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Study of Auditor Reputation under the Dual Attestation System in
Taiwan

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摘要



本研究以博達、皇統、力霸此三件具有代表性之舞弊案件研究會計師聲譽。首先，承襲諸多國內外研究探討涉及審計失敗之會計師事務所的客戶股價是否較市場上其他公司有更負之情形，本研究發現涉及審計失敗之會計師事務所的客戶股價較市場上其他公司有顯著負向之情形。

由於臺灣之查核報告亦有查核會計師署名，本研究檢視市場對於審計品質之衡量係以會計師事務所為基礎或以會計師個人為基礎，承襲國內研究探討涉及審計失敗之會計師的客戶股價是否較市場上其他公司有更負之情形，實證結果顯示牽涉審計失敗之會計師客戶股價較市場上其他公司股價有較負之情形。

在臺灣的雙簽制度下，本研究進一步觀察涉及審計失敗之會計師中，主簽會計師客戶股價反應是否與副簽會計師客戶股價反應有所不同，實證結果並未能發現顯著差異。綜合上述實證結果，投資人主要是以會計師事務所甚至是會計師個人之聲譽作為衡量會計師聲譽及審計品質之基礎，但並未明確區分主簽會計師及副簽會計師。

除此之外，本研究亦考量涉及審計之敗之會計師(事務所)的會計師任期及產業專精是否亦會對股價造成影響，實證結果顯示會計師任期在會計師事務所層級對股價有正向之影響，代表會計師任期越長，投資人越予以信賴，較不會受到單一審計失敗案件之影響。實證結果亦顯示產業專精並未對客戶股價產生顯著的影響，未能支持本研究認為產業專精程度較佳之會計師(事務所)客戶的股價較不會受到單一審計失敗案件影響之假設。

關鍵詞： 會計師聲譽、審計品質、雙簽制度、會計師任期、產業專精


Abstract



In this study, I investigate the market reaction of three severe audit failures—Procomp, Summit, and Rebar—in Taiwan to examine whether auditor reputation matters. Following prior literature, I first examine whether clients have a more negative market reaction when their audit firm is involved in audit failure and find that the involved audit firm clients have a significantly more negative market reaction than other companies in the market.

Since audit reports in Taiwan are also signed by individual audit partners, I also observe whether the market assesses audit quality on the basis of audit firm or individual audit partner. Following literature in Taiwan, I examine whether involved audit partner clients experience a more negative market reaction than other companies and find that involved audit partner clients experience a more negative market reaction than other companies in the market.

Specifically, under the dual attestation system in Taiwan, I further examine whether the market reaction of the involved lead audit partner clients and the involved concurring audit partner clients is different and find no statistically significant difference. The empirical results above suggest that investors seem to assess the auditor reputation and audit quality at the audit firm level and the audit partner level but view no difference between the lead audit partner and the concurring audit partner.



In addition, I also consider the effect of audit tenure and industry specialization of the involved audit firm/partner. I find that tenure has significantly positive effects on the market reaction to audit failures at the audit firm level. It shows that investors of clients with longer tenure rely more trust on their auditors and are less affected by single audit failure. The empirical results also show that industry specialization of the involved audit firm/partner doesn't have significant effects on the market reaction to audit failure and could not support my hypothesis that clients of industry specialist auditors are less affected by single audit failure.

Keywords: auditor reputation; audit quality; dual attestation; auditor tenure; industry specialization

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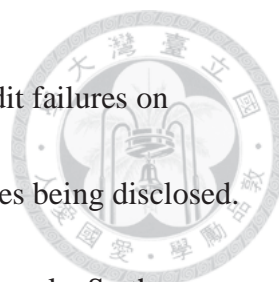
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1. Introduction



Audit quality strikes many issues in accounting literature. Prior literature focuses on litigation/insurance incentive and reputation incentive, which motivate auditors to provide high-quality audits. Under the litigation/insurance incentive, if auditors have litigation responsibility for audit failures, then they have incentives to provide high-quality audits to protect themselves from disciplines. Under the reputation incentive, auditors provide high-quality audits because financial statement information is valuable to investors. Adverse news towards auditor reputation has signal effects to the market, and investors would doubt the audit quality auditors have provided.

Audit quality is difficult to observe, thus the market uses auditor reputation as a proxy for audit quality. Auditor reputation is crucial because the general opinion among companies is that reputable auditors provide higher-quality audits and better certify the reliability of the information presented in financial statements (Beatty, 1989). Auditor reputation can be indirectly observed by examining the decision of auditor switches and stock price reaction when audit failure occurs. For example, Chaney and Philipich (2002), Krishnamurthy, Zhou, and Zhou (2006), and Skinner and Srinivasan (2012) observe the impacts of audit failures on auditor reputation by examining the decision of auditor switches from auditors involved in audit failures. Menon and Williams (1994)




and Weber, Willenborg, and Zhang (2008) observe the impacts of audit failures on auditor reputation by examining the market reaction after audit failures being disclosed.

In the U.S., audit reports are signed in the name of the audit firm only. So the auditor reputation can be discussed only on the audit firm level. However, the audit reports are signed in the name of both the audit partners and the audit firm in Taiwan. Such regulation provides a chance to observe the auditor reputation on the levels of both the audit firm and the audit partner in Taiwan.

There are two auditors, the lead audit partner and the concurring audit partner under the dual attestation system in Taiwan.¹ Both the lead audit partner and the concurring audit partner bear the same criminal and administrative responsibility in Taiwan. However, in practice, the audit work is mainly organized by the lead audit partner and the concurring audit partner then reviews the audit work. Tucker and Matsumura (1997) suggest that second partner reviews serve to improve objectivity and reporting accuracy while reducing bias.

There are debates about whether to keep the dual attestation system or not in Taiwan. The primary purpose of establishing this system is based on the perspectives of

¹ Based on my understanding from practitioners, I define the CPA1 in TEJ database as the lead audit partner, the name of the lead audit partner is often signed on the left side or on the top in the signature section of the audit reports, and the CPA2 in TEJ database as the concurring audit partner, the name of the concurring audit partner is often signed on the right side or on the bottom in the signature section of the audit reports.



“quality control” and “investor protection.” As the investment environment improves, there is dispute whether to abolish the dual attestation system.² In 2010, Republic of China Certified Public Auditor claimed that it’s unreasonable for the concurring audit partners to bear the same litigation responsibility as the lead audit partners. Auditors assert that the concurring audit partners are innocent because they are actually not involved in the execution of audit work, they purely review the audit work. However, the concurring audit partners have to take the same responsibility for the audit failure in Taiwan. If this research provides evidence that investors are able to distinguish the lead audit partner from the concurring audit partner, then it may indicate that insurance effect of a concurring audit partner is not that effective and the need for having a concurring audit partner in the audit work is reduced. Thus, the empirical results of this study may serve as a piece of reference to the authorities for the dispute about whether the concurring audit partner is needed and whether to abolish the dual attestation system.

Institutional investors have more knowledge about the working of audit practice than other small investors. As the proportion of institutional investor is getting higher than before (see Figure 1 to find that the proportion of institutional investor is getting

² The Auditing Standards No.46 in Taiwan regulates that audit report should be reviewed by the third audit partner, who is not engaged in the audit work. The third audit partner review serves the same function as the concurring audit partner and the requirement may influence the arrangement of human resource, especially for small audit firms, so the demand of the concurring audit partner review is reduced. Besides, the foundation of Securities and Futures Investors Protection Center in Taiwan plays a material role in investor protection and thus the demand for concurring audit partner to protect investors is also reduced.



higher from 2004 to 2013), investors may be more able to distinguish the role of the lead audit partner from the concurring audit partner when audit failures occur, thus the market reaction to audit failures may be different between the lead audit partner clients and the concurring audit partner clients. On the other hand, investors may view the lead audit partner and the concurring audit partner similar because their litigation responsibilities are the same according to the regulations in Taiwan. This study observes the market reaction of the lead audit partner clients and the concurring audit partner clients to find whether there is different market reaction between them.

This study selects Procomp, Summit, and Rebar events to observe the market reaction because Procomp, Summit, and Rebar are involved in the biggest three audit failures in recent ten years in Taiwan. More details of these three audit failures can be found in Appendix A. Following Chaney and Philipich (2002), Krishnamurthy et al. (2006), and Weber et al. (2008), I first examine whether involved audit firm clients have a more negative market reaction than other companies in Taiwan and find that the involved audit firm clients experience a significantly more negative market reaction than other clients in the market, consistent with prior literature and my hypothesis. Second, following Chen (2009), Chen et al. (2009), and Guan and Chang (2010), I examine whether the involved audit partner clients have a more negative market reaction than other companies and find that the involved audit partner clients experience

more negative market reaction than other companies in the market, which is consistent with prior literature and my hypothesis.



I further examine whether the market reaction to audit failure is different between the lead audit partner clients and the concurring audit partner clients and find no significant difference. This indicates that the investors view the lead audit partner and the concurring audit partner as similar. I attribute this to the same litigation responsibilities according to the regulations in Taiwan. According to the empirical result of lead auditor level, the concurring audit partners still play a role of quality control and investor protection in the market.

In addition, this study also examines whether the tenure and industry specialization of involved audit firm/partner affect the market reaction. Consistent with Pretty and Cuganesan (1996), McCracken (2003), Myers, Myers, and Omer (2003), and Ghosh and Moon (2005), the tenure have significantly positive effects on audit quality on the audit firm level. Moreover, consistent with Carey and Simnett (2006) and Chen, Lin, and Lin (2008), the tenure have positive effects on audit quality on the audit partner level. This study finds that investors of clients with longer tenure rely more trust on their auditors, thus the market reaction is less affected by single audit failure. Also, the empirical results show that industry specialization of involved audit firm/partner doesn't have significant effects on the market reaction to audit failure and cannot support my

hypothesis that clients of industry specialist auditors are less affected by single audit failure.



The rest of this study is organized as follows. Section 2 discusses prior literature and my hypotheses development. Section 3 describes the research design of this study. Section 4 describes the sample and presents the empirical results. Section 5 shows the additional tests. The conclusion is provided in Section 6.

2. Literature and Hypotheses

2.1 Literature Review

2.1.1 Why auditor reputation important

Auditors play a valuable role in verifying and certifying financial statement. The value of audit service is thought to depend on auditor's reputation. Investors cannot observe the audit quality directly; instead, they tend to rely on auditor's reputation or brand name as an indicator of financial reporting credibility (Titman & Trueman, 1986; Wilson & Grimlund, 1990; Datar, Feltham, & Hughes, 1991; Craswell, Francis, & Taylor, 1995). For example, Titman and Trueman (1986) and Datar et al. (1991) observe the choice of auditor of initial public offerings and find that auditor reputation or brand name helps enhance the credibility of financial statements because auditor reputation or

brand name provides information about new issues' true value.



There are many factors affecting auditor reputation. For example, DeAngelo (1981a) and Beatty (1989) suggest that size alone alters auditor's incentives such that, ceteris paribus, larger audit firms supply a higher level of audit quality and thus build a better auditor reputation or brand name. Auditors with greater number of audit clients have reduced incentives to "cheat" in order to retain any one client. That is, larger auditors have stronger reputation incentives and, therefore, perform high-quality audits. In addition, McCracken (2003) also suggests that experienced auditors are more likely to be concerned about auditor reputation and public perceptions of their audit quality because of the importance of reputation to an auditor's success and the probability of future cases.

To better understand the reasons why auditors are concerned about their reputation, Mayhew (2001) and Mayhew, Schatzberg, and Sevcik (2001) design experiments to study auditor behavior. The results show that when investors reward managers for hiring reputable auditors, the managers respond by consistently demanding reputable auditors, and the auditors respond by developing reputations for supplying high-quality audits. When auditors form reputation for high-quality audits, the reputation disciplines the auditors into continuing to supply high-quality audits to maintain their reputation for high audit quality.




2.1.2 How to examine auditor reputation

Prior literature often provides evidence on auditor reputation in following two ways. Both rely on the premise that the investors view auditor reputation as an important factor in their decision making process. Observable declines in audit quality, such as auditors are involved in audit failures or are disciplined, will lead to adverse consequences for their audit clients.

Auditor switch

The first way to measure auditor reputation is to examine auditor switching around the events which signals a decline in audit quality. For example, Chaney and Philipich (2002), Barton (2005), Krishnamurthy et al. (2006), and Asthana, Balsam, and Krishnan (2010) examine auditor switches after the market learned of Andersen's audit failure in Enron scandal. The Enron scandal and related demise of Andersen occurred in a short time, making it difficult to distinguish whether the auditor switches reflected auditor reputation concerns or purely responded to Andersen closure. Barton (2005) finds that 95 percent of the switches away from Andersen occurred after Andersen was indicted. Nelson, Price, and Rountree (2008) also indicate that Andersen clients didn't switch away in the beginning period of Enron scandal.

In Japan, Skinner and Srinivasan (2012) examine the timing of auditor switches

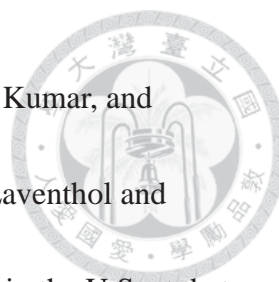


away from ChuoAoyama, which was involved in Kanebo scandal. Skinner and Srinivasan (2012) discuss the auditor switches in two ways. One is that clients switched auditors at the timing of ChuoAoyama being indicted, reflecting the clients' concerns about auditor reputation of ChuoAoyama. In addition, Cahan, Emanuel, and Sun (2009) proposed that the reputation effect would spillover internationally. Thus, PwC (ChuoAoyama was PwC's Japanese affiliate) set up a new affiliate, Arata, which is positioned as a high-quality audit firm to continue providing audit services to PwC's important clients like Toyota and Sony in Japan. This action reflects the PwC's intention to remedy the deteriorated auditor reputation and make a distinction with disrepute ChuoAoyama.

In Taiwan, Liu (2004) examines the decision of auditor switches in Well-Phone scandal. Well-Phone Securities Co. unexpectedly filed for suspense of business to the Taiwan Stock Exchange on July 2, 2001. It was announced that the company had not fairly presented its financial statements for a long time and yet the audit opinions before had been unqualified. Investors thus doubt the audit quality of Well-Phone's auditors provided.

Stock price reaction

The second way to study auditor reputation is to examine the stock price reaction to the events which may cause the market to downgrade the audit quality provided by



given auditor. For example, Menon and Williams (1994) and Baber, Kumar, and Verghese (1995) examine the market reaction to the bankruptcy of Laventhol and Horwath (hereafter, L&H), which was the seventh largest audit firm in the U.S. at that time. The disclosure of bankruptcy caused the investors to reconsider the audit quality L&H had provided and the financial statements L&H had audited. They find that the disclosure of the bankruptcy of L&H have an adverse effects to L&H clients.

Chaney and Philipich (2002) and Krishnamurthy et al. (2006) examine the market reaction for Andersen clients around Enron-related event dates and attribute the negative market reaction to Andersen's loss of auditor reputation. In addition, Chaney and Philipich (2002) also find that the clients of Houston office, which was involved in several audit failures, experienced much more negative market reaction than clients of other offices.

In Germany, Weber et al. (2008) examine the market reaction for KPMG Germany clients in ComROAD scandal. ComROAD began reporting fourfold growth in revenues soon after going public in 1998. Approximately one month before ComROAD was to provide its 2001 audited financial statements, KPMG declined its mandate as auditor. After full investigation, the successor auditor found that more than 63%-97% revenues in 1998-2000 were fictitious. The investors thus questioned the audit quality of KPMG Germany had provided, Weber et al. (2008) find that the

KPMG Germany clients experienced a more negative market reaction than other companies



In Taiwan, Liu (2004) examines the market reaction for Well-Phone auditor clients, she further proposed that the involved audit partner clients have a more negative market reaction than other clients in the involved audit firm. Liu (2004) finds that the involved audit partner clients experienced a more negative market reaction than other companies and the reputation effect spillovers to involved audit firm clients. In addition, the involved audit partner clients experienced a more negative market reaction than other clients within the involved audit firms.

Chen (2006) examines the market reaction of Procomp auditor clients and finds that the whole market reacted negatively to the news that four of Big 4 audit partners were disciplined because of Procomp scandal. Procomp scandal is a reprint of Enron scandal in Taiwan. Especially because the four disciplined audit partners all belonged to Big 4 audit firms in Taiwan. Procomp scandal led the market to reconsider the audit quality they provide, even if they are Big 4 (Chen, 2006). More details of Procomp scandal can be found in Appendix A.

Chen (2009) and Chen, Yang, and Yen (2009) select eight audit failures in Taiwan to examine the market reaction for involved audit partner clients when news of audit failures were announced and find that the involved audit partner clients experienced a



more negative market reaction than other companies in the market.

Guan and Chang (2010) propose that the reputation effect is originated from the involved audit partner and then spillovers to other audit clients within the involved audit firms. Rebar unexpectedly filed for restructuring in 2007. The market thus paid a lot of attention to its affiliates and found them financially distressed. After investigation, several Rebar-related audit partners (including Rebar's affiliates' audit partners) were disciplined because of audit failures. More details of Rebar scandal can be found in Appendix A. Guan and Chang (2010) examine the market reaction for the involved audit firm clients and involved audit partner clients in Rebar scandal and find that involved audit firm clients experienced a more negative market reaction than other companies.

Others

In addition to two common ways to measure auditor reputation mentioned above, Cahan, Chaney, and Zhang (2013) propose that as an auditor's reputation deteriorates, information uncertainty associated with the audited financial statements increases and find that the frequency of downward forecast revisions for Andersen clients increased around Enron-related event dates, suggesting that analysts were concerned about Andersen's auditor reputation.



2.1.3 Auditor tenure and audit quality

After several accounting scandals, such as Enron and WorldCom, across the world, regulators are concerned that as audit firm/partner tenure gets longer, auditors are more likely to compromise on their client's accounting and reporting choices because they are familiar with the client and they also want to retain the client (Grant, Bricker, & Shiptsova, 1996; Geiger & Raghunandan, 2002; Carey & Simnett, 2006). Thus, the proponents of mandatory auditor rotation argue that setting a limit on tenure will improve auditor independence, which will in turn improve audit quality. However, Carey and Simnett (2006) find no evidence on this argument.

On the other hand, the opponents of mandatory auditor rotation argue that as auditors gain more experience from longer tenure, they have better knowledge to determine whether client's quality improve as the length of auditor tenure increases. DeAngelo (1981b) identifies a "learning curve" that gives incumbent auditors a comparative advantage. Pretty and Cuganesan (1996), McCracken (2003), Myers et al. (2003), Ghosh and Moon (2005), and Chen et al. (2008) also argue that repeated audits help auditors develop in-depth knowledge of client's business operations, processes, and systems, which is crucial in performing an effective audit and thus results in higher audit quality. However, Manry, Mock, and Turner (2008) finds that audit quality, measured by discretionary accruals, is significantly and positively associated with the



lead audit partner's tenure only for small clients.


2.1.4 Auditor industry specialization and audit quality

Industry specialist auditors gain more industry knowledge than non-specialists.

Hogan and Jeter (1999), Balsam, Krishnan, and Yang (2003), and Dunn and Mayhew (2004) suggest that industry specialists have more industry specialization that enables them to identify misstatements more effectively and thus provide more effective audits. Their expertise comes from serving other clients in the same industry and have more incentives to correct or report identified misstatements to protect their market shares in specific industry. Balsam et al. (2003) and Krishnan (2003) also provide evidence that audited financial statements are of higher quality when audited by industry specialists.

In addition, Carcello and Nagy (2004) suggest that industry specialists are less likely to be associated with financial fraud. Knechel, Naiker, and Pacheco (2007) find strong evidence of a positive market reaction when firms switch from a nonspecialist Big 4 auditor to a specialist Big 4 auditor, and find evidence of a negative market reaction when firms switch from a specialist Big 4 auditor to a nonspecialist Big 4 auditor. This indicates that the market does perceive audit quality differences based on industry specialization to be relevant to the valuation of a company's market value.

This study differs from prior studies in several ways. First, unlike most literature



uses only one scandal to study auditor reputation, this study discusses three severe scandals—Procomp, Summit, and Rebar—in Taiwan together. Only scandals which are big and well-known enough can cause a significant market reaction. Procomp, Summit, and Rebar scandals are the three biggest audit failures in recent ten years in Taiwan, such big events enable me to observe the auditor reputation effects more clearly because they have more impacts to the market. Second, this study tries to examine whether the reputation rationale is also applicable in Taiwan. Liu (2004) and Guan and Chang (2010) provide evidence that involved audit firm clients experienced a more negative market reaction in audit failures than other companies. This study observes the market reaction of involved audit firm clients compared with other companies and further separate the involved audit partner clients from other clients within the involved audit firm to see whether the involved audit partner clients experience a more negative market reaction than other companies. Furthermore, I observe the reputation effect even to the lead audit partner level to see whether the involved lead audit partner clients have a different market reaction from the involved concurring audit partner clients. Fourth, I also consider the tenure and industry specialization of the involved audit firm/lead audit partner to see whether tenure or industry specialization affects investors' perception of the audit quality of involved audit firm/lead audit partner.




2.2 Hypotheses Development

Prior literature shows that audit reputation for quality is valuable (Titman & Trueman, 1986; Wilson & Grimlund, 1990; Datar et al., 1991; Craswell et al., 1995).

External stakeholders, such as shareholders and debt holders, use audited financial statements in their decision making. Since the stakeholders are unable to directly observe audit quality, auditor reputation serves as an important proxy for the quality and accuracy of client financial statements. (DeAngelo, 1981a). If audit failures signal adverse news of auditor reputation, the market would downgrade the perceived quality of the audited financial statements. Therefore, following Chaney and Philipich (2002), Liu (2004), Krishnamurthy et al. (2006), Chen (2006), Weber et al. (2008), and Guan and Chang (2010), I hypothesize that cumulative abnormal returns (hereafter, CARs) will be negatively affected for the involved audit firm clients.

H1: Among listed and OTC companies, the involved audit firm clients have more negative CARs than other companies when the adverse news of auditor reputation is disclosed.

Pretty and Cuganesan (1996), McCracken (2003), Myers, et al. (2003), and Ghosh and Moon (2005) suggest that repeated audits help auditors develop in-depth knowledge of client's business operations, processes, and systems, which is crucial in performing



effective audits and thus results in higher audit quality. McCracken (2003) also suggests that auditor reputation develops with an auditor's experience and tenure in the audit profession. Auditors with longer tenure are more concerned about their reputation and will provide high-quality audits. Thus, the market reaction of experienced auditor clients would less be affected by single audit failure because the investors rely more trust on the experienced auditors. Therefore, I hypothesize that the market reaction of involved audit firm clients will be less negative if the involved audit firms are with longer tenure towards their audit clients.

H1A: The CARs of involved audit firm clients is less negative when the involved audit firms are with longer tenure towards the clients.

In addition, industry specialists have more industry specialization that enables them to identify misstatements more effectively and thus provide more effective audits (Hogan & Jeter, 1999; Balsam et al., 2003; Carcello & Nagy, 2004; Dunn & Mayhew, 2004). Their specialization comes from serving other clients in the same industry and have more incentives to correct or report identified misstatements to protect their market shares in specific industry. Thus, the market reaction of experienced auditor clients would be less affected by single audit failure because the investors rely more trust on the industry specialist auditors. Therefore, I hypothesize that the market reaction of



involved audit firm clients will be less negative if the involved audit firms are with more industry specialization towards their audit clients.

H1B: The CARs of involved audit firm clients is less negative when the involved audit firms are with more industry specialization towards the clients.

Audit reports in Taiwan are signed in the name of audit firm and audit partners at the same time. This provides an opportunity to further examine whether the reputation effect is applicable in the audit partner level because the audit partners are who in fact engaged into audit works. Liu (2004), Chen (2009), Chen et al. (2009), and Guan and Chang (2010) observe both the audit firm level and audit partner level to see whether the involved audit partner clients experienced a more negative market reaction than other clients within the audit firm. The empirical results show that the involved audit partner clients experienced a more negative market reaction than other companies. Thus, I hypothesize that CARs will be more negative for the involved audit partner clients than other companies in the market. In addition, I also hypothesize that the tenure and industry specialization of the involved audit partner would affect market reaction like how they work in *H1A* and *H1B*. Carey and Simnett (2006) and Chen et al. (2008) also provide evidence on the audit partner level that repeated audits help auditors develop in-depth knowledge of client's business operations, which is crucial in

performing effective audits and thus results in higher audit quality. Therefore, I hypothesize that the market reaction of involved audit partner clients will be less negative if the involved audit partners are with longer tenure towards their audit clients.



I use the tenure and industry specialization of the involved lead audit partners to represent the tenure and industry specialization of the involved audit partners towards their clients.

H2: Among listed and OTC companies, the involved audit partner clients have more negative CARs than other companies when the adverse news of auditor reputation is disclosed.

H2A: The CARs of involved audit partner clients is less negative when the involved lead audit partners are with longer tenure towards the clients.

H2B: The CARs of involved audit partner clients is less negative when the involved lead audit partners are with more industry specialization towards the clients.

Furthermore, public companies in Taiwan are required to be attested by two audit partners, so I examine whether there is reputation effect on the lead audit partner level.

In practice, the audit work is mainly organized by the lead audit partner and then reviewed by the concurring audit partner. The growing proportion of institutional investors may have more knowledge about the operation of the audit work, so investors

are more able to distinguish the lead audit partner from the concurring audit partner.

Then, the lead audit partner clients may have more negative CARs compared with the

concurring audit partner clients. Thus, I test whether the market reaction to audit

failures is different between the lead audit partner clients and the concurring audit

partner clients.

H3: The involved audit partner clients experienced more negative CARs than the involved concurring audit partner clients when the adverse news of auditor reputation is disclosed.

On the other hand, both the lead audit partner and the concurring audit partner bear the same litigation responsibilities for audit failures in Taiwan. Investors may view them as similar and the lead audit partner clients and the concurring audit partner clients may have no different market reaction to audit failures. Thus, the same litigation responsibilities for the lead audit partner and the concurring audit partner in Taiwan may lead the empirical result not to support *H3*.

3. Research Design



3.1 Event Study

To examine whether auditor reputation deteriorates when audit failure occurs, this study uses event study to observe the market reaction. Event study is widely used to examine whether the market reacts to a single event such as dividend declaration or merger/acquisition. Event study of market reaction to audit failures can be found in the studies of Baber (1995), Chaney and Philipich (2002), Liu (2004), Krishnamurthy et al. (2006), Chen (2006), Nelson et al. (2008), Cahan et al. (2009), Chen (2009), Chen et al. (2009), Guan and Chang (2010), etc.

Since there is limitation of daily stock price change in Taiwan, following Liu (2004), Chen (2009), and Chen et al. (2009), this study uses an 11-day event window (that is, $t = -5 \sim +5$) with a 100-day estimation period (that is, $t = -105 \sim -6$), and combines with risk adjusted returns model to measure the expected returns. That is,

$$\begin{aligned}R_{i,t} &= \alpha_i + \beta_i R_{m,t} + u_{i,t} \\E(R_{i,t}) &= \hat{\alpha}_i + \hat{\beta}_i R_{m,t} \\AR_{i,t} &= R_{i,t} - E(R_{i,t}) \\CAR(-k, l) &= \sum_{t=-k}^l AR_{i,t}\end{aligned}$$

where,

$R_{i,t}$ = return for client i on day t

α_i = intercept



β_i = beta for client i

$R_{m,t}$ = return on the value-weighted index for the listed/OTC companies
on day t

$u_{i,t}$ = error term

$AR_{i,t}$ = abnormal return for client i on day t

$CAR(-k, l)$ = cumulative abnormal return from day $-k$ to day l

In addition to $CAR(-5,5)$, this study also uses other event windows, $CAR(-1,1)$, $CAR(-2,2)$, $CAR(-3,3)$, to examine the market reaction in different longitude of period in the cross-sectional analysis.

3.2 Cross-sectional Analysis

Cross-sectional analysis is used to test $H1$, $H1A$, $H1B$, $H2$, $H2A$, and $H2B$.

To test $H1$, $H1A$, and $H1B$, the following multivariate model is used to examine whether involved audit firm clients have a more negative market reaction.

$$CAR(-k, l) = \alpha_0 + \alpha_1 InvFirm + \alpha_2 Tenure_Firm + \alpha_3 Exper_Firm + \alpha_4 InvFirm * Tenure_Firm + \alpha_5 InvFirm * Exper_Firm + \alpha_6 IND + \alpha_7 Collateral_D\&S + \alpha_8 Share_D\&S + \alpha_9 DRW + \alpha_{10} Size + \alpha_{11} Zscore + \alpha_{12} Growth + \alpha_{13} ROA + \alpha_{14} Leverage + \varepsilon \quad (1)$$

where,

$CAR(-k, l)$ = cumulative abnormal return from day $-k$ to day l

$InvFirm$ = 1 if the client is audited by involved audit firm, 0 otherwise

$Tenure_Firm$ = the tenure(in year) of the audit firm to the client

$Exper_Firm$ = the industry specialization, measured by client sales,
of the audit firm

IND = independent directors and supervisors / directors and supervisors

$Collateral_D\&S$ = the percentage of directors and supervisors stock



collateralized

Share_D&S = the percentage of stock owned by directors and supervisors

$$DRW = \frac{\text{controlling shareholders voting right}}{\text{controlling shareholders cash flow right}}$$

Size = ln(Sales) of the latest financial information at event date

*Zscore*³ = a financial index to measure a client's financial health

$$Growth = \Delta \text{Sales} / \text{Sales}_{t-1}$$

$$ROA = \text{net income} / \text{total assets}$$

$$Leverage = \text{total liabilities} / \text{total assets}$$

More definitions and expectations for each variables are as followed:

InvFirm

Following Andersen's admission that a significant number of documents had been shredded, Chaney and Philipich (2002) find that Andersen's other clients experienced a statistically negative market reaction. Liu (2004) further suggests that among the involved audit firm clients, the involved audit partner clients experienced a more negative market reaction because the audit reports in Taiwan are signed in the name of the audit partners, which enable investors to further attribute the audit failures to the audit partner level. Guan and Chang (2010) discuss auditor reputation from the viewpoint of involved audit partner individual and suggest that the reputation effect spillovers to other clients within the audit firm. Therefore, I predict the estimated coefficient on this testing variable for *HI* to be negative.

³ Altman's (1968) Z – score = $1.2 \times \text{Working capital} / \text{Total assets} + 1.4 \times \text{Retained earnings} / \text{Total assets} + 3.3 \times \text{EBIT} / \text{Total assets} + 0.6 \times \text{Market value of equity} / \text{Total liabilities} + 0.999 \times \text{Sales} / \text{Total assets}$



*InvFirm*Tenure_Firm*

Pretty and Cuganesan (1996), McCracken (2003), Myers et al. (2003), and Ghosh and Moon (2005) argue that longer tenure helps auditors develop in-depth knowledge of client's business operations, which is crucial in performing effective audits and thus results in higher audit quality. McCracken (2003) suggests that reputation concerns that may influence auditors' decisions and actions appear to develop with an auditor's experience and tenure in the audit profession. Auditors with longer tenure are more concerned about their reputation and will provide high-quality audits. Thus, the market reaction would be less affected by single audit failure. So I predict the estimated coefficient on the testing variables, *InvFirm*Tenure_Firm*, for *H1A* to be positive.

*InvFirm*Exper_Firm*

Industry specialist auditors audit more clients in the same industry and thus gain more industry knowledge than non-specialists. Hogan and Jeter (1999), Balsam et al. (2003), Dunn and Mayhew (2004), and Knechel et al. (2007) suggest that industry specialists have more industry specialization that enables them to identify misstatements more effectively and thus provide more effective audits. Carcello and Nagy (2004) also suggest that industry specialists are less likely to be associated with financial fraud. Auditors with more industry specialization are more concerned about their reputation and will provide high-quality audits. Thus, the market reaction would be less affected by



single audit failure. So I predict the estimated coefficient on the testing variables,

*InvFirm*Exper_Firm*, for *H1B* to be positive.

IND

Companies with more independent directors and supervisors are thought to be in better governance. Thus, the demand for external supervision is low (Guan & Chang, 2010). Clients with lower demand for auditor supervision are less affected by single audit failure. So I predict the estimated coefficient on this variable to be less negative.

Collateral_D&S

If the percentage of directors and supervisors stock collateralized is high, it may indicate that they are in financial distress and cannot fulfill their responsibilities to the company well. Thus, the demand for audit quality is high (Guan & Chang, 2010).

Clients with higher audit-quality demand for auditor supervision are affected by audit failure. So I predict the estimated coefficient on this variable to be negative.

Share_D&S

If the percentage of stock owned by directors and supervisors is high, the agency problem of a company may be less severe because directors and supervisors' interests may be more consistent with that of other shareholders. Thus, the demand for auditor supervision is low (Liu, 2004; Guan & Chang, 2010). Clients with lower demand for auditor supervision are less affected by single audit failure. So I predict the estimated



coefficient on this variable to be less negative.

DRW

If the DRW is high, the agency problem is severe because controlling shareholders have much voting right with little investment (Guan & Chang, 2010). Clients with more severe agency problem have higher demand for auditor supervision. Thus, clients with higher demand for auditor supervision are affected by audit failure. So I predict the estimated coefficient on this variable to be negative.

Size

The financial reports of large companies are more complex, so large companies need better internal control system to avoid aggressive accounting (Chow, 1982). However, Atiase (1985) and Collins, Kothari, and Ray (1987) suggest that large companies have more resources of information, thus their market reaction is less affected by single event. So I do not make any prediction of this variable.

Zscore

Altman (1968) Z-score is often used as a measure of financial condition. Larger Z-score indicates that the financial condition of a company is better. Thus, the demand for auditor's insurance function is lower for companies with good financial condition (Liu, 2004). Clients with lower demand for auditor supervision are less affected by single audit failure. So I predict the estimated coefficient on this variable to be less negative.



Growth

Chaney and Philipich (2002) use the growth in revenue as a control variable for potential aggressive revenue recognition policies. Rapid-growth companies may be demographically diverse, and the financial reporting are more complex. Thus, the demand for auditor supervision is high (Liu, 2004). Clients with higher demand for auditor supervision are affected by audit failure. So I predict the estimated coefficient on this variable to be negative.

ROA

ROA is used as a proxy for a company's performance by Skinner and Srinivasan (2012). Firms with better performance may have lower demand for high-quality audits. Clients with lower demand for auditor supervision are less affected by single audit failure. So I predict the estimated coefficient on this variable to be less negative.

Leverage

Firms with high levels of debt may be more likely to use "off-balance-sheet" financing (Chaney & Philipich, 2002). Leverage helps debt holders assess risk of their debts and the demand for audit quality (Skinner & Srinivasan, 2012). Clients with higher demand for auditor supervision are affected by audit failure. So I predict the estimated coefficient on this variable to be negative.

To test *H2*, *H2A*, and *H2B*, I use Equation (2) to examine whether involved audit

partner clients have a more negative market reaction than other companies. I separate the involved audit firm clients into involved audit partner clients and non-involved audit partner clients. The tenure and industry specialization information of the lead auditor (CPA1) is representative for the dual attestation auditors.

$$\begin{aligned}
 CAR(-k, l) = & \beta_0 + \alpha_1 InvCPA + \beta_2 nonInvCPA + \beta_3 Tenure_CPA1 \\
 & + \beta_4 Exper_CPA1 + \beta_5 InvCPA * Tenure_CPA1 + \beta_6 InvCPA \\
 & * Exper_CPA1 + \beta_7 IND + \beta_8 Collateral_D\&S + \beta_9 Share_D\&S \\
 & + \beta_{10} DRW + \beta_{11} Size + \beta_{12} Zscore + \beta_{13} Growth + \beta_{14} ROA \\
 & + \beta_{15} Leverage + \epsilon
 \end{aligned} \tag{2}$$

where,

$InvCPA = 1$ if the client is audited by the involved audit partners, 0 otherwise

$nonInvCPA = 1$ if the client is audited by the non-involved audit partners of the involved audit firm, 0 otherwise

$Tenure_CPA1 =$ the tenure of the lead audit partner to the client

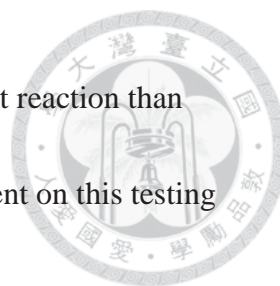
$Exper_CPA1 =$ the industry specialization, measured by client sales, of the lead audit partner

Control variables are the same as that of Equation (1). Variable definition can also be seen in Table 1. More definitions and expectations for variables different from

Equation (1) are as followed:

$InvCPA$

Liu (2004), Chen (2009), Chen et al. (2009), and Guan and Chang (2010) suggest that the involved audit partner clients experienced a more negative market reaction than other companies. Chen (2009), Chen et al. (2009), and Guan and Chang (2010) find that



the involved audit partner clients experienced a more negative market reaction than other companies in the market. Thus, I predict the estimated coefficient on this testing variable for *H2* to be negative.

nonInvCPA


The empirical results of prior literature shows that the effect of involved audit firm on their audit clients is negative. I predict the estimated coefficient on this variable to be negative but less negative than that of *InvCPA*.

*InvCPA *Tenure_CPA1*

Carey and Simnett (2006) and Chen et al. (2008) proved evidence at audit partner level that longer tenure helps auditors develop in-depth knowledge of client's business operations, which is crucial in performing effective audits and thus results in higher audit quality. McCracken (2003) suggests that reputation concerns that may influence auditors' decisions and actions appear to develop with an auditor's experience and tenure in the audit profession. Auditors with longer tenure are more concerned about their reputation and will provide high-quality audits. Thus, the market reaction would be less affected by single audit failure. So I predict the estimated coefficient on the testing variables, *InvCPA *Tenure_CPA1*, for *H2A* to be positive.

*InvCPA *Exper_CPA1*

Industry specialist auditors audit more clients in the same industry and thus gain



more industry knowledge than non-specialists. Hogan and Jeter (1999), Balsam et al. (2003), Dunn and Mayhew (2004), and Knechel et al. (2007) suggest that industry specialists have more industry specialization that enables them to identify misstatements more effectively and thus provide more effective audits. Carcello and Nagy (2004) also suggest that industry specialists are less likely to be associated with financial fraud. Auditors with more industry specialization are more concerned about their reputation and will provide high-quality audits. Thus, the market reaction would be less affected by single audit failure. So I predict the estimated coefficient on the testing variables, $InvCPA * Exper_CPAI$, for $H2B$ to be positive.

3.3 Univariate Analysis

Since the sample for involved audit partner clients is too small (105 event date-company) to test in multiple regression analysis, I compare the median CARs for involved lead audit partner clients and involved concurring audit partner clients and test their difference to examine whether there is different market reaction between the involved lead audit partner clients and the involved concurring audit partner clients. If the market can distinguish the different properties of the lead audit partner from the concurring audit partner, then the result supports $H3$.




3.4 Sample Selection

This study selects three big and well-known scandals in recent ten years in Taiwan.

Procomp, Summit, and Rebar are big and well-known enough to help examine the market reaction to audit failures. To my understanding from practitioners, the distinction of the lead audit partner and the concurring audit partner becomes clear after Procomp's audit failure in 2004. It enables me to hypothesize that the CPA1 in TEJ database indicates the lead audit partner and the CPA2 is the concurring audit partner.

I observe 3-day, 5-day, 7-day, and 11-day event windows to see whether there is significantly negative market reaction of the involved audit firm clients and the involved audit partner clients and whether there is different market reaction between the involved lead audit partner clients and the involved concurring audit partner clients. I choose the dates which unexpectedly filing for restructuring, being required to restate, or declaration of audit partner disciplines was disclosed. The event dates are as follows: 2004/06/15 and 2004/07/15 for Procomp scandal, 2004/09/15 and 2006/10/31 for Summit scandal, and 2007/01/04 and 2007/03/03 for Rebar scandal. More description of each event date is displayed in Table 2.

I sample all public companies listed on the Taiwan Stock Exchange (TWSE) and the GreTai Securities Market (GTSM) (OTC companies), with a total of 1,318-1,630



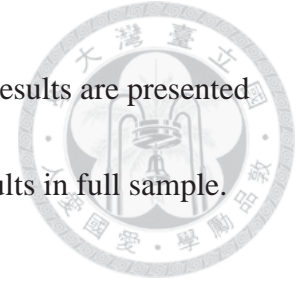
companies, the number changes with different event dates. After deleting companies with outliers and incomplete information, and mitigating the influence of confounding effects such as dividend declaration and merger/acquisition, the final sample includes 751-1036 companies.

The information of audit failure is searched on *udndata.com*. The information of auditor disciplines is collected from *Government Gazette*. And the information of auditor, corporate governance and financial information is collected from TEJ database. I use the full sample to test *H1*, *H1A*, *H1B*, *H2*, *H2A*, and *H2B*. Further, to test *H3*, I sample only the involved audit partner clients to compare the difference of median CARs between the involved lead audit partner clients and the involved concurring audit partner clients.

4. Empirical Results

This section is organized into three parts as followed. First, I examine the market reaction to chosen events to see whether the CARs are significantly different from 0. The descriptive statistics and correlation matrix for full sample are provided in the second part. In the last part, I examine my hypotheses at the three levels. The audit firm level is used to test *H1*, *H1A*, and *H1B*, the audit partner level is used to test *H2*, *H2A*,

and $H2B$, and the lead audit partner level is for $H3$. Also, empirical results are presented in full sample and each scandal. This study mainly discusses the results in full sample.



4.1 Test of Market Reaction

This study examines the significance level of $CAR(-1,1)$, $CAR(-2,2)$, $CAR(-3,3)$, and $CAR(-5,5)$ for involved audit firm clients, involved audit partner clients, and the involved lead audit partner clients. The results of full sample and each scandal are shown in Table 3. Table 3 shows that CARs for full sample and Procomp scandal are significantly different from 0 for the involved audit firm clients and the involved audit partner clients in each event window. This implies that the stock prices are generally affected by the news of audit failures at the two levels. CARs for the lead audit partner clients are significantly negative for longer event windows in Procomp scandal. CARs for Summit scandal are significantly different from 0 for the involved audit firm clients in longer event windows. CARs for Rebar scandal are significantly different from 0 for the involved audit firm in shorter event windows. Among the three scandals discussed here, Procomp scandal is the most representative scandal to examine because the market reaction is the most evident.



4.2 Descriptive Statistics and Correlation Matrix

4.2.1 Descriptive statistics

Table 4 shows the descriptive statistics for full sample of 5,468 event date-company. The market reacted negatively around the event dates because the means of CARs are all negative and significant. The mean of *InvFirm* is 0.2427, indicating that 24% publicly listed and OTC companies are audited by the involved audit firms. The mean of *InvCPA* is 0.0192, indicating that 1.92% publicly listed and OTC companies are audited by the involved audit partners. The mean of *Tenure_Firm* is 10.8274, indicating that all clients have been audited by the same audit firm for more than 10 years on average. The distribution of *Size* is similar to normal distribution. The average sales growth rate is 18.05%, indicating on average all clients sales are growing.

4.2.2 Correlation matrix

I present the Pearson correlation for Equation (1) for full sample in Table 5. The correlations of the independent variables are correlated only on the interaction variables. For the concern of multicollinearity, I also examine the variance inflation factors (VIF), which are distributed between 1.05~7.01 in full sample, 1.05~7.07 for Procomp scandal, 1.05~6.91 for Summit scandal, and 1.06~5.50 for Rebar scandal. None of them is high enough to cause such a problem.




4.3 Tests of Hypotheses

4.3.1 Audit firm level

The empirical result of Equation (1) is shown in Table 6. The estimated coefficient on the testing variable *InvFirm* for *H1* isn't significantly negative in each individual scandal (see Panel B, Panel C, and Panel D). However, the estimated coefficient on *InvFirm* is significantly negative in full sample except for the event window (-1,1) (see Table 6 Panel A), consistent with prior literature and hypothesis here. This suggests that the market generally revised downward the reliance they placed on the involved audit firm once those audit firms were involved in audit failures.

The estimated coefficient on the testing variable *InvFirm*Tenure_Firm* for *H1A* is significantly positive in Table 6 Panel A, consistent with Pretty and Cuganesan (1996), McCracken (2003), Myers et al. (2003), Ghosh and Moon (2005) and *H1A*. It indicates that longer the involved audit firms have audited a client, the market placed more reliance on the audit firms even if the audit firms were involved in audit failures.

The estimated coefficient on the testing variable *InvFirm*Exper_Firm* doesn't support *H1B*. I attribute the result to the industry distribution in Taiwan. Other than electronic and technology industry, each industry includes few companies, so there may be no industry expert in Taiwan.



The estimated coefficient on *IND* is significantly positive, consistent with Guan and Chang (2010). More independent directors and supervisors means that a client is under better governance, thus will be less affected by single audit failure. The estimated coefficient on *Size* is significantly positive, supporting the findings of Atiase (1985) and Collins et al. (1987). Large companies have more resources of information, so their stock prices will less affected by single event. The estimated coefficient on *Growth* is significantly negative, consistent with Chaney and Philipich (2002). Rapid-growing companies have higher demand for auditor supervision, thus are affected by audit failure more than other companies. The estimated coefficient on *ROA* is significantly positive, consistent with Skinner and Srinivasan (2012). Companies with better performance have lower demand for high-quality audits and thus are less affected by single audit failure.

4.3.2 Audit partner level

The empirical result of Equation (2) is shown in Table 7. The estimated coefficient on testing variable *InvCPA* for *H2* is significantly negative except for the event window (-1,1) in full sample and Procomp scandal. The result is consistent with Guan and Chang's (2004) case study of Rebar. Guan and Chang (2004) suggest that investors perceived the audit quality of audit firm and audit partner individual similar. It indicates that the involved audit partner clients experienced more negative, though not significant

enough, market reaction than other clients within the involved audit firms.

The estimated coefficient on testing variable $InvCPA*Tenure_CPAI$ for $H2A$ is positive, though not generally significant, in Full sample and each scandal. The result is consistent with Carey and Simnett (2006) and Chen et al. (2008) and $H2A$. It indicates that longer the involved audit partners have audited a client, the market placed more reliance on the audit partners even if the audit partners were involved in audit failures.

The estimated coefficient on the testing variable $InvFirm*Exper_Firm$ for $H2B$ doesn't have a general conclusion, and doesn't support $H2B$. I attribute the result to the industry distribution in Taiwan. Other than electronic and technology industry, each industry includes few companies, so there may be no industry expert in Taiwan.

Similar with the empirical results of the audit firm level, the estimated coefficients on IND , $Size$, and ROA are significantly positive and $Growth$ is significantly negative.

4.3.3 Lead audit partner level

The difference of CARs for the involved lead audit partner clients and involved concurring audit partner clients is tested and the result is shown in Table 8. Table 8 shows that the significantly negative result can only be found in Procomp scandal (see Table 9 Panel B). The insignificant result show that the market may view the responsibilities of lead audit partner and concurring audit partner as similar. I attribute the indifference to litigation concerns because the litigation responsibilities of the

involved audit partner and the concurring audit partner are the same in Taiwan.



5. Additional Tests

Considering that market may react less after the first event dates; that is, the second event dates in each scandal may have little market reaction. I test only the first event date in each scandal to see whether the market reaction is more obvious in the first event dates.

5.1 Audit Firm Level

The additional test for Equation (1) is shown in Table 9. The estimated coefficient on *InvFirm* is negative, though not all significant. Comparing with Table 6 Panel A, the estimated coefficients on *InvFirm* in the event window (-3,3) and (-5,5) are similar with that of Table 6 Panel A. This indicates that the market reaction of the first event dates of each scandals is representative.

5.2 Audit Partner Level

The additional test for Equation (2) is shown in Table 10. The estimated coefficient on *InvCPA* is negative, though not all significant. Comparing with Table 7 Panel A, the estimated coefficients on *InvCPA* in the event window (-3,3) and (-5,5) are more

negative than that of Table 7 Panel A. This indicates that the market reacts more negative in the first event dates of each scandals.




5.3 Lead Audit Partner Level

The additional test for lead audit partner level is shown in Table 11. The difference is not significant but there can be found that the market reaction of the lead audit partner clients is mostly more negative than that of the concurring audit partner clients.

6. Conclusion

This study discusses three severe scandals—Promcomp, Summit, and Rebar— together in order to investigate the impact of auditor reputation on firm value in Taiwan. Auditor reputation is reflected in clients' stock prices. This study examines market reaction to audit failure and disciplines to auditors at three levels, that is, audit firm level, audit partner level, and lead audit partner level. The empirical results show that, among the three levels, clients' stock prices are affected both on the audit firm level and the audit partner level.


Chaney and Philipich (2002), Liu (2004), Krishnamurthy et al. (2006), Chen (2006), Weber et al. (2008), Chen (2009), Chen et al. (2009), and Guan and Chang



(2010) find that, when news of audit failure was disclosed, involved audit firm clients experienced a more negative market reaction than other companies. In this study, the market reaction of involved audit firm clients compared with other companies is also observed. The empirical results of this study show that the involved audit firm clients experienced a more negative market reaction than other companies in the market, which is consistent with prior literature. It implies that investors downgrade the audit quality provided by the involved audit firms.

Since audit report is also signed in the name of the auditors in Taiwan, I examine whether the investors assess the auditor reputation at the audit partner level. Liu (2004), Chen (2009), Chen et al. (2009), and Guan and Chang (2010) find that audit failure may cause investors to downgrade of the audit quality of individual audit partners. Liu (2004) and Guan and Chang (2010) suggest that the involved audit partner clients should experience a more negative market reaction than other clients within the involved audit firms. The empirical results in this study show that involved audit partner clients experienced a more negative market reaction than other companies in the market, which is consistent with Chen (2009), Chen et al. (2009) and Guan and Chang (2010).

Under the dual attestation system in Taiwan, I further examine whether the market reaction is different between the involved lead audit partner clients and the involved concurring audit partner clients. The empirical result shows that there is no significant



difference of market reaction to audit failure between the lead audit partner clients and the concurring audit partner clients. It suggests that Taiwan investors may view the responsibilities of the lead audit partner and the concurring audit partner clients as similar because the litigation responsibilities of lead audit partner and concurring audit partner are the same in Taiwan.

In addition, this study also examines whether the tenure and industry specialization of involved audit firm/partner affect the market reaction. Consistent with Pretty and Cuganesan (1996), McCracken (2003), Myers et al. (2003), and Ghosh and Moon (2005), the tenure have significantly positive effects only at the audit firm level. It shows that investors of clients with longer tenure rely more trust on their auditors and the market reaction is less affected by single audit failure. The empirical results show that industry specialization of involved audit firm/partner didn't have significant effects on the market reaction to audit failure and could not support my hypothesis that clients of industry specialist auditors are less affected by single audit failure. I attribute this to the industry distribution in Taiwan. Other than electronic and technology industry, each industry includes few companies, so there may be no industry expert in Taiwan.

This study is subject to following caveats. First, though I have considered confounding effects in the event windows, there may be still some omission of confounding effects which would mislead the empirical results. Second, to compare the

market reactions of the lead audit partner clients and the concurring audit partner clients, I narrow the sample to conclude only the involved audit partner clients.

However, the sample is too small to examine multiple regression analysis. Future

researches can include more well-known audit failures (I only consider the unexpected

news of audit failure and disciplines on auditors) or revise the model more specifically

to further examine auditor reputation.





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Appendix A Description of Scandals in this Study



1. Procomp scandal

Procomp was founded in 1991. It mainly marketed computer accessories and developed new product of SCSI (Small Computer System Interface). It was admitted to go public in 1997 and went public in 1999. The assertion of having the ability to manufacture GaAs chipwafer enhances the reputation of Procomp. Its growing sales of SCSI made it perceived as a “good” company at that time and even the market value of Procomp had grown to 25 billion NTDs.

The market was shocked that Procomp unexpectedly filed for restructuring on June 15, 2004 because of the inability to pay its 2.98 billion NTDs corporate bonds. The Taiwan Stock Exchange Corporation soon ceased the trading of Procomp stock on June 23. And Procomp went under investigation.

The Procomp scandal is referred as a reprint of Enron in Taiwan. After investigation, Procomp was found to have inflated sales revenue and accounts receivable of 16 billion NTDs from related parties and dummy companies for a long time. Two audit firms with five audit partners are involved in the Procomp scandal. Four of involved audit partners were disciplined for 2-year termination of attestation, the most severe penalty on auditor at that time. The underwriters of Procomp stock were also given a disciplinary warning. The Chairman of Procomp was disciplined for 14-year in prison and fined 180 million NTDs for her embezzlement of 6.3 billion NTDs from Procomp and falsifying financial reports.

2. Summit scandal

Summit was founded in 1988. The main product was CD software and Summit focused on the market of preschool education. Summit went public in 1999 and expanded its market to game software. Its stock soon became the most valuable in software industry.

On June 15, 2004, the Chairman of Summit voluntarily admitted that Summit had falsified its financial statements of up to 3.7 billion NTDs since 2001. With the falsified financial statements, Summit had successfully borrowed a lot of money from many banks and were eventually unable to repay those loans. The Taiwan Stock Exchange Corporation then ceased the trading of Summit stock in October.

Summit had switched three audit firms since 2001. Five audit partners are involved in the Summit scandal. The involved audit partners were soon disciplined in December because their material weakness in audit works such as not directly received confirmation letters. The Chairman of Summit was disciplined for 6-year in prison and fined 100 million NTDs. Other related management were also disciplined for 8-month to 28-month in prison

Since the successive breakouts of frauds such as Procomp and Summit, the credibility of financial statements were doubted by the investors. Underwriters and auditors were thought to have responsibilities for their negligence of their duties of supervision. The authorities then paid more attention on the supervision of underwriters and auditors and increased the punishments for neglecting their duties.



3. Rebar scandal

Rebar is originally a steel company founded in 1959. It then expands its markets to cement, aluminum doors, and spinning. Based on its multidimensional operations, Rebar has grown stronger and more prosperous with total assets more than 278.7 billion NTDs.

Two of Rebar's affiliates filed for restructuring in the year end of 2006 and announced this news on January 4, 2007. This led to a run on a Rebar's affiliate bank. After takeover by government, Rebar then was under investigation and was found embezzlement of 73.1 billion NTDs.

Two audit firms with 6 audit partners are involved in the Rebar scandal. The auditors were disciplined for revocation of attestation or 2-year termination of attestation because of material weakness in the audit works and issuing inappropriate audit opinion. In addition, up to 107 persons, including the controlling family and related management, were accused for involving into Rebar scandal. The Chairman of Rebar fled overseas and was listed as wanted. The controlling family, with a total of 12 persons were disciplined for a record-breaking total of 190-year in prison and fined more than 6.5 billion NTDs.





* The information is collected from TEJ database and sorted by the author.
Yearly average institution shareholder is measured by averaging the year-end stock owned by institution holders in each company.

Figure 1 Average Year-end Stock Owned by Institutional Shareholder



Table 1 Variable definitions

Variables	Variable definitions
$CAR(-k,1)$ (%)	The cumulative abnormal returns around the event date. In this study, I present the results of $CAR(-1,1)$, $CAR(-2,2)$, $CAR(-3,3)$, and $CAR(-5,5)$.
$InvFirm$	$InvFirm = 1$ if the client is audited by the involved audit firm, 0 otherwise.
$InvCPA$	$InvCPA = 1$ if the client is audited by the involved audit partners, 0 otherwise
$nonInvCPA$	$nonInvCPA = 1$ if the client is audited by the non-involved audit partners in the involved audit firm, 0 otherwise
$Tenure_Firm$ (year)	At the audit firm level, the tenure of the audit firm to the client.
$Exper_Firm$ (%)	At the audit firm level, the industry specialization, measured by client sales, of the audit firm.
$Tenure_CPA1$ (year)	At the audit partner level, the tenure of the lead audit partner to the client.
$Exper_CPA1$ (%)	At the audit partner level, the industry specialization, measured by client sales, of the lead audit partner.
IND (%)	Independent directors and supervisors / directors and supervisors.
$Collateral_D\&S$ (%)	The percentage of directors and supervisors stock collateralized.
$Share_D\&S$ (%)	The percentage of stock owned by directors and supervisors.
DRW	$\frac{\text{Controlling shareholders' voting right}}{\text{Controlling shareholders' cash flow right}}$

<i>Size</i>	<i>Size</i> = ln (Sales). The number of sales comes from the latest financial statement before the event date.
<i>Zscore</i>	<i>Zscore</i> = $1.2 \times \text{Working capital} / \text{Total assets} + 1.4 \times \text{Retained earnings} / \text{Total assets} + 3.3 \times \text{EBIT} / \text{Total assets} + 0.6 \times \text{Market value of equity} / \text{Total liabilities} + 0.999 \times \text{Sales} / \text{Total assets}$.
<i>Growth (%)</i>	<i>Growth</i> = $\Delta \text{Sales} / \text{Sales}_{t-1}$.
<i>ROA (%)</i>	<i>ROA</i> = Net income / Total assets.
<i>Leverage (%)</i>	<i>Leverage</i> = Total liabilities / Total assets.

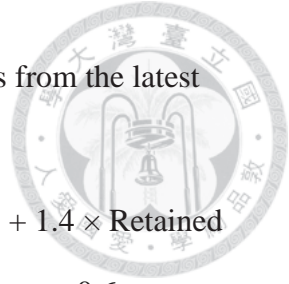




Table 2 Event Description

Scandal	Event date	Description
Procomp	2004/06/15	Unexpectedly filing for restructuring.
	2004/07/15	Declaration of the punishment of the 4 involved audit partners.
Summit	2004/09/15	Requirement from the authorities to restate their financial reports.
	2006/10/31	Declaration of the punishment of one of the involved audit partner.
Rebar	2007/01/04	Unexpectedly filing for restructuring.
	2007/03/03	Declaration of the punishment of the 4 involved audit partners.

* 2004/12/29 is dropped from the sample because the disciplines on Procomp audit partners and Summit audit partners are both declared on that day and this may lead to confounding effects.

** Rebar scandal includes its affiliates, such as Great Chinese Bills Finance Corporation, The Chinese Bank, and Union Insurance Company.

Table 3 Test for Mean CARs (in %)

Panel A: Full sample

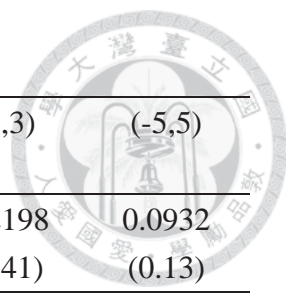
Event window \ Type of clients	(-1,1)	(-2,2)	(-3,3)	(-5,5)
Involved audit firm clients	-0.5744 ^a (-5.25)	-1.3151 ^a (-8.89)	-1.8151 ^a (-9.85)	-1.6839 ^a (-7.45)
Involved audit partner clients	-0.6702 ^b (-1.87)	-1.3568 ^a (-2.85)	-2.3003 ^a (-3.31)	-2.2630 ^a (-2.54)
Involved lead audit partner clients	-0.7907 ^c (-1.37)	-1.0625 (-1.26)	-1.5664 (-1.28)	-2.0656 (-1.29)

Panel B: Procomp scandal

Event window \ Type of clients	(-1,1)	(-2,2)	(-3,3)	(-5,5)
Involved audit firm clients	-1.0097 ^a (-7.47)	-1.8200 ^a (-9.79)	-2.0709 ^a (-9.10)	-2.4308 ^a (-8.59)
Involved audit partner clients	-1.4669 ^a (-3.82)	-2.2872 ^a (-4.01)	-3.3175 ^a (-4.07)	-3.0472 ^a (-2.86)
Involved lead audit partner clients	-2.1165 (-2.76)	-3.9040 ^a (-3.52)	-5.1698 ^a (-3.31)	-5.6000 ^a (-3.01)

Panel C: Summit scandal

Event window \ Type of clients	(-1,1)	(-2,2)	(-3,3)	(-5,5)
Involved audit firm clients	0.6956 (3.56)	-0.3231 (-1.15)	-1.9923 ^a (-5.24)	-0.6465 ^c (-1.51)
Involved audit partner clients	1.2548 (2.01)	-0.0080 (-0.01)	-1.8411 (-1.23)	-1.5958 (-0.89)
Involved lead audit partner clients	0.9297 (0.97)	0.5722 (0.37)	-0.7616 (-0.30)	-0.9701 (-0.28)

Panel D: Rebar scandal

Event window	(-1,1)	(-2,2)	(-3,3)	(-5,5)
Type of clients				
Involved audit firm clients	-0.7721 ^b (-2.15)	-0.6527 ^c (-1.46)	-0.2198 (-0.41)	0.0932 (0.13)
Involved audit partner clients	-0.5501 (-0.47)	-0.1377 (-0.10)	0.2511 (0.13)	-0.6716 (-0.26)
Involved lead audit partner clients	-0.6562 (-0.60)	0.5541 (0.38)	1.3042 (0.63)	0.5520 (0.19)

* t-value in parentheses.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level

Table 4 Descriptive Statistics for Full Sample

Variables	Mean	Std. Dev.	Min	Median	Max
<i>CAR(-1,1)</i>	-0.2322	4.1632	-11.4712	-0.1433	12.6407
<i>CAR(-2,2)</i>	-0.7363	5.3776	-15.7156	-0.6092	15.2777
<i>CAR(-3,3)</i>	-0.8804	6.3582	-18.8128	-0.7514	17.8561
<i>CAR(-5,5)</i>	-1.3023	8.0646	-25.6061	-1.1455	22.1244
<i>InvFirm</i>	0.2427	0.4287	0	0	1
<i>Tenure_Firm</i>	10.8274	5.7265	1	10	25
<i>Exper_Firm</i>	22.4788	16.6056	0	19.61	78.12
<i>InvFirm* Tenure_Firm</i>	2.4698	5.1282	0	0	25
<i>InvFirm* Exper_Firm</i>	6.3369	13.3630	0	0	72.72
<i>InvCPA</i>	0.0192	0.1372	0	0	1
<i>nonInvCPA</i>	0.2235	0.4166	0	0	1
<i>Tenure_CPA1</i>	4.7121	3.9396	1	3	23
<i>Exper_CPA1</i>	1.8914	3.4688	0	0.67	32.96
<i>InvCPA*Tenure_CPA1</i>	0.0415	0.4159	0	0	10
<i>InvCPA*Exper_CPA1</i>	0.0554	0.7297	0	0	19.79
<i>IND</i>	13.8002	16.3881	0	0	50
<i>Collateral_D&S</i>	8.8668	17.5855	0	0	81.47
<i>Share_D&S</i>	24.3784	13.2559	5.57	21.635	68.49
<i>DRW</i>	1.7766	2.4154	1	1.1	18.82
<i>Size</i>	13.8415	1.4641	10.1367	13.7037	18.0846
<i>Zscore</i>	2.6397	2.4355	-0.6235	2.0771	15.0262
<i>Growth</i>	18.0541	43.8171	-72.08	10.59	257.64
<i>ROA</i>	2.3432	3.7848	-11.4380	2.0665	13.1584
<i>Leverage</i>	42.3397	17.1305	9.3378	41.3087	93.2673
No. of observation	5,468				

* The description of the variables are shown in Table 1.



Table 5 Pearson Correlation for Full Sample

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14
X1	1.000													
X2	-0.064 ^a	1.000												
X3	0.124 ^a	0.053 ^a	1.000											
X4	0.851 ^a	0.193 ^a	0.114 ^a	1.000										
X5	0.838 ^a	-0.045 ^a	0.344 ^a	0.723 ^a	1.000									
X6	-0.052 ^a	-0.302 ^a	0.001	-0.119 ^a	-0.057 ^a	1.000								
X7	0.033 ^b	0.164 ^a	0.031 ^b	0.081 ^a	0.035 ^a	-0.254 ^a	1.000							
X8	0.016	-0.057 ^a	0.057 ^a	-0.009	0.023	0.064 ^a	-0.141 ^a	1.000						
X9	0.001	0.004	0.055 ^a	-0.003	0.013	0.020	-0.038 ^a	0.130 ^a	1.000					
X10	-0.080 ^a	0.238 ^a	0.216 ^a	-0.028 ^b	-0.041 ^a	-0.104 ^a	0.158 ^a	-0.096 ^a	0.120 ^a	1.000				
X11	-0.010	-0.134 ^a	0.039 ^a	-0.055 ^a	0.013	0.266 ^a	-0.202 ^a	0.078 ^a	0.017	-0.053 ^a	1.000			
X12	0.083 ^a	-0.072 ^a	0.003	0.054 ^a	0.085 ^a	0.075 ^a	-0.053 ^a	-0.021	0.018	0.111 ^a	0.091 ^a	1.000		
X13	-0.076 ^a	-0.011	0.086 ^a	-0.075 ^a	-0.051 ^a	0.204 ^a	-0.091 ^a	0.074 ^a	0.001	0.261 ^a	0.518 ^a	0.225 ^a	1.000	
X14	0.032 ^b	-0.076 ^a	0.019	0.002	0.036 ^a	-0.092 ^a	0.149 ^a	-0.015	-0.028 ^b	0.220 ^a	-0.587 ^a	0.056 ^a	-0.259 ^a	1.000

* X1=InvFirm; X2=Tenure_Firm; X3= Exper_Firm; X4=InvFirm*Tenure_Firm; X5=InvFirm*Exper_Firm; X6=IND; X7= Collateral_D&S; X8= Share_D&S; X9=

DRW; X10= Size; X11= Zscore; X12= Growth; X13= ROA; X14= Leverage

** The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level

Table 6 Cross-sectional Analysis—Equation (1)

Panel A: Full sample

	Predicted Sign	CAR(-1,1) (t-value)	CAR(-2,2) (t-value)	CAR(-3,3) (t-value)	CAR(-5,5) (t-value)
Intercept		-0.7842 (-1.27)	-2.9054 ^a (-3.65)	-3.5688 ^a (-3.79)	-5.6121 ^a (-4.68)
<i>InvFirm</i>	-	-0.4804 (-1.39)	-1.0165 ^b (-2.28)	-1.5647 ^a (-2.98)	-1.7153 ^b (-2.56)
<i>Tenure_Firm</i>	+	-0.0380 ^a (-3.14)	-0.0364 ^b (-2.34)	-0.0032 (-0.17)	-0.0357 (-1.52)
<i>Exper_Firm</i>	+	-0.0010 (-0.26)	-0.0047 (-0.93)	-0.0072 (-1.20)	-0.0100 (-1.31)
<i>InvFirm*Tenure_Firm</i>	+	0.0455 ^c (1.93)	0.0820 ^a (2.70)	0.0921 ^b (2.56)	0.1527 ^a (3.33)
<i>InvFirm*Exper_Firm</i>	+	-0.0130 (-1.51)	-0.0141 (-1.27)	-0.0123 (-0.94)	-0.0025 (-0.15)
<i>IND</i>	+	0.0146 ^a (3.84)	0.0166 ^a (3.40)	0.0141 ^b (2.45)	0.0123 ^c (1.67)
<i>Collateral_D&S</i>	-	-0.0068 ^b (-2.00)	-0.0031 (-0.71)	-0.0002 (-0.03)	0.0016 (0.24)
<i>Share_D&S</i>	+	-0.0040 (-0.92)	0.0090 (1.60)	0.0183 ^a (2.76)	0.0225 ^a (2.66)
<i>DRW</i>	-	-0.0165 (-0.69)	-0.0655 ^b (-2.14)	-0.0707 ^c (-1.96)	-0.0483 (-1.05)
<i>Size</i>	+/-	0.0911 ^b (1.98)	0.2051 ^a (3.47)	0.2068 ^a (2.96)	0.3140 ^a (3.53)
<i>Zscore</i>	+	0.0174 (0.52)	-0.0144 (-0.33)	-0.0175 (-0.34)	-0.0123 (-0.19)
<i>Growth</i>	-	-0.0038 ^a (-2.84)	-0.0064 ^a (-3.70)	-0.0094 ^a (-4.61)	-0.0089 ^a (-3.45)
<i>ROA</i>	+	0.0275 (1.45)	0.1017 ^a (4.16)	0.1299 ^a (4.50)	0.1253 ^a (3.40)
<i>Leverage</i>	-	-0.0058 (-1.32)	-0.0101 ^c (-1.79)	-0.0083 (-1.26)	-0.0027 (-0.32)
No. of observation		5,468			
F-statistics		5.93 ^a	8.51 ^a	9.44 ^a	5.03 ^a

Adjusted R ²		0.0125	0.0189	0.0212	0.0102
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* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level



Panel B: Procomp scandal

	Predicted Sign	CAR(-1,1) (t-value)	CAR(-2,2) (t-value)	CAR(-3,3) (t-value)	CAR(-5,5) (t-value)
Intercept		-2.2071 ^b (-2.13)	-4.8421 ^a (-3.42)	-5.5010 ^a (-3.19)	-8.3203 ^a (-3.85)
<i>InvFirm</i>	-	0.2598 (0.52)	-0.1846 (-0.27)	-0.5282 (-0.63)	-1.5706 (-1.50)
<i>Tenure_Firm</i>	+	0.0184 (0.69)	0.0441 (1.21)	0.0794 ^c (1.79)	0.0606 (1.09)
<i>Exper_Firm</i>	+	-0.0060 (-0.61)	-0.0051 (-0.38)	-0.0032 (-0.20)	-0.0210 (-1.02)
<i>InvFirm*Tenure_Firm</i>	+	-0.0068 (-0.19)	0.0392 (0.81)	0.0359 (0.61)	0.0562 (0.76)
<i>InvFirm*Exper_Firm</i>	+	-0.0042 (-0.31)	-0.0106 (-0.58)	-0.0128 (-0.58)	0.0294 (1.05)
<i>IND</i>	+	0.0118 ^c (1.73)	0.0071 (0.77)	-0.0065 (-0.58)	-0.0111 (-0.78)
<i>Collateral_D&S</i>	-	-0.0025 (-0.44)	0.0051 (0.67)	0.0130 (1.41)	0.0326 ^a (2.82)
<i>Share_D&S</i>	+	0.0195 ^a (2.63)	0.0443 ^a (4.39)	0.0620 ^a (5.04)	0.0593 ^a (3.85)
<i>DRW</i>	-	-0.0291 (-0.66)	-0.0608 (-1.01)	-0.0901 (-1.23)	-0.0718 (-0.78)
<i>Size</i>	+/-	0.1326 ^c (1.65)	0.2572 ^b (2.34)	0.2520 ^c (1.88)	0.4835 ^a (2.88)
<i>Zscore</i>	+	-0.0027 (-0.05)	-0.0793 (-1.15)	-0.1192 (-1.42)	-0.1883 ^c (-1.79)
<i>Growth</i>	-	-0.0078 ^a (-3.90)	-0.0136 ^a (-4.97)	-0.0175 ^a (-5.26)	-0.0167 ^a (-4.00)
<i>ROA</i>	+	-0.0951 ^c (-1.81)	0.0957 (1.34)	0.1632 ^c (1.88)	0.1964 ^c (1.80)
<i>Leverage</i>	-	-0.0193 ^b (-2.56)	-0.0309 ^a (-3.00)	-0.0239 ^c (-1.90)	-0.0318 ^b (-2.02)
No. of observation		1,608			
F-statistics		3.34 ^a	5.54 ^a	6.47 ^a	5.48 ^a
Adjusted R ²		0.0285	0.0381	0.0455	0.0376

* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level



Panel C: Summit scandal

	Predicted Sign	CAR(-1,1) (t-value)	CAR(-2,2) (t-value)	CAR(-3,3) (t-value)	CAR(-5,5) (t-value)
Intercept		1.6139 ^c (1.73)	-1.7617 (-1.40)	-4.1235 ^a (-2.63)	-4.5747 ^b (-2.37)
<i>InvFirm</i>	-	0.2473 (0.44)	0.7423 (0.98)	-0.3860 (-0.41)	0.1883 (0.16)
<i>Tenure_Firm</i>	+	-0.0211 (-1.20)	-0.0318 (-1.35)	0.0228 (0.77)	0.0123 (0.34)
<i>Exper_Firm</i>	+	-0.0059 (-1.12)	-0.0108 (-1.51)	-0.0118 (-1.34)	-0.0150 (-1.37)
<i>InvFirm*Tenure_Firm</i>	+	-0.0718 ^c (-1.77)	-0.0852 (-1.57)	-0.0584 (-0.86)	-0.0776 (-0.93)
<i>InvFirm*Exper_Firm</i>	+	0.0235 (1.60)	0.0057 (0.29)	-0.0169 (-0.69)	0.0221 (0.73)
<i>IND</i>	+	0.0024 (0.44)	0.0047 (0.63)	-0.0050 (-0.54)	-0.0072 (-0.62)
<i>Collateral_D&S</i>	-	-0.0061 (-1.24)	-0.0038 (-0.58)	-0.0046 (-0.56)	-0.0067 (-0.67)
<i>Share_D&S</i>	+	-0.0188 ^a (-2.96)	-0.0069 (-0.81)	0.0055 (0.52)	0.0138 (1.06)
<i>DRW</i>	-	0.0210 (0.64)	0.0111 (0.25)	-0.0185 (-0.34)	-0.0059 (-0.09)
<i>Size</i>	+/-	0.0150 (0.22)	0.1286 (1.39)	0.2303 ^b (2.00)	0.3261 ^b (2.30)
<i>Zscore</i>	+	0.0132 (0.23)	0.0682 (0.90)	-0.0138 (-0.15)	-0.1604 (-1.38)
<i>Growth</i>	-	-0.0014 (-0.68)	-0.0024 (-0.85)	-0.0024 (-0.67)	-0.0032 (-0.74)
<i>ROA</i>	+	0.0090 (0.35)	0.0899 ^b (2.58)	0.1316 ^a (3.02)	-0.0120 (-0.22)
<i>Leverage</i>	-	-0.0069 (-1.08)	0.0015 (0.17)	0.0007 (0.07)	-0.0012 (-0.09)
No. of observation		1,812			
F-statistics		1.82 ^b	2.40 ^a	2.92 ^a	1.08
Adjusted R ²		0.0063	0.0107	0.0147	0.0007

* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level



Panel D: Rebar scandal

	Predicted Sign	CAR(-1,1) (t-value)	CAR(-2,2) (t-value)	CAR(-3,3) (t-value)	CAR(-5,5) (t-value)
Intercept		-0.5596 (-0.47)	-0.6765 (-0.46)	-1.0230 (-0.62)	-3.0262 (-1.40)
<i>InvFirm</i>	-	-0.8879 (-1.00)	-1.1110 (-1.01)	-0.1885 (-0.15)	0.5722 (0.35)
<i>Tenure_Firm</i>	+	-0.0448 ^b (-2.22)	-0.0525 ^b (-2.09)	-0.0333 (-1.18)	-0.0566 (-1.53)
<i>Exper_Firm</i>	+	-0.0014 (-0.21)	-0.0038 (-0.46)	-0.0063 (-0.67)	-0.0026 (-0.21)
<i>InvFirm*Tenure_Firm</i>	+	0.0747 (1.18)	0.0491 (0.62)	0.0321 (0.36)	0.1273 (1.10)
<i>InvFirm*Exper_Firm</i>	+	-0.0106 (-0.35)	0.0134 (0.36)	-0.0128 (-0.30)	-0.0270 (-0.49)
<i>IND</i>	+	0.0245 ^a (3.55)	0.0243 ^a (2.83)	0.0351 ^a (3.65)	0.0389 ^a (3.10)
<i>Collateral_D&S</i>	-	-0.0089 (-1.33)	-0.0062 (-0.75)	-0.0068 (-0.73)	-0.0183 (-1.50)
<i>Share_D&S</i>	+	-0.0083 (-1.01)	-0.0016 (-0.15)	0.0016 (0.14)	0.0094 (0.63)
<i>DRW</i>	-	-0.0472 (-1.08)	-0.1377 ^b (-2.53)	-0.1048 ^c (-1.72)	-0.0762 (-0.96)
<i>Size</i>	+/-	-0.0039 (-0.04)	0.0505 (0.47)	0.0454 (0.38)	-0.0006 (-0.00)
<i>Zscore</i>	+	0.1303 ^b (1.97)	0.0444 (0.54)	0.1228 (1.33)	0.3262 ^a (2.70)
<i>Growth</i>	-	0.0009 (0.31)	0.0028 (0.81)	-0.0018 (-0.47)	-0.0013 (-0.26)
<i>ROA</i>	+	0.0255 (0.77)	0.0706 ^c (1.71)	0.0715 (1.55)	0.1520 ^b (2.51)
<i>Leverage</i>	-	0.0052 (0.64)	-0.0026 (-0.26)	-0.0032 (-0.29)	0.0150 (1.02)
No. of observation		2,048			
F-statistics		4.17 ^a	3.27 ^a	3.54 ^a	5.94 ^a
Adjusted R ²		0.0212	0.0153	0.0170	0.0327

* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level



Table 7 Cross-sectional Analysis—Equation (2)

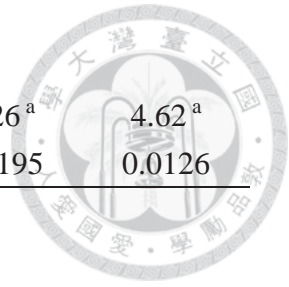
Panel A: Full sample

	Predicted Sign	CAR(-1,1) (t-value)	CAR(-2,2) (t-value)	CAR(-3,3) (t-value)	CAR(-5,5) (t-value)
Intercept		-1.4375 ^b (-2.18)	-3.3595 ^a (-3.96)	-3.4289 ^a (-3.42)	-6.0980 ^a (-4.77)
<i>InvCPA</i>	-	-0.8827 (-1.45)	-1.5406 ^b (-1.96)	-2.6092 ^a (-2.81)	-3.7391 ^a (-3.16)
<i>nonInvCPA</i>	-	-0.3330 ^b (-2.39)	-0.5430 ^a (-3.03)	-0.9182 ^a (-4.34)	-0.1917 (-0.71)
<i>Tenure_CPA1</i>	+	-0.0206 (-1.40)	-0.0159 (-0.84)	0.0064 (0.29)	-0.0151 (-0.53)
<i>Exper_CPA1</i>	+	-0.0505 ^a (-2.75)	-0.0400 ^c (-1.69)	0.0001 (0.00)	-0.0497 (-1.39)
<i>InvCPA*Tenure_CPA1</i>	+	0.1402 (0.70)	0.3688 (1.43)	0.3454 (1.13)	1.0711 ^a (2.76)
<i>InvCPA*Exper_CPA1</i>	+	0.0226 (0.23)	0.0042 (0.03)	0.0898 (0.61)	0.1398 (0.75)
<i>IND</i>	+	0.0161 ^a (4.34)	0.0176 ^a (3.70)	0.0131 ^b (2.33)	0.0118 ^c (1.65)
<i>Collateral_D&S</i>	-	-0.0071 ^b (-2.10)	-0.0031 (-0.72)	0.0005 (0.09)	0.0024 (0.36)
<i>Share_D&S</i>	+	-0.0032 (-0.74)	0.0091 (1.62)	0.0172 ^a (2.58)	0.0221 ^a (2.60)
<i>DRW</i>	-	-0.0187 (-0.79)	-0.0683 ^b (-2.23)	-0.0724 ^b (-2.00)	-0.0517 (-1.12)
<i>Size</i>	+/-	0.1155 ^b (2.40)	0.2131 ^a (3.44)	0.1933 ^a (2.64)	0.3269 ^a (3.50)
<i>Zscore</i>	+	0.0265 (0.80)	-0.0153 (-0.36)	-0.0366 (-0.73)	-0.0259 (-0.40)
<i>Growth</i>	-	-0.0039 ^a (-2.91)	-0.0064 ^a (-3.71)	-0.0094 ^a (-4.61)	-0.0090 ^a (-3.46)
<i>ROA</i>	+	0.0250 (1.32)	0.1009 ^a (4.12)	0.1320 ^a (4.56)	0.1265 ^a (3.43)
<i>Leverage</i>	-	-0.0052 (-1.22)	-0.0104 ^c (-1.88)	-0.0104 (-1.60)	-0.0047 (-0.56)

No. of observation		5,468			
F-statistics		5.29 ^a	7.42 ^a	8.26 ^a	4.62 ^a
Adjusted R ²		0.0116	0.0173	0.0195	0.0126

* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level



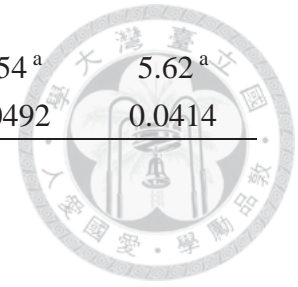
Panel B: Procomp scandal

	Predicted Sign	CAR(-1,1) (t-value)	CAR(-2,2) (t-value)	CAR(-3,3) (t-value)	CAR(-5,5) (t-value)
Intercept		-2.1497 ^c (-1.95)	-3.8811 ^a (-2.58)	-3.1576 ^c (-1.73)	-6.2672 ^a (-2.74)
<i>InvCPA</i>	-	-1.1278 (-1.49)	-1.8311 ^c (-1.77)	-2.8231 ^b (-2.24)	-4.4083 ^a (-2.80)
<i>nonInvCPA</i>	-	0.0255 (0.13)	-0.0904 (-0.33)	-0.3918 (-1.19)	-0.3277 (-0.80)
<i>Tenure_CPA1</i>	+	-0.0023 (-0.07)	0.0178 (0.43)	0.0704 (1.39)	0.0373 (0.59)
<i>Exper_CPA1</i>	+	-0.0174 (-0.53)	0.0552 (1.23)	0.1725 ^a (3.18)	0.1272 ^c (1.87)
<i>InvCPA*Tenure_CPA1</i>	+	0.0933 (0.45)	0.4188 (1.49)	0.2873 (0.84)	1.0935 ^b (2.57)
<i>InvCPA*Exper_CPA1</i>	+	0.0826 (0.82)	-0.0540 (-0.39)	-0.0058 (-0.03)	0.0286 (0.14)
<i>IND</i>	+	0.0110 ^c (1.66)	0.0046 (0.50)	-0.0093 (-0.84)	-0.0152 (-1.10)
<i>Collateral_D&S</i>	-	-0.0019 (-0.34)	0.0081 (1.07)	0.0167 ^c (1.83)	0.0371 ^a (3.24)
<i>Share_D&S</i>	+	0.0189 ^b (2.55)	0.0429 ^a (4.24)	0.0582 ^a (4.73)	0.0555 ^a (3.60)
<i>DRW</i>	-	-0.0301 (-0.68)	-0.0647 (-1.07)	-0.0857 (-1.17)	-0.0661 (-0.72)
<i>Size</i>	+/-	0.1475 ^c (1.73)	0.2331 ^b (2.00)	0.1251 (0.88)	0.3628 ^b (2.04)
<i>Zscore</i>	+	-0.0104 (-0.21)	-0.1257 ^c (-1.85)	-0.1768 ^b (-2.14)	-0.2515 ^b (-2.43)
<i>Growth</i>	-	-0.0104 (-0.21)	-0.0135 ^a (-4.94)	-0.0173 ^a (-5.22)	-0.0167 ^a (-4.03)
<i>ROA</i>	+	-0.0966 ^c (-1.84)	0.0975 (1.36)	0.1620 ^c (1.87)	0.2182 ^b (2.01)
<i>Leverage</i>	-	-0.0212 ^a (-2.89)	-0.0376 ^a (-3.76)	-0.0305 ^b (-2.51)	-0.0388 ^b (-2.55)
No. of observation		1,608			

F-statistics		3.16 ^a	5.00 ^a	6.54 ^a	5.62 ^a
Adjusted R ²		0.0198	0.0360	0.0492	0.0414

* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level



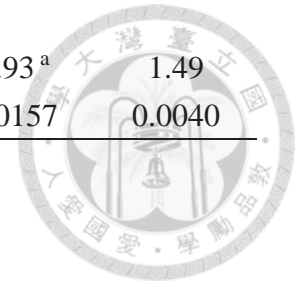
Panel C: Summit scandal

	Predicted Sign	CAR(-1,1) (t-value)	CAR(-2,2) (t-value)	CAR(-3,3) (t-value)	CAR(-5,5) (t-value)
Intercept		0.7907 (0.79)	-2.7475 ^b (-2.04)	-4.1854 ^b (-2.50)	-5.4148 ^a (-2.62)
<i>InvCPA</i>	-	-1.1163 (-0.86)	-2.0370 (-1.17)	-5.4642 ^b (-2.51)	-6.3917 ^b (-2.38)
<i>nonInvCPA</i>	-	-0.0560 (-0.25)	-0.0209 (-0.07)	-1.3063 ^a (-3.45)	-0.0711 (-0.15)
<i>Tenure_CPA1</i>	+	-0.0138 (-0.65)	-0.0265 (-0.93)	0.0018 (0.05)	-0.0388 (-0.89)
<i>Exper_CPA1</i>	+	-0.0626 ^b (-2.40)	-0.0900 ^b (-2.56)	-0.0431 (-0.98)	-0.0810 (-1.50)
<i>InvCPA*Tenure_CPA1</i>	+	0.6938 (1.29)	1.0339 (1.43)	2.2071 ^b (2.44)	2.7783 ^b (2.50)
<i>InvCPA*Exper_CPA1</i>	+	0.2267 (0.63)	0.1825 (0.38)	0.1583 (0.26)	-0.0541 (-0.07)
<i>IND</i>	+	0.0039 (0.72)	0.0066 (0.90)	-0.0073 (-0.80)	-0.0090 (-0.80)
<i>Collateral_D&S</i>	-	-0.0069 (-1.42)	-0.0051 (-0.78)	-0.0048 (-0.58)	-0.0080 (-0.79)
<i>Share_D&S</i>	+	-0.0179 ^a (-2.82)	-0.0058 (-0.68)	0.0049 (0.46)	0.0152 (1.16)
<i>DRW</i>	-	0.0211 (0.65)	0.0103 (0.23)	-0.0193 (-0.35)	-0.0117 (-0.17)
<i>Size</i>	+/-	0.0464 (0.64)	0.1634 ^c (1.68)	0.2490 ^b (2.05)	0.3988 ^a (2.66)
<i>Zscore</i>	+	0.0360 (0.65)	0.0957 (1.28)	-0.0232 (-0.25)	-0.1576 (-1.37)
<i>Growth</i>	-	-0.0013 (-0.61)	-0.0024 (-0.88)	-0.0027 (-0.79)	-0.0034 (-0.80)
<i>ROA</i>	+	0.0060 (0.23)	0.0844 ^b (2.41)	0.1304 ^a (2.99)	-0.0175 (-0.33)
<i>Leverage</i>	-	-0.0042 (-0.67)	0.0041 (0.49)	-0.0010 (-0.10)	-0.0018 (-0.14)
No. of observation		1,812			

F-statistics		1.64 ^c	2.30 ^a	2.93 ^a	1.49
Adjusted R ²		0.0053	0.0107	0.0157	0.0040

* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level



Panel D: Rebar scandal

	Predicted Sign	CAR(-1,1) (t-value)	CAR(-2,2) (t-value)	CAR(-3,3) (t-value)	CAR(-5,5) (t-value)
Intercept		-0.9750 (-0.76)	-0.8769 (-0.55)	-1.5024 (-0.85)	-4.3516 ^c (-1.87)
<i>InvCPA</i>	-	1.3822 (0.36)	1.1927 (0.25)	1.6993 (0.32)	3.3534 (0.48)
<i>nonInvCPA</i>	-	-0.3834 (-0.96)	-0.3937 (-0.79)	-0.1759 (-0.32)	1.3619 ^c (1.87)
<i>Tenure_CPA1</i>	+	-0.0212 (-0.84)	-0.0305 (-0.97)	-0.0262 (-0.74)	-0.0194 (-0.42)
<i>Exper_CPA1</i>	+	-0.0263 (-0.77)	-0.0134 (-0.31)	-0.0423 (-0.89)	-0.0933 (-1.50)
<i>InvCPA*Tenure_CPA1</i>	+	0.5844 (0.20)	0.5205 (0.14)	0.8497 (0.20)	0.1741 (0.03)
<i>InvCPA*Exper_CPA1</i>	+	-0.6975 ^c (-1.94)	-0.4956 (-1.11)	-0.7220 (-1.44)	-0.8928 (-1.36)
<i>IND</i>	+	0.0277 ^a (4.11)	0.0283 ^a (3.39)	0.0370 ^a (3.95)	0.0417 ^a (3.41)
<i>Collateral_D&S</i>	-	-0.0105 (-1.57)	-0.0076 (-0.91)	-0.0082 (-0.89)	-0.0202 ^c (-1.67)
<i>Share_D&S</i>	+	-0.0080 (-0.98)	-0.0016 (-0.16)	0.0020 (0.17)	0.0108 (0.72)
<i>DRW</i>	-	-0.0484 (-1.10)	-0.1387 ^b (-2.54)	-0.1074 ^c (-1.76)	-0.0794 (-0.99)
<i>Size</i>	+/-	-0.0155 (-0.17)	0.0122 (0.11)	0.0502 (0.40)	0.0475 (0.29)
<i>Zscore</i>	+	0.1564 ^b (2.38)	0.0707 (0.87)	0.1444 (1.58)	0.3653 ^a (3.05)
<i>Growth</i>	-	0.0009 (0.32)	0.0030 (0.88)	-0.0019 (-0.50)	-0.0017 (-0.34)
<i>ROA</i>	+	0.0181 (0.54)	0.0641 (1.55)	0.0642 (1.39)	0.1390 ^b (2.30)
<i>Leverage</i>	-	0.0075 (0.95)	0.0005 (0.05)	-0.0021 (-0.19)	0.0172 (1.19)
No. of observation		2,048			

F-statistics		3.94	2.94	3.45	5.66
Adjusted R ²		0.0211	0.0140	0.0177	0.0330

* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level

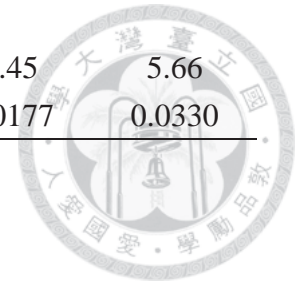


Table 8 Univariate Analysis of Median CARs for Involved Audit Partner Clients**Panel A: Full sample**

	N	<i>CAR(-1,1)</i>	<i>CAR(-2,2)</i>	<i>CAR(-3,3)</i>	<i>CAR(-5,5)</i>
Lead audit partner	44	-0.9713	-1.5763	-2.4624	-3.6849
Concurring audit partner	61	-0.3339	-1.8019	-1.4125	-4.2848
Difference (chi-square)		-0.6374 (-1.22)	0.2256 (0.23)	-1.0499 (-2.25)	0.5999 (1.22)

Panel B: Procomp scandal

	N	<i>CAR(-1,1)</i>	<i>CAR(-2,2)</i>	<i>CAR(-3,3)</i>	<i>CAR(-5,5)</i>
Lead audit partner	16	-2.0019	-3.9964	-4.6839	-5.5242
Concurring audit partner	45	-0.8715	-2.3009	-1.5023	-1.7612
Difference (chi-square)		-1.1304 ^c (-2.79)	-1.6955 ^c (-2.79)	-3.1816 ^c (-2.79)	-3.7630 ^c (-2.79)

Panel C: Summit scandal

	N	<i>CAR(-1,1)</i>	<i>CAR(-2,2)</i>	<i>CAR(-3,3)</i>	<i>CAR(-5,5)</i>
Lead audit partner	11	-0.7035	-0.5704	-0.1802	-2.8374
Concurring audit partner	13	1.0926	-0.2445	-1.3959	-0.8825
Difference (chi-square)		-1.7961 (-0.17)	-0.3259 (-0.17)	1.2157 (1.51)	-1.9549 (-0.17)

Panel D: Rebar scandal

	N	<i>CAR(-1,1)</i>	<i>CAR(-2,2)</i>	<i>CAR(-3,3)</i>	<i>CAR(-5,5)</i>
Lead audit partner	17	-0.7104	0.0184	-2.2979	-2.0857
Concurring audit partner	3	-0.4021	-2.2743	-2.2355	-6.6716
Difference (chi-square)		-0.3083 (-0.39)	2.2927 (0.39)	-0.0624 (0.39)	4.5859 (0.39)

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level

Table 9 Additional Test—Equation (1)

	Predicted Sign	CAR(-1,1) (t-value)	CAR(-2,2) (t-value)	CAR(-3,3) (t-value)	CAR(-5,5) (t-value)
Intercept		-2.8127 ^a (-3.06)	-6.9308 ^a (-5.89)	-8.5395 ^a (-6.21)	-14.3058 ^a (-7.98)
<i>InvFirm</i>	-	-0.3337 (-0.68)	-0.7440 (-1.18)	-1.5204 ^b (-2.06)	-1.7485 ^c (-1.82)
<i>Tenure_Firm</i>	+	-0.0688 ^a (-3.83)	-0.0433 ^c (-1.88)	0.0206 (0.77)	-0.0498 (-1.42)
<i>Exper_Firm</i>	+	0.0045 (0.76)	-0.0033 (-0.44)	-0.0128 (-1.45)	-0.0059 (-0.51)
<i>InvFirm*Tenure_Firm</i>	+	0.0578 ^c (1.69)	0.0531 (1.22)	0.0250 (0.49)	0.1505 ^b (2.26)
<i>InvFirm*Exper_Firm</i>	+	-0.0242 ^b (-2.00)	-0.0194 (-1.25)	0.0026 (0.15)	-0.0014 (-0.06)
<i>IND</i>	+	0.0299 ^a (5.28)	0.0378 ^a (5.21)	0.0334 ^a (3.94)	0.0326 ^a (2.95)
<i>Collateral_D&S</i>	-	-0.0098 ^b (-1.97)	-0.0029 (-0.45)	0.0001 (0.00)	0.0028 (0.29)
<i>Share_D&S</i>	+	-0.0082 (-1.26)	0.0184 ^b (2.22)	0.0340 ^a (3.50)	0.0545 ^a (4.30)
<i>DRW</i>	-	0.0370 (1.05)	-0.0397 (-0.88)	-0.0469 (-0.89)	-0.0187 (-0.27)
<i>Size</i>	+/-	0.1890 ^a (2.77)	0.4368 ^a (5.00)	0.4774 ^a (4.67)	0.7631 ^a (5.73)
<i>Zscore</i>	+	0.0812 (1.57)	0.0540 (0.82)	0.0937 (1.21)	0.0736 (0.73)
<i>Growth</i>	-	-0.0030 (-1.50)	-0.0058 ^b (-2.27)	-0.0072 ^b (-2.42)	-0.0039 (-1.00)
<i>ROA</i>	+	0.1203 ^a (4.27)	0.1940 ^a (5.38)	0.1949 ^a (4.62)	0.1677 ^a (3.05)
<i>Leverage</i>	-	-0.0056 (-0.86)	-0.0179 ^b (-2.15)	-0.0155 (-1.59)	-0.0061 (-0.48)
No. of observation		2,681			
F-statistics		12.29 ^a	14.28 ^a	12.44 ^a	8.02 ^a
Adjusted R ²		0.0557	0.0649	0.0564	0.0354

* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level



Table 10 Additional Tests—Equation (2)

	Predicted Sign	<i>CAR</i> (-1,1) (t-value)	<i>CAR</i> (-2,2) (t-value)	<i>CAR</i> (-3,3) (t-value)	<i>CAR</i> (-5,5) (t-value)
Intercept		-3.7678 ^a (-3.85)	-7.9250 ^a (-6.34)	-8.9182 ^a (-6.11)	-15.4519 ^a (-8.12)
<i>InvCPA</i>	-	-0.6189 (-0.73)	-1.0333 (-0.95)	-2.6600 ^b (-2.10)	-4.1926 ^b (-2.54)
<i>nonInvCPA</i>	-	-0.3409 ^c (-1.73)	-0.6616 ^a (-2.62)	-1.1439 ^a (-3.88)	-0.1737 (-0.45)
<i>Tenure_CPA1</i>	+	-0.0235 (-1.03)	0.0195 (0.67)	0.0466 (1.37)	-0.0269 (-0.61)
<i>Exper_CPA1</i>	+	-0.0683 ^b (-2.49)	-0.0749 ^b (-2.14)	-0.0395 (-0.97)	-0.0917 ^c (-1.72)
<i>InvCPA*Tenure_CPA1</i>	+	0.0265 (0.10)	0.2263 (0.64)	0.3636 (0.88)	1.0252 ^c (1.90)
<i>InvCPA*Exper_CPA1</i>	+	0.1286 (0.93)	0.0241 (0.14)	0.0694 (0.33)	0.2423 (0.90)
<i>IND</i>	+	0.0333 ^a (5.97)	0.0392 ^a (5.51)	0.0310 ^a (3.72)	0.0324 ^a (2.99)
<i>Collateral_D&S</i>	-	-0.0105 ^b (-2.11)	-0.0031 (-0.49)	0.0005 (0.07)	0.0035 (0.36)
<i>Share_D&S</i>	+	-0.0072 (-1.10)	0.0187 ^b (2.25)	0.0333 ^a (3.41)	0.0555 ^a (4.38)
<i>DRW</i>	-	0.0367 (1.04)	-0.0399 (-0.89)	-0.0481 (-0.91)	-0.0244 (-0.36)
<i>Size</i>	+/-	0.2117 ^a (2.95)	0.4660 ^a (5.09)	0.5039 ^a (4.71)	0.8268 ^a (5.93)
<i>Zscore</i>	+	0.1027 ^b (2.02)	0.0639 (0.98)	0.0801 (1.06)	0.0661 (0.67)
<i>Growth</i>	-	-0.0031 (-1.55)	-0.0057 ^b (-2.25)	-0.0071 ^b (-2.40)	-0.0041 (-1.07)
<i>ROA</i>	+	0.1200 ^a (4.24)	0.1932 ^a (5.35)	0.1934 ^a (4.58)	0.1684 ^a (3.06)
<i>Leverage</i>	-	-0.0030 (-0.47)	-0.0168 ^b (-2.07)	-0.0178 ^c (-1.87)	-0.0084 (-0.68)
No. of observation		2,681			

F-statistics		10.69 ^a	13.25 ^a	11.66 ^a	7.70 ^a
Adjusted R ²		0.0514	0.0641	0.0563	0.0362

* The description of the variables are shown in Table 1.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level



Table 11 Additional Test—Median Difference for Involved Audit Partner Level**Panel A: Full sample**

	N	<i>CAR(-1,1)</i>	<i>CAR(-2,2)</i>	<i>CAR(-3,3)</i>	<i>CAR(-5,5)</i>
Lead audit partner	22	-1.0548	-1.5763	-1.3069	-4.2394
Concurring audit partner	38	-0.1329	-1.8190	-1.5631	-1.8134
Difference (chi-square)		-0.9219 (-2.58)	0.2427 (0.29)	0.2562 (0.00)	-2.4260 (0.29)

Panel B: Procomp scandal

	N	<i>CAR(-1,1)</i>	<i>CAR(-2,2)</i>	<i>CAR(-3,3)</i>	<i>CAR(-5,5)</i>
Lead audit partner	8	-2.4258	-3.1087	-4.6839	-5.0435
Concurring audit partner	25	-1.0585	-2.3693	-2.7372	-2.9859
Difference (chi-square)		-1.3673 (-1.65)	-0.7394 (-0.67)	-1.9467 (-0.67)	-2.0576 (-0.67)

Panel C: Summit scandal

	N	<i>CAR(-1,1)</i>	<i>CAR(-2,2)</i>	<i>CAR(-3,3)</i>	<i>CAR(-5,5)</i>
Lead audit partner	11	-0.7035	-0.5704	-0.1802	-2.8372
Concurring audit partner	13	1.0926	-0.2445	-1.3959	-0.8825
Difference (chi-square)		-1.7961 (-0.17)	-0.3259 (-0.17)	1.2157 (1.51)	-1.9547 (-0.17)

* In Rebar scandal, the involved audit partner clients are all audited by the lead audit partner of Rebar or its affiliates, so the Rebar scandal are neglected here.

^a Significant at 1% level; ^b Significant at 5% level; ^c Significant at 10% level