Voluntary Accounting Changes and Post-Earnings Announcement Drift

1. Introduction

Firms can voluntarily change their accounting policies. Firms that make voluntary accounting changes claim that the change can better reflect the firms' activities or economic reality, and the informativeness of earnings (Healy and Palepu 1993; Holthausen and Leftwich 1983). However, several studies argue and show that firms voluntarily change their accounting practices may have the intention to manipulate or smooth reported earnings (Fields et al. 2001; Pincus and Wasley 1994). For example, Cheng and Coulombe (1993) report that, relative to the Compustat population, firms that adopt income-increasing changes may indicate financial distress. Dharan and Lev (1993) suggest that firms adopting income-increasing accounting changes may have other hidden or fundamental issues that are revealed after accounting changes. Bradshaw et al. (2008) and Wang et al. (2014) state that when firms' accounting choices are different from those of their industry peers, there are larger analysts' forecasts errors as well as dispersion and fewer analysts following the firm because of the increasing complexity of analysts' tasks. Both papers argue that with the existence of voluntary accounting changes (VACs), external financial report users may spend more efforts when processing and digesting the earnings-related information.

The observation of post-earnings announcement drift suggests that the stock prices continue to drift after earnings announcements (Ball and Brown 1968) due to incomplete risk adjustments in the estimation process of abnormal returns (Kim and Kim 2003) and/or delayed price response (Bernard and Thomas 1990) (i.e., the market may be incapable of fully interpreting the implications of earnings information, which results in a delay of responses). For instance, Linck et al. (2007) show little evidence between VACs and long-term abnormal

returns as well as earnings informativeness while Dharan and Lev (1993) state that firms making accounting changes experience different long-term returns relative to other firms in the subsequent period.

From the discussion above, this study investigates the relation between VACs and post-earnings announcement drift. In addition, we examine how accounting choice heterogeneity (different from the VAC firms' peers) before and after VACs moderates such association. In order to address our research question, we collect VAC firms in the period from 1994 to 2008 and identify the heterogeneity of accounting choices between VAC and non-VAC firms. Our results demonstrate that, overall, VAC does not affect the three-day market reactions to 10-Q filings. However, after taking into account the accounting choice heterogeneity, we observe that VAC is positively related to the market reactions to surprises and negatively associated with the post-filing period drift. Our paper contributes to the literature by showing that voluntary accounting changes affect the market's responses to 10-Q filings only when such change results in different accounting practices compared to the VAC firm's major competitors. Furthermore, given the change with heterogeneity requires more time to process, VACs are related to post-filing announcement drift. Our findings shed lights on how the market processes VAC related information and whether VACs indeed help market participants better understand VAC firm's activities.

The remainder of the paper is organized as follows. In Section 2, we review relevant literature in VACs and post-earnings announcement drift. Research methodology is presented in Section 3. In Section 4, we present our empirical results. We conclude in Section 5.

2. Literature Review

2.1. Literature in Voluntary Accounting Changes

Fields et al. (2001, p.256) define accounting choice as "an accounting choice is any decision whose primary purpose is to influence (either in form or substance) the output of the accounting system in a particular way, including not only financial statements published in accordance with GAAP, but also tax returns and regulatory filings." Fields et al. (2001) state that the key of this definition is the managerial intent, especially with respect to the decisions made primarily for affecting accounting numbers. Bradshaw et al. (2008) suggest that accounting choices have an influence on contracts, reported performance, and stock prices.

Studies have examined the determinants and consequences of VACs. For example, Pincus and Wasley (1994) report types, frequency, and earnings effects of VACs, and the economic characteristics of firms that make these changes. They show that VACs are more likely to be made for the intention of earnings management or smoothing reported earnings. Though Fields et al. (2001) argue that there is inconclusive evidence on whether accounting choices are motivated by debt covenant, Beatty and Weber (2003) examines whether the provisions of a firm's bank debt contracts influence its voluntary accounting choices, and find that firms are more likely to make income-increasing changes rather than income-decreasing changes when bank debt contracts let accounting changes to affect contract calculations.

Papers have also focused on the motivation of income-increasing or income-decreasing VAC decisions. Dharan and Lev (1993) suggest that through the five years subsequent to the year of accounting changes, they find that firms originally making income-decreasing decision have more abnormal return than the firms with income-increasing decision; the latter have large negative returns over the period. Cheng and Coulombe (1993) report that, relative to the

Compustat population, firms adopting income-increasing changes are related to financial distress.

Other papers focuses on how VACs are related to market reactions or performance. For example, Bradshaw et al. (2008) state that accounting choices are important since that they will influence contracts, reported performance and stock prices. Linck et al. (2007) investigate the relation between VACs and long-run stock price performance as well as earnings and future cash flows in years surrounding the VAC event. The results show little evidence between VACs and long-run abnormal returns as well as earnings informativeness, which is different from the findings in prior research, such as Dharan and Lev (1993). Dharan and Lev (1993) examine the valuation consequence of accounting changes and find that investors' seem to largely ignore the accounting changes in the year they are made. For income increasing accounting changes, the results show smaller earnings response coefficients and r-squared, probably reflecting a concern of reduced quality of earnings, and so as to income-decreasing changes. However, their longitudinal test shows that firms making accounting changes experience different long-term returns relative to other firms in the subsequent period.

This study also focuses on the consequence of VACs. Different from prior literature, this study investigates the relation between VACs and post-earnings announcement drift. We further examine the relation between accounting choices heterogeneity before and after VACs and post-earnings announcement drift.

2.2. Literature in Post-Earnings Announcement Drift

Ball and Brown (1968) first document the phenomenon of post-earnings announcement drift that stock prices continue to drift after earnings announcements. Since then, researchers have investigated the phenomenon and attempted to provide explanations. Competing

explanations for post-earnings announcement drift generally fall into two categories. One is the model used to calculate abnormal returns, which leads to incomplete risk adjustment in the estimation of abnormal returns. Kim and Kim (2003) argue that most of prior studies related to post-earnings announcement drift may use the mis-specified models and fail to adjust raw returns fully for risk. The other category of explanations suggest that, the stock prices fail to fully reflect the current earnings surprise. Kormendi and Lipe (1987) and Freeman and Tse (1989) suggest that responses to current earnings reflect at least some of the implications for future earnings, but that doesn't mean the immediate response is complete. Bernard and Thomas (1989) show that the evidence is inconsistent with the explanations based on incomplete risk adjustment but due to delayed price response. Why does the market fail to response to earnings information instantaneously?

One possibility is that transactions costs impede a complete and instant response to earnings information. Bhushan (1994) uses the informational efficiency framework and divides transactions costs into two parts: direct costs (share price) and indirect costs (annual dollar trading volume). The paper shows that the post-earnings announcement drift is positively related to transactions costs and suggests that transactions costs are an important determinant of the efficiency of capital markets. Ng et al. (2008) suggest weaker abnormal returns at earnings announcement and higher returns at the subsequent period, for firms with higher transaction costs. It is also possible that that the market is incapable of fully interpreting the implications of earnings information due to information processing capabilities. Liang (2003) use analyst forecasts as a proxy of private information and reliability of earnings to show that both overreaction and under confidence arguments exist with post-earnings announcement drift. Asthana (2003) argues that information technology revolution indeed reduce the post-earnings

announcement drift, after controlling for several factors, such as time, size, investor sophistication, and sign of analysts' forecast errors, etc. That is, the advance in information technology may reduce trading friction and promote informational efficiency. Engelberg (2008) examines the relation between information processing cost and post-earnings drift. The paper suggests that hard (soft) information has higher (lower) processing costs, which lead to under reaction phenomenon after earnings announcement (i.e., when information processing is costly, information may not be incorporated into stock prices instantly and completely). Lee (2012) suggests that more of the earning-related information is reflected in stock prices during post-filing drift window for firms with poorer readability quarterly disclosure. Studies such as Zhang (2008) examines the responsiveness of sell-side security analysts' forecast revisions after quarterly earnings announcements and show that firms with more responsive analysts will reduces the drift and contributes to market efficiency.

Several studies examine whether individual investors or institution investors influence post-earnings announcement drift. Bartov et al. (2000) show that the degree of abnormal returns after earnings announcement is inversely related to the proportion of firm's stock held by institutional investors and Hirshleifer et al. (2008) suggest that individuals do not cause post-earnings announcement drift. Ayers et al. (2011) argue that after earnings announcements, small (large) traders trade in the direction of seasonal random-walk-based (analyst-based) earnings surprises. Small traders' fail to digest the time-series property of earnings, which lead to delayed small trades and larger traders have a longer price discovery process that is reflected in the delayed large trades.

2.3. Hypothesis Development

VAC is supposed to better reflect the investment and operating environment, which increases the transparency of the firms and improve external financial reporting users' understanding of the firm. However, as mentioned earlier, some studies argue and show that VACs is related to earnings manipulation and may be an indicator of hidden problems of VAC firms (Fields et al. 2001; Pincus and Wasley 1994; Dharan and Lev 1993). Linck et al. (2007) also state that there is little evidence regarding firms adopting VACs to enhance earnings informativeness. Financial report users may need more efforts to process earnings information, and affect the ability of future earnings prediction with VAC. Engelberg (2008) state that when information processing costs are higher, stock prices cannot reflect information of firms immediately and completely. Moreover, Hirshleifer and Teoh (2003) argue that investors, analysts, and other securities market professionals have limited cognitive abilities and cannot attend to all information made available to them. When the market fails to fully and promptly interpret the implications of earnings information, the price responses will be delayed (Engelberg 2008; Lee 2012). Accordingly, firms adopting VACs may let information processing costly to external users, which may impede external users' capability to process information and lead to post-filing drift. Formally,

Hypothesis 1. VAC is negatively associated with stock price reactions on filing date and positively associated with the post-filing announcement drift.

Hypothesis 1 fails to discuss the characteristics of VACs. When firms adopt a VAC, which is dissimilar with their industry peers', external users may get more confused with VAC firms' decisions. Bradshaw et al. (2008) show that when firms' accounting choices are different from those of their industry peers, it leads to greater analysts' forecasts error and forecast

dispersion. Specifically, given that accounting choices are generally clustered within industry, industry peers provide an important reference point for users to comprehend accounting policy information. However, when VAC deviates from industry practices, it requires more efforts to process and information. Accordingly, accounting choices heterogeneity may also influence other external users' digestion of earnings information. Formally,

Hypothesis 2. The association in Hypothesis 1 is larger when the accounting policy adopted by the VAC firm after the VAC is different from that of its industry peers.

3. Methodology

3.1. Data Collection

This study focuses on U.S. firms with VACs. In order to address our research question, we collect firms with VACs and without VACs. Details are as follows.

For VAC firms, first, we review the letters issued by audit firms related to accounting principles changes from 1994 to 2008 in Securities and Exchange Commission's (SEC's) website. We can identify VACs from all accounting changes by the content of these letters, which express firms' incentive of accounting changes and the note from audit firms. The process results in 360 VAC firms, which does not include firms with more than two VACs in the same year. Second, we read both the letters issued by audit firms and the VAC related disclosures in 10-Q filings from SEC's website in order to acquire detailed description (both financial and non-financial) of these VACs. The year and industry distribution of these firms are given in Table 1 Panel A and Penal B respectively.

(Insert Table 1 about here)

Table 1 Panel A shows that the number of VACs is mostly the same across years, though there are slightly more observations in 2005, 2007, and 2008. In Table 1 Panel B, the VAC firms are distributed in 11 industries based on the 2-digit SIC code. Panel B shows that Manufacturing (43.06%), and Transportation, Communication, Electric, Gas (15.83%) are the two industries with the highest percentage of observations. In addition, 18.06% of the VACs are earnings-increasing, 29.17% are earnings-decreasing, 17.22% do not have significant impact on earnings, and 35.55% do not provide detailed information of potential impacts of VAC.

For the firms without VACs (the control group), we collect the non-VAC firms in the same event quarter as the VAC firm by the following conditions: (1) firms in the same industry (4-digit SIC code) as event firms with similar total assets, (2) major competitors of a firm from Yahoo! Finance (http://finance.yahoo.com), and (3) a firm with the highest market share (i.e., the market leader) in the same industry (4-digit SIC code) as the event firm. These condition are used because the accounting method choices are inclined to be similar within industry clusters, and firms may take their competitors as the main benchmark when making choices (Bowen et al. 1999; Bradshaw et al. 2008; McNamara et al. 2003).

After collecting all VAC firms and non-VAC firms, we manually comprehend their accounting methods through 10-Q or 10-K in SEC's website in order to determine whether their corresponding accounting methods are the same before and after VAC for VAC and non-VAC firms. In order to investigate how the market reactions change before and after VACs, we expand our dataset to include three quarters before and after VACs.

3.2. Research Model

To test our hypotheses, we consider the 10-Q filing window and a post-filing drift window. The 10-Q filing window begins from one trading day before and ends on one trading day after the quarterly report filing date (i.e., FD_{t-1}~FD_{t+1}). The post-filing drift window begins from two trading days after the filing date and ends on sixty trading days with respect to the earnings announcement date (i.e., FD_{t+2}~EA_{t+60}). Specifically, we use Equation (1) and Equation (2) to test our hypotheses. Equation (1) and Equation (2) are estimated by using ordinary least squares (OLS) model after controlled for industry fixed effect the firm-year clustered standard error as in Petersen (2009).

$$SAR^{F} = \beta_0 + \beta_1 SURPRISE + \beta_2 VAC + \beta_3 POST + \beta_4 VAC\_POST + \beta_j \text{Control} + \beta_k \text{Interaction} + \beta_{18} \text{Industry} + \varepsilon \quad (1)$$

$$SAR^{FD} = \beta_0 + \beta_1 SURPRISE + \beta_2 VAC + \beta_3 POST + \beta_4 VAC\_POST + \beta_j \text{Control} + \beta_k \text{Interaction} + \beta_{18} \text{Industry} + \varepsilon \quad (2)$$

where SAR^{F} and SAR^{FD} are the equally weighted cumulative abnormal returns over the 10-Q filing window (FD_{t-1}~FD_{t+1}) and for the post-filing drift window respectively. Cumulative abnormal returns are estimated using the market model with an estimated period of 255 days starting from 46 days before the filing date by using OLS regression models. *SURPRISE* is the earnings surprise, calculated by earnings per share minus the most recent analyst forecast consensus for the quarter divided by the stock price at the end of the quarter. *VAC is* a dummy variable, which equals one if the firm has VACs. If a firm adopts VAC, 0 otherwise. *POST* is a dummy variable indicating whether a firm-quarter observation is after VACs, which equals 1 if a firm-quarter observation is after the VAC, 0 otherwise. *VAC_POST* is the interaction term of *VAC* and *POST.* We control for several variables. First, we control for the size of the firm

(*SIZE*). *SIZE* is the market capitalization of a firm at the end of the quarter. It has been shown to affect the earnings-return relation of a firm (Hayn 1995). *NUMBER* is the number of analyst following a firm at the end of the quarter. Lee (2012) uses it as a proxy for the richness of the firm's information environment. *SGROWTH* is sales growth of firms at the end of the quarter. *LEVERAGE* is leverage ratio of a firm at the end of the quarter, which equals to total liabilities divided by total assets. Price et al. (2012) use leverage to control for increased information demand when firms are in financial distress. *DVOLUME* is dollar trading volume, which is scaled by the firm's market value at the end of the quarters. *DVOLUME* is a proxy for transaction costs, which have been shown to have a positive relation with post-earnings announcement drift (Bernard and Thomas 1990; Bhushan 1994; Ng et al. 2008). We also include all the interactions terms between *SURPRISE* and all other variables. All the variables are collected from Compustat, CRSP, and IBES. See Appendix for variable definitions.

4. Empirical Results

4.1. Descriptive Statistics

The descriptive statistics of the variables in Equation (1) are shown in Table 2. Table 2 Panel A shows descriptive statistics for all sample data. On average, equally weighted cumulative abnormal returns (SAR^F) are about 11% during three-day 10-Q filling window. Earnings surprise (*SURPRISE*) for the event quarter is 5.41 on average. Furthermore, there are about 16% of VAC firms in the sample (*VAC*), and approximately 11 analysts follow a firm (*NUMBER*). The median size of firms (*SIZE*) is about 9.05, while average sales growth at the end of the event quarter (*SGROWTH*) is about 4%. In addition, the median of leverage ratio (*LEVERAGE*) is 59%, and a median of dollar trading volume (*DVOLUME*) is 0.43.

(Insert Table 2 about here)

Table 2 Panel B and Panel C are the descriptive statistics for VAC and non-VAC firms, respectively. On average, earnings surprise (*SURPRISE*) and number of analysts following (*NUMBER*) of VAC firms are slightly less than non-VAC firms. Sales growth (*SGROWTH*) of VAC firms is larger than non-VAC firms. *LEVERAGE* and *DVOLUME* are not significantly different between VAC firms and non-VAC firms. The correlations of the variables are given in Table 3. We find no high correlation that may cause issues when performing the analyses.

(Insert Table 3 about here)

4.2. Empirical Results

Our results are shown in Table 4, which presents the results for Equation (1) and Equation (2) through Model (1) and Model (2), respectively. Model (1) shows the market reaction around 10-Q filing window (FD_{t-1}~FD_{t+1}) and Model (2) shows those around post-filing drift window (FD_{t+2}~EA_{t+60}). We further categorize the results into three groups. The column of *Full sample* is about the results of all sample data, the column of *Similar* consists of VAC firms adopting similar accounting method as their industry peers (non-VACs firms) after VACs, and the column of *Different* includes VAC firms adopting different accounting method from their industry peers after VACs.

The full sample results in Table 4 show that the associations between the control variables and market reactions in both the filing window and post-filing window are insignificant.

For example, the insignificant coefficients of *SURPRISE×NUMBER* and *SURPRISE×SGROWTH* demonstrate that number of analysts following and sales growth of firms do not have a relation with market reaction drift after earnings announcement. VACs are not related to the association between earnings surprises and market reactions either (the coefficients of *SURPRISE×VAC* and *SURPRISE×VAC_POST* are insignificant). However, as mentioned earlier, this insignificant result may be due to the heterogeneity of accounting choices.

(Insert Table 4 about here)

Next, when focusing on the VACs that are similar to the industry's peers'. The control variables show some associations with the market reactions. For instance, the significant coefficients of *SURPRISE×SIZE* and *SURPRISE×LEVERAGE* in the column of *Similar* in the filing window and insignificant in post-filing drift window, indicate that the earnings surprise of larger firms and firms with lower leverage ratio are followed by more stock price drift in the filing window when VAC firms have similar accounting method as non-VAC firms after VACs. The significantly coefficient of *SURPRISE×VAC* (3.146, $p < 0.05$) only showing in the *Similar* column of the Model (2) indicates that there is a positive stock return drift in post-filing window of VAC firms with similar accounting choices as their industry peers, compared to non-VAC firms. The significantly coefficient of *SURPRISE×POST* in the *Similar* column of Model (1) and Model (2) (-0.390, $p < 0.05$; 3.074, $p < 0.01$) shows that in the case of VAC firms adopting similar accounting choices as non-VAC firms, we find significant market price drift after VACs, compared to that before VACs. The coefficient of *SURPRISE×VAC_POST* in the column of *Similar* is significantly positive in the filing window and significantly negative in the post-filing

drift window (0.646 and -4.556, $p < 0.05$ and 0.01), showing that when VAC firms adopting similar accounting choices as their industry peers, the association between earnings surprises and market reasons is larger around the filing date but smaller in the post-filing window.

Last, for VACs that are different from the firm's industry peers, we only observe a significantly positive impact on the association between surprises and market reactions around filing dates for VAC firms after the change (i.e., the coefficient of *SURPRISE×VAC_POST* is 0.620. $p < 0.10$).

In summary, the results suggest that adopting similar accounting choices as non-VAC firms after VACs makes external users easier to incorporate earnings information and reduce their information processing costs, which leads to less delayed price response after earnings announcement. The association between VAC and stock price reactions is larger in the 10-Q filing window when considering accounting choices heterogeneity.

4.3. Additional Analyses

We perform the following analyses to further validate our results. First, it is possible that VAC firms change their accounting policies due to financial crisis. Though our sample has excluded the observations after 2008, firms may start to change their policies starting from 2008. To validate our results, we exclude the observations in 2008 and our results (un-tabulated) remain similar. Second, in our model we include the year effect with firm cluster. As a robustness test, we include the year fixed effect with industry fixed effect and our results remain (un-tabulated) similar. Third, we consider using value-weighted returns as our dependent variable. Our results remain similar. Last, we re-perform our analyses based on earnings-increasing or earnings-decreasing VACs. Our main results remain similar. However, given the sample size is smaller, this result needs to be interpreted with caution.

5. Conclusion

Post-earnings announcement drift is among the most persistent market anomalies. Two possible causes of the drift are transaction costs that dissuade investors from trading on earnings information immediately, and the market's inability to fully interpret the implications of earnings information. This study investigates the relation between voluntary accounting changes (VACs) and post-earnings announcement drift. In addition, we examine how accounting choice heterogeneity (different from the VAC firms' peers) before and after VACs is associated with post-earnings announcement drift. In order to address our research question, we collect VAC firms in the period from 1994 to 2008 and identify the heterogeneity of accounting choices between VAC and non-VAC firms. Our results demonstrate that, overall, VAC does not affect the three-day market reactions to 10-K filings. However, after taking into account the accounting choice heterogeneity, we observe that VAC is positively related to the market reactions to surprises and negatively associated with the post-filing period drift. That is, though VACs may enhance market participants' understanding of firms' activities, our results demonstrate that market participants may spend more time to comprehend and digest VAC information disclosed by VAC firms compared to non-VAC firms, which leads to post-earnings announcement drift.

Our paper contributes to the literature by showing VAC may be one factor that affects post-earnings announcement drift. Specifically, compared to prior studies demonstrating that the market largely reflects accounting changes in the years these changes are made, this study empirically finds that voluntary accounting changes affect the market's responses to 10-K filings only when such change results in different accounting practices compared to the VAC firm's major competitors. Furthermore, this study demonstrates that, given the change with

heterogeneity requires more time to process, VACs are related to post-filing announcement drift. Our results have implication for regulators and VAC firms that voluntary accounting changes may not play the role of better reflecting a firm's activities. Instead, VAC, especially when deviate from industry peers, requires more time for market participants to process and may not achieve the expected objective.

There are limitations in this study. First, our sample size is relatively smaller compared to prior studies though we have collected the VACs that we can identify. Second, many VAC firms do not disclose detailed information of VACs in the 10-Q or 10-K reports, which limit our investigation in more details. Last, given that both VAC and non-VAC firms do not clearly disclose their accounting policies, accounting choice heterogeneity also limit our analyses.

Several possible future research avenues. First, future research can take into account the details of VACs, e.g., LIFO to FIFO. Second, the longitudinal tests in prior studies about market reactions to accounting changes is unclear. The moderating effect of accounting choice heterogeneity on the relation between VACs and long-term market performance is worth exploring.

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Appendix. Variable Definitions

Variable	Definition	Data Source
SAR^F	Equally weighted cumulative abnormal returns over the 10-Q filing window.	CRSP
SAR^{FD}	Equally weighted cumulative abnormal returns over the 10-Q post-filing window.	CRSP
SURPRISE	Earnings surprise, calculated by earnings per share minus the most recent analyst forecast consensus for the quarter divided by the stock price at the end of the quarter	IBES
VAC	A dummy variable, which equals one if the firm has VACs, 0 otherwise.	10-Q
POST	A dummy variable indicating whether a firm-quarter observation is after VACs, which equals 1 if a firm-quarter observation is after the VAC, 0 otherwise.	
SIZE	Size of a firm, which is the market capitalization of a firm at the end of the quarter.	Compustat
NUMBER	Number of analysts following a firm at the end of the quarter.	IBES
SGROWTH	Sales growth of firms at the end of the quarter.	Compustat
LEVERAGE	Leverage ratio of a firm at the end of the quarter, which equals total liabilities divided by total assets.	Compustat
DVOLUME	Dollar trading volume, which is scaled by the firm's market value at the end of the quarters.	CRSP

Table 1. Frequency Distribution of VAC Firms

Panel A. Year Breakdown

Year	Number of Firms	Percentage
1994	1	0.28%
1995	14	3.89%
1996	24	6.67%
1997	25	6.94%
1998	21	5.58%
1999	24	6.67%
2000	22	6.11%
2001	25	6.94%
2002	21	5.83%
2003	30	8.33%
2004	25	6.94%
2005	33	9.17%
2006	33	9.17%
2007	21	5.83%
2008	41	11.39%
Total	**360**	**100%**

Panel B. Industry Breakdown

Two-digit of SIC	Industry	Number of Firms	Percentage
01-14	Mining	23	6.39%
15-17	Construction	1	0.28%
20-39	Manufacturing	155	43.06%
40-49	Transportation, Communication, Electric, Gas	57	15.83%
50-51	Wholesale Trade	13	3.61%
52-59	Retail Trade	41	11.39%
60-67	Finance, Insurance and Real Estate	33	9.17%
70-89	Services	33	9.17%
91-97	Public Administration	0	0.00%
99	Others	4	1.11%
Total		**360**	**100%**

Table 2. Descriptive Statistics

Panel A. Full Sample

	N	Mean	Std. Dev.	Quartiles		
				Q1	Q2	Q3
SAR^{F}	1349	0.11	4.15	-1.81	0.09	2.13
SAR^{FD}	1349	-0.70	17.91	-9.47	-0.02	8.94
SURPRISE	1349	5.41	2.75	3.00	5.00	8.00
VAC	1349	0.16	0.37	0.00	0.00	0.00
POST	1349	0.58	0.49	0.00	1.00	1.00
SIZE	1349	9.05	1.71	7.84	9.29	10.28
NUMBER	1349	11.47	6.85	6.00	10.00	15.00
SGROWTH	1349	0.04	0.17	-0.03	0.03	0.10
LEVERAGE	1349	0.59	0.20	0.48	0.59	0.71
DVOLUME	1349	0.43	0.35	0.21	0.32	0.53

Panel B. VAC Firms

	N	Mean	Std. Dev.	Quartiles		
				Q1	Q2	Q3
SAR^{F}	222	-0.24	4.66	-2.37	-0.69	1.71
SAR^{FD}	222	0.23	20.63	-8.84	0.08	9.23
SURPRISE	222	5.29	2.83	3.00	5.00	8.00
VAC	222	1.00	0.00	1.00	1.00	1.00
POST	222	0.59	0.49	0.00	1.00	1.00
SIZE	222	8.22	1.82	6.78	8.56	9.68
NUMBER	222	10.73	7.27	5.00	9.00	16.00
SGROWTH	222	0.05	0.23	-0.05	0.02	0.12
LEVERAGE	222	0.55	0.18	0.42	0.60	0.66
DVOLUME	222	0.46	0.37	0.23	0.31	0.60

Panel C. Non-VAC Firms

	N	Mean	Std. Dev.	Quartiles		
				Q1	Q2	Q3
SAR^{F}	1127	0.18	4.04	-1.75	0.23	2.20
SAR^{FD}	1127	-0.88	17.32	-9.51	-0.02	8.89
SURPRISE	1127	5.43	2.74	3.00	6.00	8.00
VAC	1127	0.00	0.00	0.00	0.00	0.00
POST	1127	0.58	0.49	0.00	1.00	1.00
SIZE	1127	9.21	1.65	8.13	9.46	10.32
NUMBER	1127	11.62	6.76	7.00	11.00	15.00
SGROWTH	1127	0.03	0.16	-0.03	0.03	0.09
LEVERAGE	1127	0.59	0.20	0.48	0.58	0.72
DVOLUME	1127	0.42	0.34	0.20	0.33	0.53

Table 3. Pearson/Spearman Correlation

	SAR^{F}	SAR^{FD}	*SURPRISE*	*VAC*	*POST*	*SIZE*	*NUMBER*	*SGROWTH*	*LEVERAGE*	*DVOLUME*
SAR^{F}	1.000	0.008	0.006	-0.065*	-0.017	-0.043	-0.046	0.043	-0.022	-0.013
SAR^{FD}	0.042*	1.000	0.049	0.014	-0.048	-0.063*	-0.057*	0.018	-0.019	-0.032
SURPRISE	0.017	0.054*	1.000	-0.019	0.028	-0.020	0.009	0.452*	0.003	0.028
VAC	-0.038	0.014	-0.019	1.000	0.005	-0.192*	-0.068*	-0.002	-0.53	0.024
POST	-0.026	-0.025	0.029	0.005	1.000	-0.002	0.012	-0.037	0.026	0.071*
SIZE	-0.023	-0.058*	-0.014	-0.215*	-0.007	1.000	0.530*	0.002	0.201*	-0.866*
NUMBER	-0.018	-0.061	0.005	-0.048	0.018	0.471*	1.000	0.033	-0.231*	0.267*
SGROWTH	0.042	-0.000	0.404*	0.027	-0.019	-0.012	0.007	1.000	-0.042	0.010
LEVERAGE	-0.019	-0.032	0.014	-0.075*	0.018	0.264*	-0.280*	-0.036	1.000	-0.163*
DVOLUME	-0.022	-0.062*	0.038	0.044	0.069*	-0.147	0.176*	0.031	-0.128*	1.000

Pearson (Spearman) correlation coefficients are in the lower (upper) triangle. * significant at 5%

Table 4. Main Results

Model	(1)			(2)		
Event Window	Filing			Post-Filing Drift		
Dependent variable	SAR^{F}			SAR^{FD}		
	Full Sample	Similar	Different	Full Sample	Similar	Different
Intercept	1.232	-0.787	0.921	13.746***	29.211*	6.901
	(1.09)	(-0.27)	(0.41)	(2.89)	(1.89)	(0.74)
SURPRISE	0.014	0.356**	0.177	-0.398	-2.811**	0.333
	(0.17)	(2.23)	(1.07)	(-1.18)	(-2.42)	(0.42)
VAC	-0.164	1.580	0.440	-4.815	-19.191*	-4.169
	(-0.16)	(0.99)	(0.32)	(-1.03)	(-1.82)	(-0.74)
POST	0.009	1.444	2.532	-3.131	-10.674	-7.899
	(0.02)	(1.47)	(1.49)	(-1.27)	(-1.2)	(-1.13)
VAC_POST	-1.672	-3.572*	-4.466**	9.704	17.828	15.305
	(-1.04)	(-1.96)	(-1.97)	(1.38)	(1.59)	(1.61)
SURPRISE×VAC	-0.007	-0.236	-0.090	0.758	3.146**	0.091
	(-0.05)	(-1.16)	(-0.44)	(0.98)	(2.46)	(0.09)
SURPRISE×POST	-0.021	-0.390**	-0.385	0.195	3.074***	0.557
	(-0.22)	(-2.23)	(-1.39)	(0.50)	(2.58)	(0.47)
SURPRISE×VAC_POST	0.224	0.646**	0.620*	-1.461	-4.556***	-1.975
	(0.85)	(2.09)	(1.70)	(-1.29)	(-2.78)	(-1.26)
SURPRISE×SIZE	0.040	0.163*	0.097	-0.011	0.346	0.022
	(1.04)	(1.86)	(1.45)	(-0.08)	(0.87)	(0.08)
SURPRISE×NUMBER	-0.014	-0.014	-0.016	-0.026	-0.137	-0.031
	(-1.29)	(-0.73)	(-0.99)	(-0.61)	(-1.02)	(-0.35)
SURPRISE×SGROWTH	0.191	0.199	0.094	0.167	-2.893	-1.489
	(0.75)	(0.41)	(0.27)	(0.17)	(-1.34)	(-0.98)
SURPRISE×LEVERAGE	-0.263	-1.799**	-1.066	0.184	-3.60	-0.575
	(-0.62)	(-2.07)	(-1.54)	(0.13)	(-0.99)	(-0.21)
SURPRISE×DVOLUME	-0.007	0.119	0.173	0.822	1.248	1.328
	(-0.04)	(0.26)	(0.50)	(1.08)	(0.69)	(0.95)
Industry Effect	Included	Included	Included	Included	Included	Included
N	1349	235	362	1349	235	362
Adj. R^2	0.01	0.07	0.04	0.02	0.06	0.04

*significant at 10%, ** significant at 5%, ***significant at 1%, *t* statistics are in parentheses and are estimated with clustered standard errors as in Petersen (2009). The control variables are included but are not reported in the table. See Appendix for variable definitions.

Acknowledgement:
The authors are grateful to the financial support from National Chengchi University and the University of Hawaii at Manoa. This study is also partially sponsored by the National Science Council in Taiwan (101-2410-H-004-014-MY3).

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