bias can be used to explain the post-earnings announcement drift.

Our null hypothesis is that investors could *over-react* to earnings shocks and extrapolate them and this overreaction and extrapolation bias should be higher for good governance firms because investors have more confidence in them. This suggests that under the null over-reaction hypothesis, good governance firms could

have both *bigger* immediate price effects and also *bigger* post-announcement effect because of higher changes in investor confidence in their stocks. As an alternative hypothesis, if investors <u>only</u> *under-react* to earnings surprises, good governance firms should have *bigger* immediate price effects from earnings surprises but *smaller* post-announcement price effect because of their perceived higher earnings quality or less information asymmetry problem.

A. Post-earnings announcement drift (PEAD)

The final sample that has not been matched with G-index (called "original sample") includes 120,007 observations. In the next step, we merge the corporate governance index into our earnings announcement sample. Some observations are lost during this process. Because RiskMetrics does not have G-index data for all firms, and even for those firms that it does have the data, it may not have data each year. The sample matched with G-index (called "matched sample") includes 54,828 observations, that is, this matching step decreases the observation from 120,007 to 54,828. According to the definition of G-index given by Gompers, Ishii and Metrick (2003), lower G-index level represents better governance. Following the classification rule of Gompers, Ishii and Metrick (2003), which is also frequently used by related literature, we divide the sample into three groups based on the level of G, in order to separately analyze the extreme groups in our tests. The democracy group is composed of all firms whose G-index values are less than or equal to five, and the dictatorship group contains all firms whose G-index values are bigger than or equal to fourteen. The remaining firms are defined as the control group. Dictatorship group is referred to as having the "highest management power" or the "weakest shareholder rights" while democracy group is described as having the "lowest management power" or the "strongest shareholder rights".

We first check the general PEAD pattern of this G-index matched sample. We divide the sample into 10 deciles, ordered by earnings surprise SUE**.** The breakpoints for the deciles are determined separately for each calendar quarter. Figure 1 plots the market response to earnings news in this G-index matched sample to see whether the

general pattern of PEAD changes after this matching procedure. It shows that positive earnings surprises are followed by positive returns drift in the period subsequent to the announcement, and the drift is increasing in the magnitude of the positive surprise. Negative surprises are followed by negative returns drift, and the drift is also increasing in the magnitude of the negative surprise.

We can see that the general PEAD pattern still exists in the matched sample. Therefore our sample is not biased after the matching step, which makes it possible for us to study the relationship between governance level and PEAD.

B. Corporate governance's effect on PEAD

We now test whether market reaction to earnings surprise is different between the three different governance level groups. We first check the earnings surprises characteristics within each decile for the different governance level firms to make sure there is no significant difference of the SUE itself. Table 1 reports the number of observations, average earnings surprises, volatility of the surprises, analyst forecast dispersion, number of analysts, analyst revision frequency, and percentage of analysts making revisions within each decile for the three governance level groups. We generate the standard deviation of standardized unexpected earnings during the prior eight quarter to get the volatility of standardized unexpected earnings. The analyst forecast dispersion is defined as the standard deviation of all analyst forecasts during this period divided by the stock price at the end of that quarter. The analyst revision frequency is the total number of revisions divided by number of analyst following. The percentage of analysts who makes revisions is defined as the number of revisers divided by the number of analysts. The dictatorship group contains 2,555 observations, while democracy group contains 4,990 observations. The control group contains 47,823 observations. The average earnings surprise within each decile is very similar for the three different governance groups. The only exception is the highest earnings surprises decile, where the average surprise for good governance firms is a little higher than bad governance firms. But overall there is no difference between the average SUE of dictatorship group and democracy group in each earnings surprises

decile. As to other characteristics, there also seems to be no major difference among the three governance groups. From all the different comparisons it seems that the earnings characteristics are about the same among the democracy group, the control group and the dictatorship group[3].

First, we compare the immediate reaction and delayed reaction to earnings surprises between the democracy group and the dictatorship group across all earnings surprise deciles. Figure 2A plots the difference of immediate response of stock returns to earnings surprises, defined as the return from the close on the trading day before the earnings announcement to the first trading day after the earnings announcement. This measure captures the short-term market response to earnings announcements made during trading hours and after the close of the market. From the Figure 2A we find that when negative earnings surprises are announced, immediate stock returns for democracy group are more negative than those for the dictatorship group. Additionally, immediate response for positive earnings surprises is also much larger for democracy group.

Figure 2B plots the delayed reaction of stock returns to the earnings announcements, defined as the cumulative abnormal return from the second trading day after the earnings announcement to the sixty-first trading date after the earnings announcement. Compared with the dictatorship group, democracy group in the extreme deciles has much more negative abnormal returns during this period after negative earnings surprises announcement. Similarly, stock abnormal returns for democracy group in the extreme deciles are more positive than for the dictatorship group after positive earnings surprises announcement.

Figures 3A and 3B plot the PEAD difference for the top two and bottom two earnings surprise deciles between the two different G-index groups. We can see that the total abnormal return of democracy group during the post-earnings announcement period is always larger than the dictatorship group in positive earnings news deciles. Faced with good earnings surprises, investors of good governance firms would be more likely to view the positive earnings surprise as evidence of good operating

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[3] We also tried slight different cut-off governance index values to define the three groups and got similar results.

performances and management ability, and will more likely regard the positive earnings surprise as a permanent shock, which in turn causes the post-announcement drift to be larger than that of the bad governance firms. Similarly when bad news is announced, the investor would also be more likely to attribute the negative earnings surprise as evidence of bad operation performance and management ability. There must be some irreversible difficulty in such a company with good governance level. That is, they would think this bad news is definitely bad news, not just a misfortune. So when bad news turns out, the abnormal return of democracy group is always bigger in magnitude for democracy group than for the dictatorship group in both the more immediate response and the delayed reaction to bad news. Overall these evidences support our null hypothesis that investors overreact to earnings surprise and better governance firms tend to have more immediate market reaction and stronger post-announcement return responses to earnings surprises due to bigger changes in investor confidence from earnings surprises.

Odean (1998), Scheinkman and Xiong (2003), Hou, Peng and Xiong (2009) argue when investors pay more attention to a stock, behavioral biases such as overconfidence can give rise to heterogeneous opinions among investors about the stock, thus generating more trading. Following their argument, we use trading volume as a proxy of investor's confidence in the stock. Following each earnings announcement, we compute the percentage change of the trading volume to measure the changes in investor confidence. The percentage change of the volume for a period is defined as the difference between the average daily log volume during this period subtracted by the average daily log volume for the period 11 to 20 trading days before announcement, divided by the average daily log volume for the period 11 to 20 trading days before the announcement. We plot the results in Figures 4A and 4B. The volume percentage changes for democracy group is always larger than dictatorship group from the day of announcement to the about twenty trading days after announcement, not only for top two earnings surprise deciles, but for bottom two earnings surprise deciles. For top two earnings deciles, this pattern continues until the sixty-one trading days after announcement. However, for the bottom two earnings

deciles, this pattern appears to be reversed from twenty trading days after announcements. Overall these results suggest that investor confidence as proxied by the trading volume indeed change relatively more after the earnings announcement for a good governance firm than for a bad governance firm consistent with our overreaction hypothesis in good governance firms.

C. Post-earnings announcement drift with corporate governance and investor attentions

If investors only under-react to earnings surprises as argued and shown in Hirshleifer et al. (2009) and DellaVigna and Pollet (2009), this under-reaction would be stronger when investors pay *less* attentions to the earnings announcements, which implies that *smaller* immediate market responses are followed by *stronger* post announcement drift. In contrast, if investors could also over-react to earnings surprises, this over-reaction would be stronger when investors pay *more* attention to earnings announcements, which implies that *bigger* immediate market responses are followed by *stronger* post announcement drift. For each earnings announcement, we use the number of earnings announcements made on the same date as a proxy of investors distractions or investors' lack of attention as in Hirshleifer et al. (2009). We conjecture that corporate governance's effect on market's immediate reactions to earnings surprises should be higher for earnings announcement made on low number of earnings announcements when investor distraction is low, and on these low distractions days the post announcement drift would be smaller for bad governance firms but bigger for good governance firms than on high distractions days.

First, we replicate Hirshleifer et al. (2009) to get the basic investor attention distraction result. In each calendar quarter, we perform a two-way independent sort of all quarterly earnings announcements observations in that quarter into 100 (ten by ten) groups based upon the number of earnings announcements on the day of the earnings announcement and the earnings surprise. Table 2 reports the cumulative abnormal returns in the top and bottom earnings surprise deciles by the number of announcements deciles for original sample which has not been matched with G-index.

Using quarterly earnings announcements from January 1995 to December 2008, we calculate the average 2-day announcement cumulative abnormal returns (CAR[0,1]) and 60-day post-announcement cumulative abnormal returns (CAR[2,61]) in the top and bottom earnings surprise deciles for each number of announcements deciles (NRANK). For each number of announcements decile, we calculate the mean announcement-period and post-announcement period cumulative abnormal returns for the most positive (top) and the most negative earnings surprise deciles (bottom), and the cumulative abnormal returns differences between the top and the bottom earnings surprise deciles. These returns differences measure the stock price response to earnings news; a larger difference in CAR[0,1] indicates that investors react more strongly to earnings news on the announcement date while a larger difference in CAR[2,61] measures a larger post-announcement market reaction. The results confirm those of Hirshleifer et al. (2009): market immediate responses to earnings surprises are higher and post-announcement drifts are smaller for earnings announcements made during low number of announcements days, This means less under-reaction and thus smaller drifts when investors pay more attentions to earnings announcements, which supports their under-reaction story

We then conduct the same analysis to our matched sample, intending to test whether this distraction effect still exists for the matched sample. We also check this effect for good governance firms (democracy group), moderate governance firms (control group) and bad governance firms (dictatorship group) separately. Table 3 presents the result of full matched sample. For the lowest number of announcements decile (low-news days), the difference in average CAR[0,1] between good earnings news firms (top) and bad earnings news firms (bottom) is 7.15%, whereas for the highest number of announcements decile, the difference is 6.37%. This indicates that the price reactions to earnings news are stronger when earnings are announced on low-news days than on high-news days for the full matched sample. Greater competing news is also associated with stronger post-earnings announcement drift within these companies. The difference in average CAR[2,61] between good and bad earnings news deciles indicates greater average under-reaction to earnings news on

high-news days than on low-news days. The general distraction pattern investigated by Hirshleifer et al. (2009) still exists when we draw the corporate governance index into the original sample. However, its magnitude decreases after the matching process. It is interesting to explore why such this decrease happen.

Figures 5A and 5B plot the market reaction towards the extreme earnings surprise (top two and bottom two earnings surprise deciles) on the high news days (number of announcements decile 9 and 10) versus those on low-news days (number of announcements decile 1 and 2) for the dictatorship and democracy group, respectively. Figures 6 and 7 plot the average 2-day announcement cumulative abnormal returns (CAR[0,1]) and 60-day post-announcement cumulative abnormal returns (CAR[2,61]) of quarterly earnings announcements against earnings surprise deciles for announcements made on high-news days versus those on low-news days for dictatorship group and democracy group, respectively. From Figure 5A, we can see that the for bad governance firms, PEAD tends to be stronger when earnings are announced in high news days. From Figure 5B, the opposite is true: For good governance firms, PEAD is stronger when earnings are announced in low news days. Looking at Figures 6A and 7A, it's also clear that market immediate reactions to earnings surprises are higher on low earnings announcement days. Comparing Figures 6B and 7B, we can see that for the bad governance firms, the cumulative abnormal returns for the extreme earnings surprises deciles in the post-announcement period are generally higher on high earnings announcement days (i.e. when investors pay less attention) than on low earnings announcement days. This supports the story that investors tend to under-react to earnings surprises in bad governance firms and this under-reaction is stronger when investors pay less attention. In contrast for the good governance firms, the cumulative abnormal returns for the extreme earnings surprises deciles in the post-announcement period are generally higher on low earnings announcement days (i.e. when investors pay more attention) than on high earnings announcement days. This supports the story that investors could over-react to earnings surprises in good governance firms and this over-reaction is stronger when investors pay more attention.

D. Does corporate governance explains more about the PEAD after the enforcement of SOX?

Another necessary condition for corporate governance to affect market's responses to earnings surprises is that investors *want* to pay attention to it. A series of legislative reforms was culminated by the Sarbanes-Oxley Act (SOX) in 2002, which led to the most far-reaching changes in the history of securities regulations in the U.S. since the Securities Act of 1933 and 1934. In reaction to a number of high-profile corporate scandals, such as the Enron scandal in October 2001, the main goals of SOX are to strengthen mandatory disclosure laws and corporate governance. We intend to test whether the effect of corporate governance on investor reaction to earnings surprises would become more significant after SOX when investors pay more attention to corporate governance during the post-SOX period.

We divide the full matched sample to two subsamples: one before the SOX and the other one after SOX. We choose September 2001 as the cutoff date because the Enron Scandal in October 2001 may already bring investor's attention to corporate governance even before the enforcement of SOX in 2002. Specifically, if the earnings announcement date is later than September 2001, we include it in the post-SOX period.

Figures 8A and 8B plot the PEAD difference between the democracy group and the dictatorship group during pre-SOX period. Clearly investors react differently to good earnings surprise and bad earnings surprise. For good earnings surprises we can not find a clear up-drift pattern for any governance level firms. This suggests that market reacts quickly and fully to good earnings surprises. Because investors may not realize the importance of corporate governance in the pre-SOX period, their under-reaction to earnings surprises in bad governance firms and over-reaction to earnings surprises in good governance firms are also smaller, which results in small drift for any governance level firms. In contrast, for bad earnings surprises we have a clear down-drift for the good governance firms. For the bad governance firms, the down-drift exists until event day 20. This suggests that even though investors may not realize the importance of corporate governance in this pre-SOX period, a

post-earnings announcement down-drift still exists in bad governance firms because investors could still under-react to bad earnings surprises due to limited attention.

Figures 9A and 9B plot the PEAD difference between the two different governance level firms during post-SOX period. For good earnings surprises, there is a clear up-drift for the democracy group but there is no clear up-drift for the dictatorship group. This confirms our conjecture that post-earnings announcement drift in good governance firms could be a result of investors' confidence response to earnings surprises in a good governance firm because investors would trust the good governance firm's earnings surprise more and attribute it more to the firm's ability rather to its good luck. When they trust the earnings surprise investors would become more confident in the firm and extrapolate this good earnings surprise into future quarters, which causes the stock prices to drift up. In contrast the up-drift is much weaker for bad governance and medium governance firms because for these firms investors would attribute the good earnings surprise more to chance than to ability. For bad earnings surprises, the results are similar: there is a clear down-drift only for the democracy group.

Table 4 presents multivariate tests of the effects of the governance level on market reactions to earnings surprises for pre-SOX sample and post-SOX sample. These results give further evidences supporting our hypothesis that better governance firms tend to have more immediate market reaction and stronger post-announcement return responses to earnings surprises, and this effect is more significant when investors pay more attentions to corporate governance in the post-SOX period.

4. Conclusions

We study how corporate governance would affect market reactions to earnings surprises: the post-earnings announcement drift phenomenon. We show good governance firms have both bigger immediate price and volume effect and also bigger post announcement price and volume effect from earnings surprise than bad governance firms. These results suggest that both investors' under-reactions and over-reactions to earnings surprises can cause the post earnings announcement drift.

This is because if only under-reaction drives the PEAD as is typically assumed in the literature, the drift should be smaller for good governance firms because investors would trust their earnings more and under-react less to earnings surprises. For a bad governance firm, investors would under-react to earnings surprises as they are less confident in the earnings announcements and attribute the earnings surprises more to the firm's luck rather than to its ability, and it's this under-reaction that causes the post announcement drift in a bad governance firm. In contrast, for a good governance firm as investors are more confident in its earnings surprises and attribute them more to the firm's ability rather than to its luck, their reactions to earnings surprises could change from under-reaction to over-reaction, and it's this over-reaction that causes the drift in a good governance firm.

We also study how investor's attentions and corporate governance together would affect market reactions to earnings surprises. With the number of earnings announcements made on the same date as a proxy of investors distractions or investors' lack of attention as in Hirshleifer et al. (2009), we further show how investor's attention would affect corporate governance's effect on market's reactions to earnings surprises: for bad governance firms, investors under-reaction and thus PEAD is stronger when earnings are announced in high news days (i.e. investors attentions are low); for good governance firms, investors over-reaction and thus PEAD is stronger when earnings are announced in low news days (i.e. when investors attentions are high). We then divide the sample into pre-Sarbanes-Oxley Act (SOX) and post-SOX subsamples for further analysis. We show that corporate governance's effect on PEAD is more significant when investors pay more attentions to corporate governance in the post-SOX period.

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Table 1: Average SUE, Volatility of SUE, Forecast Dispersion and Analyst Activity by Earnings Surprises (SUE) Deciles

Table 1 reports the average standardized unexpected earnings, volatility of SUE, analyst forecast dispersion and analyst activity within each decile for different G-index level groups. The unexpected earning is the difference between actual earnings for the quarter recorded by I/B/E/S unadjusted actual file and the consensus analyst forecast included in the I/B/E/S unadjusted detail file. The consensus forecast is defined as the median forecast among all the analysts that make a forecast in the last 60 calendar days before the earnings announcement. The standardized unexpected earning is defined as unexpected earning normalized by the stock price at the end of that quarter. We generate the standard deviation of standardized unexpected earnings during the prior eight quarter to get the volatility of standardized unexpected earnings. The analyst forecast dispersion is defined as the standard deviation of all analyst forecasts during this period divided by the stock price at the end of that quarter. The analyst revision frequency is the total number of revisions divided by number of analyst following. The percentage of analysts who makes revisions is defined as the number of revisers divided by the number of analysts. We also present the distribution of SIC division structure[4] within each governance level group. To measure announcement quality, we divide announcements into 10 deciles, ordered by the SUE. The thresholds for the deciles are set separately for each quarter. Within each SUE decile, we divide it into three groups based on the level of G. The democracy group is composed of all firms where G<=5, and the dictatorship group contains all firms where G>=14. And firms where 6<=G<=13 are viewed as the control group. Since approximately 15% of the announcements are for zero surprises and these announcements fall into either decile 3 or 4, deciles 3 through 5 are of unequal size. Weekend earnings announcements are excluded from the sample.

SUE Deciles	1	2	3	4	5	6	7	8	9	10
Panel A: Number of Observations										
Dictatorship Group	192	275	219	301	257	241	271	279	275	245
Control Group	4687	4615	4287	5733	4251	4784	4751	4743	4725	4707
Democracy Group	579	492	421	655	440	468	468	466	490	511
Panel B: Average Standardized Unexpected Earnings										
Dictatorship Group	-0.0130	-0.0010	-0.0002	0.0000	0.0003	0.0005	0.0008	0.0014	0.0025	0.0076
Control Group	-0.0149	-0.0011	-0.0002	0.0000	0.0003	0.0005	0.0009	0.0014	0.0026	0.0108
Democracy Group	-0.0163	-0.0011	-0.0002	0.0000	0.0003	0.0005	0.0008	0.0014	0.0025	0.0159
Panel C: Volatility of Standardized Unexpected Earnings										
Dictatorship Group	0.0088	0.0022	0.0013	0.0015	0.0012	0.0014	0.0017	0.0019	0.0030	0.0062
Control Group	0.0123	0.0030	0.0019	0.0020	0.0011	0.0014	0.0018	0.0026	0.0037	0.0121
Democracy Group	0.0124	0.0027	0.0016	0.0018	0.0011	0.0017	0.0017	0.0030	0.0036	0.0126
Panel D: Analyst Forecast Dispersion										
Dictatorship Group	0.0043	0.0011	0.0007	0.0007	0.0005	0.0006	0.0007	0.0014	0.0012	0.0026
Control Group	0.0054	0.0013	0.0007	0.0007	0.0005	0.0006	0.0008	0.0010	0.0015	0.0043
Democracy Group	0.0049	0.0012	0.0007	0.0007	0.0005	0.0005	0.0008	0.0009	0.0015	0.0050
Panel E: Number of Analysts Following										
Dictatorship Group	4	5	5	6	5	4	4	4	4	3
Control Group	4	4	5	5	5	5	5	5	4	4

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[4]About the classification of the division, see: http://www.osha.gov/pls/imis/sic_manual.html

Democracy Group	3	4	4	5	5	4	4	4	3	3
Panel F: Analyst Revision Frequency										
Dictatorship Group	1.13	1.10	1.12	1.15	1.11	1.11	1.10	1.12	1.11	1.09
Control Group	1.13	1.12	1.11	1.12	1.11	1.10	1.12	1.11	1.11	1.12
Democracy Group	1.11	1.11	1.09	1.11	1.10	1.09	1.10	1.09	1.08	1.10
Panel G: Percentage of Analysts Who Make Revisions										
Dictatorship Group	0.59	0.63	0.61	0.51	0.50	0.47	0.42	0.55	0.57	0.51
Control Group	0.62	0.55	0.51	0.51	0.51	0.50	0.51	0.52	0.56	0.59
Democracy Group	0.56	0.53	0.54	0.56	0.54	0.47	0.46	0.43	0.58	0.57
Panel H: Proportion of each division within each governance level group										
Division	A	B	C	D	E	F	G	H	I	J
Dictatorship Group	0.00	0.03	0.02	0.49	0.10	0.03	0.08	0.21	0.04	0.00
Control Group	0.00	0.04	0.01	0.44	0.11	0.03	0.09	0.15	0.12	0.00
Democracy Group	0.01	0.04	0.01	0.44	0.09	0.03	0.08	0.17	0.12	0.00

Table 2: Market Reactions to Extreme Earnings Surprise Deciles by the Number of Announcements Deciles within Original Sample

This table reports the cumulative abnormal returns of extreme earnings surprise deciles by the number of announcements deciles within original sample. Using quarterly earnings announcements from January 1995 to December 2008, we calculate the average 2-day announcement cumulative abnormal returns (CAR[0,1]) and 60-day post-announcement cumulative abnormal returns (CAR[2,61]) in the top one and bottom one extreme earnings surprise deciles for each number of announcements deciles (NRANK). Earnings surprise and number of announcement deciles are formed based on quarterly independent double sorts of quarterly earnings announcements by the corresponding forecast error and the number of quarterly earnings announcements on the day of announcement.

NRANK	Average CAR[0,1] for top and bottom earnings surprise deciles			Average CAR[2,61] for top and bottom earnings surprise deciles		
	Bottom	Top	Top-Bottom	Bottom	Top	Top-Bottom
1(low-news days)	-0.0332	0.0389	0.0722	0.0010	0.0137	0.0127
2	-0.0377	0.0358	0.0735	-0.0209	0.0167	0.0376
3	-0.0328	0.0298	0.0625	-0.0336	0.0113	0.0449
4	-0.0293	0.0295	0.0588	-0.0268	0.0358	0.0626
5	-0.0377	0.0252	0.0629	-0.0129	0.0273	0.0401
6	-0.0282	0.0307	0.0589	-0.0147	0.0300	0.0447
7	-0.0316	0.0315	0.0631	-0.0214	0.0414	0.0628
8	-0.0323	0.0280	0.0603	-0.0079	0.0516	0.0595
9	-0.0314	0.0309	0.0623	-0.0184	0.0266	0.0450
10(high-news days)	-0.0330	0.0351	0.0681	-0.0237	0.0392	0.0629
Difference (10-1)	0.0002	-0.0038	-0.0041	-0.0247	0.0256	0.0502

Table 3:   Market Reactions to Extreme Earnings Surprise Deciles
by the Number of Announcements Deciles in the G-index matched Sample

This table reports the cumulative abnormal returns of extreme earnings surprise deciles by the number of announcements deciles within matched sample. Using quarterly earnings announcements from January 1995 to December 2008, we calculate the average 2-day announcement cumulative abnormal returns (CAR[0,1]) and 60-day post-announcement cumulative abnormal returns (CAR[2,61]) in the top one and bottom one extreme earnings surprise deciles for each number of announcements deciles (NRANK). Earnings surprise and number of announcement deciles are formed based on quarterly independent double sorts of quarterly earnings announcements by the corresponding forecast error and the number of quarterly earnings announcements on the day of announcement.

NRANK	Average CAR[0,1] for top and bottom earnings surprise deciles			Average CAR[2,61] for top and bottom earnings surprise deciles		
	Bottom	Top	Top-Bottom	Bottom	Top	Top-Bottom
1 (low-news days)	-0.0360	0.0355	0.0715	-0.0104	0.0169	0.0273
2	-0.0343	0.0368	0.0711	-0.0319	0.0153	0.0471
3	-0.0295	0.0373	0.0669	-0.0057	0.0242	0.0299
4	-0.0314	0.0260	0.0574	-0.0131	0.0294	0.0425
5	-0.0337	0.0272	0.0609	-0.0078	0.0256	0.0334
6	-0.0227	0.0294	0.0521	-0.0208	0.0261	0.0469
7	-0.0341	0.0316	0.0658	-0.0188	0.0369	0.0557
8	-0.0296	0.0320	0.0616	-0.0030	0.0278	0.0307
9	-0.0236	0.0317	0.0553	0.0032	0.0121	0.0088
10(high-news days)	-0.0288	0.0349	0.0637	-0.0031	0.0334	0.0365
Difference (10-1)	0.0072	-0.0006	-0.0078	0.0074	0.0165	0.0092

Table 4:   Multivariate Tests of Effects of the Governance Level on Market Reactions to Earnings Surprises for Pre-SOX Period and Post-SOX Period

We divide the full matched sample to two subsamples: one before the SOX and the other one after SOX. We choose September 2001 as the cutoff date. Table 10 reports multivariate tests of effects of the governance level on market reactions to earnings surprises during the pre-SOX period and post-SOX period separately. FE is the earnings surprise deciles (FE=1: lowest, 10: highest) based on quarterly sort by forecast errors. G_level represents the governance level of each observation, which equals to 0 for dictatorship group, 1 for control group and 2 for democracy group. We use the following control variables: SIZE is the market capitalization at the end of June for each year; BM is the book equity of the last fiscal year end in the prior calendar year divided by the market value of equity at the end of December of the prior year; LAG is the reporting lag defined as the number of days from the quarter end until the announcement date;   #Analysts is the number of analysts following the firm during the most recent fiscal year; IO is the percentage of shares owned by institutions.   Also included are year, month, and day of week dummies. Significance at the 10 percent, 5 percent and 1 percent levels is indicated by *, ** and *** respectively.

	Pre-SOX sample		Post-SOX sample	
	CAR[0,1]	CAR[2,61]	CAR[0,1]	CAR[2,61]
FE	0.00446***	0.01361***	0.00771***	0.00311*
	(5.46)	(5.30)	(10.13)	(1.74)
G_level	-0.00537***	0.00248	-0.00001192	-0.00835*
	(-2.66)	(0.39)	(-0.01)	(-1.73)
FE*G_level	0.00120***	-0.00052721	0.00023869	0.00170*
	(3.23)	(-0.45)	(0.61)	(1.85)
Controls, interacted with FE	X	X	X	X
Constant	-0.01760***	-0.04559***	-0.03816***	-0.00026927
	(-3.66)	(-3.01)	(-7.77)	(-0.02)
Observations	23450	23450	31378	31378
R-squared	0.0540	0.0104	0.0946	0.0074

Figure 1: Post-Earnings Announcement Drift in the Matched Sample
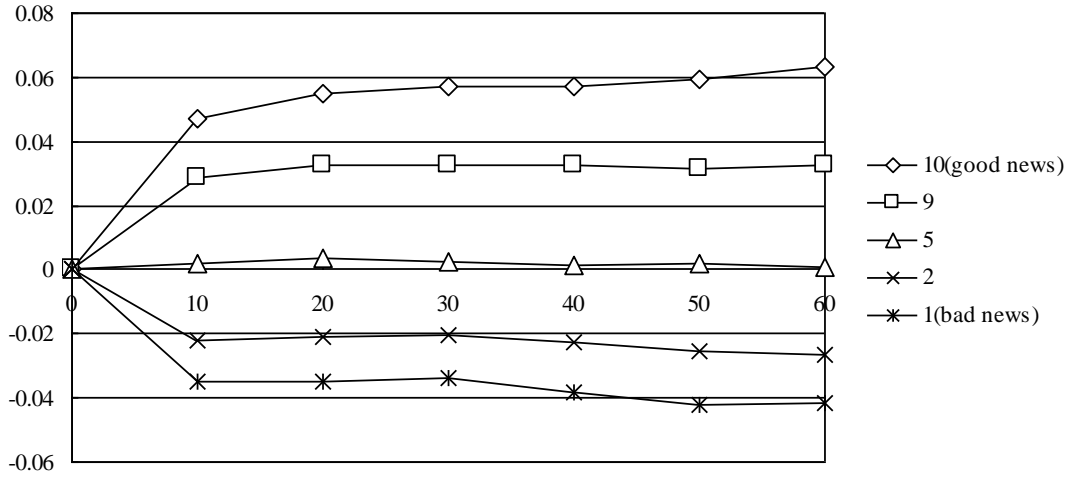
This figure reports the general PEAD pattern of matched sample. Stocks in CRSP are matched to quarterly earnings announcements in I/B/E/S from January 1995 until December 2008. Then we merge them with the corporate governance G-index data from RiskMetrics (formerly IRRC). In event time, day 0 is the day of the announcement. The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted with the same size and B/M ratio portfolio return. The horizontal axis measures the numbers of days from the announcement date. To measure the earnings surprise, we calculate the difference between actual earnings for the quarter recorded by I/B/E/S unadjusted actual file and the consensus analyst forecast included in the I/B/E/S unadjusted detail file. The consensus forecast is defined as the median forecast among all the analysts that make a forecast in the last 60 calendar days before the earnings announcement. The difference between the announced earnings and the consensus forecast is normalized by the stock price at the end of that quarter. We divide the sample into 10 deciles, ordered by earnings surprise SUE. The breakpoints for the deciles are determined separately for each quarter. Announcements made on Saturdays and Sundays are excluded from the sample.

Figure 2A: Mean Cumulative Abnormal Return from day 0 to 1 by Earnings Surprise Deciles
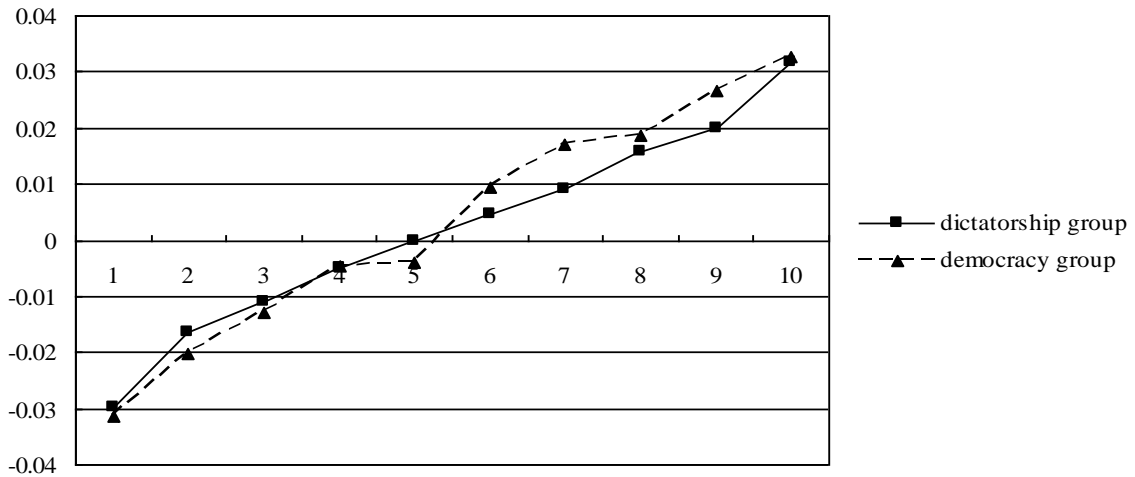
Figure 2B: Mean Cumulative Abnormal Return from Day 2 to 61 by Earnings Surprise Deciles
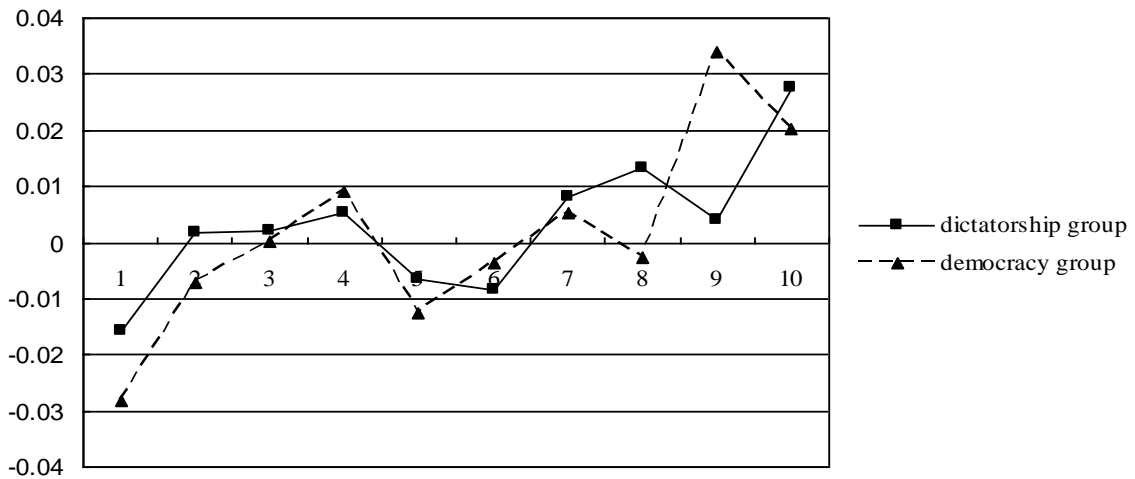
Figures 2A and 2B plot the difference of immediate response and delayed reaction of stock returns to earnings surprises between the democracy group and the dictatorship group. The immediate response is defined as the return from the close on the trading day before the earnings announcement to the first trading day after the earnings announcement. The delayed reaction is defined as the cumulative abnormal return from the second trading day after the earnings announcement to the sixty-first trading date after the earnings announcement. We divide the matched sample to three groups according to its G-index level. The democracy group is composed of all firms where G<=5, and the dictatorship group contains all firms where G>=14. The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted with the same size and B/M ratio portfolio return. To measure the earnings surprise, we calculate the difference between actual earnings for the quarter recorded by I/B/E/S unadjusted actual file and the consensus analyst forecast included in the I/B/E/S unadjusted detail file. The difference between the announced earnings and the consensus forecast is normalized by the stock price at the end of that quarter. The horizontal axis measures the earnings surprise deciles.

Figure 3A: Market Reaction in the Top Two Earnings Surprise Deciles
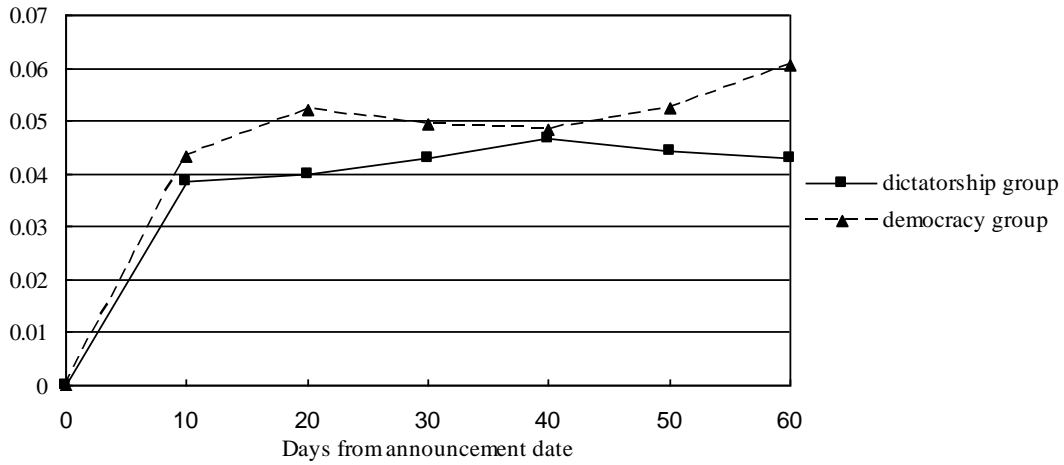
Figure 3B: Market Reaction in the Bottom Two Earnings Surprise Deciles
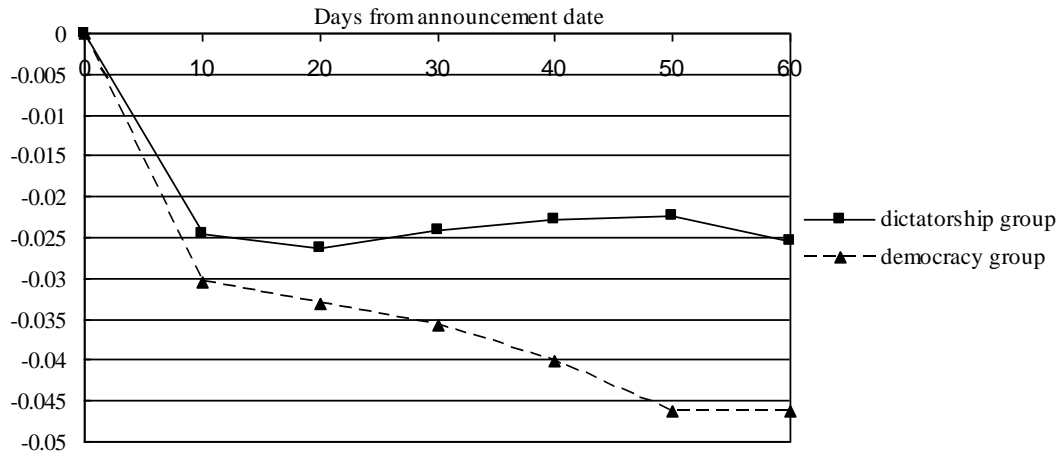
Figures 3A and 3B report the market reaction towards the extreme earnings surprise (top two and bottom two earnings surprise deciles) between the democracy group and the dictatorship group. We divide the matched sample to three groups according to its G-index level. The democracy group is composed of all firms where G<=5, and the dictatorship group contains all firms where G>=14. The horizontal axis measures the numbers of days from the announcement date. The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted with the same size and B/M ratio portfolio return. To measure the earnings surprise, we calculate the difference between actual earnings for the quarter recorded by I/B/E/S unadjusted actual file and the consensus analyst forecast included in the I/B/E/S unadjusted detail file. The difference between the announced earnings and the consensus forecast is normalized by the stock price at the end of that quarter. We divide the sample into 10 deciles, ordered by earnings surprise. The breakpoints for the deciles are determined separately for each quarter. Announcements made on Saturdays and Sundays are excluded from the sample.

Figure 4A: Abnormal Volume in the Top Two Earnings Surprise Deciles

Days from announcement date
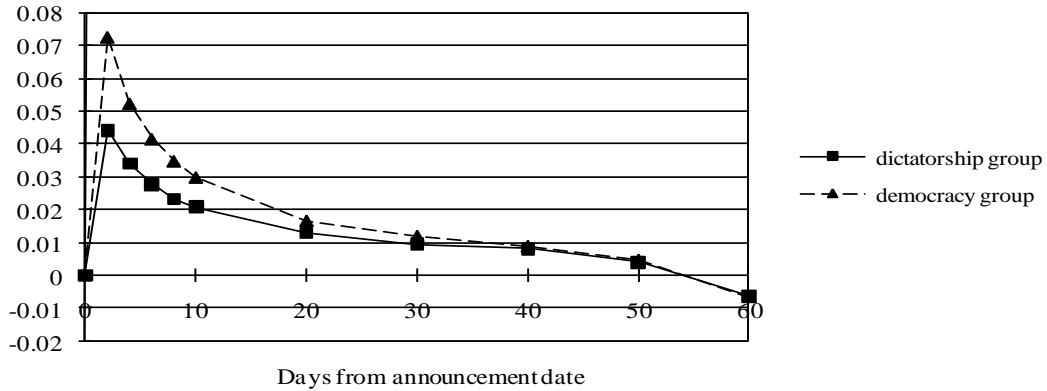
Figure 4B: Abnormal Volume in the Bottom Two Earnings Surprise Deciles

Days from announcement date
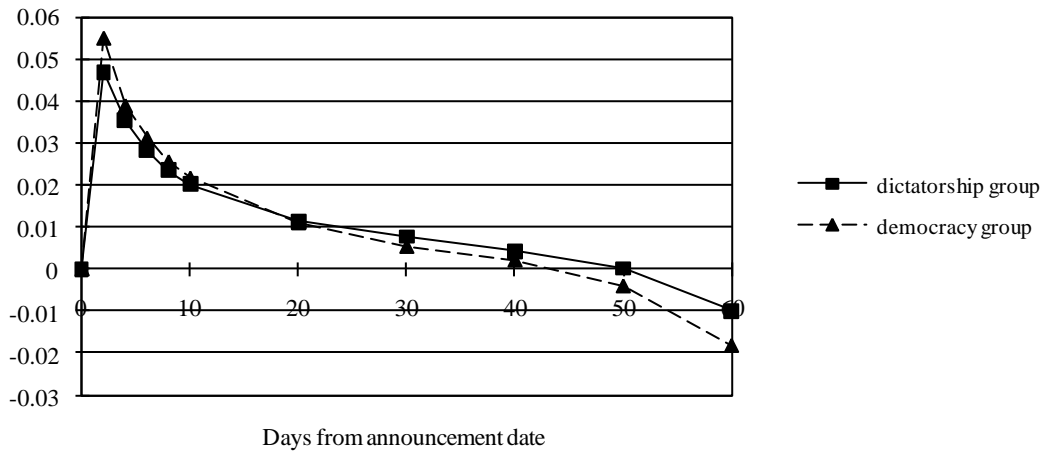
Figure 4A and 4B report the volume response towards the extreme earnings surprise within democracy group and dictatorship group. We divide the matched sample to three groups according to its G-index level. The democracy group is composed of all firms where G<=5, and the dictatorship group contains all firms where G>=14. We use the percentage increase of the volume to measure volume response, which is defined as the increase of the average daily log volume for a given post-earnings announcement period relative to the average daily log volume for the period -20 to -11 before announcement date (10 trading days). The horizontal axis measures the numbers of days from the announcement date. To measure the earnings surprise, we calculate the difference between actual earnings for the quarter recorded by I/B/E/S unadjusted actual file and the consensus analyst forecast included in the I/B/E/S unadjusted detail file. The difference between the announced earnings and the consensus forecast is normalized by the stock price at the end of that quarter. We divide the sample into 10 deciles, ordered by earnings surprise. The breakpoints for the deciles are determined separately for each quarter. Announcements made on Saturdays and Sundays are excluded from the sample.

Figure 5A: Market Reaction in the Top Two and Bottom Two Earnings Surprise Deciles on High-news Days vs. those on Low-news Days
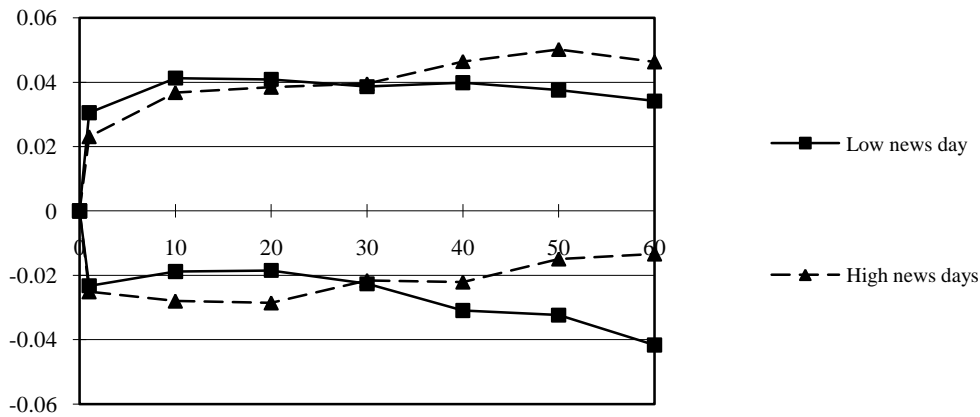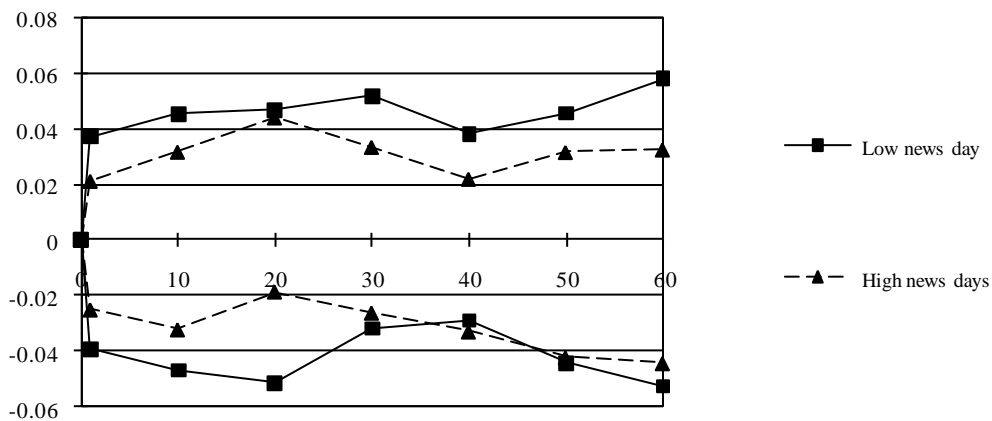**Dictatorship Group**

Figure 5B: Market Reaction in the Top Two and Bottom Two Earnings Surprise Deciles on High-news Days vs. those on Low-news Days
Democracy Group

Figures 5A and 5B plot the market reaction towards the extreme earnings surprise (top two and bottom two earnings surprise deciles) on the high news days (number of announcements decile 9 and 10) versus those on low-news days (number of announcements decile 1 and 2) for the dictatorship and democracy group, respectively. We divide the matched sample to three groups according to its G-index level. The democracy group is composed of all firms where G<=5, and the dictatorship group contains all firms where G>=14. The horizontal axis measures the numbers of days from the announcement date. The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted with the same size and B/M ratio portfolio return. To measure the earnings surprise, we calculate the difference between actual earnings for the quarter recorded by I/B/E/S unadjusted actual file and the consensus analyst forecast included in the I/B/E/S unadjusted detail file. The difference between the announced earnings and the consensus forecast is normalized by the stock price at the end of that quarter.

Figure 6A: CAR[0,1] against Ten Earnings Surprise Deciles for Announcements on High-news Days vs. those on Low-news Days-- Dictatorship Group
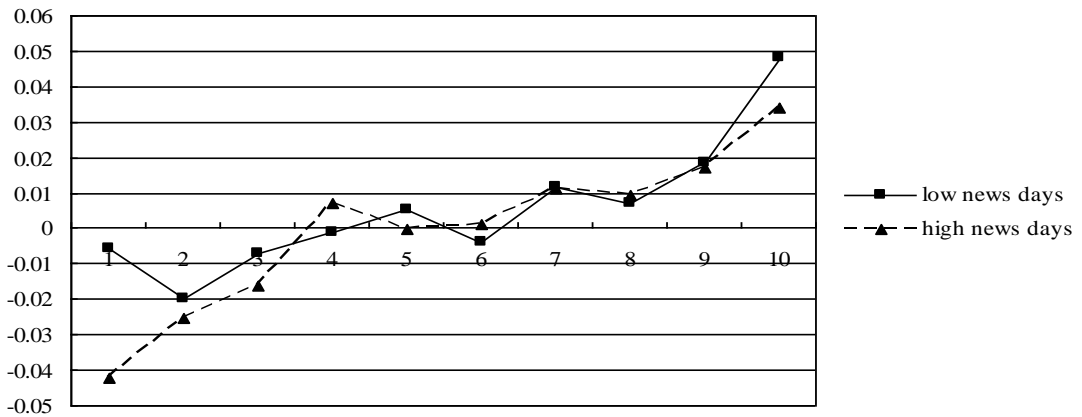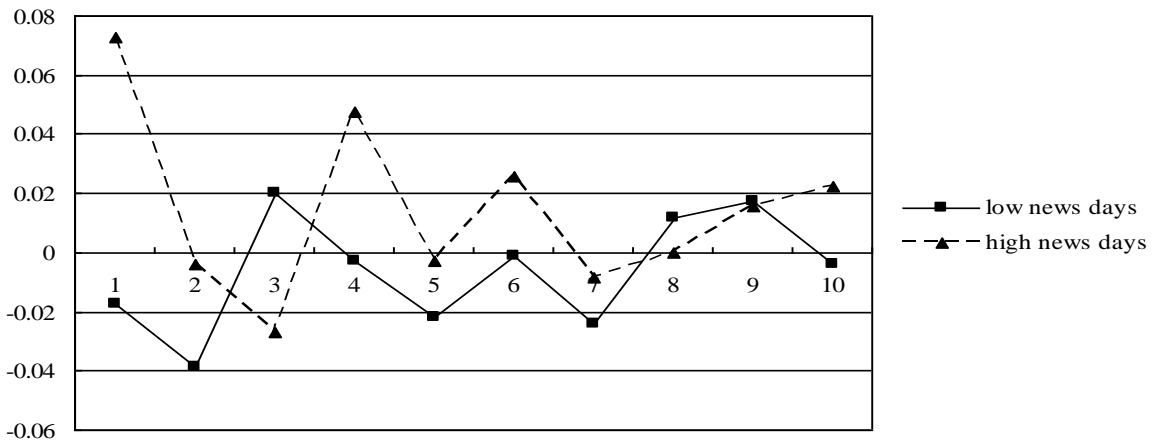

Figure 6B: CAR[2,61] against Ten Earnings Surprise Deciles for Announcements on High-news Days vs. those on Low-news Days-- Dictatorship Group

Figures 6A and 6B plot the difference of immediate response and delayed reaction of stock returns to earnings surprises (1:bad news-10:good news) for announcements on high-news days (number of announcements decile 9 and 10) and those on low-news days (number of announcements decile 1 and 2) within dictatorship group. The full matched sample is divided into three groups based on its G-index level. The dictatorship group refers to those observations where G>=14. The immediate response is defined as the return from the close on the trading day before the earnings announcement to the first trading day after the earnings announcement. The delayed reaction is defined as the cumulative abnormal return from the second trading day after the earnings announcement to the sixty-first trading date after the earnings announcement. The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted with the same size and B/M ratio portfolio return. Earnings surprise and number of announcement deciles are formed based on a quarterly independent double sorts of quarterly earnings announcements by the corresponding forecast error and the number of quarterly earnings announcements on the day of announcement. Announcements made on Saturdays and Sundays are excluded from the sample.

Figure 7A: CAR[0,1] against Ten Earnings Surprise Deciles for Announcements on High-news Days vs. those on Low-news Days-- Democracy Group
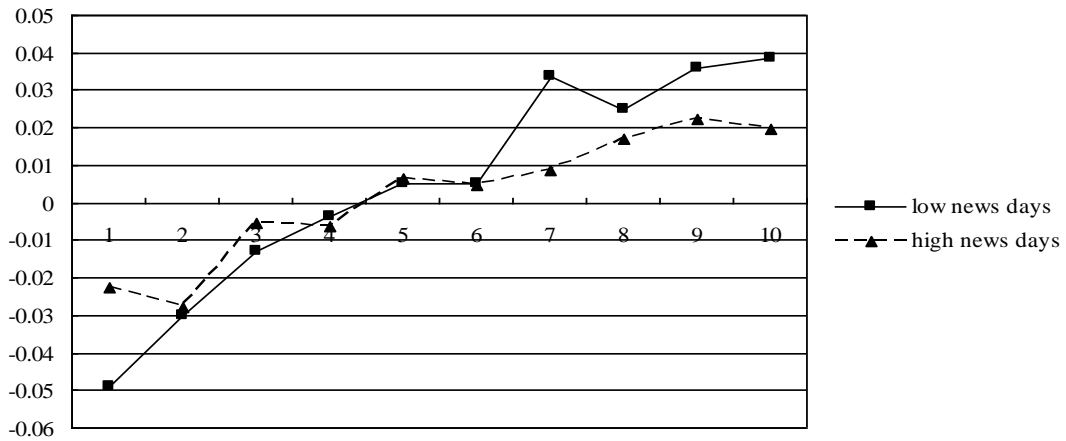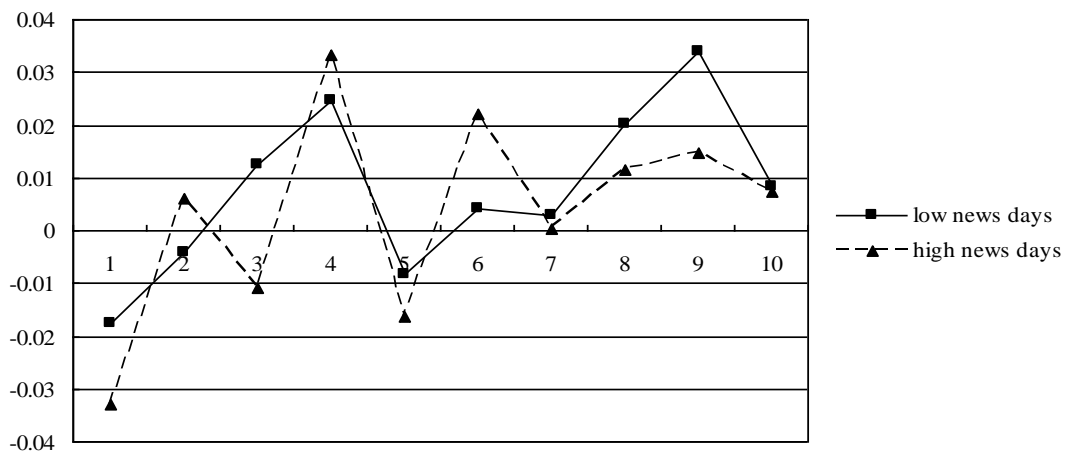

Figure 7B: CAR[2,61] against Ten Earnings Surprise Deciles for Announcements on High-news Days vs. those on Low-news Days-- Democracy Group


Figures 7A and 7B plot the difference of immediate response and delayed reaction of stock returns to earnings surprises (1:bad news-10:good news) for announcements on high-news days (number of announcements decile 9 and 10) and those on low-news days (number of announcements decile 1 and 2) within democracy group. The full matched sample is divided into three groups based on its G-index level. The democracy group refers to those observations where G<=5. The immediate response is defined as the return from the close on the trading day before the earnings announcement to the first trading day after the earnings announcement. The delayed reaction is defined as the cumulative abnormal return from the second trading day after the earnings announcement to the sixty-first trading date after the earnings announcement. The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted with the same size and B/M ratio portfolio return. Earnings surprise and number of announcement deciles are formed based on a quarterly independent double sorts of quarterly earnings announcements by the corresponding forecast error and the number of quarterly earnings announcements on the day of announcement. Announcements made on Saturdays and Sundays are excluded from the sample.

Figure 8A: Market Reaction in the Top Two Earnings Surprise Deciles
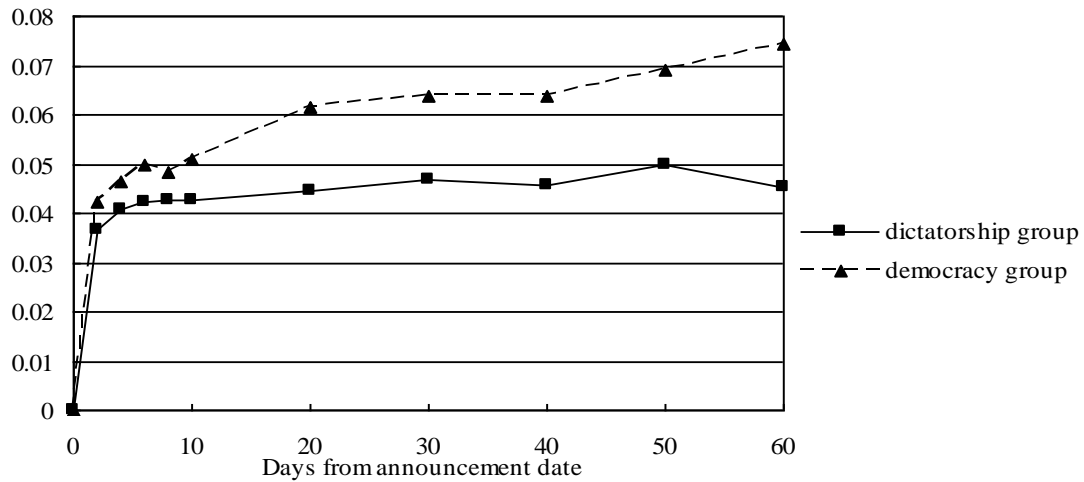**During Pre-SOX period**
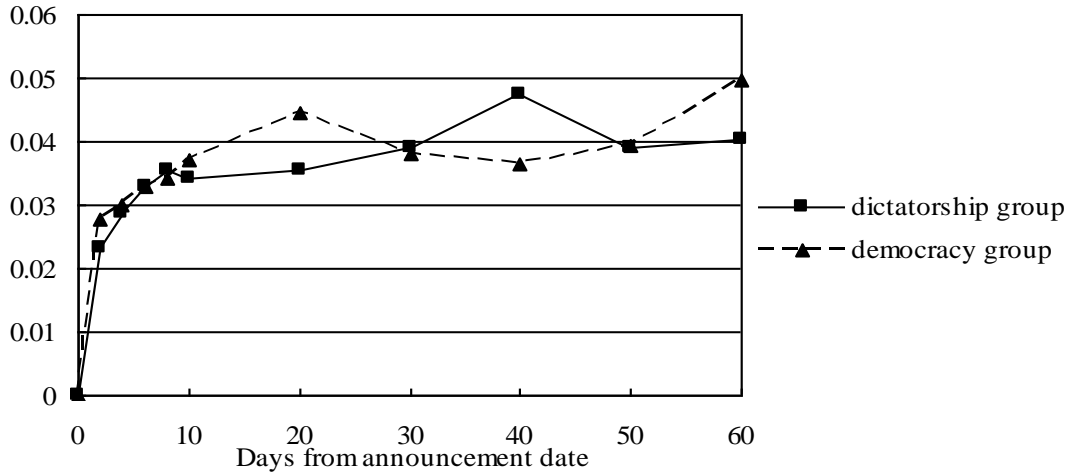
Figure 8B: Market Reaction in the Bottom Two Earnings Surprise Deciles
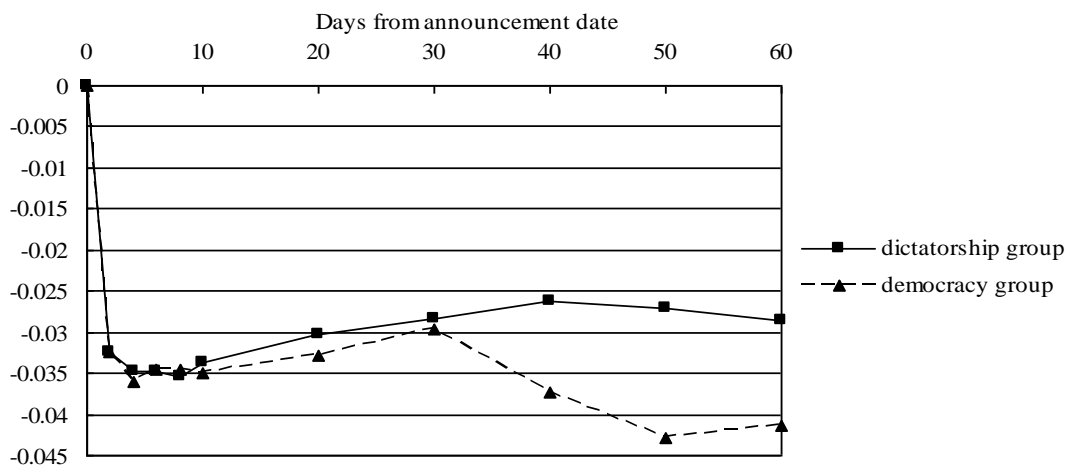**During Pre-SOX period**
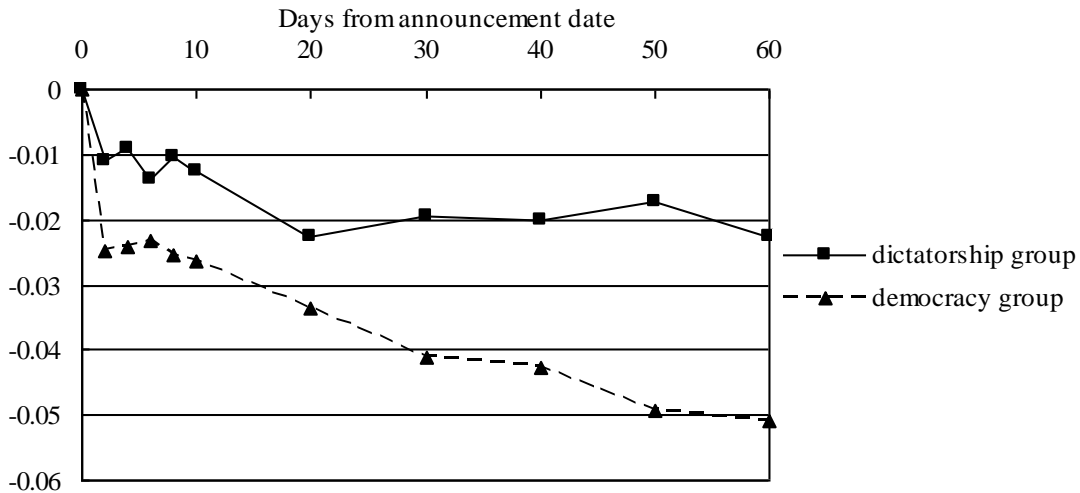
Figures 8A and 8B report the market reaction towards the extreme earnings surprises between the democracy group and the dictatorship group during the pre-SOX period. We divide the full matched sample to two subsamples: one before the SOX and the other one after SOX. We choose September 2001 as the cutoff date. We divide the pre-SOX sample to three groups according to its G-index level. The democracy group is composed of all firms where $G \leq 5$, and the dictatorship group contains all firms where $G \geq 14$. The horizontal axis measures the numbers of days from the announcement date. The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted with the same size and B/M ratio portfolio return. To measure the earnings surprise, we calculate the difference between actual earnings for the quarter recorded by I/B/E/S unadjusted actual file and the consensus analyst forecast included in the I/B/E/S unadjusted detail file. The difference between the announced earnings and the consensus forecast is normalized by the stock price at the end of that quarter. We divide the sample into 10 deciles, ordered by earnings surprise. Announcements made on Saturdays and Sundays are excluded from the sample.

**Figure 9A: Market Reaction in the Top Two Earnings Surprise Deciles
During Post-SOX period**

**Figure 9B: Market Reaction in the Bottom Two Earnings Surprise Deciles
During Post-SOX period**

Figures 9A and 9B report the market reaction towards the extreme earnings surprise between the democracy group and the dictatorship group during the post-SOX period. We divide the full matched sample to two subsamples: one before the SOX and the other one after SOX. We choose September 2001 as the cutoff date. We divide the post-SOX sample to three groups according to its G-index level. The democracy group is composed of all firms where G<=5, and the dictatorship group contains all firms where G>=14. And firms where 6<=G<=13 are viewed as the control group. The horizontal axis measures the numbers of days from the announcement date. The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted with the same size and B/M ratio portfolio return. To measure the earnings surprise, we calculate the difference between actual earnings for the quarter recorded by I/B/E/S unadjusted actual file and the consensus analyst forecast included in the I/B/E/S unadjusted detail file. The difference between the announced earnings and the consensus forecast is normalized by the stock price at the end of that quarter. We divide the sample into 10 deciles, ordered by earnings surprise. Announcements made on Saturdays and Sundays are excluded from the sample.