

2016

# The Certifying Triangle of Financial Reports

Dong Li

*Louisiana State University and Agricultural and Mechanical College*

Follow this and additional works at: [https://digitalcommons.lsu.edu/gradschool\\_dissertations](https://digitalcommons.lsu.edu/gradschool_dissertations)



Part of the [Accounting Commons](#)

---

## Recommended Citation

Li, Dong, "The Certifying Triangle of Financial Reports" (2016). *LSU Doctoral Dissertations*. 4067.  
[https://digitalcommons.lsu.edu/gradschool\\_dissertations/4067](https://digitalcommons.lsu.edu/gradschool_dissertations/4067)

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Doctoral Dissertations by an authorized graduate school editor of LSU Digital Commons. For more information, please contact [gradetd@lsu.edu](mailto:gradetd@lsu.edu).

# THE CERTIFYING TRIANGLE OF FINANCIAL REPORTS

A Dissertation

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy

in

The Department of Accounting

by

Dong Li

B.S., Xiamen University, 1993

M.A., Brigham Young University, 2005

May 2016

I dedicate this dissertation to my wife, Dawna, and my three young children, Jada, Keiff, and Kayden.

## ACKNOWLEDGMENTS

I am indebted to Kenneth Reichelt, my dissertation committee chair, and the other members of my dissertation committee (Christine Cheng, Jared Soileau, and Wei-Ling Song), for their wisdom and insightful comments on previous drafts of this paper. In addition, I am thankful for the financial support from Accounting Doctoral Scholars Program (ADS Program) of the American Institute of CPAs Foundation.

## TABLE OF CONTENTS

|   |     |
|---|-----|
| ACKNOWLEDGMENTS .....   | iii |
| ABSTRACT .....  | v   |
| CHAPTER 1 INTRODUCTION.....   | 1   |
| CHAPTER 2 MOTIVATION, THEORETICAL FRAMEWORK, AND REGULATORY STANDARDS .....                   | 3   |
| 2.1 Agency theory and labor contracting theory in a multi-agent and multi-period setting..... | 3   |
| 2.2 SEC and PCAOB regulations .....   | 4   |
| CHAPTER 3 LITERATURE REVIEW .....   | 7   |
| 3.1 The three points of the certifying triangle.....  | 7   |
| 3.2 The three sides of the certifying triangle.....   | 9   |
| 3.3 Determinants and consequences of triangle realignment .....                               | 11  |
| 3.4 Triangle realignment and ERC .....  | 13  |
| CHAPTER 4 HYPOTHESIS DEVELOPMENT AND RESEARCH DESIGN .....                                    | 16  |
| 4.1 Interrelations within the triangle .....  | 16  |
| 4.2 Magnitudes of triangle realignment and ERC.....   | 21  |
| 4.3 Triangle realignment preceded by adverse accounting conditions .....                      | 25  |
| CHAPTER 5 SAMPLE AND DESCRIPTIVE STATISTICS .....   | 28  |
| 5.1 Sample selection .....  | 28  |
| 5.2 Descriptive statistics .....  | 29  |
| CHAPTER 6 EMPIRICAL RESULTS .....   | 34  |
| 6.1 Hazard models .....   | 34  |
| 6.2 CAR model .....   | 38  |
| 6.3 CAR model preceded by adverse accounting conditions.....                                  | 42  |
| CHAPTER 7 ROBUSTNESS TESTS .....  | 44  |
| 7.1 Further disentanglement of the three magnitudes of triangle realignment .....             | 44  |
| 7.2 Alternative measurements of <i>CAR</i> and <i>UE</i> .....                                | 48  |
| 7.3 Non-linearity of returns-earnings relation.....   | 48  |
| 7.4 Length of the three sides of the certifying triangle .....                                | 49  |
| 7.5 Nature of replacements .....  | 49  |
| 7.6 Triangle realignment’s lagged effect on ERC.....  | 49  |
| CHAPTER 8 CONCLUSIONS AND FUTURE RESEARCH .....   | 50  |
| REFERENCES .....  | 52  |
| VITA .....  | 57  |

## ABSTRACT

This research provides theoretical, regulatory, and empirical underpinnings that financial reports are the joint representation of the certifying triangle (i.e., CEO-CFO-Auditor). This research also finds that replacement of the CEO tends to reduce the survival rate of the CFO with the firm, and vice versa; replacement of the CFO reduces the survival rate of the auditor, and vice versa. However, an association does not exist between the survival rate of the CEO and the auditor. Moreover, while a single realignment of the certifying triangle does not reduce the year-end ERC, a double (CEO-CFO) realignment significantly decreases the ERC. This negative effect is mitigated if the double (CEO-CFO and CEO-Auditor) realignment coincides with prior adverse accounting conditions. Nevertheless, the effects of a triple realignment on the ERC are not conclusive. Collectively, these results suggest that the board and the market perceive the certifying triangle as a team when it comes to financial reporting; however, the interrelations among the three vary. Further, investors' uncertainty of earnings credibility increases significantly when two contracts are replaced contemporaneously. However, investors' confidence is largely restored when the board acts to make the two related parties accountable for the adverse conditions that the firm runs into. Overall, triangle realignment represents a holistic effort by the board to build a well-incentivized and well-matched financial reporting team. This paper contributes to the financial reporting research by challenging the presumed homogeneity of the top executive team.

## CHAPTER 1 INTRODUCTION

The SEC Act of 1934 (hereafter, SEC 1934) and the Sarbanes-Oxley Act of 2002 (hereafter, SOX) place joint and individual responsibility for the material accuracy and fair presentation of the financial statements on three parties: (1) the CEO; (2) the CFO; and, (3) the auditor. Throughout this paper, the term “the certifying triangle” is used to describe the relationship that exists among the three parties. Varying degrees of realignment can occur in the certifying triangle when one or more parties are replaced. Extant literature examines these realignments disjointedly. By examining realignments in the certifying triangle holistically, I advance extant research and meet Beyer et al.’s (2010) call for research which examines the interrelations and interdependencies among the decisions that shape the corporate information environment.

Labor contracting theory guides the individual incentives and interactive incentives of the certifying triangle. The relation between the certifying triangle and the board is characterized by three separate contracts with the audit committee and the compensation committee.<sup>1</sup> However, no formal contract binds each member of the triangle to one another. Despite the absence of a formal contract, extant research recognizes that the financial statements represent coordination between the members of the management and the auditors (Antle and Nalebuff 1991; DeFond and Subramanyam 1998; and Hackenbrack and Hogan 2002). The elevation of the CFO as a separate certifying member of the financial statements adds another dimension to coordination examined by these studies. As such, I extend previous empirical research by uncovering the dynamics of coordination among the members of the certifying triangle.

Since the financial statement process requires coordination among the members of the certifying triangle, triangle realignment can impact the coordination. As such, my first research question is: Does the replacement of one party affect the tenure of the other members? Extant research suggests that the replacement of one party member influences the replacement of another party member (Mian 2001; Menon and Williams 2002). I extend these studies by examining the joint-replacement association with the tenure of the final party member. To do so, I use a hazard model. My evidence indicates that the replacement of the CFO tends to reduce the survival rate of either the CEO or the auditor, and vice versa. However, there is no similar association between the CEO-Auditor pair. This result

---

<sup>1</sup> Contracts, explicit or implicit, establish a complex relationship that determines the agent’s (e.g., the CEO) responsibilities, compensation, perquisites, terms of employment, and severance (Gillan et al 2009). Hereby I take a broad sense of contracts which include both written employment agreements and implicit employment agreements, under which the CEO was employed at will.

suggests that both the board and the investors view the certifying triangle as a team as regards to financial reporting. Triangle realignment, then, represents the board's coherent effort to build a well-incentivized and well matched financial reporting team. In addition to extending Mian (2001) and Menon and Williams (2008), my results motivate the extension of DeFond and Subramanyam (1998) and Hackenbrack and Hogan (2002) to include the CFO as the final member of the financial reporting system.

The impact of triangle realignment on the credibility of financial reporting is also examined. Since the earnings response coefficient, or ERC, incorporates both earnings and stock price information and directly connects financial reports to the capital market, it is used here as a measure of earnings credibility (Ball and Brown 1968). Two empirical questions are asked to address the realignment impact problem. How is the year-end ERC of a firm affected by various magnitudes of triangle realignment? Further, what is the effect on the ERC if the triangle realignment is preceded by adverse accounting conditions? I perform a short-window event study to evaluate the effects of various magnitudes of triangle realignment on the ERC. The findings are consistent with expectations of contracting theory (Williamson 2002) and extant literature (e.g., Wilson 2008), demonstrating that a single realignment generally does not significantly decrease the year-end ERC, but a double (CEO-CFO) realignment does. Nonetheless, the negative effect of the double realignment is mitigated if the realignment (CEO-CFO or CEO-Auditor) is preceded by adverse accounting conditions. These results suggest that investors' uncertainty about earnings credibility is not minimized when only one contract is replaced, but investors' uncertainty increases significantly when double contracts (CEO-CFO) are replaced. Nevertheless, investors' confidence is largely restored if the act of double (CEO-CFO or CEO-Auditor) realignment is aimed at correcting adverse accounting conditions. These findings shed light to regulators when they evaluate whether the latest accounting standards on the role of the audit committee, (e.g., Section 301 of SOX and Auditing Standard No. 16 (hereafter, AS 16)), have improved the information content and overall usefulness of financial statements.



## CHAPTER 2 MOTIVATION, THEORETICAL FRAMEWORK, AND REGULATORY STANDARDS

This study is directly inspired by the survey paper of Beyer et al. (2010) and serves as a direct answer to their call to consider in a joint fashion the interrelations and interdependencies among the decisions that shape the corporate information environment. Beyer et al. (2010) also emphasize that it is the management and not the “firm” that makes reporting and disclosure decisions. Among the three aspects of the corporate information environment identified by Beyer et al. (2010): voluntary firm disclosures, mandatory firm disclosures, and analysts’ reports, reported earnings appears to be only a small stream of information under mandatory firm disclosures. However, reported earnings is the ‘fixated’ number by both internal and external users (Sloan 1996), therefore it is probably one of the most useful pieces of information to the capital market. Nevertheless, the reported earnings itself is the joint product of several decision makers.

Another motivation comes from the many review papers spawned by the 10<sup>th</sup> anniversary of SOX and the Public Company Accounting Oversight Board (PCAOB) in the past two or three years from both academia (e.g., Palmrose 2013) and industry (e.g., EY 2014). All these review papers generally agree that after the turn of the century we have witnessed dramatic changes in the financial reporting environment. The regulatory changes have also had a profound effect on enhancing financial reporting reliability, thus ended over 100 years of self-regulation of the audit profession (EY 2014). Taken together, these studies provide evidence that the role of the board, management, and the auditor has been redefined in the post-SOX/PCAOB era; however, the implicit assumption of a homogeneous top management team seems to go unchallenged. Hereby I attempt to examine how the CEO, the CFO, and the auditor interact with one another, and whether earnings information is viewed differently by the stock market following a realignment of one or more of the three parties.

### 2.1 Agency theory and labor contracting theory in a multi-agent and multi-period setting

While a typical principal-agent relationship consists of only one principal (the board) and one agent (corporate management ) in a single time period (Coase 1937), multi-agent models (e.g., Hölmstrom 1982) and multi-period models (e.g., Holmstrom and Milgrom 1987) have been developed in the past 30 years to examine the role of competition, interaction, and incentive allocation among various agents. Antle (1982) is the first to introduce the auditor as an economic agent and another strategic player in a principal-agent framework. He argues that an auditor is not qualitatively different from other types of economic agents, because auditing is also “the production of information about the manager’s information”. Under Antle’s (1982) framework of the two-agent agency model,

each of the two agents (management and the auditor) has its own incentives, and thus tends to maximize its own utility.<sup>2</sup>

Closely connected is labor contracting theory that develops models to identify and examine ways in which the principal motivates and disciplines agents to take appropriate actions. For example, Fama (1980) argues that competition in the labor market efficiently monitors the performance of the entire management team and its individual members. Another example is Lambert (2001), who summarizes and concludes that incentives, asymmetric information, and coordination issues are important in understanding how an organization operates; therefore, researchers must explicitly incorporate into their analysis conflicts of interest, incentive problems, and mechanisms for controlling incentive problems.

To summarize, agency theory and contracting theory provide a theoretical framework to address the purpose of accounting information and to examine the link to incentives and market valuation in a multi-agent and multi-period setting. In turn, this framework sheds light on how corporate governance mechanisms and key agents (i.e., the CEO, the CFO, and the auditor), affect the firm's financial reporting system.

## 2.2 SEC and PCAOB regulations

While Antle's (1982) model does not identify the individual members (the CEO and the CFO) within management who are the key decision makers in the financial reporting system, SOX does. Under Section 302 and Section 906 of SOX, the CEO and the CFO are required, individually, to certify the financial and other information contained in the issuer's quarterly and annual reports. This is in addition to the requirement of SEC 1934 and of Section 404 of SOX, which requires an independent auditor to issue an opinion on a registrant's annual financial reports and an opinion on the adequacy of internal controls over financial reporting (for accelerated filers and large accelerated filers), respectively.

Additionally, Section 301 of SOX stipulates that the audit committee, not management, engages the auditor. Therefore Section 301 reduces the ability of the CEO and the CFO to threaten to dismiss the auditor when there is a disagreement between the management and the auditor regarding accounting policies or financial

---

<sup>2</sup> Antle (1982) states that his agency model follows closely the work on communication in agencies (Christensen 1981), external auditing (Ng 1978), auditing incentives (Ng and Stoeckenius 1979), and optimal contracting arrangements with the auditor (Evans 1980). Nevertheless, his expanded agency model becomes the pioneer which explicitly introduces the auditor in a principal-agent framework.

disclosures.<sup>3</sup> In essence, the auditor's independence is strengthened by the audit committee being responsible for the appointment, compensation, and oversight of the auditor.

The fact that Section 301 of SOX switches the oversight of the auditor from management to the audit committee marks the official formation of the certifying triangle. As a result, the three parties, the CEO, the CFO, and the auditor, who are solely and jointly responsible to the board but not to one another, form the three points (vertex) of the certifying triangle. Meanwhile, the three two-way connections among them, the CEO-CFO relationship, the CEO-Auditor relationship, and the CFO-Auditor relationship, constitute the three edges (sides) of the certifying triangle.

Furthermore, AS 16 gives a description of the ideal relationship within the certifying triangle. AS 16 mandates that the audit committee serves as the board of director's principal liaison between the firm's management and its auditors. The audit committee provides a forum between the auditors and management (CEO and the CFO) to discuss critical matters about the audit engagement and the firm's financial reporting issues. Essentially, AS 16's requirements place the audit committee at the center of the relationship between the CEO, the CFO, and the auditor. Therefore, AS 16 establishes not only required communications between the auditor and the audit committee, but also communications about financial reporting through the audit committee between management and the auditor.

To summarize, SOX redefines the role of the CEO, the CFO, and the auditor regarding financial reports, and bundles them as the certifying triangle of the financial reports.<sup>4</sup> Further, the PCAOB stipulates that the audit committee serves as the liaison for the triangle parties. The certifying triangle is depicted as follows on Figure 1.

---

<sup>3</sup> In a pre-SOX research, Teoh (1992) examines the threat to the auditors of being dismissal if they issue a qualified audit opinion.

<sup>4</sup> DeFond and Zhang (2014) note that financial reporting quality (FRQ) is a function of a firm's innate characteristics (I), which determine its underlying economics; the firm's financial reporting system (R), which maps its underlying economics into its financial reports; and audit quality (AR), which provides assurance that the financial statements faithfully reflect the underlying economics of the firm. That is,  $FRQ=f(AQ, R, I)$ . They further observe that the quality of the financial reporting system (R) affects the relation between AQ and FRQ because auditors may require adjustments to the pre-audited financial statements before the auditors are willing to assure their credibility. However, due to the continuous nature of audit, evidenced by the existence of auditor reviews during the first three quarters of the year, the financial statements before the year-end audit may already have reflected the adjustments required by the auditors all along the accounting period. In this sense, I contend that the auditor is a continuous and integral part of the financial reporting system.

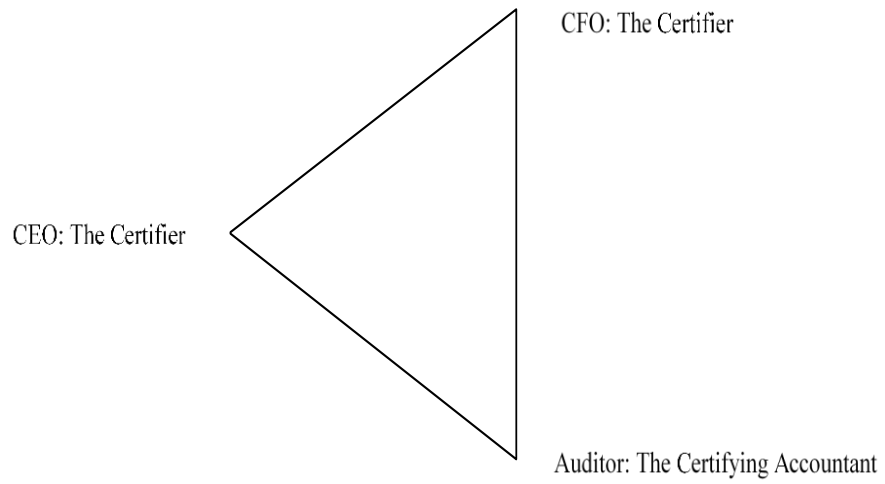


Figure 1 - The Certifying Triangle

Figure 1 depicts the three certifiers of financial reports. The CEO and CFO become the certifier under SOX, and the auditor becomes the certifying accountant under SEC 1934.

## CHAPTER 3 LITERATURE REVIEW

Both analytical and empirical evidence from extant literature has established that management and the auditor are an integral part of the financial reporting system, thus forming a certifying triangle. Antle and Nalebuff (1991) argue that while the users of financial reports only see the final outcome, the financial statements are a negotiated joint representation of management and the auditor. Meanwhile, empirical researchers corroborate that the financial reporting choices (DeFond and Subramanyam 1998), and earnings are jointly determined by management and the auditors (Hackenbrack and Hogan 2002).

### 3.1 The three points of the certifying triangle

Of the three triangle parties, the CEO generally leads. The CEO plays a strategic role in the firm and sets the tone at the top (COSO 1994). At one extreme, the CEO may delegate all financial reporting responsibilities to the CFO. At the other extreme, a dominant CEO may be deeply involved in all the key financial reporting decisions. With the introduction of Section 302 and 906 of SOX, the CEO's role in the financial reporting system has since been clarified and redefined. Regardless, the CEO is now mandated (SOX 302 and 906) to personally certify the financial statements and related disclosures.

Whereas the CEO has established its leading role in financial reporting, the crowning of the CFO as among the big three players has undergone a long journey, during which the CFO has gradually developed as the watchdog of the financial reporting system (Zorn 2004). Notwithstanding that the CFO reports to the CEO, Section 302 and Section 906 of SOX further elevates the CFO as a distinct certifier of the financial reports. Although in practice the financial reports and disclosures are mostly prepared by the staff of the CFO (i.e., controller, chief accounting officer, tax director, treasurer, and their respective subordinates), it is the CFO who personally certifies the financial statements and disclosures at the end of the financial reporting cycle.

Contemporaneous with management preparing the financial statements, the auditor conducts the audit engagement to assure that the financial statements are presented fairly and in accordance with Generally Accepted Accounting Principles (GAAP).<sup>5</sup> Auditors improve earnings credibility because they detect and require correction of intentional and unintentional accounting errors and misstatements (DeAngelo 1981). In addition, auditors have

---

<sup>5</sup> A change of the independent auditor is considered a material and significant event, therefore a registrant is required by the SEC to file Form 8-K to report the current event. The general instructions for Form 8-K officially define an auditor change event as Item 4.01- Changes in Registrant's *Certifying Accountant* (emphasis added). Consequently, I coin the term 'certifying triangle' since all three parties, including the CEO, the CFO, and the auditor, are certifiers of the financial reports.

incentives to remain independent, such as litigation risk and reputation costs (Shu 2000), by requiring that material accounting errors are corrected or reported. Generally, the auditor's opinion provides the public with additional assurance beyond management's own assertions and certifications that the financial statements can be relied upon. In the landmark case of *U.S. v. Arthur Young* in 1984, the U.S. Supreme Court concluded that: "The SEC requires the filing of audited financial statements in order to obviate the fear of loss from reliance on inaccurate information, thereby encouraging public investment in the Nation's industries." Similarly under Section 404 of SOX, the auditor is required to report internal control weaknesses and opine on the adequacy of internal controls over financial reporting. In short, the auditor, like the CEO and the CFO, also independently assures and certifies annually the integrity of the financial statements and adequacy of the internal controls over financial reporting.

Admittedly, classifying the auditors as a triangle party seems negotiable because they seem an "external" party. However, Jensen and Meckling (1976) warns against this artificial distinction of internal versus external parties. They consider the firm a nexus of contracts among individuals with conflicting objectives. Jensen and Meckling (1976) further argue that "viewed this way, it makes little sense to try to distinguish those things that are 'inside' the firm from those things that are 'outside' it." Their view against artificial classification is echoed by Brickley and Zimmerman (2010), who ask "in what sense a contract with an outside director (often classified as within the firm), is different from a contract with an auditor or creditor (often classified as outside the firm)."

Notwithstanding their varying independence, all three parties are under the direct oversight of the board of directors. From the board's perspective, the CEO, the CFO, and the auditor are all qualitatively similar contracting parties with various board committees. Specifically, the audit committee of the board is directly in charge of the appointment, compensation and oversight of the selected auditor, whereas the compensation committee of the board takes over the responsibilities to oversee the CEO and the CFO. Furthermore, the individual contract with the board commits each party to develop firm-specific skills by onsite training (learning by doing); for example, the auditor develops client-specific knowledge to better serve the client's audit needs (e.g., Gul et al. 2009), and the CFO builds a specific skillset desired by their employer (Ge et al. 2011).

To summarize, the certifying triangle is comprised of three points: the CEO, the CFO, and the auditor.<sup>6</sup> The reported earnings is a joint statement of the three parties. In addition, the certifying triangle is under the oversight of

---

<sup>6</sup> The term "auditor" is used to represent either the audit partner or the audit team.

the board, which commits each party to develop firm-specific skills. Figure 2 depicts the financial reporting system and the central role that the certifying triangle plays in the system.

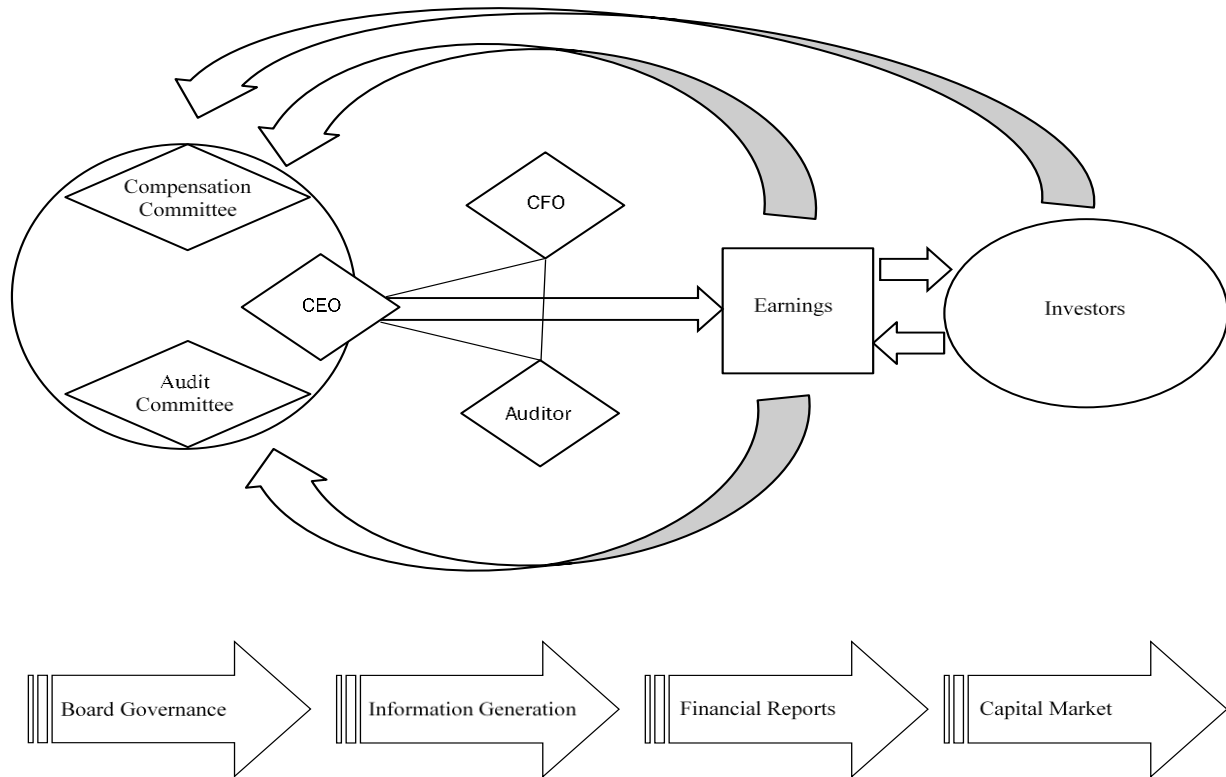


Figure 2 - The Financial Reporting System

Figure 2 depicts the financial reporting system, with the certifying triangle (i.e., CEO-CFO-Auditor) at the center. Upstream, the board directly oversees the certifying triangle and in some firms the CEO serves on the board. Downstream, the joint product of the certifying triangle is the reported earnings, the content of which is impounded into stock price around the earnings announcement date. The board uses either the earnings information or the stock price performance, or a hybrid of both, to evaluate the performance of the CEO and the CFO (e.g., Bond et al. 2010). Meanwhile, the board incorporates the audit quality of the reported earnings in its evaluation of the auditor and its decision to renew the audit contract.<sup>7</sup> Overall, the certifying triangle serves as the agent between the board and the board’s targets of earnings and stock performance.

### 3.2 The three sides of the certifying triangle

While there are conflicting incentives among the agents (Lambert 2001), interactions among them occur regularly during the financial reporting cycle. However, the degree of interactions and interdependencies varies with different relationship pairs.

<sup>7</sup> Auditors could be exposed to costly litigation when desperate investors or creditors sue them for “misleading reporting” to increase the chance of recovering certain types of losses, even when auditors have no or little responsibility for the losses (Chow et al. 1988). This ‘deep pockets’ explanation provides additional evidence that links the auditor to the stock market.

Firstly, the inherent tension in the CEO-CFO relationship makes it unique. In practice, their relationship appears to be closer than a monitor-monitored relationship between independent board members and the CEO, but it is more distant than that between two equal partners. While a CEO generally might have a long-term strategy for the firm, the CEO largely depends on the CFO to report the periodic financial results. On the one hand, the CEO may dominate the board and wield strong influence over the selection and dismissal of the CFO (Leone and Liu 2010), making the CFO the CEO's "yes man". On the other hand, the board selects the CFO of its own choice and may willingly monitor the CFO. From the perspective of the CFO, the CFO may have been with the CEO previously in another firm and will likely continue to move with the CEO across firms (Arthaud-Day et al. 2006). On the other hand, if the board selects the CFO, then the CFO's independence is maximized. To provide perspective, Feng et al. (2011) reports that out of a sample of 331 companies associated with Accounting and Auditing Enforcement Releases (AAERs), more of the violations involved both the CEO and the CFO (57%), compared to solely the CEO (12%) or the CFO (31%). Feng et al.'s (2011) results suggest that the CFO is more likely to work with the CEO as a partner, rather than as an independent party.

Secondly, the CEO-auditor relationship appears unclear and remote. An auditor may be chosen by the audit committee based on the recommendations of the CEO; thus degrading the auditor's independence. For instance, Cohen et al. (2011) find that the CEO's undue influence over the audit committee has a negative effect on the auditor's independence. On the other hand, Section 301 of SOX requires that the audit committee independently select the auditor, so as to ensure that the auditor is independent both in fact and in appearance.

Thirdly, the CFO-auditor relationship is characterized by possibly the most routine interactions along the financial reporting cycle. The CFO and the auditor meet at least quarterly, if not more often, with the audit committee or the board during the quarterly earnings briefing. On the one hand, auditors are more likely to issue unqualified opinions if the executive officers, through former employment or alma mater, are affiliated with the auditor (Lennox 2005). On the other hand, similar to the CEO-auditor relationship, an auditor is independent of the CFO, because the auditor is selected by the audit committee to monitor the CFO.

Notably, there is no formal tri-party contract among the CEO, the CFO, and the auditor. However, the lack of a formal contract among the three parties does not stop them from developing an informal contract, which comprises an implicit multi-period relationship that allows contracting parties to engage in a variety of economic transactions and relationships that might otherwise be non-contractible, or contractible with lower efficiency



(Armstrong et al. 2010). To illustrate, a CEO and a CFO can develop an effective and efficient working relationship that extends across several employers without a formal contract in between.

In short, all three parties within the certifying triangle interact periodically with one another, but the closeness of their interrelationships varies, and is complicated by previously affiliations (Lennox 2005) and implicit contracts (Armstrong et al. 2010). Among the three pairs of relationships, the CEO-CFO pair and the CFO-auditor pair appear to have the most frequent and direct interactions, and the CEO-auditor pair appears to have the least. However, the CFO serves as a likely middleman between the CEO-auditor pair. Figure 3 depicts the three formal contracts and the three informal contracts of the certifying triangle, with the board overseeing these contracting relationships.

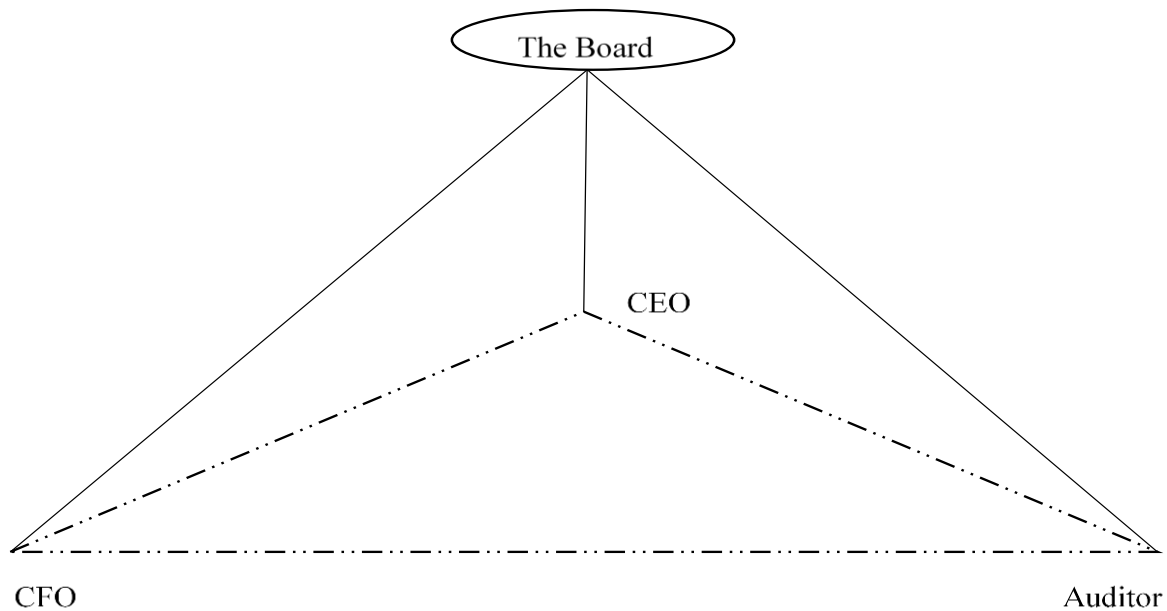


Figure 3 – Formal and Informal Contracts of the Certifying Triangle

Figure 3 depicts the three formal contracts (solid lines) between the CEO and the board, between the CFO and the board, and between the auditor and the board, and the three informal contracts (dashed lines) between the CEO and the CFO, between the CEO and the auditor, and between the CFO and the auditor. Under agency theory, the informal contracts govern many multi-period relationships among the firm's contracting parties and facilitate a variety of economic transactions (Armstrong et al. 2010), including financial reporting activities.

### 3.3 Determinants and consequences of triangle realignment

Extant literature has investigated extensively the determinants and consequences of the realignment of any triangle party or sub-group of the triangle party. The majority of the literature views the realignment as a single event, with the departure of the former party and the engagement of the successor party as two parts of the same

event (e.g., Wilson 2008). Fama (1980) suggests that the board of directors replaces poorly performing managers in fulfilling their disciplinary role. Moreover, Armstrong et al. (2010) provide two objectives for replacing a manager: the incentive objective and the matching objective. The incentive objective is the threat that the managers will be replaced if they do not take the appropriate action. The matching objective is the threat that the managers will be replaced if they do not have desirable characteristics (e.g., leadership qualities, risk preferences, or expertise with the firm's production technology).

In support of the incentive objective for the CEO, boards tend to dismiss CEOs who aggressively manage earnings (Hazarika et al. 2012). Regarding auditors, Mande and Son (2013) find that substantive financial restatements lead to auditor changes. In support of the matching incentive, Ge et al. (2011) note that accounting choices are influenced by differences in the CFO's individual characteristics that arise from numerous factors including their dispositions, personal situations, and prior experiences. Regarding auditors, Shu (2000) provides evidence that auditor-clientele mismatch (caused by changes in auditor characteristics and changes in client characteristics) is positively related to auditor-initiated replacements.

Regardless of the foregoing two objectives, when disciplining executives the board generally factors either accounting or stock performance information, or both, into its realignment decisions. For example, Bond et al. (2010) contend that whenever a board decides to replace a CEO on the basis of stock price performance, accounting information serves a complementary role. Relatedly, Engel et al. (2003) find that the weight placed on earnings in the CEO turnover decision is increasing in the timeliness of earnings and decreasing in the variance of earnings. Irrespective of the determinants of the departure and the quantitative weights that the board relies on, the compensation committee and the audit committee have the ultimate responsibility for the succession plans of respective triangle parties.

Additionally, the two committees of the board are mandated by federal legislation and stock exchange listing standards to be made up of at least three independent directors and no inside directors.<sup>8</sup> Hence, it is the board's sole fiduciary duty to identify and select the ideal mix of the triangle team so as to maintain an effective and efficient financial reporting system.

---

<sup>8</sup> The applicable requirements on boards and board committees include: 1. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010; 2. Sarbanes-Oxley Act of 2002; 3. Securities Exchange Act of 1934; 4. rules of the US Securities and Exchange Commission; and 5. corporate governance listing standards of the NYSE and Nasdaq.

In regard to the realignment of any triangle party, such as an auditor, a temporary breakdown of the financial reporting system may ensure that may alter the investor's perception of the information content of the subsequently reported earnings (Wilson 2008). Consequently, the board will likely strive to restore investor confidence in reported earnings and the newly formed triangle team. Following the seminal study of Ball and Brown (1968), later studies found a significant association between the earnings surprise (actual less expected earnings) and the stock price response (e.g., Collins and Kothari 1989). These studies define the magnitude of the stock price response, relative to the earnings surprise, as the Earnings Response Coefficient (ERC), which measures investors' perceptions of the information content of earnings, including its quality (Defond and Zhang 2014).

To summarize, both the incentive objective and the matching objective have been used to explain the determinants of triangle realignment. Regardless of the departure reasons, the board has full discretion in the engagement of any successor parties,<sup>9</sup> hence the triangle realignment represents the board's ongoing efforts to build a well-incentivized and well-matched financial reporting team. To measure the effect on information content and the credibility of earnings after a triangle realignment, the ERC provides a useful proxy.

### 3.4 Triangle realignment and ERC

Surprisingly, very limited empirical evidence has been reported that directly links the executive's replacement with the year-end ERC. However, regarding auditor realignments, prior studies generally contend that Big N auditor choice is associated with a higher ERC (Teoh and Wong 1993). Taken as a whole, the conclusions on the relation between the replacement of individual triangle parties and the year-end ERC is unsettled.

#### 3.4.1 CEO replacement, CFO replacement, and ERC

Early researchers have identified a handful of key determinants of cross-sectional variations of ERC, such as earnings persistence (Kormendi and Lipe 1987), expected rates of return (Easton and Zmijewski 1989), riskiness (Collins and Kothari 1989), and growth (Collins and Kothari 1989). It seems reasonable to expect that replacement of a key executive will have an effect on at least some of these determinants. For instance, risk should increase because of added uncertainty from the triangle realignment. However, empirical evidence that directly links an

---

<sup>9</sup> A competing view is that in a large publicly held company, it is the top executive and not the board that wields power in disciplining the triangle parties, because the board delegates substantial responsibility and power to the CEO and adopts the CEOs' recommendations almost without fail. As a practical matter, some top executives even choose the directors, and the shareholders normally follow the top executives' recommendations by voting for them (e.g., Bebchuk et al. 2002). Carcello et al. (2011) provide evidence that when the CEO is involved in the board selection process, the benefits of both an independent audit committee and financial expertise are eliminated. As a result, board independence has been controlled for in prior empirical designs (e.g., Rechner and Dalton 1991).

executive's replacement with the year-end ERC is rare; rather, prior studies have predominantly investigated the abnormal stock return around the three-day window of the CEO or CFO turnover event. For instance, Mian (2001) reports that the announcement of a CFO replacement is associated with a significant negative stock price reaction when the CFO is replaced for a disciplinary reason. Further, Baik et al. (2011) reveal that the market is more responsive to the news in management earnings forecasts associated with high-ability CEOs compared to news associated with low-ability CEOs.

One possible explanation for the lack of literature on the direct association between executives' replacement and the year-end ERC is that the replacement of neither the CEO nor the CFO exerts significant influence on the year-end earnings credibility. This explanation conforms to the efficient market theory, under which equity prices are expected in the aggregate to have reflected all relevant information at the time of the replacement event. However this argument is inconsistent with prior literature which suggests that management's accounting choices affect earnings quality (e.g., Ge et al. 2011).

#### 3.4.2 Auditor replacement and ERC

Extant audit research generally supports the view that the year-end ERC increases with certain characteristics (size, service, or industry expertise) of the auditor, and decreases with some other characteristics (client-auditor disagreement, or audit fee). For example, the ERC is higher for clients of a Big N auditor (Teoh and Wong 1993), likely because of Big N reputation for audit quality. The ERC is higher when the auditor is replaced for service-related reasons, compared to those for disagreement-related or fee-related reasons (Hackenbrack and Hogan 2002). It is also higher for clients of an industry specialist of Big N auditor (Balsam et al. 2003). These studies suggest that changing to an auditor with bigger size, or better service, or industry expertise increases the ERC, and replacing an auditor due to client-auditor disagreement or fee disputes decreases the ERC. Taken as a whole, however, the average effect of an auditor replacement on the year-end ERC is unclear, especially when the offsetting effect is considered.

#### 3.4.3 Contemporaneously multiple replacement and ERC

To the best of my knowledge, no empirical study has been reported on a contemporaneous double or triple replacement of the triangle parties. One close example, Mian (2001), finds that CFO turnover is preceded by an abnormally high CEO turnover rate. Another similar example, Menon and Williams (2008), notes that the frequency of CEO and CFO turnover increases following an auditor resignation, but not for an auditor dismissal by the client,

which suggests that the board penalizes managers for failing to satisfy the auditors. However, both papers investigate only a particular triangle party, or a sub-group of a particular triangle party, without regard to the whole picture of the parties' replacement. As well, these studies do not examine how the ERC varies with the replacement of the triangle parties.

While the ERC may vary with a particular single party realignment (the CEO, the CFO, or the auditor), the magnitude could increase substantially when two or three parties of the certifying triangle are replaced within the same accounting period. Nevertheless, no findings have been documented on how investors perceive the year-end earnings surprise subsequent to a double or triple realignment of the certifying triangle. Rather, prior researchers assume there is no difference from a single realignment. For example, the auditor switch research generally assumes that the CEO-CFO relationship remains constant during auditor switch periods (e.g., Hennes et al. 2014).

To summarize, little is known about the link between a triangle party and the ERC, and more questions arise if viewed from the certifying triangle's perspective. What is the effect on the year-end ERC if both the CEO and the CFO are replaced simultaneously? Or how does the ERC change if the triangle realignment follows an adverse accounting condition? These questions are vital to our understanding of financial reporting as a whole.

## CHAPTER 4 HYPOTHESIS DEVELOPMENT AND RESEARCH DESIGN

The foregoing discussion on agency theory, labor contracting theory, regulatory regime changes, and the empirical literature uncovers the dynamic interrelations and interdependency within the certifying triangle. Furthermore, the realignment of the triangle represents the board's continuous effort to build a well-incentivized and well-matched financial reporting system.

### 4.1 Interrelations within the triangle

Each party's independent contract with the board dictates that the party is solely committed and accountable to the board of directors, rather than to one another. On the one hand, the conflicts of interest among the three agents may easily break down the triangle. Meanwhile, the board must coordinate the incentives and disagreements among the three agents in order to build a well-matched and well-incentivized financial reporting team. Thus I address the first research question: Does the turnover of one triangle party lower the survival rate of the other two parties?

To answer this question, I consider first the conflicting interests inherent within the certifying triangle. There are two categories of conflicting interests. The first category lies in the fact that all three parties contribute and add value to the production of earnings information; however, their contribution and responsibilities are not equal. Whereas all three parties of any publicly listed company are mandated to comply with SOX, Geiger and Taylor (2003) notice that Section 302 imposes a supra-GAAP requirement on financial information under the purview of the CEO and the CFO. Specifically, the executive certification applies not only to the financial statements, but also to all public disclosures, including the analyses and forward-looking discussions in their MD&A disclosures. As a result, both the coverage and credibility added by the three parties' certifications seems varied.

The second category of conflicting interest originates from the different structures upon which the three party's compensation is based. The compensation to both the CEO and the CFO depends on the earnings performance and stock price performance, or a hybrid of both, at the end of the accounting period (e.g., Bond et al. 2010). By contrast, the auditor's compensation (audit fees) is based on the effort, complexity, and risk of the audit engagement. When an agent is paid a fixed wage, the agent has no incentive to misreport its performance (Lambert 2001). However, in an inter-temporal setting, the board may not be willing to consider renewing a contract with the auditor if the auditor does not provide the expected level of audit quality. In short, the board monitors the performance of the CEO and CFO through their output (earnings and stock price), and monitors the auditor through

both its input (audit hours) and observable output (audit quality and audit opinion). From the perspective of the auditor, the biggest concern is to maintain its own reputation capital (Teoh and Wong 1993) and to minimize its litigation exposure (Shu 2000). The difference in compensation structures suggests that the CEO and the CFO, individually or collectively, have incentives to manage financial reporting to achieve their earnings target and desired stock performance, however, the auditor does not have the incentive to misreport.

Despite their conflicting interests, the three parties are incentivized to align their interests with that of the board. Under the current regulatory regime, they have a shared responsibility to provide investors with credible financial statements. Further, after a new certifying triangle is formed, the three parties tend to develop interpersonal relationships and consequently form informal contracts among them.<sup>10</sup> Under agency theory, a broad view of contracting considers not only formal (written) contracts, but also informal contracts that govern many of the multi-period relationships among the firm's contracting parties and facilitate a variety of economic transactions (Armstrong et al. 2010), including financial reporting. Theoretically, informal contracts represent the equilibrium behavior of the contracting parties in a repeated game (Armstrong et al. 2010). Therefore replacement of any single party, voluntarily or involuntarily, indicates discontinuance of the established informal contract and breakdown of the triangular equilibrium. As an example in a voluntary departure scenario, if a CFO leaves for a better career opportunity, the replacing CFO may likely recommend a new auditor, especially one with employment or alma mater affiliations (Lennox 2005). As a result, the CFO replacement leads to the involuntary replacement of the incumbent auditor, who was in the same triangle team with the replaced CFO. Conversely, the replacement of the auditor may also result in the replacement of the CFO, because the new auditor prefers and recommends the new CFO. Similarly, the breakdown of informal contracts may also apply to the CEO-CFO and CEO-Auditor relationships, until a new equilibrium of the contracting parties is built. To analyze the conflicting interests, the shared responsibility, informal contracts, and their combined effect on the realignment of the certifying triangle, the first hypothesis is stated as follows:

**H1:** The replacement of one triangle party lowers the survival rate of both of the other two parties with the firm.

---

<sup>10</sup> Informal contracts consist of a broad set of unwritten or implicit arrangements that allow the firm to engage in activities that are otherwise non-contractible in the sense that it is either prohibitively costly or impractical to write a formal contract. A wide array of working relationships among managers, directors, shareholders, lenders, customers, suppliers, regulators, investment bankers, analysts, and the financial press are examples of informal contracts (Armstrong et al. 2010).

H1 relates the time that passes before some event occurs to one or more independent variables that may be associated with that quantity of time, specifically, it factors in both the time duration (tenure) and the event (replacement). First, I consider a Cox proportional hazards (PH) model,<sup>11</sup> so I can analyze the interrelations of all three decision makers within the triangle.<sup>12</sup> However, according to Kleinbaum and Klein (2006), the Cox PH model presumes that only time-invariant variables (e.g., gender) are used, whereas the extended Cox model can incorporate both time variant and time invariant variables (e.g., age or annual performance). Additionally, the extended Cox model can also allow for a time-lag of any time variant variable of interest. Therefore, I apply the extended Cox model instead, since some of my variables do not satisfy the PH assumption but will be well fit for the extended Cox model.

In an extended Cox model, the unique effect of a unit increase in a dependent variable is multiplicative with respect to the hazard rate (Cox 1972). The Cox extended model also explicitly accounts for the right-censoring of the data which arises from the fact that each party at the end of the sample period has yet to leave its position. The hazard function for the extended Cox model takes the following form:

$$\lambda(t|X) = \lambda_0(t) \exp(\beta_1 X_1 + \dots + \beta_p X_p) = \lambda_0(t) \exp(X\beta') \quad (1).$$

The expression of  $\lambda(t|X)$  gives the hazard at time  $t$  for a company with independent variables  $X$ .<sup>13</sup> <sup>14</sup> Since the extended Cox model can be described as a regression model,  $\beta$  is interpreted as maximum likelihood estimates of  $X$  (Kleinbaum and Klein 2006). Based on the above hazard function, a partial likelihood can be constructed as follows:<sup>15</sup>

---

<sup>11</sup> The Weibull model, similar to the Cox model, also incorporates factors of both time duration and event; however, the Cox model is chosen because it is less restricted in the assumed distribution, thus is more robust (Allison 1995).

<sup>12</sup> Raman and Shahrur (2008) also apply the Cox hazard model and find that earnings management adversely affects the duration of the customer-supplier relationship. Additionally, Hazarika et al. (2012) employ the Cox model and find that boards tends to dismiss CEOs who aggressively manage earnings.

<sup>13</sup>  $P$  denotes the number of independent variables.

<sup>14</sup> Widely applied in medical science research, a typical example of the Cox model generally includes such independent variables, or  $X$ , as treatment assignment (i.e., a new drug), as well as patient characteristics such as age, gender, and the presence of other diseases, in order to reduce variability and to control for confounding events (e.g., Bender et al. 2005).

<sup>15</sup> The Cox partial likelihood is obtained by using Breslow's (1975) estimate of the baseline hazard function of  $\lambda_0(t)$ , where  $\Theta_j = \exp(X_j\beta')$  and  $X_1, \dots, X_n$  are the independent variable vectors for the  $n$  independently sampled individuals in the dataset (treated here as column vectors).  $Y_i$  denotes the observed time (either censoring time or event time) for subject  $i$ , and  $C_i$  denotes an indicator that corresponds to the event of a party replacement (i.e., if  $C_i = 1$  the event occurred and if  $C_i = 0$  the time is a censoring time). For example, if it is known only that the date of replacement is after some date (2013), this is called right censoring. Right censoring will occur for those subjects whose start date is known (for instance, the CEO starts at June 30, 2005) but who are still in office when they are the last to follow or



$$L(\beta) = \prod_{i:C_i=1} \frac{\theta_i}{\sum_{j:Y_j \geq Y_i} \theta_j} \quad (1').$$

Equation (1) is then refined into Equation (1<sup>a</sup>), Equation (1<sup>b</sup>), and Equation (1<sup>c</sup>). In Equation (1<sup>a</sup>), the dependent variable is the length of the CEO's employment with the firm (*CEO\_TENU*), and the two variables of interest are the indicator variables of *CFO* and *AUD*, which are both defined as one when there is a replacement in the year and zero otherwise.

Heavily building on extant literature, I control for four groups of variables of the lagged year (refer to Table 1 for variable definitions). I first control for the firm's fundamental characteristics (*Firm\_Fundamentals*) such as size and leverage. Specifically, size, or log of market value (*LOG\_MV*) (e.g., Fama and French 1995) and leverage (*LEV*) (e.g., Dhaliwal et al. 1991). The second group of control variables include the operating and stock performance measures during the prior accounting period (*Performance\_Index*), such as *LOSS* (Hayn 1995), *ROA* (e.g., Huson et al. 2004), annual returns (*RET*) (e.g., Bond et al. 2010), industry-adjusted ROA (*ROA\_IND*) (e.g., Eisfeldt and Kuhnen 2013), and industry-adjusted stock return (*RET\_IND*) (e.g., Jenter and Kanaan 2015). To calculate the industry level performance, I use the Fama-French 48 industry classification, or 2-digit industry categorization in Compustat. I control for board governance factors (*Board\_Governance*) such as CEO-Chairman duality (*CEO\_CHR*) (e.g., Rechner and Dalton 1991) and the CEO's board membership (*CEO\_BRD*) (e.g., Rechner and Dalton 1991). Additionally, a company with the CFO on the board should perform better in such areas as financial reporting and internal control quality (Bedard et al. 2014), thus the CFO board membership (*CFO\_BRD*) is also added as a control variable. Lastly, I control for prior adverse accounting conditions (*Prior\_Advconditions*) which are generally believed to have a negative effect on the client-auditor relationship. The first adverse accounting condition includes the prior qualified audit opinion issued (*LAG\_QOP*), an indicator variable which is defined as one if there is a qualified audit opinion (e.g., going concern) or material weakness in internal controls over financial reporting within the prior 12 months. For example, Teoh (1992) argues that an auditor has to take into account the possibility of dismissal threats when it issues an adverse audit opinion, because the auditor-client relationship has since been strained. Similarly, Teoh's (1992) model can also be applied to the auditor's qualified opinion on the adequacy of internal controls over financial accounting, because the auditor reports this inadequacy to the manager's

---

when the study ends (on December 31, 2013). In other words, the censoring time arises from the fact that any triangle party at the end of the sample period (Dec. 31, 2013) has yet to leave its position.

detriment as the manager is responsible for the establishment and certification of internal controls (Patterson and Smith 2007). Additionally, the previously identified earnings misstatement (*LAG\_MISS*) is another adverse accounting condition which may have damaged the client-auditor relationship. For example, Mande and Son (2013) find that an earnings restatement constitutes a breakdown in the company's financial reporting system or its auditing process, and substantive financial misstatements result in the eventual separation of the auditor from the client. Either way, distrust builds up within the auditor-client relationship subsequent to a restatement except in the rare case of collusion. Overall, financial misstatements have shown to be associated with the preceding or subsequent turnover of the CEO or CFO (Hennes et al. 2008) and the auditor (Hennes et al. 2014). The hazard model for the CEO's tenure with the firm is thus as follows:

$$\lambda(CEO_{TENU}_t|X) = \lambda_0(t) \exp(\beta_1 CFO_t + \beta_2 AUD_t + \beta_3 Firm\_Fundamentals_{t-1} + \beta_4 Performance\_Index_{t-1} + \beta_5 Board\_Governance_{t-1} + \beta_6 Prior\_Advconditions_{t-1}) \quad (1^a)$$

Similarly, the hazard model for the CFO's tenure is as follows,

$$\lambda(CFO_{TENU}_t|X) = \lambda_0(t) \exp(\beta_1 CEO_t + \beta_2 AUD_t + \beta_3 Firm\_Fundamentals_{t-1} + \beta_4 Performance\_Index_{t-1} + \beta_5 Board\_Governance_{t-1} + \beta_6 Prior\_Advconditions_{t-1}) \quad (1^b)$$

Lastly, the hazard model for the auditor's tenure is as follows:

$$\lambda(AUD_{TENU}_t|X) = \lambda_0(t) \exp(\beta_1 CEO_t + \beta_2 CFO_t + \beta_3 Firm\_Fundamentals_{t-1} + \beta_4 Performance\_Index_{t-1} + \beta_5 Board\_Governance_{t-1} + \beta_6 Prior\_Advconditions_{t-1}) \quad (1^c)$$

Each of the three variables of interest, *CEO*, *CFO*, and *AUD*, is defined as one when there is a replacement and zero otherwise. I predict a positive coefficient on both  $\beta_1$  and  $\beta_2$  in all three equations, which in Equation (1<sup>a</sup>) suggests that the replacement of the CFO or the auditor results in the event (replacement) occurs to the CEO, therefore the CEO's tenure with the firm is cut short. Similarly, Equation (1<sup>b</sup>) suggests that the replacement of the CEO or the auditor results in a shorter CFO tenure with the firm, and Equation (1<sup>c</sup>) suggests that the replacement of the CEO or the CFO results in a shorter auditor tenure with the firm.

The coefficients on the control variables are expected to show signs and significance levels similar to those presented by extant literature. Particularly, among the coefficients of the five performance measurements, *LOSS* is expected to be positive (shorter tenure) for all three equations, because *LOSS* could be a sign of poor operational performance to the management (Mian 2001) and a sign of increased risk to the auditor (Shu 2000). On the other hand, the coefficients of *ROA*, *ROA\_IND*, *RET*, and *RET\_IND* are expected to be negative (longer tenure) in both

Equation (1<sup>a</sup>) and Equation (1<sup>b</sup>), because the board rewards good performance of the executives (e.g., Eisfeldt and Kuhnen 2013; Jenter and Kanaan 2015), but expected to be null (no effect on auditor tenure) in Equation (1<sup>c</sup>), because auditors do not play an operational role.

Similarly, the coefficients of *LAG\_QOP* and *LAG\_MISS* are expected to be significant and positive (shorter tenure of the three parties) in all three equations, consistent with the conclusions of Teoh (1992), Patterson and Smith (2007), Hennes et al. (2008) and Hennes et al. (2014). Further, larger companies tend to actively monitor their CEOs (Mian 2001) and retain their auditors for a longer period of time (Hackenbrack and Hogan 2002), therefore, the size of the company (*LOG\_MV*) is predicted to be positive in Equation (1<sup>a</sup>), but negative in Equation (1<sup>c</sup>). Additionally, the capital structure of a company (*LEV*) is expected to be negative (e.g., Dhaliwal et al. 1991). Lastly, the signs are expected to be negative for CEO board membership (e.g., Rechner and Dalton 1991) and CFO board membership (Bedard et al. 2014).

#### 4.2 Magnitudes of triangle realignment and ERC

Prior studies find that the ERC captures investors' perception of earnings quality, among which Holthausen and Verrecchia (1988) notes that the investors' response to the year-end earnings surprise depends on the perceived quality of the annual earnings report. Since the year-end financial reports are the joint product of the newly realigned triangle team, the quality of the annual financial statements reflects the investors' perceived credibility of the incumbent certifying triangle.

In order to measure the various degrees of boards' effort to build a well-incentivized and well-matched financial reporting team, I consider three magnitudes of triangle realignment: single replacement (*SINGLE*), double replacement (*DOUBLE*), and triple replacement (*TRIPLE*). The first category, *SINGLE*, covers three separate one-party-only replacements, which is equal to one if only one of the three parties is replaced during the course of the year (*CEO*, *CFO*, or *AUD*), and zero otherwise. The second category, *DOUBLE*, equals one if only two parties are replaced contemporaneously within any year (*CEO\_CFO*, *CEO\_AUD*, or *CFO\_AUD*), and zero otherwise. The last category, *TRIPLE*, equals to one if all three parties are replaced in the same year, and zero otherwise. Meanwhile, the benchmark is firm-year observations characterized by zero replacement of any triangle parties. Overall, these three magnitudes of triangle realignment are mutually exclusive, with *TRIPLE* not including any *DOUBLE* or *SINGLE*, and *DOUBLE* not including any *SINGLE*, and vice versa.

Table 1  
Variable Definitions (in alphabetical order)

| Variables                | Definition  |
|--------------------------|---|
| <i>AUD</i>               | 1 if <i>only</i> the auditor is replaced during year <i>t</i> , and 0 otherwise (source: AuditAnalytics).   |
| <i>AUD_TENU</i>          | The number of years the auditor is with the firm (source: AuditAnalytics).  |
| <i>BETA</i>              | Systematic risk; defined as the sensitivity of the firm's stock return to the return of the whole stock market. CRSP calculates the decile ranking of a stock's beta at the end of the previous calendar year using daily data from January 1 to December 31 of the same year, then ranks all betas and gives each stock a decile ranking (rank 1 = highest decile / high beta; rank 10 = lowest decile / low beta) (source: CRSP). |
| <i>BIG_4</i>             | 1 if the incumbent auditor is a Big 4 auditor in year <i>t</i> , and 0 otherwise (source: AuditAnalytics).  |
| <i>Board_Governance</i>  | Group variable, including <i>CEO_BRD</i> , <i>CEO_CHR</i> , or <i>CFO_BRD</i> .   |
| <i>CAR</i>               | Cumulative abnormal return for the three-day window (-1, 0, +1) surrounding the earnings announcement date; equal to the actual stock return minus the corresponding CRSP value-weighted market return, exclusive of dividends (source: CRSP).  |
| <i>CEO</i>               | 1 if <i>only</i> the CEO is replaced during year <i>t</i> , and 0 otherwise (source: ExecuComp).  |
| <i>CEO_AUD</i>           | 1 if <i>only</i> the CEO and auditor are both replaced during year <i>t</i> , and 0 otherwise.  |
| <i>CEO_BRD</i>           | 1 if the CEO is on the board of directors, and 0 otherwise (source: AuditAnalytics and Thomson Reuters).  |
| <i>CEO_CFO</i>           | 1 if <i>only</i> the CEO and CFO are both replaced during year <i>t</i> , and 0 otherwise.  |
| <i>CEO_CFO_AUD</i>       | 1 <i>only</i> if the CEO, CFO, and auditor are all replaced during year <i>t</i> , and 0 otherwise.   |
| <i>CEO_CHR</i>           | 1 if the CEO is also the chair of the board of directors, and 0 otherwise (source: AuditAnalytics and Thomson Reuters).   |
| <i>CEO_TENU</i>          | The number of years that the CEO is with the firm (source: ExecuComp).  |
| <i>CFO</i>               | 1 if <i>only</i> the CFO is replaced during year <i>t</i> , and 0 otherwise (source: ExecuComp).  |
| <i>CFO_AUD</i>           | 1 if <i>only</i> the CFO and auditor are both replaced during year <i>t</i> , and 0 otherwise.  |
| <i>CFO_BRD</i>           | 1 if the CFO is on the board of directors, and 0 otherwise (source: AuditAnalytics and Thomson Reuters).  |
| <i>CFO_TENU</i>          | The number of years that the CFO is with the firm (source: ExecuComp).  |
| <i>DOUBLE</i>            | 1 if <i>CEO_CFO</i> , <i>CEO_AUD</i> , or <i>CFO_AUD</i> = 1, and 0 otherwise; excludes <i>CEO=1</i> , <i>CFO=1</i> , <i>AUD=1</i> , and <i>CEO_CFO_AUD=1</i> .   |
| <i>Firm_Fundamentals</i> | Group variable, including <i>LOG_MV</i> , <i>LEV</i> , <i>MB</i> , or <i>BETA</i> .   |
| <i>INST_PCT</i>          | Percentage of institutional holdings of outstanding common stock (source: ISS).   |
| <i>LAG_ADV</i>           | 1 if there is a qualified audit opinion, or a material weakness of internal control over financial reporting, or an earnings restatement in the prior 12 months, and 0 otherwise.   |
| <i>LAG_QOP</i>           | 1 if there is a qualified audit opinion or a material weakness of internal controls over financial reporting in the prior 12 months, and 0 otherwise (source: AuditAnalytics).  |
| <i>LAG_MISS</i>          | 1 if an earnings restatement is identified and filed in the prior 12 months, and 0 otherwise (source: AuditAnalytics).  |
| <i>LEV</i>               | Debt scaled by assets (source: Compustat).  |
| <i>LOG_MV</i>            | Log of total market value (source: Compustat).  |

(Table 1 continued)

Variable Definitions (in alphabetical order)

| Variables                  | Definition   |
|----------------------------|--|
| <i>LOSS</i>                | 1 if net income is less than zero, and 0 otherwise (source: Compustat).  |
| <i>MB</i>                  | Market value of common stock scaled by book value (source: Compustat).   |
| <i>Performance_Index</i>   | Group variable, including <i>LOSS</i> , <i>ROA</i> , <i>ROA_IND</i> , <i>RET</i> , and <i>RET_IND</i> .  |
| <i>Prior_Advconditions</i> | Group variable, including <i>LAG_QOP</i> and <i>LAG_MISS</i> .   |
| <i>RET</i>                 | Stock return of the year (source: CRSP).   |
| <i>RET_IND</i>             | Industry-adjusted <i>RET</i> ; equals <i>RET</i> - average <i>RET</i> of the industry (source: CRSP).  |
| <i>ROA</i>                 | Operating income before interest and taxes scaled by total assets (source: Compustat).   |
| <i>ROA_IND</i>             | Industry-adjusted <i>ROA</i> ; equals <i>ROA</i> - average <i>ROA</i> of the industry (source: Compustat).   |
| <i>SINGLE</i>              | 1 if <i>CEO</i> , <i>CFO</i> , or <i>AUD</i> = 1, and 0 otherwise; excludes <i>CEO_CFO</i> , <i>CEO_AUD</i> , <i>CFO_AUD</i> , and <i>CEO_CFO_AUD</i> .  |
| <i>TRIPLE</i>              | 1 if <i>CEO_CFO_AUD</i> = 1, and 0 otherwise; excludes <i>CEO</i> =1, <i>CFO</i> =1, <i>AUD</i> =1, <i>CEO_CFO</i> =1, <i>CEO_AUD</i> =1, and <i>CFO_AUD</i> =1.   |
| <i>TRIANGLE</i>            | 1 if there is any <i>SINGLE</i> , <i>DOUBLE</i> , or <i>TRIPLE</i> replacement during year <i>t</i> , and 0 otherwise.   |
| <i>UE</i>                  | The difference between a registrant's actual year-end earnings per share and the latest median earnings forecast before the earnings announcement date, scaled by the stock price two days (-2) before the earnings announcement (source: I/B/E/S and CRSP). |

Regardless of whether a departing party leaves voluntarily or involuntarily, the board is prompted to realign the financial reporting system with a new contract. Under the theory of the firm of Williamson (2002), all complex contracts are incomplete, therefore the related parties will be confronted with uncertainty that arises by reason of gaps, errors, and omissions in the original contract, and opportunistic behavior of the opposite contracting parties. In the single realignment scenario,<sup>16</sup> only one new contract is involved and only one party is replaced, with the other three related stakeholders (the board and the other two triangle parties) remaining the same, the uncertainty due to bounded rationality and adaptation is the least for the realigned certifying triangle.<sup>17</sup>

Contrary to a single realignment, a multiple (double or triple) replacement is quite different. Since two or three new contracts are added in a multiple realignment scenario, the uncertainty doubles or even triples as two or

<sup>16</sup> Pan et al (2015) provides empirical evidence that the uncertainty about a CEO's ability occurs due to both the CEO's underlying talent and the quality of the match between the job and the CEO's personality, skills, or strategic vision.

<sup>17</sup> When individuals make decisions, their rationality is limited by the available information, the tractability of the decision problem, the cognitive limitations of their minds, and the time available to make the decision (Simon 1957).

three new parties are involved in the decision-making process and adaptation to the firm and to one another. From the perspective of the capital market, the uncertainty also doubles or triples for investors as they evaluate the competence and matching of the new reporting team and the consequential credibility of the subsequently reported earnings.

In short, while the replacement of a single party may increase or decrease the ERC due to the minimized uncertainty and offsetting effects, larger magnitudes of the board's realignment efforts (double or triple replacement) add substantial uncertainty to the year-end reported earnings. My second hypothesis is stated as follows:

**H2:** Larger magnitudes of the triangle realignment decrease the year-end ERC.

To test H2, I perform a short-window event study to evaluate various magnitudes of triangle realignment and their effects on the ERC. A short-window (3-day) approach instead of a long-horizon study is used because my goal is to test whether the realigned financial reporting system, as a whole, has revised investors' beliefs about the quality of the year-end reported earnings. Another reason for not using the long-window study is due to the fact that the replacement events, especially double or triple replacement, are spread throughout the course of the year, which adds a considerable amount of noise to the measurement of the long window ERC.

In addition to the two control variables in the group of *Firm\_Fundamentals* in Equation (1), i.e., size and leverage, I also add market-to-book ratio (*MB*) (e.g., Fama and French 1995), and *BETA* (Fama and French 1996) which measures the systematic risk of a security in comparison to the market as a whole. Further, another variable, the percentage of institutional investors holdings (*INST\_PCT*) is added as a measure of sophisticated investors' influence on a security's observed abnormal returns after the earnings announcement (Bartov et al. 2000), in addition to the four general groups of control variables in Equation (1), i.e., *Firm Fundamentals*, *Performance\_Index*, *Board\_Governance*, and *Prior\_Advconditions*.

The ERC model for H2 is as follows (see Equation (2), below). The dependent variable, *CAR*, is the firm's cumulative abnormal return from the three-day window (-1, 0, +1) surrounding the earnings announcement date, measured as the firm's actual return minus the corresponding CRSP value-weighted market return, exclusive of dividends. The baseline ERC (*UE*), is measured as the difference between a registrant's actual year-end earnings and the latest median earnings forecast before the earnings announcement date, scaled by the stock price two days (-2) before the earnings announcement (Teoh and Wong 1993). It measures the ERC when all indicator variables are equal to zero, which are profit firms, and firms with no changes in CEO, CFO, or auditor. The variables *DOUBLE*

\**UE* and *TRIPLE \*UE*, measure the incremental ERC of triangle realignment relative firms with no changes in CEO, CFO, or auditor. In other words, they measure the decrease in ERC for *DOUBLE*, and *TRIPLE*, compared to firms with no change in CEO, CFO, or auditor. I expect that, on average,  $\beta_6$  and  $\beta_7$  are negative and significant, due to the doubled or tripled uncertainty from the investors. Meanwhile, I predict no direction for the coefficient on  $\beta_5$ , which is a partial replica of prior research (e.g., Hackenbrack and Hogan 2002), due to the minimized uncertainty and offsetting effects.

H2 is predicting that larger magnitudes of the triangle realignment decrease the year-end ERC, thus the larger (*DOUBLE* and *TRIPLE*) magnitudes of triangle realignment should decrease the year-end ERC more than the smaller (*SINGLE*) magnitude of triangle realignment. To test H2, I perform an F-test to compare the sum of coefficients between *DOUBLE* ( $\beta_1 + \beta_6$ ) and *SINGLE* ( $\beta_1 + \beta_5$ ), *TRIPLE* ( $\beta_1 + \beta_7$ ) and *DOUBLE*, and *TRIPLE* and *SINGLE*.<sup>18</sup> I expect that the sums of coefficients of either *DOUBLE* or *TRIPLE* are significantly smaller than that of the *SINGLE*, and the sum of coefficients of the *TRIPLE* is significantly smaller than that of the *DOUBLE*.

$$\begin{aligned}
CAR_t = & \beta_1 UE_t + \beta_2 SINGLE_t + \beta_3 DOUBLE_t + \beta_4 TRIPLE_t + \beta_5 SINGLE * UE_t + \beta_6 DOUBLE * UE_t \\
& + \beta_7 TRIPLE * UE_t + \beta_8 CEO\_CHR_t + \beta_9 INST\_PCT_t + \beta_{10} LAG\_ADV_t \\
& + \beta_{11} Firm\_Fundamentals_t + \beta_{12} Performance\_Index_t \\
& + \beta_{13} Control\_Variables * UE_t
\end{aligned} \tag{2}$$

The interaction terms of other control variables with *UE* in Equation (2) are expected to show signs and significance levels similar to those presented in the extant literature. For example, the sign is expected to be negative for the variables of *LOG\_MV* (Teoh and Wong 1993), *LOSS\*UE* (Hayn 1995), *LEV\*UE* (e.g., Dhaliwal et al. 1991), *BETA\*UE* (Fama and French 1996), and *LAG\_ADV\*UE* (e.g., Teoh 1992). In addition, the sign for the remaining interaction terms with *UE* are expected to be positive, for instance, interactions of *UE* and *ROA* (e.g., Huson et al. 2004), *ROA\_IND* (e.g., Einfeldt and Kuhnen 2013), *INST\_PCT* (Bartov et al. 2000), *MB* (e.g., Fama and French 1995), and *CEO\_CHR* (e.g., Rechner and Dalton 1991).

#### 4.3 Triangle realignment preceded by adverse accounting conditions

The third question examines how the ERC changes when the triangle replacement is preceded by adverse accounting conditions. I posit that a triangle realignment of this type is the board's response to replace someone who

---

<sup>18</sup> Note that a single realignment results when *SINGLE*=1, thus the ERC is ( $\beta_1 + \beta_5$ ). Likewise, the ERC for a double realignment is when *DOUBLE*=1, which is ( $\beta_1 + \beta_6$ ), and for a triple realignment is ( $\beta_1 + \beta_7$ ).

is accountable for the previous financial reporting failure or who is no longer a good match in the triangular relationship. The board expects that this realignment rebuilds investors' confidence in the credibility of the financial reports. To support this prediction, Teoh (1992) finds that market responses to auditor replacements tend to be less negative after a qualified opinion than after a clean opinion. Similarly, Wilson (2008) finds that firms that restated earnings and then quickly (within four quarters) dismissed their auditors did not suffer a decline in the short-term information content of earnings (ERC), compared to firms that did not make governance changes immediately following the restatements. This leads to my third hypothesis.

**H3:** The negative effect on the ERC of the larger magnitudes of the triangle realignment is mitigated when the realignment coincides with a previous adverse accounting condition.

Building upon Equation (1) that both *LAG\_MISS* and *LAG\_QOP* negatively affect the interrelations of the certifying triangle, I develop the variable, *LAG\_ADV*, equal to one if in the prior year there is a qualified audit opinion, a material weakness of internal controls over financial reporting, or an earnings misstatement, and zero otherwise. In essence, the variable, *LAG\_ADV*, measures adverse accounting conditions in the prior year, for which the board will likely hold one, two, or all three parties of the certifying triangle accountable for, depending on the specific circumstances.

To test H3, three interaction terms, *SINGLE\*LAG\_ADV\*UE*, *DOUBLE\*LAG\_ADV\*UE*, and *TRIPLE\*LAG\_ADV\*UE*, are developed by interacting the three realignment magnitudes' effect on the ERC (i.e., *SINGLE\*UE*, *DOUBLE \*UE*, and *TRIPLE \*UE*), and *LAG\_ADV*. These three interaction variables measure the marginal effect on the ERC of a triangle replacement with a previous adverse accounting situation.<sup>19</sup> Equation (3) includes these three interactions terms as follows:

$$\begin{aligned}
 CAR_t = & \beta_1 UE_t + \beta_2 SINGLE_t + \beta_3 DOUBLE_t + \beta_4 TRIPLE_t + \beta_5 SINGLE * UE_t + \beta_6 DOUBLE * UE_t \\
 & + \beta_7 TRIPLE * UE_t + \beta_8 SINGLE * LAG\_ADV * UE_t + \beta_9 DOUBLE * LAG\_ADV \\
 & * UE_t + \beta_{10} TRIPLE * LAG\_ADV * UE_t + \beta_{11} LAG\_ADV_t + \beta_{12} LAG\_ADV_t * UE_t \\
 & + \beta_{13} Control\_Variables_t \\
 & + \beta_{14} Control\_Variables * UE_t
 \end{aligned} \tag{3}$$

---

<sup>19</sup> For instance, the ERC for a double realignment without a previous condition is  $(\beta_1 + \beta_6)$  and for a double realignments with previous condition is  $(\beta_1 + \beta_6 + \beta_9)$ ; thus, the difference in ERC is  $\beta_9$ .



I expect  $\beta_8$  to be neutral (Wilson 2008), and the coefficients on the two variables of interest,  $DOUBLE*LAG\_ADV*UE$ , and  $TRIPLE*LAG\_ADV*UE$ , or  $\beta_9$  and  $\beta_{10}$ , to be positive and significant. To further validate that the negative effect on the ERC of the larger magnitudes of the triangle realignment is mitigated when the realignment coincides with a previous adverse accounting condition, I perform an F-test to compare the sum of coefficients between the conditional and non-conditional scenario (i.e.,  $DOUBLE*LAG\_ADV*UE$  and  $DOUBLE*UE$ ,  $TRIPLE *LAG\_ADV*UE$  and  $TRIPLE *UE$ , as well as  $SINGLE *LAG\_ADV*UE$  and  $SINGLE *UE$ ). I expect that the difference of summed coefficients is significant for both the *DOUBLE* and *TRIPLE* scenarios. As in Equation (2), the interaction terms of other control variables with *UE* in Equation (3) are generally expected to show signs and significance levels similar to those presented in the extant literature.

## CHAPTER 5 SAMPLE AND DESCRIPTIVE STATISTICS

All data are obtained from public sources. The variable definitions except for interaction variables with *UE* and *LAG\_ADV* are summarized in Table 1. Both the actual and value-weighted market return data needed to calculate *CAR* are obtained from the Center for Research in Security Prices database (CRSP), and both the actual and expected earnings per share information necessary to calculate *UE* and the dates of earnings announcements are extracted from the Institutional Brokers' Estimate System (I/B/E/S). Additionally, data related to auditor turnover, auditor tenure, audit opinion, material weakness of internal controls over financial reporting (ICFR), and financial misstatements, are all obtained from AuditAnalytics, while data on executives' turnover and executives' tenure are obtained from ExecuComp. Further, institutional ownership information is obtained from Institutional Shareholder Services (ISS, or formerly RiskMetrics), and corporate governance data are from Institutional (13f) Holdings – s34 of Thomson Reuters. Lastly, the control variables related to financial fundamentals are extracted from Compustat.

### 5.1 Sample selection

To minimize the noise from regulatory changes surrounding 2002, I create the initial sample of 100,581 firm-year observations from Compustat between January 2005 and December 2013.<sup>20</sup> Furthermore, to have a more accurate measure of expected earnings, I use only the consensus median analysts' earnings forecast from I/B/E/S, rather than a random walk model. Additionally, I require at least two analysts for each median forecast. This restriction results in dropping a total of 38,009 firm-year observations. I also delete 13,184 firm-year observations due to missing data on stock return and Beta in CRSP. Next, I drop 11,045 observations which are non-accelerated filers or non-larger accelerated filers in Audit Analytics. Lastly, I delete 6,609 observations from ISS for missing data on corporate governance variables, and 9,080 observations from Thomson Reuters for missing information on institutional holdings. As a result, the final sample has 22,654 firm-year observations.

When there are multiple replacements of a triangle party during the year, for example, multiple replacements of the auditor, only the first departing auditor and the last incoming auditor are counted as the two sides (departure and engagement) of the auditor replacement event. In addition, if a CEO or a CFO is reelected or reappointed, or the auditor's contract is renewed, the tenure of the CEO, the CFO, or the auditor is deemed continuing, and the reelection, reappointment, or contract renewal itself is not counted as a replacement event.

---

<sup>20</sup> For example, the compliance date of Section 301 of SOX for listed issuers, other than foreign private issuers and small business issuers, is by the earlier of (1) their first annual shareholders meeting after January 15, 2004, or (2) October 31, 2004.

Lastly, to minimize the noise caused by outliers, the continuous variables of *CAR* and *UE* are winsorized at the 1% level and 99% levels. Table 2 provides a summary of the sample selection process.

Table 2  
Sample Selection

| Sample attrition and data sources   |          |
|---|----------|
| Total firm-year observations from Compustat 2005-2013                                     | 100,581  |
| Delete: Observations with less than two analysts' earnings forecast in IBES               | (38,009) |
| Delete: Observations with missing stock return, stock price, or Beta data in CRSP         | (13,184) |
| Delete: Firms which are non-accelerated or non-large accelerated filers in AuditAnalytics | (11,045) |
| Delete: Observations with missing corporate governance data in ISS                        | (6,609)  |
| Delete: Observations with missing stock holdings data in Thompson Reuters                 | (9,080)  |
| Final sample of firm-year observations  | 22,654   |

Table 2 presents the sample selection process. The sample period is from January 2005 to December 2013.

## 5.2 Descriptive statistics

### 5.2.1 Three key players of the financial reporting system

Figure 4 provides an illustration of the timeline of the financial reporting system and depicts the critical points for each of the three key players. Consider a large accelerated filer with a December 31 fiscal year-end. On average, a financial reporting system is defined as 14 months (or  $425=365+60$  days) long,<sup>21</sup> or from January 1 to March 1 of the following year.<sup>22</sup> Generally, the three Form 10-Qs for fiscal quarter one, quarter two, and quarter three of the fiscal year are certified by both the CEO and the CFO, and are reviewed (not audited) by the auditor.

After the turn of the year, the accounting function under the CFO and the CEO closes the books and starts the year-end financial reporting, and the auditor continues its audit program. Companies generally announce earnings on the 39<sup>th</sup> day after the fiscal year-end,<sup>23</sup> or February the 8<sup>th</sup>. During the next two weeks after the earnings announcement, the accounting function under the CEO and the CFO continues to prepare the annual financial statements and the auditor performs more audit work.

<sup>21</sup> The SEC deadlines to file Form 10-K are: 60 days after fiscal year end for large accelerated filers, 75 days for accelerated filers, and 90 days for non-accelerated filers. The deadlines for filing 10-Q are 40 days after quarterly end for large accelerated filers and accelerated filers, and 45 days for non-accelerated filers.

<sup>22</sup> Figure 4 presents only the average dates for the subsample of large accelerated filers. Out of the pooled sample of 19,526 observations, 11,034 are large accelerated filers and 8,492 are accelerated filers. The purpose of sample partition is to prevent misleading average such as an average of 10-k filing date of March 3<sup>rd</sup> from the pooled sample, which would indicate that, generally, large accelerated filers have missed their deadline (March 1<sup>st</sup>), and accelerated filers have filed their 10-k reports far ahead of their deadline (March 16<sup>th</sup>).

<sup>23</sup> To calculate the average of various report dates (e.g., earnings announcement date), I first identify the earnings announcement date for each company, and its corresponding fiscal year-end date. The gap (in days) between these two dates is then calculated, and the average for large accelerated filers is 39 days.

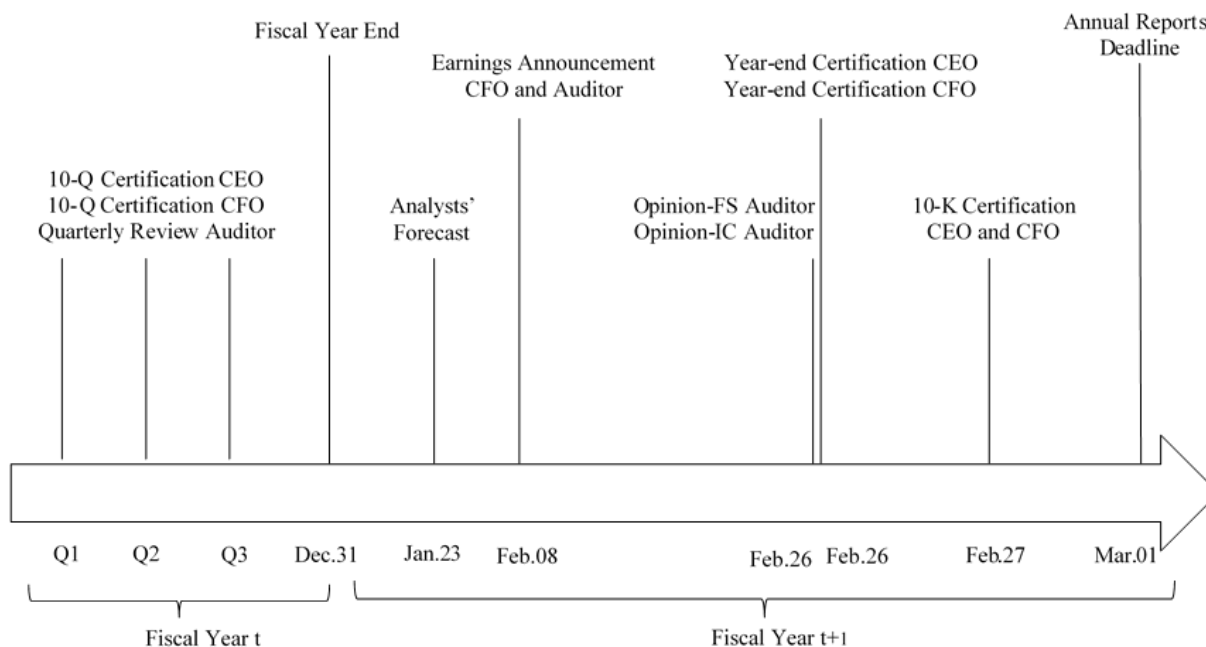


Figure 4 - Timeline of Financial Reporting System

Figure 4 depicts the average report dates of the financial reporting system for a large accelerated filer. Overall, the three key players along various milestones of the financial reporting system are the CEO, the CFO, and the auditor. These three key players of the financial reporting system constitute the certifying triangle.

On the 57<sup>th</sup> day after the fiscal year end, or February 26<sup>th</sup>, the auditor opines and issues reports on both the year-end financial statements and the adequacy of the internal controls over financial reporting. Meanwhile, the CEO and the CFO sign the fourth quarter (or annual) certifications around the same day, after which the annual financial reports are immediately filed on the 58<sup>th</sup> day, or February 27<sup>th</sup>, two days before the deadline, or March 1<sup>st</sup>. Notably, two or all three parties of the certifying triangle are present at every milestone of the financial reporting process.

### 5.2.2 Tenure of triangle parties

The descriptive statistics of the three parties' tenure is presented in Panel A of Table 3. The mean and median tenure for both the CEO and the CFO are approximately 6 years.<sup>24</sup> These values are similar to that of Dikolli and Mayer (2014),<sup>25</sup> who also collect data from ExecuComp (supplemented by hand collection) and find a

<sup>24</sup> The CEO mean (median) tenure in my sample is slightly smaller than that of Cassell et al. (2013), who also collect data from ExecuComp and note a mean (median) CEO tenure of 10.40 (8.00) years in the sample period from 1997 to 2009.

<sup>25</sup> The mean of the CFO tenure, or 6.09 years, is close to the mean tenure (5.44 years) of the CFOs reported by Bedard et al. (2014).

mean (median) CEO tenure of 7.15 (4.77) years for a sample period from 1996 to 2005. Meanwhile, the mean (median) of auditor tenure in my sample is 10.78 (9.00) years, which is comparable to the mean (median) of 8.90 (6.00) years in Hennes (2014). I attribute the difference of mean (median) tenure with other prior studies to the differences in sample periods, subject companies, required variables, and methods to calculate tenure.<sup>26</sup>

### 5.2.3 Magnitude and frequency of triangle realignments

Table 3 Panel B reports the frequency of the three magnitudes of triangle realignment. Overall, 22.80% of the sample (5,166 out of 22,654 observations) has at least one triangle realignment, among which *SINGLE* accounts for 4,500 observations (87.11%), *DOUBLE* accounts for 627 observations (12.14%), and *TRIPLE* accounts for 39 observations (0.75%).

Table 3  
Distribution of Triangle Parties' Tenure and Magnitudes of Realignment

| Panel A: CEO Tenure, CFO Tenure, and Auditor Tenure |             |               |                  |  |  |  |  |  |  |
|---|-------------|---------------|------------------|--|--|--|--|--|--|
|   | <u>Mean</u> | <u>Median</u> | <u>Std. Dev.</u> |  |  |  |  |  |  |
| <i>CEO_TENU</i>                                     | 5.87        | 6.00          | 3.90             |  |  |  |  |  |  |
| <i>CFO_TENU</i>                                     | 5.99        | 6.00          | 3.97             |  |  |  |  |  |  |
| <i>AUD_TENU</i>                                     | 10.78       | 8.00          | 9.07             |  |  |  |  |  |  |

| Panel B: Distribution of Realignment Magnitudes |               |            |            |                |                |                |                    |     |    |
|---|---------------|------------|------------|----------------|----------------|----------------|--------------------|-----|----|
| Year  | <i>Single</i> |            |            | <i>Double</i>  |                |                | <i>Triple</i>      |     |    |
|   | <i>CEO</i>    | <i>CFO</i> | <i>AUD</i> | <i>CEO_CFO</i> | <i>CEO_AUD</i> | <i>CFO_AUD</i> | <i>CEO_CFO_AUD</i> |     |    |
| 2005  | 634           | 232        | 226        | 176            | 100            | 56             | 18                 | 26  | 9  |
| 2006  | 614           | 223        | 238        | 153            | 101            | 59             | 18                 | 24  | 2  |
| 2007  | 585           | 228        | 246        | 111            | 87             | 63             | 10                 | 14  | 8  |
| 2008  | 544           | 235        | 248        | 61             | 72             | 59             | 7                  | 6   | 11 |
| 2009  | 395           | 154        | 166        | 75             | 58             | 40             | 9                  | 9   | 4  |
| 2010  | 394           | 185        | 149        | 60             | 54             | 36             | 6                  | 12  | 2  |
| 2011  | 413           | 190        | 182        | 41             | 47             | 38             | 5                  | 4   | 2  |
| 2012  | 419           | 196        | 176        | 47             | 60             | 43             | 8                  | 9   | 0  |
| 2013  | 502           | 234        | 196        | 72             | 48             | 35             | 4                  | 9   | 1  |
| Total   | 4,500         | 1,877      | 1,827      | 796            | 627            | 429            | 85                 | 113 | 39 |
| %   | 87.11         |            |            | 12.14          |                |                | 0.75               |     |    |

Table 3 presents the tenure of the three triangle parties and the distribution of the various realignment magnitudes. A total of 5,166 (=4,500+627+39) triangle replacements of various magnitudes is identified, which constitutes 22.80% of the whole sample of 22,654 firm-year observations. Variables are as defined in Table 1.

<sup>26</sup> For example, I assign a partial-year value to the first year of auditor tenure, but other studies may have assigned a value of zero.

The extremely limited number of observations of triple realignments suggests that the board stresses consistency of the financial reporting system and rarely realigns all three parties of the certifying triangle within the same year. It also suggests that the variable, *TRIPLE*, may not have sufficient power for multivariate tests, therefore its results should be carefully interpreted. As noted earlier, because 2005 marks the first year that Section 301 of SOX took full effect, boards make more *SINGLE* realignments (634 observations) in 2005 than in any other year and the second most *DOUBLE* replacements (100 observations) to their certifying triangle.

Table 4 presents the descriptive statistics of the final sample. The cumulative abnormal stock return (*CAR*) has a mean (median) of 0.003 (0.001), indicating that larger and more established companies generally have stable returns which have close-to-zero return surprise. The sample mean (median) of earnings surprise (*UE*) is -0.013 (0.000), which suggests that firms in the sample tend to have persistent and sustainable earnings with little or no surprise.

The other variable descriptive statistics are as follows.<sup>27</sup> The mean *LOG\_MV* is 6.968 and 69.3% of outstanding shares (*INST\_PCT*) are held by institutional investors. Notably, a *LOSS* is reported for 25.1% of the sample firm-year observations. Additionally, the mean debt ratio (*LEV*), is 18.5%, and the market to book ratio (*MB*) is 3.024. The mean return on assets (*ROA*) is 0.3 %. The sample also has a mean *BETA* decile of 4.443, which, if converted to Beta value, is 1.186 – just above the market risk of 1.

Additionally, the CEO is a member of the board (*CEO\_BRD*) for less than half (47.8%) of the sample, and the CEO is the chairman of the board (*CEO\_CHR*) in approximately one-third (27.4%) of the sample. The CFO is on the board (*CFO\_BRD*) for 2.5% of the sample firm-years. The board membership of both the CEO and CFO suggests the potential influence of the CEO and CFO on the selection and retention decision of the other triangle parties. In addition, 84.7% of the issuers have a Big 4 auditor (*Big\_4*) as of the year end.<sup>28</sup>

---

<sup>27</sup> The descriptive statistics for both *CAR*, *UE*, and other control variables are similar to other recent ERC research. For example, Wilson (2008) notes that the mean (median) of *UR* is 0.003 (0.003), and *UE* is -0.001(0.000). Additionally, the mean for *LOG\_MV* is 7.46 (7.40), for *LOSS* is 16.0% (25.7%), for *MB* is 4.28 (3.30), and for *BETA* is 1.06 (1.08) in the pre-restatement sample and post-restatement sample, respectively, between 1997 and 2002.

<sup>28</sup> The mean for these control variables is also comparable to related research. For example, the mean *BIG\_N* is 78% for a sample of 802 auditor-switching firms during 1991-1997 (Hackenbrack and Hogan 2002), the mean operating *ROA* is also 1.6% for a sample of 477 CEO successions during 1983-1994 (Huson et al 2004), the mean *LEV* is 0.0%, 31.5%, and 50.7%, respectively, for the three subsamples of all-equity, low-leverage, and high-leverage during 1970-1984 (Dhaliwal et al 1991), and the mean *INST\_PCT* is 41%, (ranged from 0% to 98%) for a sample of 19,777 firm-quarter observations during 1989-1993 (Bartov et al. 2000).

Table 4  
Sample Descriptive Statistics

|                             | N      | Mean   | Median | Std. Dev. |
|-----------------------------|--------|--------|--------|-----------|
| Earnings>Returns Relation   |        |        |        |           |
| <i>CAR</i>                  | 22,654 | 0.003  | 0.001  | 0.083     |
| <i>UE</i>                   | 22,654 | -0.013 | 0.000  | 0.122     |
| Firm Fundamentals           |        |        |        |           |
| <i>LOG_MV</i>               | 22,654 | 6.968  | 6.837  | 1.672     |
| <i>LOSS</i>                 | 22,654 | 0.251  | 0.000  | 0.434     |
| <i>LEV</i>                  | 22,654 | 0.185  | 0.125  | 0.220     |
| <i>MB</i>                   | 22,654 | 3.024  | 2.050  | 40.610    |
| <i>BETA</i>                 | 22,654 | 4.443  | 4.000  | 2.461     |
| Performance Index           |        |        |        |           |
| <i>ROA</i>                  | 22,654 | 0.003  | 0.035  | 0.189     |
| <i>ROA_IND</i>              | 22,654 | 0.736  | 0.289  | 2.806     |
| <i>RET</i>                  | 20,224 | 0.132  | 0.134  | 0.522     |
| <i>RET_IND</i>              | 20,224 | 0.067  | 0.061  | 0.447     |
| Corporate Governance        |        |        |        |           |
| <i>CEO_CHR</i>              | 22,654 | 0.274  | 0.000  | 0.446     |
| <i>CEO_BRD</i>              | 22,654 | 0.478  | 0.000  | 0.499     |
| <i>CFO_BRD</i>              | 22,654 | 0.025  | 0.000  | 0.157     |
| <i>BIG_4</i>                | 22,654 | 0.847  | 1.000  | 0.360     |
| Investors' Influence        |        |        |        |           |
| <i>INST_PCT</i>             | 22,654 | 0.693  | 0.736  | 0.277     |
| Previous Adverse Conditions |        |        |        |           |
| <i>LAG_QOP</i>              | 22,654 | 0.059  | 0.000  | 0.236     |
| <i>LAG_MISS</i>             | 22,654 | 0.082  | 0.000  | 0.274     |
| <i>LAG_ADV</i>              | 22,654 | 0.126  | 0.000  | 0.332     |

Table 4 presents the sample descriptive statistics. Variables are as defined in Table 1.

On average, 5.9% of the firm-years have reported a qualified opinion or a material weakness of internal controls over financial reporting (*LAG\_QOP*) in the prior year.<sup>29</sup> In addition, 8.2% of the sample had a financial misstatement (*LAG\_MISS*) in the previous 12 months.<sup>30</sup> Combined, 12.6% of the triangular relations are strained by at least one pre-existing adverse accounting condition (*LAG\_ADV*).

<sup>29</sup> This percentage of 5.4% is similar to other recent research. For example, in a pre-SOX study, Lennox (2005) finds that 6.34% of the sample disclose going concern uncertainties during the sample period (1995-1998).

<sup>30</sup> The restatement distribution of 8.1% is slightly lower than that of Wilson (2008). Wilson (2008) presents a restatement distribution of 9.30% to 26.06% between the years of 1997 to 2002. However, she also notes that the spike in restatement activity is related to restatements in response to new GAAP or specific guidance issued by the SEC during her sample period of 1997-2002.

## CHAPTER 6 EMPIRICAL RESULTS

### 6.1 Hazard models

The first stage of multivariate analysis utilizes a Cox hazard extended model (Equations 1a, 1b, and 1c) to identify the possibility of a particular triangle party (e.g., the CEO) being replaced, when the CFO or the auditor is replaced. In the extended Cox hazard model, a hazard ratio of one means that a CEO is equally as likely to be replaced if the CFO is replaced, compared to no CFO replacement. A hazard ratio of two indicates that a CEO is twice as likely to be replaced if the CFO is replaced. The coefficient on CFO measures the marginal likelihood over time that the CEO will be replaced if the CFO is replaced. The test statistic of  $\beta_1$  measures the probability of the CFO variable being due to chance. Table 5 to Table 7 present the results of the three hazard models.

Table 5 reports that the replacement of the *CFO* is associated with a lower survival rate of the *CEO* (hazard ratio of 2.087,  $p < 1\%$ ), which implies that the *CEO* is twice as likely to be replaced if there is a *CFO* replacement, than if there is no replacement of the *CFO*. However, the replacement of the auditor (*AUD*) is not affected by the replacement of the *CEO*.

Table 6 shows that the *CFO* is more likely to be replaced if there is a replacement of the *CEO* (hazard ratio of 1.933,  $p < 1\%$ ) and if there is a replacement of the auditor (*AUD*) (hazard ratio of 1.344,  $p < 1\%$ ). The results presented in Table 7 indicate that the auditor is more likely to be replaced if there is a replacement of the *CFO* (hazard ratio of 1.276,  $p < 1\%$ ), but there is no effect on the auditor's replacement if the *CEO* is replaced.

Table 7 also reveals that CEO board membership (*CEO\_BRD*) is associated with longer tenure of the auditor (hazard ratio of 0.398,  $p < 1\%$ ), indicating that if the CEO is a member of the board, they tend to exert their influence and retain the incumbent auditor for a longer period of time.

Other control variables in the hazard models generally show expected signs and significance levels consistent with those in the extant literature. For example, prior negative earnings (*LOSS*) poses a significant risk to the survival of both the CEO (Table 5, hazard ratio of 1.531,  $p < 1\%$ ), the CFO (Table 6, hazard ratio of 1.331,  $p < 1\%$ ), and the auditor (Table 7, hazard ratio of 1.124,  $p < 1\%$ ), indicating that not making a profit is a key factor in the board's decision to discipline its executives (Mian 2001).

On the other hand, auditors may decide to leave a financially distressed client due to auditors' greater perceived risk (Shu 2000). As for the rest four variables in *Performance\_Index*, a better-than-industry stock price performance (*RET\_IND*) turns out to be significantly helpful to the CEO's career with the firm (Table 5, hazard ratio of 0.552,  $p < 1\%$ ). This result is consistent with Jenter and Kanaan (2015) that the CEOs' turnover is positively



associated with their relative performance evaluation. Moreover, the CFO does not seem to be associated with these four performance variables, suggesting that the CFO's key role is in financial reporting (Bedard et al. 2014), but not in operations. Similarly, the performance index does not seem related to auditor either, suggesting that the auditor is not evaluated on operational or stock price performance.

Table 5  
Hazard Model (1<sup>a</sup>) - CEO Tenure

|                              | Predicted Sign | Parameter | Chi-Square                    | Hazard Ratio |
|------------------------------|----------------|-----------|-------------------------------|--------------|
| <i>CFO</i>                   | +              | 0.736***  | 162.620                       | 2.087        |
| <i>AUD</i>                   | +              | 0.069     | 0.428                         | 1.071        |
| Firm Fundamentals            |                |           |                               |              |
| <i>LOG_MV<sub>t-1</sub></i>  | +              | 0.109***  | 43.974                        | 1.116        |
| <i>LEV<sub>t-1</sub></i>     | -              | -0.222**  | 4.246                         | 0.801        |
| Performance Index            |                |           |                               |              |
| <i>LOSS<sub>t-1</sub></i>    | +              | 0.426***  | 44.651                        | 1.531        |
| <i>ROA<sub>t-1</sub></i>     | -              | -0.178    | 1.602                         | 0.837        |
| <i>ROA_IND<sub>t-1</sub></i> | -              | 0.003     | 0.137                         | 1.003        |
| <i>RET<sub>t-1</sub></i>     | -              | 0.098     | 0.556                         | 1.103        |
| <i>RET_IND<sub>t-1</sub></i> | -              | -0.594*** | 14.790                        | 0.552        |
| Corporate Governance         |                |           |                               |              |
| <i>CEO_CHR<sub>t-1</sub></i> | -              | -0.084    | 1.906                         | 0.919        |
| <i>CEO_BRD<sub>t-1</sub></i> | -              | -0.011    | 0.033                         | 0.989        |
| <i>CFO_BRD<sub>t-1</sub></i> | -              | -0.390**  | 6.527                         | 0.677        |
| Previous Adverse Conditions  |                |           |                               |              |
| <i>LAG_QOP</i>               | +              | 0.239***  | 7.336                         | 1.270        |
| <i>LAG_MIS</i>               | +              | 0.121     | 2.335                         | 1.129        |
| Number of Observations       |                |           | 19,238 #                      |              |
| Likelihood Ratio             |                |           | Chi-Square 371.430 (p< .0001) |              |
| Score                        |                |           | Chi-Square 420.806 (p< .0001) |              |
| Wald                         |                |           | Chi-Square 413.962 (p< .0001) |              |

Table 5 presents the test results of the Hazard Model (1<sup>a</sup>), with the time-to-event variable of CEO tenure, or *CEO\_TENU*, and the two variables of interest *CFO* and *AUD*. All parameters are maximum likelihood (ML) estimates. Variables are as defined in Table 1. \*\*\*, \*\*, \* denotes statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests. # A total of 3,416 firm-year observations are lost from the pool of 22,654 due to the addition of lagged-year variables.

Further, the CFO's board membership tends to lengthen the tenure of the CEO (Table 5, hazard ratio of 0.677,  $p < 1\%$ ), while the CEO's board membership tends to lengthen the tenure of the CFO (Table 6, hazard ratio of 0.766,  $p < 1\%$ ). This interrelation between the CEO and CFO may help explain why the conventional approach in

the extant literature (e.g., auditor tenure research) has predominantly assumed that the CEO and the CFO are a homogeneous team (e.g., Hennes et al. 2008).

Table 6  
Hazard Model (1<sup>b</sup>) - CFO Tenure

|                              | Predicted Sign | Parameter | Chi-Square                    | Hazard Ratio |
|------------------------------|----------------|-----------|-------------------------------|--------------|
| <i>CEO</i>                   | +              | 0.659***  | 129.281                       | 1.933        |
| <i>AUD</i>                   | +              | 0.295***  | 9.537                         | 1.344        |
| Firm Fundamentals            |                |           |                               |              |
| <i>LOG_MV<sub>t-1</sub></i>  | +              | 0.001     | 0.005                         | 0.999        |
| <i>LEV<sub>t-1</sub></i>     | -              | -0.484*** | 17.242                        | 0.617        |
| Performance Index            |                |           |                               |              |
| <i>LOSS<sub>t-1</sub></i>    | +              | 0.286***  | 19.680                        | 1.331        |
| <i>ROA<sub>t-1</sub></i>     | +              | 0.142     | 0.915                         | 1.153        |
| <i>ROA_IND<sub>t-1</sub></i> | -              | 0.005     | 0.461                         | 1.005        |
| <i>RET<sub>t-1</sub></i>     | -              | 0.090     | 0.504                         | 0.914        |
| <i>RET_IND<sub>t-1</sub></i> | -              | -0.060    | 0.701                         | 0.941        |
| Corporate Governance         |                |           |                               |              |
| <i>CEO_CHR<sub>t-1</sub></i> | -              | -0.039    | 0.533                         | 0.961        |
| <i>CEO_BRD<sub>t-1</sub></i> | -              | -0.267*** | 18.646                        | 0.766        |
| <i>CFO_BRD<sub>t-1</sub></i> | -              | 0.054     | 0.162                         | 1.055        |
| Previous Adverse Conditions  |                |           |                               |              |
| <i>LAG_QOP</i>               | +              | 0.758***  | 103.072                       | 2.133        |
| <i>LAG_MIS</i>               | +              | 0.194**   | 6.468                         | 1.214        |
| Number of Observations       |                |           | 19,238 #                      |              |
| Likelihood Ratio             |                |           | Chi-Square 385.746 (p< .0001) |              |
| Score                        |                |           | Chi-Square 473.914 (p< .0001) |              |
| Wald                         |                |           | Chi-Square 453.288 (p< .0001) |              |

Table 6 presents the test results of the Hazard Model (1<sup>b</sup>), with the time-to-event variable of CFO tenure, or *CFO\_TENU*, and the two variables of interest *CEO* and *AUD*. All parameters are maximum likelihood (ML) estimates. Variables are as defined in Table 1. \*\*\*, \*\*, \* denotes statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests. # A total of 3,416 firm-year observations are lost from the pool of 22,654 due to the addition of lagged-year variables.

Similarly, the market value of the firm (*LOG\_MV*), shortens the CEO's tenure (Table 5, hazard ratio of 1.116,  $p < 1\%$ ), but lengthens the auditor's tenure (Table 7, hazard ratio of 0.769,  $p < 1\%$ ), which suggests that larger companies actively monitor their CEO (Mian 2001), but tend to retain their auditors for a longer period of time (Hackenbrack and Hogan 2002).

Table 7  
Hazard Model (1<sup>c</sup>) - Auditor Tenure

|                              | Predicted Sign | Parameter | Chi-Square                    | Hazard Ratio |
|------------------------------|----------------|-----------|-------------------------------|--------------|
| <i>CEO</i>                   | +              | 0.048     | 0.194                         | 1.049        |
| <i>CFO</i>                   | +              | 0.244**   | 5.895                         | 1.276        |
| Firm Fundamentals            |                |           |                               |              |
| <i>LOG_MV<sub>t-1</sub></i>  | -              | -0.263*** | 86.366                        | 0.769        |
| <i>LEV<sub>t-1</sub></i>     | -              | -0.188    | 1.325                         | 0.829        |
| Performance Index            |                |           |                               |              |
| <i>LOSS<sub>t-1</sub></i>    | +/-            | 0.117***  | 1.469                         | 1.124        |
| <i>ROA<sub>t-1</sub></i>     | +/-            | 0.341     | 2.625                         | 1.407        |
| <i>ROA_IND<sub>t-1</sub></i> | +/-            | 0.003     | 0.046                         | 0.997        |
| <i>RET<sub>t-1</sub></i>     | +/-            | -0.208    | 1.024                         | 0.812        |
| <i>RET_IND<sub>t-1</sub></i> | +/-            | -0.339    | 2.121                         | 1.404        |
| Corporate Governance         |                |           |                               |              |
| <i>CEO_CHR<sub>t-1</sub></i> | -              | 0.240     | 5.112                         | 1.271        |
| <i>CEO_BRD<sub>t-1</sub></i> | -              | -0.922*** | 80.300                        | 0.398        |
| <i>CFO_BRD<sub>t-1</sub></i> | -              | 0.206     | 0.862                         | 1.229        |
| Previous Adverse Conditions  |                |           |                               |              |
| <i>LAG_QOP</i>               | +              | 1.161***  | 157.334                       | 3.195        |
| <i>LAG_MIS</i>               | +              | 0.405***  | 15.263                        | 1.500        |
| Number of Observations       |                |           | 19,238 #                      |              |
| Likelihood Ratio             |                |           | Chi-Square 635.279 (p< .0001) |              |
| Score                        |                |           | Chi-Square 798.017 (p< .0001) |              |
| Wald                         |                |           | Chi-Square 677.001 (p< .0001) |              |

Table 7 presents the test results of the Hazard Model (1<sup>c</sup>), with the time-to-event variable of auditor tenure, or *AUD\_TENU*, and the two variables of interest *CEO* and *CFO*. All parameters are maximum likelihood (ML) estimates. Variables are as defined in Table 1. \*\*\*, \*\*, \* denotes statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests. # A total of 3,416 firm-year observations are lost from the pool of 22,654 due to the addition of lagged-year variables.

Moreover, the more highly leveraged a firm (*LEV*), the lower the turnover of the CEO (Table 5, hazard ratio of 0.801,  $p < 5\%$ ) and the CFO (Table 6, hazard ratio of 0.617,  $p < 1\%$ ). This result indicates the importance of the executives' role, especially the CFO's, in managing the nature and magnitude of capital structuring including off-balance sheet financial instruments (e.g., Ge et al. 2011).

Qualified opinions on either financial statements or adequacy of ICFR (*LAG\_QOP*) endanger the career of all three parties of the certifying triangle (*CEO* (Table 5, hazard ratio of 1.270,  $p < 1\%$ ), *CFO* (Table 6, hazard ratio of 2.133,  $p < 1\%$ ), and *AUD* (Table 7, hazard ratio of 3.195,  $p < 1\%$ )). These results are consistent with that of Mian (2001), which finds that poor accounting performance of the executives (i.e., a going concern opinion) leads to the

board's dismissal decision. It also supports Patterson and Smith (2007) who argue that a qualified opinion on the effectiveness of ICFR is detrimental to the managers who are responsible for the establishment and certification of internal controls. Additionally, this result is consistent with Teoh (1992) which finds that an auditor is generally under a dismissal threat following the issuance of an adverse audit opinion. Furthermore, while the occurrence of a prior misstatement (*LAG\_MISS*) is not related to the replacement of the *CEO*,<sup>31</sup> it poses increased replacement risk to the *CFO* (Table 6, hazard ratio of 1.214,  $p < 5\%$ ), and to the auditor (Table 7, hazard ratio of 1.500,  $p < 1\%$ ). This result is indicative of the certifying triangle as the certifiers of the earnings information, especially the *CFO* and the auditor, who are directly accountable and more vulnerable to errors. On average, the result of an earnings restatement on the replacement of the *CEO*, the *CFO*, and the auditor is generally consistent with that of both Hennes et al. (2008) and Hennes et al. (2014).

To summarize, the replacement of the *CEO* increases the risk of the *CFO* being replaced, and vice versa. Meanwhile, the replacement of the *CFO* increases the risk of the auditor being replaced, and vice versa. However, the replacement of the *CEO* is not directly related to the replacement of the auditor, and vice versa. Nevertheless, the further analysis identifies that if the *CEO* serves on the board, the board tends to retain the incumbent auditor. In short, the interrelation varies for the three pairs within the certifying triangle.

## 6.2 CAR model

The second stage of multivariate analysis utilizes a *CAR* model to investigate the effect of the three magnitudes of triangle realignment (Single, Double, and Triple) on the *ERC*. Table 8 Column A presents the test results of Equation (2). The positive coefficient (0.137,  $p < 1\%$ ) on unexpected earnings (*UE*) reflects the baseline *ERC* for a firm where all indicator variables are equal to zero (profit firms, and firms with no triangle realignments). This baseline *ERC* is also consistent with what is generally reported in the extant literature. For example, Hackenbrack and Hogan (2002) reports a positive coefficient on *UE* (0.121,  $p < 1\%$ ).

---

<sup>31</sup> Three explanations could help reconcile the inconsistency between this result and that of Hennes et al. (2008) regarding significant relations between earnings restatements and *CEO* replacements. First, due to the holistic level of this paper, the nature of the earnings restatement is not further distinguished between irregularity and error. Additionally, Hennes et al. (2008) finds that the *CEO* replacement rate is high (49%) in the irregularity sample, but low (9%) in the error sample. Therefore, the insignificant association in my test could be attributed to the pooling effect. Secondly, I use a 12-month window to measure the time gap between the restatement and *CEO* replacement, while Hennes et al. (2008) uses a 13-month window (6 month before and 6 months after). A shorter window reduces the possibility of coefficient loading. Thirdly, auditor replacement is not controlled for in the empirical test of Hennes et al. (2008), thus the omitted variable may have contributed to the successful loading of the key variables.

The coefficient on *SINGLE\*UE* is statistically insignificant, indicating a single replacement ERC is no different from the non-realignment ERC. *DOUBLE\*UE* (-0.056,  $p < 1\%$ ) shows that the double realignment ERC is lower than the non-realignment ERC. The coefficient on *TRIPLE\*UE* (-0.087,  $p < 5\%$ ) suggests that the triple realignment ERC is lower than the non-realignment ERC.

The F-test results on Table 8 Panel B test H2. The comparison of the three magnitudes of realignment demonstrates that the summed ERC of a *DOUBLE* realignment (0.081) is significantly smaller than that of a *SINGLE* realignment (0.131) (F value 6.64,  $p < 5\%$ ), and the summed ERC of a *TRIPLE* realignment (0.050) is also significantly (marginally) smaller than that of a *SINGLE* realignment (0.131) (F value 3.33,  $p < 10\%$ ). However, there is no significant difference between the summed ERC of a *TRIPLE* realignment and a *DOUBLE* realignment. Combined, these results support that the larger magnitudes (*TRIPLE* and *DOUBLE*) of triangle realignments reduce the year-end ERC significantly more than the smaller (*SINGLE*) realignments. However, there is no significant incremental difference between the summed ERCs of the two larger magnitudes (*TRIPLE* and *DOUBLE*). Nevertheless, due to the extremely limited number of observations of triple realignments, I would be cautious in interpreting the mixed results of the *TRIPLE* realignments.

The control variables in Equation (2) are also examined. The coefficient on *LOG\_MV\*UE* is statistically related to the year-end ERC (-0.001,  $p < 1\%$ ). This result is consistent with the conclusion of Teoh and Wong (1993), who find that the relationship between the firm size and ERC could be positive or negative, depending on particular samples. Further, the ERC for a firm that reports a loss (*LOSS\*UE*), is significantly less (-0.064,  $p < 5\%$ ), consistent with the result of Hayn (1995), who finds that losses have much less information content than profits. Moreover, the significant results on the two operational performance variable, *ROA\*UE* (0.032,  $p < 5\%$ ) and *ROA\_IND\*UE* (0.002,  $p < 5\%$ ) indicate that investor's evaluation of a firm is affected by both its operation performance and its relative performance (e.g., Eisfeldt and Kuhnen 2013). This result is also consistent with Hayn (1995), who finds that better performing firms have more information content in their earnings announcement because they have better future prospects. Additionally, adverse accounting conditions during the prior 12 months (*LAG\_ADV\*UE*) is negatively associated with the ERC (coefficient -0.038,  $p < 1\%$ ). This result is consistent with the findings of Wilson (2008) who finds that an accounting restatement reduces the ERC when the auditor is not subsequently dismissed.

Table 8  
CAR Model

| Panel A:                                    | Predicted Sign | Column A  |         | Column B   |         |
|---|----------------|-----------|---------|------------|---------|
|   |                | Parameter | T-Value | Parameters | T-Value |
| Earnings>Returns Relation                   |                |           |         |            |         |
| <i>INTERCEPT</i>                            |                | 0.009***  | 2.82    | 0.009***   | 2.82    |
| <i>UE</i> ( $\beta_1$ )                     | +              | 0.137***  | 4.73    | 0.144***   | 4.94    |
| <i>SINGLE</i> ( $\beta_2$ )                 |                | 0.001     | 0.64    | 0.001      | 0.63    |
| <i>DOUBLE</i> ( $\beta_3$ )                 |                | -0.003    | -0.97   | -0.003     | -0.99   |
| <i>TRIPLE</i> ( $\beta_4$ )                 |                | -0.011    | -0.82   | -0.011     | -0.77   |
| <i>SINGLE*UE</i> ( $\beta_5$ )              | +/-            | -0.006    | -0.52   | 0.006      | 0.48    |
| <i>DOUBLE*UE</i> ( $\beta_6$ )              | +/-            | -0.056*** | -2.86   | -0.117***  | -4.87   |
| <i>TRIPLE*UE</i> ( $\beta_7$ )              | +/-            | -0.087**  | -1.99   | -0.085**   | -1.96   |
| <i>SINGLE*LAG_ADV*UE</i> ( $\beta_8$ )      | +              |           |         | 0.023      | 1.01    |
| <i>DOUBLE*LAG_ADV*UE</i> ( $\beta_9$ )      | +              |           |         | 0.188***   | 5.22    |
| <i>TRIPLE*LAG_ADV*UE</i> ( $\beta_{10}$ )   | +              |           |         | -0.312     | -0.37   |
| <i>TRIANGLE*LAG_ADV*UE</i> ( $\beta_{11}$ ) |                | 0.059***  | 2.83    |            |         |
| Firm Fundamentals                           |                |           |         |            |         |
| <i>LOG_MV</i>                               |                | -0.001*** | -2.66   | -0.001***  | -2.67   |
| <i>LEV</i>                                  |                | 0.004*    | 1.67    | 0.004      | 1.63    |
| <i>MB</i>                                   |                | 0.000     | 0.06    | 0.000      | 0.08    |
| <i>BETA</i>                                 |                | -0.000    | -1.25   | -0.000     | -1.25   |
| Performance Index                           |                |           |         |            |         |
| <i>LOSS</i>                                 |                | -0.004**  | -2.43   | -0.001**   | -2.29   |
| <i>ROA</i>                                  |                | 0.016***  | 4.13    | 0.016***   | 4.14    |
| <i>ROA_IND</i>                              |                | -0.000    | -1.07   | -0.000     | -1.09   |
| Corporate Governance                        |                |           |         |            |         |
| <i>CEO_CHR</i>                              |                | -0.001    | -0.96   | -0.001     | -0.96   |
| Investors' Influence                        |                |           |         |            |         |
| <i>INST_PCT</i>                             |                | 0.006***  | 2.90    | 0.006***   | 2.91    |
| Previous Adverse Conditions                 |                |           |         |            |         |
| <i>LAG_ADV</i>                              |                | -0.003*   | -1.89   | -0.003*    | -1.91   |
| Interaction Terms with Controls             |                |           |         |            |         |
| <i>LOG_MV*UE</i>                            | +/-            | 0.003     | 0.88    | 0.003      | 1.01    |
| <i>LOSS*UE</i>                              | -              | -0.027*** | -1.93   | -0.029***  | -2.05   |
| <i>LEV*UE</i>                               | -              | -0.027*   | -1.93   | -0.029*    | -2.05   |
| <i>MB*UE</i>                                | +              | -0.000    | -0.14   | -0.000     | -0.24   |
| <i>ROA*UE</i>                               | +              | 0.032***  | 2.46    | 0.032***   | 2.43    |
| <i>ROA_IND*UE</i>                           | +              | -0.002**  | -2.53   | -0.003**   | -2.58   |
| <i>BETA*UE</i>                              | -              | -0.001    | -0.42   | -0.000     | -0.19   |
| <i>CEO_CHR*UE</i>                           | +              | 0.023*    | 1.73    | 0.025**    | 1.86    |
| <i>INST_PCT*UE</i>                          | -              | -0.019    | -1.07   | -0.022     | -1.23   |
| <i>LAG_ADV*UE</i>                           | -              | -0.038*** | -2.64   | -0.038***  | -2.62   |
| <i>Adjusted R<sup>2</sup></i>               |                |           | 1.19%   |            | 1.27%   |

Panel B

Column A - sum of ERC coefficients for the three magnitudes of realignments (*Control\_Variables \*UE* excluded) in Equation (2):

$$\begin{aligned}
 CAR_t = & \beta_1 UE_t + \beta_2 SINGLE_t + \beta_3 DOUBLE_t + \beta_4 TRIPLE_t + \beta_5 SINGLE * UE_t + \beta_6 DOUBLE \\
 & * UE_t + \beta_7 TRIPLE * UE_t + \beta_8 CEO\_CHR_t + \beta_9 INST\_PCT_t + \beta_{10} LAG\_ADV_t \\
 & + \beta_{11} Firm\_Fundamentals_t + \beta_{12} Performance\_Index_t \\
 & + \beta_{13} Control\_Variables * UE_t
 \end{aligned}
 \tag{2}$$

Table 8 (continued)

## CAR Model

## Panel B

---

$SINGLE = \beta_1 + \beta_5 = 0.137 - 0.006 = 0.131$  (F-Value 18.76,  $p < 1\%$ )

$DOUBLE = \beta_1 + \beta_6 = 0.137 - 0.056 = 0.081$  (F-Value 5.82,  $p < 5\%$ )

$TRIPLE = \beta_1 + \beta_7 = 0.137 - 0.087 = 0.050$  (F-Value 1.02,  $p > 10\%$ )

Column B - sum of ERC coefficients for three magnitudes of realignments (*Control\_Variables \* UE* excluded) in Equation (3):

$$\begin{aligned}
 CAR_t = & \beta_1 UE_t + \beta_2 SINGLE_t + \beta_3 DOUBLE_t + \beta_4 TRIPLE_t + \beta_5 SINGLE * UE_t + \beta_6 DOUBLE \\
 & * UE_t + \beta_7 TRIPLE * UE_t + \beta_8 SINGLE * LAG\_ADV * UE_t + \beta_9 DOUBLE * LAG\_ADV \\
 & * UE_t + \beta_{10} TRIPLE * LAG\_ADV * UE_t + \beta_{11} LAG\_ADV_t + \beta_{12} LAG\_ADV_t * UE_t \\
 & + \beta_{13} Control\_Variables_t \\
 & + \beta_{14} Control\_Variables \\
 & * UE_t
 \end{aligned} \tag{3}$$

Without prior adverse accounting conditions

$SINGLE = \beta_1 + \beta_5 = 0.144 + 0.006 = 0.150$  (F-Value 23.97,  $p < 1\%$ )

$DOUBLE = \beta_1 + \beta_6 = 0.144 - 0.117 = 0.027$  (F-Value 0.57,  $p > 40\%$ )

$TRIPLE = \beta_1 + \beta_7 = 0.144 - 0.085 = 0.059$  (F-Value 1.34,  $p > 20\%$ )

With prior adverse accounting conditions

$SINGLE = \beta_1 + \beta_5 + \beta_8 = 0.144 + 0.006 + 0.023 = 0.173$  (F-Value 25.08,  $p < 1\%$ )

$DOUBLE = \beta_1 + \beta_6 + \beta_9 = 0.144 - 0.117 + 0.188 = 0.215$  (F-Value 28.33,  $p < 1\%$ )

$TRIPLE = \beta_1 + \beta_7 + \beta_{10} = 0.144 - 0.085 - 0.312 = -0.083$  (F-Value 0.09,  $p > 70\%$ )

Column A F-test comparing between *DOUBLE* and *SINGLE*, between *TRIPLE* and *SINGLE*, and between *TRIPLE* and *DOUBLE*

*DOUBLE\*UE* Vs. *SINGLE\*UE*, or  $(\beta_1 + \beta_6) = (\beta_1 + \beta_5)$ , (F-Value 6.64,  $p < 1\%$ )

*TRIPLE\*UE* Vs. *SINGLE\*UE*, or  $(\beta_1 + \beta_7) = (\beta_1 + \beta_5)$ , (F-Value 3.33,  $p < 10\%$ )

*TRIPLE\*UE* Vs. *DOUBLE\*UE*, or  $(\beta_1 + \beta_7) = (\beta_1 + \beta_6)$ , (F-Value 0.44,  $p > 50\%$ )

Column B F-test comparing between with-conditions and without-conditions scenarios of the three magnitudes of realignment:

*SINGLE\*LAG\_ADV\*UE* Vs. *SINGLE\*UE*, or  $(\beta_1 + \beta_5 + \beta_8) = (\beta_1 + \beta_5)$ , (F-Value 1.02,  $p > 30\%$ )

*DOUBLE\*LAG\_ADV\*UE* Vs. *DOUBLE\*UE*, or  $(\beta_1 + \beta_6 + \beta_9) = (\beta_1 + \beta_6)$ , (F-Value 27.22,  $p < 1\%$ )

*TRIPLE \*LAG\_ADV\*UE* Vs. *TRIPLE \*UE*, or  $(\beta_1 + \beta_7 + \beta_{10}) = (\beta_1 + \beta_7)$ , (F-Value 0.13,  $p > 70\%$ )

---

Table 8 presents the test results of Equation (2) in Column A and Equation (3) in Column B. The dependent variable of these equations is *CAR*, with the two variables of interest in interaction terms: *DOUBLE\*UE* and *TRIPLE\*UE*. The sample size for both equations is 22,654 firm-year observations. Variables are as defined in Table 1. \*\*\*, \*\*, \* denotes statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

Also notable is the positive and significant effect on ERC (0.059,  $p < 1\%$ ) of any triangle replacement (viewed as a pool) subsequent to adverse accounting conditions (*TRIANGLE\*LAG\_ADV\*UE*). The results suggest that, overall, a certifying triangle realignment of any magnitude subsequent to an adverse accounting condition does not decrease, but increases the year-end ERC.

Meanwhile, the coefficients on the interaction terms between other control variables and *UE* (*MB\*UE*, *BETA\*UE*, *CEO\_CHR\*UE*, and *INST\_PCT\*UE*), are not statistically different from zero. However, the signs of the

coefficients of these interactions are generally consistent with the extant literature. For example,  $MB*UE$  is positive because investors are more responsive to the earnings surprises of growth firms whose earnings are more likely to persist into future years (Teoh and Wong 1993). The coefficient on  $BETA*UE$  is negative because greater systematic risk lowers investor's reactions to unexpected earnings (Collins and Kothari 1989). Lastly, the adjusted R2 (1.19%) is in the range of one percent to five percent which is consistent with the extant literature (e.g., Wilson 2008; Lev 1989).

### 6.3 CAR model preceded by adverse accounting conditions

The third stage of the multivariate analysis utilizes a *CAR* model to investigate the effect of triangle replacements on ERC when the replacements are preceded by adverse accounting conditions. Table 8 Column B presents the empirical results on Equation (3). The positive coefficient (0.144,  $p < 1\%$ ) on unexpected earnings ( $UE$ ) reflects the baseline ERC for a firm reporting a profit with no realignments.

The results in Table 8 Column B show that when a single triangle replacement is preceded by an adverse accounting condition, the ERC does not decrease, as demonstrated by the positive but insignificant coefficient on  $SINGLE*LAG\_ADV*UE$ . This result is consistent with that of Wilson (2008) that the restated firms do not suffer a decline in the short-term information content of earnings (ERC) if they make governance changes immediately following the restatements. Moreover, the coefficient on  $DOUBLE*LAG\_ADV*UE$  (0.188,  $p < 1\%$ ) provides evidence that a larger magnitude of a double realignment, after adverse accounting conditions, increases the ERC. Meanwhile, the insignificance of the coefficient on  $TRIPLE*LAG\_ADV*UE$  suggests that a triple replacement, after adverse accounting conditions, does not significantly change the ERC. However, due to the extremely limited number of observations of triple realignments, I would be hesitant to draw a conclusion on the results on  $TRIPLE*UE$ .

The F-test results on Panel B further validate H3. The comparison between the conditional and non-conditional scenario of the three magnitudes of realignment demonstrates that the summed ERC (0.215) of the  $DOUBLE*LAG\_ADV*UE$  is significantly larger than the summed ERC (0.027) of  $DOUBLE*UE$  (F-Value 27.22,  $p < 1\%$ ). This result suggests that the double realignment in response to a prior adverse accounting condition has more than recovered the negative effect of the large magnitude of triangle replacement. The increased ERC also suggests that market rewards the board's commitment to addressing adverse accounting conditions by engaging in double-scaled governance restructure. Nevertheless, the results on the comparison of summed ERC between



*TRIPLE\*LAG\_ADV\*UE* and *TRIPLE\*UE* do not turn out to be significant, probably due to the reason that there are extremely limited observations of triple realignments.

The properties of the other control variables and interactive terms on Table 8 Column B show similar results as those in Table 8 Column A. The adjusted  $R^2$  (1.27%) is slightly larger than the adjusted  $R^2$  (0.96%) reported by Wilson (2008), probably because this equation examines the information content of the year-end ERC while Wilson (2008) investigates the quarter-end ERC, or probably because more explanatory variables are added in Equation (3) than that of Wilson (2008).

In short, the empirical evidence on Column B of Table 8 indicates that, conditional on prior adverse accounting situations, a single replacement of the certifying triangle does not increase the ERC, but a double replacement increases the ERC significantly, while the effect of triple replacement remains inconclusive. From the perspective of the market, this result suggests that investors generally expect the board to make someone accountable after accounting errors are identified. Further, investors even reward the boards' commitment to address previous accounting problems by engaging in corporate governance restructuring of greater magnitude.

## CHAPTER 7 ROBUSTNESS TESTS

### 7.1 Further disentanglement of the three magnitudes of triangle realignment

An alternative version of Equation (2) further disentangles the magnitudes of triangle realignment into the seven scenarios: *CEO*, *CFO*, *AUD*, *CEO\_CFO*, *CEO\_AUD*, *CFO\_AUD*, and *CEO\_CFO\_AUD*, so as to identify the specific types of replacements associated with changes in the ERC. The results of the alternative model are presented in Table 9 Column A. Additionally, the result of an alternative version of Equation (3), which also disentangles the magnitudes of triangle realignment into the seven scenarios, is presented in Table 9 Column B. Similar to Equation (2) and Equation (3), I also perform two F-tests, one to compare the summed ERC among the seven magnitudes of realignment, and the other to compare the conditional and non-conditional scenario of each of the seven magnitudes.

Table 9 Column A presents the results of the seven scenarios of triangle realignment. The baseline ERC (*UE*) is positive (0.144,  $p < 1\%$ ), approximately the same as that in Table 8 Column A (0.137,  $p < 1\%$ ). Column A of Table 9 also demonstrates that the effect on the ERC of *CEO*, *CFO*, *AUD*, if partitioned, is not significantly different from zero. Moreover, the negative effect of a double replacement on ERC, when compared with the zero realignments, is primarily driven by the pair of CEO-CFO (*CEO\_CFO\*UE*) (-0.080,  $p < 1\%$ ), suggesting that uncertainty of double realignment originates mainly from the concurrent replacement of both CEO and CFO. Also consistent with the variable of *TRIPLE\*UE* on Table 8 Column A, the coefficient on *CEO\_CFO\_AUD\*UE* is statistically significant (-0.088,  $p < 5\%$ ). However, I again caution interpreting the statistical significance level of *CEO\_CFO\_AUD\*UE* due to the extremely limited observations of triple realignment.

The F-test results on Table 9 Panel B further demonstrates that the summed ERC of a *CEO\_CFO* realignment (0.064) is significantly smaller than that of either a *CEO* realignment (0.145) (F value 10.92,  $p < 5\%$ ) or a *CFO* realignment (0.132) (F value 6.86,  $p < 5\%$ ). This result also suggests that the negative effect on ERC of *DOUBLE* realignment, when compared to *SINGLE* (not zero) realignment, is mainly driven by the CEO-CFO pair. Similarly, the significant difference between the summed ERC of *CEO\_CFO\_AUD* realignment (0.056) and the summed ERC of *CEO* realignment (0.145) suggests that the negative effect on ERC of *TRIPLE* realignment is mainly driven by the CEO replacement. (F value 3.95,  $p < 5\%$ ). Meanwhile, I find no significant associations among other magnitudes of triangle realignment.

Combined, the results from the above two tests support that the contemporaneous replacement of the CEO-CFO pair has a significant negative effect on the year-end ERC. Meanwhile, the CEO is the main driving force of the negative effect of the triple realignment on ERC.

Column B of Table 9 presents the association between the seven scenarios of the triangle realignment on ERC, conditional on prior adverse accounting situations. Under the category of single replacement, two of the three *SINGLE* variables preceded by adverse accounting conditions (*CFO\*LAG\_ADV\*UE* and *AUD\*LAG\_ADV\*UE*) are not significantly associated with the ERC, while *CEO\*LAG\_ADV\*UE* (0.066,  $p < 5\%$ ) is significantly and positively associated with the ERC. This result suggests that while the CEO is especially vulnerable among the three, investors consider it good news replacing the CEO after the company runs into an adverse accounting condition, for instance, going concern. On the other hand, the significant positive association between double replacement and ERC seems to be driven mainly by the CEO-CFO pair (*CEO\_CFO\*LAG\_ADV\*UE*) (0.234,  $p < 1\%$ ) and the CEO-AUD pair (*CEO\_AUD\*LAG\_ADV\*UE*) (0.130,  $p < 5\%$ ). This result conforms generally to that of Desai et al. (2006), who conclude that 60 percent of restating firms experience a turnover of at least one top manager within 24 months of earnings restatement.

Additionally, the insignificance of *CFO\_AUD\*LAG\_ADV\*UE* also indicates the CEO's integral and important role in financial reporting. Similar to that in Table 8 Column B, the insignificance of the coefficient on the triple replacement (*CEO\_CFO\_AUD\*LAG\_ADV\*UE*) suggests that a triple replacement, subsequent to an adverse accounting condition, does not increase the ERC, probably due to limited observations. Lastly, the properties of other variables in Table 9 Column B show qualitatively similar results to those in Table 8 Column B.

Further, the F-test which compares conditional with non-conditional scenario of the seven magnitudes of realignment demonstrates that the mitigating effect of *DOUBLE\*LAG\_ADV\*UE*, when compared to any *SINGLE* (not zero) realignment, is also mainly driven by the replacement of CEO-CFO (F value 27.25,  $p < 1\%$ ) and CEO-AUD (F value 3.91,  $p < 5\%$ ). Additionally, the significant difference between the summed ERC of *CEO\*LAG\_ADV\*UE* and *CEO\*UE* indicates that replacement of the CEO in response to a prior adverse accounting condition help significantly restore investors' confidence in the company's financial information.

Table 9  
CAR Model – Robustness Test

| Panel A:                        | Predicted Sign                                 | Column A  |           | Column B   |           |       |
|---------------------------------|--|-----------|-----------|------------|-----------|-------|
|                                 |  | Parameter | T-Value   | Parameters | T-Value   |       |
| Earnings>Returns Relation       |  |           |           |            |           |       |
| <i>INTERCEPT</i>                |  | 0.009***  | 2.79      | 0.009***   | 2.80      |       |
| <i>UE</i> ( $\beta_1$ )         | +  | 0.144***  | 4.93      | 0.151***   | 5.13      |       |
| <i>SINGLE</i>                   |  |           |           |            |           |       |
|                                 | <i>CEO</i>                                     | -0.002    | -0.87     | -0.002     | -0.86     |       |
|                                 | <i>CFO</i>                                     | 0.003     | 1.61      | 0.003      | 1.62      |       |
|                                 | <i>AUD</i>                                     | 0.002     | 0.51      | 0.002      | 0.51      |       |
| <i>DOUBLE</i>                   |  |           |           |            |           |       |
|                                 | <i>CEO_CFO</i>                                 | -0.002    | -0.41     | -0.001     | -0.36     |       |
|                                 | <i>CEO_AUD</i>                                 | 0.008     | 0.92      | 0.008      | 0.89      |       |
|                                 | <i>CFO_AUD</i>                                 | -0.023*** | -2.35     | -0.017***  | -2.20     |       |
| <i>TRIPLE</i>                   |  |           |           |            |           |       |
|                                 | <i>CEO_CFO_AUD</i>                             | -0.011    | -0.82     | -0.011     | -0.77     |       |
| <i>SINGLE*UE</i>                |  |           |           |            |           |       |
|                                 | <i>CEO*UE</i> ( $\beta_2$ )                    | +/-       | 0.001     | 0.08       | -0.000    | -0.02 |
|                                 | <i>CFO*UE</i> ( $\beta_3$ )                    | +/-       | -0.012    | -0.68      | 0.024     | 1.14  |
|                                 | <i>AUD*UE</i> ( $\beta_4$ )                    | +/-       | -0.018    | -0.85      | -0.002    | -0.10 |
| <i>DOUBLE*UE</i>                |  |           |           |            |           |       |
|                                 | <i>CEO_CFO*UE</i> ( $\beta_5$ )                | +         | -0.080*** | -3.49      | -0.150*** | -5.35 |
|                                 | <i>CEO_AUD*UE</i> ( $\beta_6$ )                | +         | -0.002    | -0.06      | -0.038    | -0.82 |
|                                 | <i>CFO_AUD*UE</i> ( $\beta_7$ )                | +         | -0.008    | -0.14      | 0.287     | 1.63  |
| <i>TRIPLE*UE</i>                | +  |           |           |            |           |       |
|                                 | <i>CEO_CFO_AUD*UE</i> ( $\beta_8$ )            |           | -0.088**  | -2.01      | -0.087**  | -1.99 |
| <i>TRIANGLE* LAG_ADV*UE</i>     |  |           | 0.058***  | 2.76       |           |       |
| <i>SINGLE*LAG_ADV*UE</i>        |  |           |           |            |           |       |
|                                 | <i>CEO*LAG_ADV*UE</i> ( $\beta_9$ )            | +/-       |           |            | 0.066**   | 2.15  |
|                                 | <i>CFO*LAG_ADV*UE</i> ( $\beta_{10}$ )         | +/-       |           |            | -0.027    | -0.79 |
|                                 | <i>AUD*LAG_ADV*UE</i> ( $\beta_{11}$ )         | +/-       |           |            | 0.215     | 0.53  |
| <i>DOUBLE*LAG_ADV*UE</i>        |  |           |           |            |           |       |
|                                 | <i>CEO_CFO*LAG_ADV*UE</i> ( $\beta_{12}$ )     | +         |           |            | 0.234***  | 5.22  |
|                                 | <i>CEO_AUD*LAG_ADV*UE</i> ( $\beta_{13}$ )     | +         |           |            | 0.130**   | 1.98  |
|                                 | <i>CFO_AUD*LAG_ADV*UE</i> ( $\beta_{14}$ )     | +         |           |            | -0.275    | -1.48 |
| <i>TRIPLE*LAG_ADV*UE</i>        |  |           |           |            |           |       |
|                                 | <i>CEO_CFO_AUD*LAG_ADV*UE</i> ( $\beta_{15}$ ) | +         |           |            | -0.311    | -0.36 |
| Firm Fundamentals               |  |           |           |            |           |       |
| <i>LOG_MV</i>                   |  | -0.001*** | -2.65     | -0.001***  | -2.66     |       |
| <i>LEV</i>                      |  | 0.004*    | 1.68      | 0.004      | 1.61      |       |
| <i>MB</i>                       |  | 0.000     | 0.09      | 0.000      | 0.10      |       |
| <i>BETA</i>                     |  | -0.000    | -1.23     | -0.000     | -1.21     |       |
| Performance Index               |  |           |           |            |           |       |
| <i>LOSS</i>                     |  | -0.004**  | -2.40     | -0.004**   | -2.35     |       |
| <i>ROA</i>                      |  | 0.016***  | 4.15      | 0.016***   | 4.19      |       |
| <i>ROA_IND</i>                  |  | -0.000    | -1.09     | -0.000     | -1.10     |       |
| Corporate Governance            |  |           |           |            |           |       |
| <i>CEO_CHR</i>                  |  | -0.001    | -0.92     | -0.001     | -0.91     |       |
| Investors' Influence            |  |           |           |            |           |       |
| <i>INST_PCT</i>                 |  | 0.006***  | 2.90      | 0.006***   | 2.90      |       |
| Previous Adverse Conditions     |  |           |           |            |           |       |
| <i>LAG_ADV</i>                  |  | -0.003*   | -1.89     | -0.003*    | -1.88     |       |
| Interaction Terms with Controls |  |           |           |            |           |       |
| <i>LOG_MV*UE</i>                | +/-  | 0.003     | 0.99      | 0.004      | 1.25      |       |

(Table 9 continued)

CAR Model – Robustness Test

| Panel A:                      | Predicted Sign | Column A  |         | Column B   |         |
|-------------------------------|----------------|-----------|---------|------------|---------|
|                               |                | Parameter | T-Value | Parameters | T-Value |
| <i>LOSS*UE</i>                | -              | -0.067*** | -3.04   | -0.079***  | -3.58   |
| <i>LEV*UE</i>                 | -              | -0.025*   | -1.77   | -0.027*    | -1.92   |
| <i>MB*UE</i>                  | +              | -0.000    | -0.20   | -0.000     | -0.26   |
| <i>ROA*UE</i>                 | +              | 0.036***  | 2.71    | 0.035***   | 2.60    |
| <i>ROA_IND*UE</i>             | +              | 0.003**   | 2.54    | 0.003**    | 2.54    |
| <i>BETA*UE</i>                | -              | -0.001    | -0.85   | -0.000     | -0.32   |
| <i>CEO_CHR*UE</i>             | +              | 0.023*    | 1.75    | 0.028**    | 2.08    |
| <i>INST_PCT*UE</i>            | -              | -0.024    | -1.33   | -0.030*    | -1.67   |
| <i>LAG_ADV*UE</i>             | -              | -0.004*** | -2.68   | -0.038***  | -2.64   |
| <i>Adjusted R<sup>2</sup></i> |                |           | 1.22%   |            | 1.33%   |

Panel B

Column A - sum of ERC coefficient estimates (Control\_Variables \*UE excluded) for adjusted Equation (2):

$$\begin{aligned} CEO &= \beta_1 + \beta_2 = 0.144 + 0.001 = 0.145 \text{ (F-Value 20.91, } p < 1\%) \\ CFO &= \beta_1 + \beta_3 = 0.144 - 0.012 = 0.132 \text{ (F-Value 16.65, } p < 1\%) \\ AUD &= \beta_1 + \beta_4 = 0.144 - 0.018 = 0.128 \text{ (F-Value 12.57, } p < 1\%) \\ CEO\_CFO &= \beta_1 + \beta_5 = 0.144 - 0.080 = 0.064 \text{ (F-Value 3.31, } p < 10\%) \\ CEO\_AUD &= \beta_1 + \beta_6 = 0.144 - 0.002 = 0.142 \text{ (F-Value 9.72, } p < 1\%) \\ CFO\_AUD &= \beta_1 + \beta_7 = 0.144 - 0.008 = 0.136 \text{ (F-Value 4.22, } p < 5\%) \\ CEO\_CFO\_AUD &= \beta_1 + \beta_8 = 0.144 - 0.088 = 0.056 \text{ (F-Value 1.27, } p > 10\%) \end{aligned}$$

Column B - sum of ERC coefficient estimates (Control\_Variables \*UE excluded) for adjusted Equation (3):

$$\begin{aligned} CEO &= \beta_1 + \beta_2 + \beta_9 = 0.151 - 0.000 + 0.066 = 0.217 \text{ (F-Value 28.98, } p < 1\%) \\ CFO &= \beta_1 + \beta_3 + \beta_{10} = 0.151 + 0.024 - 0.027 = 0.100 \text{ (F-Value 15.34, } p < 1\%) \\ AUD &= \beta_1 + \beta_4 + \beta_{11} = 0.151 - 0.002 + 0.215 = 0.368 \text{ (F-Value 14.71, } p < 1\%) \\ CEO\_CFO &= \beta_1 + \beta_5 + \beta_{12} = 0.151 - 0.150 + 0.234 = 0.235 \text{ (F-Value 27.02, } p < 1\%) \\ CEO\_AUD &= \beta_1 + \beta_6 + \beta_{13} = 0.151 - 0.038 + 0.130 = 0.243 \text{ (F-Value 17.78, } p < 1\%) \\ CFO\_AUD &= \beta_1 + \beta_7 + \beta_{14} = 0.151 + 0.000 + 0.000 = 0.151 \text{ (F-Value 5.61, } p < 5\%) \\ CEO\_CFO\_AUD &= \beta_1 + \beta_8 + \beta_{15} = 0.151 - 0.087 - 0.275 = 0.163 \text{ (F-Value 0.08, } p > 70\%) \end{aligned}$$

Column A F-test comparing among the seven magnitudes of realignment:

$$\begin{aligned} CEO*UE \text{ Vs. } CEO\_CFO*UE, \text{ or } (\beta_1 + \beta_2) &= (\beta_1 + \beta_5), \text{ (F-Value 10.92, } p < 1\%) \\ CEO*UE \text{ Vs. } CEO\_AUD*UE, \text{ or } (\beta_1 + \beta_2) &= (\beta_1 + \beta_6), \text{ (F-Value 0.01, } p > 90\%) \\ CFO*UE \text{ Vs. } CEO\_CFO*UE, \text{ or } (\beta_1 + \beta_3) &= (\beta_1 + \beta_5), \text{ (F-Value 6.86, } p < 1\%) \\ CFO*UE \text{ Vs. } CFO\_AUD*UE, \text{ or } (\beta_1 + \beta_3) &= (\beta_1 + \beta_7), \text{ (F-Value 0.00, } p > 90\%) \\ AUD*UE \text{ Vs. } CEO\_AUD*UE, \text{ or } (\beta_1 + \beta_2) &= (\beta_1 + \beta_6), \text{ (F-Value 0.18, } p > 70\%) \\ AUD*UE \text{ Vs. } CFO\_AUD*UE, \text{ or } (\beta_1 + \beta_2) &= (\beta_1 + \beta_7), \text{ (F-Value 0.03, } p > 90\%) \\ CEO*UE \text{ Vs. } CEO\_CFO\_AUD*UE, \text{ or } (\beta_1 + \beta_2) &= (\beta_1 + \beta_8), \text{ (F-Value 3.95, } p < 5\%) \\ CFO*UE \text{ Vs. } CEO\_CFO\_AUD*UE, \text{ or } (\beta_1 + \beta_3) &= (\beta_1 + \beta_8), \text{ (F-Value 2.71, } p > 10\%) \\ AUD*UE \text{ Vs. } CEO\_CFO\_AUD*UE, \text{ or } (\beta_1 + \beta_4) &= (\beta_1 + \beta_8), \text{ (F-Value 2.16, } p > 20\%) \\ CEO\_CFO*UE \text{ Vs. } CEO\_CFO\_AUD*UE, \text{ or } (\beta_1 + \beta_5) &= (\beta_1 + \beta_8), \text{ (F-Value 0.02, } p > 90\%) \\ CEO\_AUD*UE \text{ Vs. } CEO\_CFO\_AUD*UE, \text{ or } (\beta_1 + \beta_6) &= (\beta_1 + \beta_8), \text{ (F-Value 2.45, } p > 10\%) \\ CFO\_AUD*UE \text{ Vs. } CEO\_CFO\_AUD*UE, \text{ or } (\beta_1 + \beta_7) &= (\beta_1 + \beta_8), \text{ (F-Value 1.19, } p > 30\%) \end{aligned}$$

Column B F-test comparing between conditional and non-conditional scenarios of the seven magnitudes of realignment:

$$\begin{aligned} CEO*LAG\_ADV*UE \text{ Vs. } CEO*UE, \text{ or } (\beta_1 + \beta_2 + \beta_9) &= (\beta_1 + \beta_2), \text{ (F-Value 4.61, } p < 5\%) \\ CFO*LAG\_ADV*UE \text{ Vs. } CFO*UE, \text{ or } (\beta_1 + \beta_3 + \beta_{10}) &= (\beta_1 + \beta_3), \text{ (F-Value 0.63, } p > 40\%) \end{aligned}$$

(Table 9 continued)

CAR Model – Robustness Test

Panel B

---

*AUD\*LAG\_ADV\*UE* Vs. *AUD\*UE*, or  $(\beta_1 + \beta_4 + \beta_{11}) = (\beta_1 + \beta_4)$ , (F-Value 0.28,  $p > 60\%$ )  
*CEO\_CFO\*LAG\_ADV\*UE* Vs. *CEO\_CFO\*UE*, or  $(\beta_1 + \beta_5 + \beta_{12}) = (\beta_1 + \beta_5)$ , (F-Value 27.25,  $p < 1\%$ )  
*CEO\_AUD\*LAG\_ADV\*UE* Vs. *CEO\_AUD\*UE*, or  $(\beta_1 + \beta_6 + \beta_{13}) = (\beta_1 + \beta_6)$ , (F-Value 3.91,  $p < 5\%$ )  
*CFO\_AUD\*LAG\_ADV\*UE* Vs. *CFO\_AUD\*UE*, or  $(\beta_1 + \beta_7 + \beta_{14}) = (\beta_1 + \beta_7)$ , (F-Value 2.18,  $p > 10\%$ )  
*CEO\_CFO\_AUD\*LAG\_ADV\*UE* Vs. *CEO\_CFO\_AUD\*UE*, or  $(\beta_1 + \beta_8 + \beta_{15}) = (\beta_1 + \beta_8)$ , (F-Value 0.013,  $p > 70\%$ )

---

Table 9 presents the test results of the adjusted Equation (2) and adjusted Equation (3). The dependent variable of these two equations is *CAR*, with the seven scenarios of realignment magnitudes as variables of interest. The sample size is 22,654 firm-year observations. Variables are as defined in Table 1. \*\*\*, \*\*, \* denotes statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

Taken as a whole, it appears that the replacement of the CEO-CFO or CEO-AUD are the board's main mechanism to restore investors' confidence when the company runs into adverse accounting conditions. Meanwhile, the replacement of the CEO serves as the board's answer to solving the firm's trust problem.

### 7.2 Alternative measurements of *CAR* and *UE*

As an alternative measure of *CAR*, I do not exclude stock dividends. I find that when stock dividends are not excluded in the measurement of *CAR*, the coefficients and significance levels of the variables of interest are qualitatively similar (untabulated) in both Model (2) and Model (3). This result is consistent with that of Christie (1987), which states that whether dividends are included or excluded does not make a significant difference. Similarly, the use of mean, rather than median, of consensus analysts' forecasts does not qualitatively change the coefficients and significance levels. However, if *CAR* is calculated in a two-day (-1, 0) window, the  $R^2$  of Model (2) dramatically decreases to below one percent (1%) and the significance levels of some variables change to be insignificant. This result suggests that, on average, the earnings information content of some securities are not fully impounded into the stock price until the second day of the earnings announcement.

### 7.3 Non-linearity of returns-earnings relation

To address the possible non-linearity of the returns-earnings relation (Freeman and Tse 1992), a square term of *UE* is added to both Model (2) and Model (3) (untabulated). The adjusted  $R^2$  almost doubles, and the coefficients and significance levels of the variables of interest are all qualitatively similar. However, the significance levels of some key variables change, for example, the significance level of baseline *UE* drops from 1% to 5%, as does the significance level of *LOSS\*UE*. Meanwhile, the significance level of *ROA\*UE* increases from 10% to 5%.

#### 7.4 Length of the three sides of the certifying triangle

Since the goal of this research is to present a bigger and strategic picture of the financial reporting system, I make no attempt to quantify the exact length or relative length of the three sides of the triangle (i.e., equilateral, isosceles, or scalene). Rather, the qualitative features of each of the three points and three sides of the triangle are examined, and all three parties are deemed integral to the formation of the certifying triangle.

#### 7.5 Nature of replacements

Traditionally, the nature of the CEO and CFO replacement is categorized as voluntary and involuntary (Hazarika et al. 2012) and (Mian 2001) respectively. Similarly, the auditor replacement can also be divided into auditor resignation (voluntary) and client dismissal (involuntary) (e.g., Menon and Williams 2008). As a result, researchers generally partition a particular triangle party's replacement into two sub-samples based on its replacement nature and then examine its behavior separately. For instance, Shu (2000) studies auditor resignations only and Hazarika et al. (2012) investigates involuntary CEO terminations only. However, firms generally offer disguised or uninformative reasons when announcing executive departures (e.g., for "family reasons", or "personal reasons") (Pan et al, 2015), therefore classifying some subsamples becomes a subjective guess and lengthy game of data hand collection for a researcher. Additionally, since the certifying triangle consists of three parties, partitioning each party into two sub-groups in three magnitudes presents a total of 24 sub-samples. Consequently, examining a total of 24 combinations becomes a tedious, micro-analytic exercise and is beyond the scope of this paper. Rather, an indicator variable, for instance, *CEO*, is used to measure the event of CEO replacement, with the engagement of the new CEO and the departure of the former CEO viewed as two sides of a coin.

#### 7.6 Triangle realignment's lagged effect on ERC

I also investigate the lagged effect on ERC of various magnitudes of triangle realignment. In particular, I look into the ERC one year and two years after the triangle realignment, respectively. The empirical evidence (untabulated) shows no significant association between the triangle realignment and the ERC, either one year or two years afterward.<sup>32</sup> In addition, both models demonstrate extremely low F value and adjusted R-Square, suggesting a poor model fit.

---

<sup>32</sup> I run a *CAR* model similar to Equation (2) and note that the coefficients for *DOUBLE\*UE* are 0.000 (T=0.86, p > 39%) and 0.000 (T=0.62, p > 53%) in lagged one year and lagged two year respectively. The F Value and R Square are 2.14 (p <5%) and 0.000 for lagged one year, and 1.09 (p > 36%) and 0.000 for lagged two year.

## CHAPTER 8 CONCLUSIONS AND FUTURE RESEARCH

This research challenges the implicit assumption of a homogeneous executive team in accounting research by identifying the three key decision-makers of the financial reporting system, therefore it serves as a direct extension of the argument by Antle and Nalebuff (1991) that financial reports are the joint statements of management and the auditor. Further, this paper investigates the dynamic interrelations within the certifying triangle and the effects on ERC of various magnitudes of triangle realignment. I provide empirical evidence that the replacement of the CEO tends to reduce the survival rate of the CFO with the firm, and reversely the replacement of the CFO reduces the survival rate of the CFO. Meanwhile, the replacement of the CFO tends to reduce the survival rate of the auditor with the firm, and reversely the replacement of the auditor reduces the survival rate of the CFO. However, there is no association between the CEO-Auditor pair. These results suggest that the board and the labor market view the certifying triangle as a team when it comes to financial reporting, however, the interrelations among the three parties vary. Additionally, whereas a single and a triple replacement of the certifying triangle neither increases nor decreases the registrant's year-end ERC, the double replacement of the triangle parties reduces significantly the registrant's year-end ERC, indicating investors' uncertainty on the subsequent earnings' credibility after two contracts of the firm are replaced contemporaneously. These results appear to be driven by the CEO-CFO realignments. However, the negative effect of double realignment on ERC is mitigated when the double realignment is intended to address previous adverse accounting conditions. This result suggests that investors' confidence is largely restored after the board holds the related parties responsible for the previous adverse conditions that the firm encounters, for CEO-CFO realignments and CEO-Auditor changes. Nevertheless, the triple replacement of the certifying triangle shows statistically insignificant results, probably due to lack of testing power. Overall, the triangle realignment represents a holistic effort by the board to build an effective financial reporting team.

Two caveats are offered on the conclusions of this research. First, my sample only includes accelerated filers and large accelerated filers with at least two analysts following. Therefore the conclusions on the behavior of the certifying triangle cannot be generalized to publicly listed companies of smaller size. Secondly, due to the extremely limited observations of the triple realignment, the null results of which may be attributed to lack of power rather than real statistical insignificance. Therefore, any overgeneralization is cautioned.

This paper focuses largely on the building of the certifying triangle, interrelations of the three parties, and the ERC consequences of the triangle realignment. Future research could consider the determinants of the triangle



realignment in a joint fashion. Alternatively, researchers can also investigate the collusions or disagreements within the certifying triangle and their associations with earnings management.

## REFERENCES

- Allison, P. D. 1995. *Survival Analysis Using SAS: A Practical Guide*. SAS Institute Inc.
- Antle, R. 1982. The Auditor as an Economic Agent. *Journal of Accounting Research* 20 (2):503-527.
- Antle, R., and B. Nalebuff. 1991. Conservatism and Auditor-Client Negotiations. *Journal of Accounting Research* 29:31-54.
- Armstrong, C. S., W. R. Guay, and J. P. Weber. 2010. The Role of Information and Financial Reporting in Corporate Governance and Debt Contracting. *Journal of Accounting & Economics* 50 (2/3):179-234.
- Arthaud-Day, M. L., S. T. Certo, C. M. Dalton, and D. R. Dalton. 2006. A Changing of the Guard: Executive and Director Turnover Following Corporate Financial Restatements. *Academy of Management Journal* 2006, 49(6): 1119-1136.
- Baik, B. O. K., D. B. Farber, and S. A. M. Lee. 2011. CEO Ability and Management Earnings Forecasts. *Contemporary Accounting Research* 28 (5):1645-1668.
- Ball, R., and P. Brown. 1968. An Empirical Evaluation of Accounting Income Numbers. *Journal of Accounting Research* 6 (2):159-178.
- Balsam, S., J. Krishnan, and J. S. Yang. 2003. Auditor Industry Specialization and Earnings Quality. *Auditing: A Journal of Practice and Theory* 22 (2):71-97.
- Bartov, E., S. Radhakrishnan, and I. Krinsky. 2000. Investor Sophistication and Patterns in Stock Returns after Earnings Announcements. *The Accounting Review* 75 (1):43.
- Bedard, J. C., R. Hoitash, and U. Hoitash. 2014. Chief Financial Officers as Inside Directors. *Contemporary Accounting Research* 31 (3):787-817.
- Bender, R., T. Augustin, and M. Blettner. 2005. Generating Survival Times to Simulate Cox Proportional Hazards Models. *Statistics in Medicine* 24.11 (2005): 1713-1723.
- Beyer, A., D. A. Cohen, T. Z. Lys, and B. R. Walther. 2010. The Financial Reporting Environment: Review of the Recent Literature. *Journal of Accounting & Economics* 50 (2/3):296-343.
- Bond, P., I. Goldstein, and E. S. Prescott. 2010. Market-Based Corrective Actions. *Review of Financial Studies* 23 (2):781-820.
- Breslow, N. E. 1975. Analysis of Survival Data under the Proportional Hazards Model. *International Statistical Review/Revue Internationale de Statistique* 1975: 45-57.
- Brickley, J. A., and J. L. Zimmerman. 2010. Corporate Governance Myths: Comments on Armstrong, Guay, and Weber. *Journal of Accounting & Economics* 50 (2/3):235-245.
- Carcello, J. V., T. L. Neal, Z.-V. Palmrose, and S. Scholz. 2011. CEO Involvement in Selecting Board Members, Audit Committee Effectiveness, and Restatements. *Contemporary Accounting Research* 28 (2):396-430.
- Cassell, C. A., S. X. Huang, and J. M. Sanchez. 2013. Forecasting without Consequence? Evidence on the Properties of Retiring CEOs' Forecasts of Future Earnings. *The Accounting Review* 88 (6):1909-1937.
- Chow, C. W., J. C. Cooper, and W. Waller. 1988. Participative Budgeting: Effects of a Truth-Inducing Pay Scheme and Information Asymmetry on Slack and Performance. *The Accounting Review* 63 (1):111.

- Christensen, J. 1981. Communication in Agencies. *The Bell Journal of Economics* Vol. 12, No. 2 (Autumn, 1981), pp. 661-674.
- Christie, A. A. 1987. On Cross-Sectional Analysis in Accounting Research. *Journal of Accounting and Economics* 9 (3):231-258.
- Coase, R. H. (1937). "The Nature of the Firm". *Readings in Price Theory*. Homewood, IL, Irwin. New Series, V: 331-351.
- Cohen, J. R., L. M. Gaynor, G. Krishnamoorthy, and A. M. Wright. 2011. The Impact on Auditor Judgments of CEO Influence on Audit Committee Independence. *Auditing: A Journal of Practice and Theory* 30 (4):129-147.
- Collins, D. W., and S. P. Kothari. 1989. An Analysis of Intertemporal and Cross-Sectional Determinants of Earnings Response Coefficients. *Journal of Accounting & Economics* 11 (2,3):143-181.
- COSO. 1994. *Internal Control - Integrated Framework*. The Committee of Sponsoring Organizations of the Treadway Commission Two-Volume edition 1994.
- Cox, D. R. 1972. Regression Models and Life-Tables. *Journal of the Royal Statistical Society Series B (Methodological)*:187-220.
- DeAngelo, L. E. 1981. Auditor Size and Auditor Quality. *Journal of Accounting & Economics* 3 (3):183-199.
- DeFond, M., and J. Zhang. 2014. A Review of Archival Auditing Research. *Journal of Accounting & Economics* 58.2 (2014): 275-326.
- DeFond, M. L., and K. R. Subramanyam. 1998. Auditor Changes and Discretionary Accruals. *Journal of Accounting and Economics* 25 (1):35-67.
- Desai, H., C. E. Hogan, and M. S. Wilkins. 2006. The Reputational Penalty for Aggressive Accounting: Earnings Restatements and Management Turnover. *The Accounting Review* 81 (1):83-112.
- Dhaliwal, D. S., K. J. Lee, and N. L. Fargher. 1991. The Association between Unexpected Earnings and Abnormal Security Returns in the Presence of Financial Leverage. *Contemporary Accounting Research* 8 (1):20-41.
- Dikolli, S., W. Mayew, and D. Nanda. 2014. CEO Tenure and the Performance-Turnover Relation. *Review of Accounting Studies* 19 (1):281-327.
- Easton, P. D., and M. E. Zmijewski. 1989. Cross-Sectional Variation in the Stock Market Response to Accounting Earnings Announcements. *Journal of Accounting & Economics* 11 (2/3):117-141.
- Eisfeldt, A. L., and C. M. Kuhnen. 2013. CEO Turnover in a Competitive Assignment Framework. *Journal of Financial Economics*, 109(2), 351-372.
- Engel, E., R. M. Hayes, and X. Wang. 2003. CEO Turnover and Properties of Accounting Information. *Journal of Accounting & Economics* 36 (1-3):197.
- Evans, J. H. 1980. Optimal-Contracts with Costly Conditional Auditing. *Journal of Accounting Research* 18:108-128.
- EY. 2014. The Sarbanes-Oxley Act at 10: Enhancing the Reliability of Financial Reporting and Audit Quality. Ernst & Young LLP. BSC No. 1406-1268124. [http://www.ey.com/Publication/vwLUAssets/The\\_Sarbanes-Oxley\\_Act\\_at\\_10\\_-\\_Enhancing\\_the\\_reliability\\_of\\_financial\\_reporting\\_and\\_audit\\_quality/\\$FILE/JJ0003.pdf](http://www.ey.com/Publication/vwLUAssets/The_Sarbanes-Oxley_Act_at_10_-_Enhancing_the_reliability_of_financial_reporting_and_audit_quality/$FILE/JJ0003.pdf).

- Fama, E. F. 1980. Agency Problems and the Theory of the Firm. *Journal of Political Economy* 88 (2):288-307.
- Fama, E. F., and K. F. French. 1995. Size and Book-to-Market Factors in Earnings and Returns. *Journal of Finance* 50 (1):131-155.
- Fama, E. F., and K. R. French. 1996. The CAPM Is Wanted, Dead or Alive. *Journal of Finance* 51 (5):1947-1958.
- Feng, M., W. Ge, S. Luo, and T. Shevlin. 2011. Why Do CFOs Become Involved in Material Accounting Manipulations? *Journal of Accounting and Economics* 51 (1-2):21-36.
- Freeman, R. N., and S. Y. Tse. 1992. A Nonlinear Model of Security Price Responses to Unexpected Earnings. *Journal of Accounting Research* 30 (2):185-209.
- Ge, W., D. Matsumoto, and J. L. Zhang. 2011. Do CFOs Have Style? An Empirical Investigation of the Effect of Individual CFOs on Accounting Practices. *Contemporary Accounting Research* 28 (4):1141-1179.
- Geiger, M. A., and P. L. Taylor III. 2003. CEO and CFO Certifications of Financial Information. *Accounting Horizons* 17 (4):357-368.
- Gillan, S.L., Parrino, R., Hartzell, J.C. 2009. Explicit vs. Implicit Contracts: Evidence from CEO Employment Agreements. *Journal of Finance* 64, 1629-1655.
- Gul, F. A., S. Y. K. Fung, and B. Jaggi. 2009. Earnings Quality: Some Evidence on the Role of Auditor Tenure and Auditors' Industry Expertise. *Journal of Accounting & Economics* 47 (3):265-287.
- Hackenbrack, K. E., and C. E. Hogan. 2002. Market Response to Earnings Surprises Conditional on Reasons for an Auditor Change. *Contemporary Accounting Research* 19 (2):195-223.
- Hayn, C. 1995. The Information Content of Losses. *Journal of Accounting & Economics* 20 (2):125-153.
- Hazarika, S., J. M. Karpoff, and R. Nahata. 2012. Internal Corporate Governance, CEO Turnover, and Earnings Management. *Journal of Financial Economics* 104 (1):44-69.
- Hennes, K. M., A. J. Leone, and B. P. Miller. 2008. The Importance of Distinguishing Errors from Irregularities in Restatement Research: The Case of Restatements and CEO/CFO Turnover. *The Accounting Review* 83 (6):1487-1519.
- Hennes, K. M., A. J. Leone, and B. P. Miller. 2014. Determinants and Market Consequences of Auditor Dismissals after Accounting Restatements. *The Accounting Review* 89 (3):1051-1082.
- Hölmstrom, B. 1982. Moral Hazard in Teams. *The Bell Journal of Economics* 13 (2):324-340
- Holmstrom, B., and P. Milgrom. 1987. Aggregation and Linearity in the Provision of Intertemporal Incentives. *Econometrica: Journal of the Econometric Society* (2):303.
- Holthausen, R. W., and R. E. Verrecchia. 1988. The Effect of Sequential Information Releases on the Variance of Price Changes in an Intertemporal Multi-Asset Market. *Journal of Accounting Research* 26 (1):82-106.
- Huson, M. R., P. H. Malatesta, and R. Parrino. 2004. Managerial Succession and Firm Performance. *Journal of Financial Economics* 74 (2):237-275.
- Jensen, M. C., and W. H. Meckling. 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics* 3 (4):305-360.

- Jenter, D., and F. Kanaan. 2015. CEO Turnover and Relative Performance Evaluation. *The Journal of Finance*, 70(5), 2155-2184.
- Kleinbaum, D. G., and M. Klein. *Survival Analysis: a Self-learning Text*. Page 249. Springer Science & Business Media, 2006.
- Kormendi, R., and R. Lipe. 1987. Earnings Innovations, Earnings Persistence, and Stock Returns. *The Journal of Business* 60 (3):323-345.
- Lambert, R. A. 2001. Contracting Theory and Accounting. *Journal of Accounting & Economics* 32 (1-3):3-87.
- Lennox, C. 2005. Audit Quality and Executive Officers' Affiliations with CPA Firms. *Journal of Accounting & Economics* 39 (2):201-231.
- Leone, A. J., and M. Liu. 2010. Accounting Irregularities and Executive Turnover in Founder-Managed Firms. *The Accounting Review* 85 (1):287-314.
- Lev, B. 1989. On the Usefulness of Earnings and Earnings Research: Lessons and Directions from Two Decades of Empirical Research. *Journal of Accounting Research* 27 (supplement):153-192.
- Mande, V., and S. Myungsoo. 2013. Do Financial Restatements Lead to Auditor Changes? *Auditing: A Journal of Practice and Theory* 32 (2):119-145.
- Menon, K., and D. D. Williams. 2008. Management Turnover Following Auditor Resignations. *Contemporary Accounting Research* 25 (2):567-604.
- Mian, S. 2001. On the Choice and Replacement of Chief Financial Officers. *Journal of Financial Economics* 60 (1):143-175.
- Ng, D. S. 1978. An Information Economics Analysis of Financial Reporting and External Auditing. *The Accounting Review* 53 (4):910.
- Ng, D. S., and J. Stoeckenius. 1979. Auditing: Incentives and Truthful Reporting. *Journal of Accounting Research* Vol. 17, Studies on Auditing-Selections from the "Research Opportunities in Auditing" Program (1979), pp.1-24.
- Palmrose, Z.-V. 2013. PCAOB Audit Regulation a Decade after SOX: Where It Stands and What the Future Holds. *Accounting Horizons* 27 (4):775-798.
- Pan, Y., Wang, T.Y. and Weisbach, M.S., 2015. Learning about CEO Ability and Stock Return Volatility. *Review of Financial Studies*, p.hhv014.
- Patterson, E. R., and J. R. Smith. 2007. The Effects of Sarbanes-Oxley on Auditing and Internal Control Strength. *The Accounting Review* 82 (2):427-455.
- Raman, K., and H. Shahrur. 2008. Relationship-Specific Investments and Earnings Management: Evidence on Corporate Suppliers and Customers. *The Accounting Review* 83 (4):1041-1081.
- Rechner, P. K., and D. R. Dalton. 1991. CEO Duality and Organizational Performance: A Longitudinal Analysis. *Strategic Management Journal* 12 (2):155-160.
- Shu, S. Z. 2000. Auditor Resignations: Clientele Effects and Legal Liability. *Journal of Accounting and Economics* 29 (2):173-205.

- Simon, H. 1957. A Behavioral Model of Rational Choice. *In Models of Man, Social and Rational: Mathematical Essays on Rational Human Behavior in a Social Setting*. New York. Wiley.
- Sloan, R. G. 1996. Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings? *The Accounting Review* 71 (3):289-315.
- Sutton, J., A. Bartram, and British Library. 1990. *Typefaces for Books*. London: British Library.
- Teoh, S. H. 1992. Auditor Independence, Dismissal Threats, and the Market Reaction to Auditor Switches. *Journal of Accounting Research* 30 (1):1-25.
- Teoh, S. H., and T. J. Wong. 1993. Perceived Auditor Quality and the Earnings Response Coefficient. *The Accounting Review* 68 (2):346-366.
- Williamson, O. E. 2002. The Theory of the Firm as Governance Structure: From Choice to Contract. *Journal of Economic Perspectives* 171-195.
- Wilson, W. M. 2008. An Empirical Analysis of the Decline in the Information Content of Earnings Following Restatements. *The Accounting Review* 83 (2):519-548.
- Zorn, D. M. 2004. Here a Chief, There a Chief: The Rise of the CFO in the American Firm. *American Sociological Review* 69.3 (2004): 345-364. (3):345.

## VITA

Dong Li received his bachelor's degree at Xiamen University and his master's degree at Brigham Young University. Thereafter, he worked in public accounting and financial services industry. In 2011, he received financial sponsorship from the Accounting Doctoral Scholarship Program (ADS Program) of American Institute of CPAs Foundation and started to pursue his Ph.D. in accounting. He anticipates graduating from Louisiana State University in May 2016 and plans to start his career as an accounting professor.