

Mandatory Audit Firm Rotation And Audit Quality

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ABSTRACT

Recently, regulators and policy makers who witnessed the global financial crisis during 2007–2009 began considering a variety of ways to enhance auditor independence and financial reporting quality, ultimately aiming at investor protection. Since the enactment of the Sarbanes–Oxley Act of 2002 (SOX), the Mandatory Audit Firm Rotation (MAFR) requirement has once again received significant attention from regulators and policy makers around the world, including the European Union (EU) and the U.S. Public Companies Accounting Oversight Board (PCAOB). In this paper, we investigate whether MAFR enhances audit quality in Korea. We find that under MAFR, newly rotated auditors are more likely to issue first-time going-concern audit opinions to financially distressed firms during their initial (first-year) financial statement audit compared with under the Voluntary Audit Firm Change (VAFC). Moreover, firms audited by mandatorily rotated new auditors have less discretionary accruals and higher accrual quality than those audited by voluntarily switched new auditors during the initial audit engagement. These results of earnings quality are more pronounced for firms that received a first-time going-concern audit opinion during the initial financial statement audit under MAFR. Taken together, the findings suggest that MAFR produces better audit quality than the VAFC. Further, our study provides implications for regulators and policy makers of countries considering the adoption of MAFR.

Keywords: Mandatory Audit Firm Rotation; Going-Concern Audit Opinion; Audit Quality

1. INTRODUCTION

This paper investigates the impact of the Mandatory Audit Firm Rotation (MAFR) requirement on auditor reporting decision and financial reporting quality using MAFR data in Korean capital markets.¹

After high-profile accounting scandals such as Enron and WorldCom, the U.S. Congress passed the Sarbanes–Oxley Act (SOX) on July 30, 2002 to enhance corporate governance and improve financial reporting quality. SOX prescribes many important requirements with which public companies and their auditors must comply: disclosure requirements for the effectiveness of internal control over financial reporting, audit committee independence, or audit partner rotation. At that time, although MAFR was hotly debated among regulators, policy makers, academics, and the auditing profession, U.S. policy makers had not finally adopted the requirement. However, regulators and policy makers who witnessed the global financial crisis during 2007–2009 once again raised doubts regarding the credibility of audited financial statements. Regulators and policy makers, particularly in

¹ The Korean audit market provides a unique setting for the study of the effectiveness of the MAFR requirement. In Korea, the MAFR requirement was effective from 2006 to 2010. During that period, MAFR and the Voluntary Audit Firm Change (VAFC) co-existed in Korea's audit market. First, according to the past Korean MAFR requirement, firms cannot keep their same external auditor for six years. Second, firms cannot change their auditors within three years, indicating that auditors are guaranteed at least the first three-year audits for their audit clients. That is, the clients are able to change their auditors three years after the initial audit engagement. Therefore, the research setting in Korea provides us with a unique opportunity to collectively investigate the effect of each of MAFR and VAFC on auditor reporting decisions and accrual quality during the same period.

the United States and the European Union (EU), announced new potential remedies for improving financial reporting quality, such as MAFR, restrictions on more non-audit services, or mandatory tendering for appointing auditors (PCAOB, 2011; European Commission, 2010).² Once again, MAFR received significant attention from regulators. Using MAFR data in Korean capital markets, in this study, we investigate two research questions: 1) Is a new auditor under MAFR more willing to issue a first-time going-concern audit opinion (FGCO) to financially distressed firms? and 2) Do firms audited by mandatorily rotated auditors have better earnings quality such as lower discretionary accruals and higher accruals quality?³

Regulators, academics, and the audit profession face both pros and cons regarding the adoption of MAFR. Proponents of MAFR argue that the requirement enhances auditor independence through fresh eyes and reduces a probability of developing personal relationships with audit clients. Meanwhile, opponents of MAFR argue that the mandatory rotation of auditors after a certain period produces an inefficient audit because of the high start-up costs of an initial audit and because understanding a client's business and industry takes time, which is a key factor for a risk-based audit. Accordingly, prior relevant studies (e.g., Blouin *et al.*, 2007; Kaplan and Mauldin, 2008; Chi *et al.*, 2011) on the association between MAFR and financial reporting quality provide mixed results. For example, Blouin *et al.* (2007) report that financial reporting quality after an auditor change does not improve for former Arthur Andersen clients under forced auditor changes. However, in an experimental MAFR setting, Dopuch *et al.* (2001) show that auditors are more independent. Additionally, Nagy (2005) provides the supporting evidence for the adoption of MAFR that discretionary accruals are lower for smaller former Arthur Andersen clients after they switched auditors. Further, several studies exist on the association between auditor tenure and financial reporting quality under VAFC that provide indirect evidence on the effectiveness of MAFR. Most of the prior literature (e.g., Geiger and Raghunandan, 2002; Johnson *et al.*, 2002; Myers *et al.*, 2003; Ghosh and Moon, 2005; Li, 2010; Chi *et al.*, 2011) provides mixed empirical results on the association between MAFR and financial reporting quality, such as discretionary accruals, audit failure, accounting conservatism, and earnings response coefficients. Although adopting MAFR comes with theoretically obvious costs and benefits, there is still little research on the effectiveness of the requirement. In this paper, we fill the gap by investigating the association between MAFR and auditor reporting decisions or earnings quality using data from Korean capital markets.

Although new auditors under MAFR have fresh eyes and are perceived as more objective and independent, they have little knowledge of their new client's business and industry. If the former outweighs the latter, the new auditors are expected to make more appropriate reporting decisions regarding their financial statement audits compared with Voluntary Audit Firm Change (VAFC). In addition, firms audited by new auditors under MAFR are more likely to have better earnings quality. However, if the new auditors lack fresh eyes and independence along with little knowledge of their clients' business and industry, we expect that their reporting decision or clients' earnings quality under MAFR is likely to be unchanged or, perhaps worse, compared with VAFC. Therefore, the association of MAFR with audit quality or earnings quality is still hotly debated and remains an empirically open question.

In this paper, we test the association between FGCOs and earnings quality and MAFR during the first-year financial statement audit compared with VAFC.⁴ Consistent with the argument made by MAFR proponents, we find that new auditors under MAFR are more likely to issue a FGCO to financially distressed firms during their initial audits compared with voluntarily switched new auditors after controlling for factors affecting going-concern audit opinion decisions. This result suggests that the mandatorily rotated new auditors make more appropriate reporting decisions through fresh eyes and enhanced independence. We also find that firms audited by mandatorily rotated

² Recently the European Parliament endorsed mandatory audit firm rotation adoption, which allows public-interest entities (e.g., listed companies, banks, and insurance companies) to keep their auditor up to 10 years, and after that, have to change the auditor. However, the mandatory rotation period can be extended to 20 years if the audit is put out for bid, or 24 years in cases of joint audits (Tysiac, 2014).

³ Following Dodd *et al.* (1984) and Loudder *et al.* (1992), in this paper, a first-time going-concern audit opinion (FGCO) firm is defined as the firm that received a going-concern opinion for the current fiscal year's financial statements but an unqualified audit opinion for previous fiscal year's financial statements

⁴ In Korea, both mandatorily rotated and voluntarily switched auditors are only guaranteed their financial statement audit for the first three years from the initial engagement, which cannot be lengthen over six years under Korean MAFR requirement. Thus, with close to third year audit, all auditors' independence may not be impaired due to next three-year audit renewal. Thus, we judge that the first-year audit after mandatory rotation or voluntary change is more appropriate to compare the effectiveness between Mandatory Audit Firm Rotation (MAFR) and Voluntary Audit Firm Change (VAFC). In this study, we focus on the first-year audit engagement.

auditors have lower signed discretionary accruals and higher accruals quality than firms audited by voluntarily switched auditors during the first-year audit engagement. This finding is particularly more pronounced for FGCO firms, suggesting that new auditors under MAFR conduct their initial audits more objectively, independently, and conservatively to minimize potential litigation risk caused by audit failure (Bell *et al.*, 2001; Kwon *et al.*, 2011).

Our paper contributes to the relevant research stream as follows. First, as a proxy for audit quality, we use the going-concern audit opinion (GCO), a more direct measure of audit quality, whereas prior literature (DeFond *et al.*, 2002; Weber and Willenborg, 2003; Lennox, 2005; Geiger *et al.*, 2005; Francis and Yu, 2009; Reichelt and Wang, 2010) used discretionary accruals or auditor conservatism to examine the effectiveness of MAFR. Second, we provide additional evidence on the effectiveness of the adoption of MAFR. In the middle of the recent global financial crisis, regulators and policy makers all over the world began considering MAFR adoption. In particular, U.S. regulators have been seriously considering MAFR adoption and, in 2014, the European Union decided to adopt MAFR from the middle of 2016. Thus, the findings in our paper will provide significant inputs to countries considering MAFR adoption or that have already adopted MAFR.

The remainder of this paper is organized as follows. In Section II, we discuss the related literature and develop the hypotheses. Section III describes the research design and sample and data. Section IV presents the empirical results and Section V provides conclusions and implications.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Literature Review

Before the PCAOB issued a concept release on MAFR in 2011, the U.S. Congress had already considered the adoption of MAFR to enhance auditor independence and required the Government Accountability Office (GAO) to study the effectiveness of MAFR adoption as part of SOX 2002. In November 2003, the GAO issued its study, *Public Accounting Firms: Required Study on the Potential Effects of Mandatory Audit Firm Rotation*. After reviewing the report, the U.S. Congress decided to not adopt MAFR.

However, the recent global crisis caused regulators and policy makers to reconsider adopting MAFR to increase auditor independence, which is regarded as one of the most important factors to enhance financial reporting quality. In fact, MAFR can both positively and negatively affect audit quality and financial reporting quality. As audit tenure increases, a long-term personal relationship or economic bonding is easily perceived to develop between auditors and their clients and in turn may impair auditors' independence, eventually leading to deterioration of financial reporting quality. Accordingly, proponents of MAFR argue that the requirement plays a key role in preventing a long-term relationship between an auditor and its client from turning into a personal relationship between the two parties. Additionally, because new auditors under MAFR have a fresh look at their clients' financial statements, they are more likely to identify questionable accounting practices and/or detect material misstatements in the financial statements. However, opponents of MAFR argue that the requirement may increase start-up costs and make auditors rely excessively on management estimates and representations during the initial year of the audit engagement because of a lack of understanding of a client's business and industry. This argument suggests that new auditors under MAFR are less likely to utilize client-specific knowledge for their initial audits (Myers *et al.*, 2003). Further, a periodically mandated rotation may prevent auditors from completely capitalizing on acquired client-specific knowledge for future audits.

In audit markets, auditors may be changed voluntarily or rotated mandatorily. Currently, most countries, including the United States and the United Kingdom, have not adopted MAFR. Therefore, empirical evidence on the effect of MAFR on audit quality and/or financial reporting quality is *indirectly* provided by examining the association between auditor tenure and audit quality and/or financial reporting quality. Several prior studies (e.g., Geiger and Raghunandan, 2002; Johnson *et al.*, 2002; Myers *et al.*, 2003; Carcello and Nagy, 2004; Crabtree *et al.*, 2006; Ghosh and Moon, 2005; Jenkins and Velury, 2008) document that audit tenure is positively associated with proxies for financial reporting quality, such as the probability of audit failure, discretionary accruals, fraudulent financial reporting, earnings response coefficients, and accounting conservatism, suggesting no support of MAFR adoption. Meanwhile, consistent with proponents' argument for MAFR adoption, Li (2010) shows that audit tenure

is negatively correlated with earnings conservatism, particularly for small firms audited by Big N auditors. Additionally, Chi *et al.* (2011) provide mixed results on the effectiveness of MAFR that audit tenure is negatively (positively) associated with discretionary accruals (real earnings management).

In Europe, a few countries (e.g., Spain, Italy, and Portugal) adopted MAFR. In Spain, the rotation requirement enacted in 1988 required that audit firms be mandatorily rotated every nine years but was subsequently abolished in 1997. Ruiz-Barbadillo *et al.* (2009) report that the number of GCOs during the MAFR period did not increase, implying no positive impact of MAFR on audit quality.⁵

Italy also adopted MAFR in 1974, requiring firms to switch their auditor every nine years. The SDA Bocconi University Report (2002) shows that MAFR in Italy leads to additional audit costs, stronger concentration of the audit market, and deterioration in audit quality. Meanwhile, the results of interviews and questionnaires conducted with firms' managers and auditors show enhanced public confidence on financial reporting since the MAFR adoption. In addition, Cameran *et al.* (2014) report lower earnings quality for the first three years following mandatory rotation and higher audit hours and fees in the initial audit year whereas, Corbella *et al.* (2012) show that firms report more income-decreasing abnormal accruals after MAFR adoption, suggesting that auditors are more conservative in conducting financial statement audits.⁶

In Korea, all listed companies on the KSE and KOSDAQ *except for* foreign companies and domestic companies listed on the foreign stock exchanges such as the NYSE, NASDAQ, or London Stock Exchange were required to mandatorily rotate their auditor every six years. The MAFR requirement was effective only from 2006 to 2010. After the adoption of MAFR in Korea, academic institutions conducted a variety of studies on the impact of MAFR on audit quality and/or financial reporting quality using various proxies such as discretionary accruals (Noh, 2009; Kim and Yu, 2010), auditor conservatism (Han and Moon, 2009; Kim and Yu, 2011), and audit fees and hours (Kwon *et al.*, 2011). As with the studies in other countries that have adopted MAFR requirement, the empirical results are also mixed. The one study shows a neutral or negative impact of MAFR on audit quality and/or financial reporting quality. For example, Noh (2009) failed to find a significant association between MAFR and discretionary accruals. Kim and Yu (2011) find no significant difference in auditor conservatism between mandatorily rotated and voluntarily switched auditors. Using firms listed on the KOSDAQ, Lee and Jeon (2011) show that discretionary accruals of firms audited by auditors under MAFR are higher than those audited under VAFC. Kwon *et al.* (2011) assert that MAFR increases costs for audit firms and clients but that this increase is not linked to a positive impact on financial reporting quality. The other study shows a positive impact of MAFR on audit quality and/or financial reporting quality. For instance, Han and Moon (2009) provides evidence that MAFR is positively associated with auditor conservatism. Kim and Yu (2010) document that MAFR is significantly and negatively associated with discretionary accruals.

Collectively, consistent with different perspectives among regulator, academics, and auditing profession on MAFR effectiveness, prior literature on the impact of MAFR on financial reporting quality provides mixed results as well.

2.2 Hypotheses Development

Under MAFR, two opposing forces may exist. One force is from the fact that a newly rotated auditor can fully exercise its professional skepticism during financial statement audits, thus maintaining independence and objectivity. Such a force produces a high audit quality, resulting in high quality of financial reporting. The other force is from the fact that a newly rotated auditor has little knowledge of its client's business and industry, making it difficult for the auditor to effectively plan the audit. In general, auditors cannot appropriately conduct risk analysis of clients' financial statements without understanding their business and industry. As a result, the auditor cannot completely identify a client's key risk factors, creating a low audit quality and then low quality of financial reporting.

⁵ Carrera *et al.* (2007) asserted that abolishing MAFR in Spain was a politicized process. Thus, Spanish regulators are reconsidering whether a case exists to re-establish the MAFR requirement.

⁶ Singapore, India, Indonesia, China, and Thailand in Asia and Brazil also adopted MAFR. See Casterella and Johnston (2012) for a summary of the recent literature on MAFR.

Therefore, the effectiveness of MAFR depends on which of the two forces (i.e., enhanced auditor independence versus lack of understanding of a client's business and industry) dominates. First, with regard to the impact of MAFR on auditor reporting decisions for financially distressed firms, if the force of enhanced auditor independence outweighs the lack of understanding of a client's business and industry, newly rotated auditors under MAFR are expected to issue more appropriate audit opinions to financially distressed firms (e.g., GCOs) compared with newly switched auditors under VAFC. Specifically, newly rotated auditors are expected to be more likely to issue a FGCO to financially distressed firms in their initial audits. In addition, considering that the newly rotated auditors with enhanced independence under MAFR are expected to more conservatively conduct their initial audit of new clients (FGCO firms), we predict that (FGCO) firms audited by these auditors are more likely to have high-quality financial reporting such as lower signed discretionary accruals and higher accruals quality. Second, if a lack of understanding of a client's business and industry outweighs the force of enhanced auditor independence, our predictions discussed above will be reversed. Lastly, if the force of enhanced independence is not significantly different from the lack of understanding of a client's business and industry, we do not expect a significant difference in auditor reporting decisions for financially distressed firms during initial financial statement audits or in financial reporting quality between initial audits of (FGCO) firms under MAFR and VAFC. Further, as discussed previously, prior literature also provides mixed results on the impact of MAFR on audit quality and/or financial reporting quality.

Therefore, we develop the following hypotheses (in the null form).

H1: During first-year audits, no significant difference exists in auditor reporting decisions on a first-time going-concern audit opinion (FGCO) to financially distressed firms between newly rotated auditors under mandatory audit firm rotation and newly switched auditors under voluntary audit firm change.

H2: During first-year audits, no significant difference exists in the earnings quality between (FGCO) firms audited by newly rotated auditors under mandatory audit firm rotation and newly switched auditors under voluntary audit firm change.

3. RESEARCH DESIGN AND SAMPLE AND DATA

3.1 Research Design

We test Hypothesis 1, using the following logit model. See Appendix for variable definitions.

$$\text{Probability}(FGCO_{it}=1) = F(b_0 + b_1 VAFC_{it} + b_2 MAFR_{it} + b_3 SIZE_{it} + b_4 BIG4_{it} + b_5 GRW_{it} + b_6 LEV_{it} + b_7 ROA_{it} + b_8 Z_{it} + b_9 CZ_{it} + b_{10} MCG_{it} + b_{11} FCG_{it} + b_{12} CASH_{it}) \quad (1)$$

Following Dodd et al. (1984) and Loudder et al. (1992), in model (1), the dependent variable, *FGCO*, is coded 1 for firms that received a going-concern audit opinion for the current fiscal year's financial statements but an unqualified audit opinion for previous year. *VAFC* and *MAFR*, the test variables, are equal to 1 for firms that voluntarily changed their auditor and whose auditor is mandatorily rotated, respectively. If mandatorily rotated auditors conduct their audits more independently, we expect that both the coefficient of *MAFR* and the difference between the coefficients of *MAFR* and *VAFC* will be significantly positive. Following prior studies, we control for firm size (*SIZE*), Big 4 auditors (*BIG4*), sales growth (*GRW*), leverage (*LEV*), profitability (*ROA*), and financial risk/distress (*Z*, *CZ*). *SIZE* is measured as the logarithm of total assets. Mutchler et al. (1997) suggest that auditors are more likely to issue going-concern audit opinions to smaller firms. Therefore, we expect a negative association between *FGCO* and firm size (*SIZE*). The *BIG4* variable is included because the Big 4 auditors are less likely to modify the opinions of bankrupt firms (DeFond and Lennox, 2011). However, the studies of Mutchler et al. (1997) and Kim et al. (2013) find no significant difference between GCO and Big 4 auditors. We control for sales growth (*GRW*) (Ashbaugh-Skife et al., 2007). In particular, growing firms are more likely to encounter a variety of internal issues such as internal control, staffing, and a more complex operating environment, which makes it more difficult for financially distressed firms to escape current going-concern issues. We also include the ratio of total liabilities to total book value of equity (*LEV*). Raghunandan and Rama (1995) and DeFond et al. (2002) find that GCO firms have higher leverage. Therefore, we expect that *FGCO* is positively correlated with *LEV*. Less profitable firms are

more likely to receive GCO (Mutchler *et al.*, 1997; Lee *et al.*, 2005); therefore, we include return on assets (*ROA*) for firm performance and expect a negative association with *FGCO*. We control for financial distress and financial risk using the Altman (1964) Z-score (*Z*) and the change in the Z-score (*CZ*) (Mutchler, 1984). In addition, using the finding that the effectiveness of internal monitoring devices (e.g., effective audit committees) is positively correlated with the issuance of GCO (Carcello and Neal, 2003), we control for the corporate governance variables of large shareholders’ holdings (*MCG*) and foreign shareholders’ holdings (*FCG*). Bruynseels and Willekens (2011) document that liquid or sellable resources such as cash and cash equivalents and property, plant, and equipment can mitigate the issuance of a going-concern audit opinion. Thus, we control for *CASH*, which is measured as cash and cash equivalents deflated by lagged total assets.

Next, to test Hypothesis 2 on the association between *MAFR* and earnings quality, we use signed discretionary accruals and accruals quality as proxies for earnings quality. First, we explore the association of *MAFR* with discretionary accruals. Following the model in Kothari *et al.* (2005), we measure the performance-based discretionary accruals that reflect firm performance (*ROA*). The measurement procedure of discretionary accruals is as follows. First, we cross-sectionally estimate the coefficients of model (2) for firms with non-going-concern audit opinions by year and two-digit industry. Then, these previously estimated coefficients are used to compute discretionary accruals (*DA*) in model (3) for the sample firms in this study.

Models (2) and (3) are as follows:

$$TA_{it} = a_1 + a_2(\Delta REV_{it} - \Delta AR_{it}) + a_3 PPE_{it} + a_4 ROA_{it} + \varepsilon_{it} \tag{2}$$

$$DA_{it} = TA_{it} - [\bar{a}_1 + \bar{a}_2(\Delta REV_{it} - \Delta AR_{it}) + \bar{a}_3 PPE_{it} + \bar{a}_4 ROA_{it}] \tag{3}$$

where *TA* represents total accruals measured as net income minus operating cash flows, *ΔREV* represents change in sales, *ΔAR* represents change in accounts receivable, *PPE* represents the gross amount of property, plant, and equipment, and *ROA* represents return on assets measured as earnings before tax and interests divided by lagged total assets. All variables except for *ROA* in model (2) are deflated by lagged total assets.

To test the association between a first-time going-concern audit opinion and discretionary accruals under *MAFR*, we establish model (4) as follows:

$$DA_{it} = \beta_0 + \beta_1 FGCO_{it} + \beta_2 VAFC_{it} + \beta_3 FGCO*VAFC_{it} + \beta_4 MAFR_{it} + \beta_5 FGCO*MAFR_{it} + Controls (SIZE, BTM, LEV, CFO, GRW, Z, CZ, LOSS, Big4, ROA_{it-1}, ROA_{it-1}^2, MCG, FCG) + \sum IND + \sum YR + \varepsilon_{it} \tag{4}$$

See Appendix for variable definitions.

where the dependent variable is discretionary accruals (*DA*) and the test variable is the interaction term of *FGCO* and *MAFR*. If new auditors under *MAFR* provide high quality (“more conservative”) audits to *FGCO* firms in their initial audits, we expect that the coefficient of *FGCO*MAFR* will be significantly negative. Such a result would suggest that newly rotated auditors play a critical role in preventing income-increasing behavior of *FGCO* firms.

Following prior studies, we control for the factors affecting discretionary accruals, such as firm size (*SIZE*), book-to-market ratio (*BTM*), leverage (*LEV*), operating cash flows (*CFO*), and sales growth (*GRW*). Following Becker *et al.* (1998), we include firm size (*SIZE*), which influences discretionary accruals. *BTM* is a measure of growth opportunities. Butler *et al.* (2004) document that the book-to-market ratio is negatively associated with discretionary accruals. The debt-to-book value of equity (*LEV*) is positively associated with discretionary accruals because firms with high debt have an incentive to engage in earnings management to increase earnings (DeFond and Jambalvo, 1994). Operating cash flows (*CFO*) is expected to be negatively associated with discretionary accruals (Dechow *et al.*, 1998; DeFond and Subramanyam, 1998). Because growing firms are more likely to invest working capital, such as accounts receivable and inventory, to support current and/or future sales growth, sales growth (*GRW*) is expected to be positively associated with discretionary accruals. We also control for financial distress using the Altman (1967) Z-score (*Z*), change in Z-score (*CZ*), and loss firms (*LOSS*). We include Big 4 auditors (*BIG4*) and lagged return on assets (*ROA*) to control for audit quality and firms’ performance, respectively. We also

include lagged *ROA* square to control for the non-linear relationship between firm performance and discretionary accruals (Kothari *et al.*, 2005; Butler *et al.*, 2004). We include large shareholders' holdings (*MCG*) and foreign shareholders' holdings (*FCG*) to control for corporate governance.

Next, accruals quality is another popular proxy for earnings quality (Dechow and Dichev, 2002; Dechow *et al.*, 2011). Following the McNichols (2002)'s model, which modifies Dechow and Dichev (2002), we cross-sectionally estimate Model (5). *Accrual Quality* is defined as the studentized residuals estimated Model (5). Larger (smaller) standard deviations of residuals represent lower (higher) accrual quality. Then, we formulate an empirical model (6) to control for factors affecting accrual quality based on a prior relevant study. In model (6), our interest variable is the interaction term *FGCO*MAFR*.

$$WCA_{it} = c_0 + c_1CFO_{it-1} + c_2CFO_{it} + c_3CFO_{it+1} + c_4\Delta REV_{it} + c_5PPE_{it} + \varepsilon_{it} \quad (5)$$

$$\begin{aligned} Accrual\ Quality_{it} = & \gamma_0 + \gamma_1 FGCO_{it} + \gamma_2 V AFC_{it} + \gamma_3 FGCO * V AFC_{it} + \gamma_4 MAFR_{it} + \gamma_5 FGCO * MAFR_{it} \\ & + \gamma_6 SIZE_{it} + \gamma_7 BTM_{it} + \gamma_8 LEV_{it} + \gamma_9 CFO_{it} + \gamma_{10} LnSALE_{it} + \gamma_{11} Z_{it} + \gamma_{12} BIG4_{it} + \gamma_{13} LOSS_{it} \\ & + \gamma_{14} ROA_{it-1} + \gamma_{15} ROA_{it-1}^2 + \varepsilon_{it} \end{aligned} \quad (6)$$

See Appendix for variable definitions.

where *WCA* represents working capital accruals measured as ((Δ current assets – Δ cash and cash equivalents)–(Δ current liabilities – Δ short-term liabilities)), *CFO* represents operating cash flows, ΔREV represents change in sales, and *PPE* represents the gross amount of property, plant, and equipment. All variables in model (5) are deflated by lagged total assets.

3.2 Sample and Data

Panel A of Table 1 shows the sample selection procedure. The initial sample size is 9,078 non-financial institutions with unqualified audit opinions listed on the Korean stock exchanges from 2006 to 2010. We exclude financial institutions because they have a different financial reporting and operating environment, and we drop 189 firm-year observations because of missing financial data. The final sample is comprised of 8,889 firm-year observations.

We obtain financial data from the KIS-Value and TS-2000 databases. Auditor change and going-concern audit opinions are hand-collected from audit reports available from the Data Analysis, Retrieval and Transfer System (DART, <http://dart.fss.or.kr>).

Panel B of Table 1 presents a yearly sample distribution of the final sample (n=8,889), which is composed of three subsamples: 1) non-switched firms (n=6,889), 2) voluntarily switched firms (n=1,292), and 3) mandatorily rotated firms (n=708). Each subsample has 388 (183), 142 (45), and 65 (32) GCO (FGCO) firms, respectively. Consistent with the results of Xu *et al.* (2011), which reported an increase in GCO firms during global economic recession periods, GCO firms increased during the global financial crisis from 2007 (n=125) to 2008 (n=213). The number (n=382) of mandatorily rotated firms was largest in 2008.

Next, we develop a subsample of financially distressed firms from the full sample; we define such firms as having a net loss or negative operating cash flows. Panel C of Table 1 presents a yearly sample distribution of 3,898 financially distressed firms. The sample size of each of the three subsamples of non-switched firms, voluntarily switched firms, and mandatorily rotated firms is significantly reduced to 2,955, 618, and 325 firm-year observations, respectively. However, the number of GCO or FGCO firms in each subsample is almost unchanged. See Appendix for variable definitions.

Table 1. Sample

| Panel A: Sample selection | |
|---|-------|
| Non-banking firm-years listed on Korean Stock Exchange during 2006–2010 | 9,078 |
| (-) Firm-years for which financial data are not available | (189) |
| Final sample | 8,889 |

Panel B: Yearly distribution of full sample

| Year | Auditor Change | | | | | | | | | | Total |
|-------|--------------------|---------|-----------|------------------------------------|---------|-----------|--------------------------------------|---------|-----------|-----------|-------|
| | Non-Auditor Change | | | Voluntary Audit Firm Change (VAFC) | | | Mandatory Audit Firm Rotation (MAFR) | | | | |
| | GCO (FGCO) | Non-GCO | Sub-total | GCO (FGCO) | Non-GCO | Sub-total | GCO (FGCO) | Non-GCO | Sub-total | Sub-Total | |
| 2006 | 76(37) | 1,374 | 1,450 | 21(6) | 223 | 244 | 2(1) | 51 | 53 | 297 | 1,747 |
| 2007 | 89(48) | 1,355 | 1,444 | 25(8) | 200 | 225 | 11(3) | 131 | 142 | 367 | 1,811 |
| 2008 | 117(68) | 993 | 1,110 | 50(25) | 297 | 347 | 46(28) | 336 | 382 | 729 | 1,839 |
| 2009 | 72(22) | 1,370 | 1,442 | 38(4) | 214 | 252 | 6(0) | 75 | 81 | 333 | 1,775 |
| 2010 | 34(8) | 1,409 | 1,443 | 8(2) | 116 | 224 | 0(0) | 50 | 50 | 274 | 1,717 |
| Total | 388(183) | 6,501 | 6,889 | 142(45) | 1,150 | 1,292 | 65(32) | 643 | 708 | 2,000 | 8,889 |

Panel C: Yearly distribution of financially distressed sample

| Year | Auditor Change | | | | | | | | | | Total |
|-------|--------------------|---------|-----------|------------------------------------|---------|-----------|--|---------|-----------|-----------|-------|
| | Non-Auditor Change | | | Voluntary Audit Firm Change (VAFC) | | | Total Mandatory Audit Firm Rotation (MAFR) | | | | |
| | GCO (FGCO) | Non-GCO | Sub-total | GCO (FGCO) | Non-GCO | Sub-total | GCO (FGCO) | Non-GCO | Sub-total | Sub-total | |
| 2006 | 73(36) | 502 | 575 | 21(6) | 87 | 108 | 2(1) | 20 | 22 | 130 | 705 |
| 2007 | 88(48) | 567 | 655 | 25(8) | 87 | 112 | 11(3) | 39 | 50 | 162 | 817 |
| 2008 | 115(68) | 471 | 586 | 49(25) | 137 | 186 | 46(28) | 157 | 203 | 389 | 975 |
| 2009 | 70(22) | 483 | 553 | 36(4) | 85 | 121 | 6(0) | 31 | 37 | 158 | 711 |
| 2010 | 31(8) | 555 | 586 | 7(2) | 84 | 91 | 0(0) | 13 | 13 | 104 | 690 |
| Total | 377(182) | 2,578 | 2,955 | 138(45) | 480 | 618 | 65(32) | 260 | 325 | 943 | 3,898 |

GCO is equal to 1 for firms that received a going-concern opinion for the current fiscal year's financial statements, and 0 otherwise. *FGCO* is equal to 1 for firms that received a going-concern opinion for the current fiscal year's financial statements but an unqualified audit opinion for previous fiscal year's financial statements. *VAFC* is equal to 1 if auditors are voluntarily changed, and 0 otherwise. *MAFR* is equal to 1 if auditors are mandatorily rotated, and 0 otherwise. Financially distressed firms are defined those that have a net loss or negative operating cash flows.

4. EMPIRICAL RESULTS

4.1 Descriptive Statistics

Table 2 provides descriptive statistics for the full sample (n=8,889). The mean (median) of *DA* is -0.012 (0.022). Of the 8,889 firm-observations, 595 (6.7%) received *GCO*s for the current fiscal year's financial statements, 260 (2.9%) received *FGCO*s, 1,292 (14.5%) voluntarily switched their auditors, and 708 (8.0%) mandatorily changed their auditors. The mean (median) of the logarithm of total assets (*SIZE*) is 18.459 (18.192), 54.3% of the final sample firm-observations are audited by Big 4 auditors, and 29.9% are loss firms. See Appendix for variable definitions.

Table 2. Descriptive Statistics

| Variable | Mean | Median | Std. | Min | Q1 | Q3 | Max |
|----------|--------|--------|-------|---------|--------|--------|--------|
| DA | -0.012 | 0.022 | 0.247 | -4.920 | -0.059 | 0.089 | 1.361 |
| GCO | 0.067 | 0.000 | 0.249 | 0.000 | 0.000 | 0.000 | 1.000 |
| FGCO | 0.029 | 0.000 | 0.169 | 0.000 | 0.000 | 0.000 | 1.000 |
| VAFC | 0.145 | 0.000 | 0.353 | 0.000 | 0.000 | 0.000 | 1.000 |
| MAFR | 0.080 | 0.000 | 0.271 | 0.000 | 0.000 | 0.000 | 1.000 |
| SIZE | 18.459 | 18.192 | 1.435 | 14.404 | 17.493 | 19.114 | 25.398 |
| Big4 | 0.543 | 1.000 | 0.499 | 0.000 | 0.000 | 1.000 | 1.000 |
| GRW | 0.148 | 0.072 | 1.299 | -2.408 | -0.053 | 0.208 | 66.918 |
| LEV | 1.083 | 0.704 | 1.952 | -56.430 | 0.329 | 1.300 | 36.896 |
| ROA | 0.036 | 0.042 | 0.139 | -3.165 | -0.001 | 0.096 | 1.013 |
| Z | 3.442 | 2.557 | 3.367 | -27.017 | 1.547 | 3.807 | 69.522 |
| MCG | 0.222 | 0.187 | 0.219 | 0.000 | 0.068 | 0.389 | 1.000 |
| FCG | 0.0575 | 0.005 | 0.115 | 0.000 | 0.000 | 0.054 | 0.875 |
| CASH | 0.081 | 0.050 | 0.100 | 0.000 | 0.016 | 0.099 | 1.201 |
| BTM | 2.227 | 1.234 | 2.890 | -43.374 | 0.701 | 2.087 | 55.591 |
| CFO | 0.032 | 0.041 | 0.162 | -2.365 | -0.025 | 0.110 | 1.005 |
| LOSS | 0.299 | 0.000 | 0.458 | 0.000 | 0.000 | 1.000 | 1.000 |

4.2 Correlation Analysis

Table 3 shows the Pearson and Spearman correlations among the dependent and independent variables used in the empirical models of this study. The Pearson correlations (-0.041 and -0.027, respectively) of *VAFC* and *MAFR* with *DA* are significantly negative, suggesting that both voluntarily switched and mandatorily rotated auditors deter firms' income-increasing behavior in their initial audits. Additionally, the correlations (0.070 and 0.029, respectively) of *VAFC* and *MAFR* with *GCO* are significantly positive, suggesting that both voluntarily switched and mandatorily rotated auditors are more likely to issue going-concern audit opinions in their initial audits. *FGCO* is positively correlated with *VAFC* but insignificant, whereas *FGCO* is significantly and positively correlated with *MAFR* at the 1 percent level, providing preliminary evidence that newly rotated auditors under *MAFR* are more likely to issue a first-time going-concern audit opinion. Additionally, as expected, *GCO* is significantly and positively correlated with *LEV* and *LOSS* and significantly and negatively correlated with *SIZE* and *Z*. Unexpectedly, *GCO* is significantly and negatively correlated with *BIG4*. See Appendix for variable definitions.

Table 3. Correlation Analysis

| | DA | FGCO | GCO | VAFC | MAFR | SIZE | BTM | BIG4 | LEV | Z | GRW | LOSS |
|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| DA | 1 | -0.269*** | -0.277*** | -0.041*** | -0.027*** | 0.170*** | 0.037*** | 0.066*** | -0.016 | 0.039*** | -0.058*** | -0.213*** |
| FGCO | -0.138*** | 1 | 0.648*** | 0.013 | 0.027*** | -0.124*** | -0.013 | -0.073*** | -0.024*** | -0.035*** | -0.028*** | 0.258*** |
| GCO | -0.125*** | 0.648*** | 1 | 0.070*** | 0.029*** | -0.211*** | 0.027 | -0.154*** | 0.007 | -0.051*** | -0.022** | 0.380*** |
| VAFC | -0.032*** | 0.013 | 0.069*** | 1 | -0.121*** | -0.125*** | 0.026** | -0.067*** | 0.006 | 0.018*** | 0.050*** | 0.037*** |
| MAFR | -0.015 | 0.027*** | 0.029*** | -0.121*** | 1 | 0.060*** | -0.001 | -0.015 | 0.005 | -0.007 | -0.015 | 0.028*** |
| SIZE | 0.127*** | -0.138*** | -0.240*** | -0.142*** | 0.069*** | 1 | -0.001 | 0.326*** | 0.022** | -0.002 | -0.001 | -0.246*** |
| BTM | 0.161*** | -0.095*** | -0.086*** | -0.011 | -0.006 | 0.141*** | 1 | -0.019 | -0.005 | -0.006 | 0.001 | -0.031*** |
| BIG4 | 0.011 | -0.073*** | -0.154*** | -0.067*** | -0.015 | 0.307*** | -0.041*** | 1 | 0.007 | 0.004 | -0.016 | -0.196*** |
| LEV | -0.033*** | 0.062*** | 0.064*** | 0.001 | 0.015 | 0.187*** | -0.046*** | 0.012 | 1 | -0.007 | -0.003 | 0.031*** |
| Z | 0.054*** | -0.253*** | -0.372*** | -0.038*** | -0.044*** | 0.080** | -0.171*** | 0.131*** | -0.500*** | 1 | -0.003 | -0.028*** |
| GRW | -0.204*** | -0.111*** | -0.156*** | 0.033*** | -0.006 | 0.079*** | -0.011 | 0.053*** | 0.075*** | 0.199*** | 1 | -0.022** |
| LOSS | -0.122*** | 0.258*** | 0.380*** | 0.037*** | 0.028*** | -0.277*** | -0.163*** | -0.196*** | 0.157*** | -0.546*** | -0.254*** | 1 |

The numbers above (below) the diagonal are the Pearson (Spearman) correlation coefficients.

***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

4.3 Empirical Results Of Univariate Analysis

Panel A of Table 4 provides the results of the t-test and the non-parametric test between *GCO* and non-*GCO* firms for the full sample. Most variables are significantly different between the two groups. Consistent with the findings of the prior literature, *GCO* firms have smaller firm size (*SIZE*), lower operating cash flows (*CFO*),

lower profitability (*ROA*), greater financial distress (*Z*), less sellable resources (*CASH*), and negative net income (*LOSS*). Unexpectedly, however, Big 4 auditors are less likely to issue GCOs. Panel B of Table 4 provides the results of the univariate analysis for the subsample of financially distressed firms. The results are similar to those in Panel A of Table 4. See Appendix for variable definitions.

Table 4. Univariate Analysis

| Panel A: GCO firms vs. non-GCO firms for the full sample | | | | | | |
|--|-----------|--------|---------------|--------|----------------|------------------|
| Variable | GCO Firms | | Non-GCO Firms | | Difference In | |
| | Mean | Median | Mean | Median | Mean (t-stat.) | Median (z-stat.) |
| DA | -0.268 | -0.086 | 0.007 | 0.024 | -27.19*** | -11.81*** |
| VAFC | 0.239 | 0.000 | 0.140 | 0.000 | 6.61*** | 6.59*** |
| MAFR | 0.109 | 0.000 | 0.078 | 0.000 | 2.76*** | 2.76*** |
| SIZE | 17.327 | 17.277 | 18.540 | 18.266 | -20.39*** | -22.68*** |
| BIG4 | 0.255 | 0.000 | 0.564 | 1.000 | -14.78*** | -14.60*** |
| GRW | 0.043 | -0.139 | 0.155 | 0.078 | -2.04** | -14.53*** |
| LEV | 1.373 | 1.029 | 1.062 | 0.692 | 0.69 | 6.08*** |
| ROA | -0.197 | -0.161 | 0.053 | 0.048 | -47.25*** | -34.44*** |
| Z | -2.448 | -1.772 | 3.866 | 2.690 | -4.77*** | -34.53*** |
| MCG | 0.152 | 0.115 | 0.227 | 0.200 | -8.00*** | -4.90*** |
| FCG | 0.021 | 0.001 | 0.059 | 0.006 | -8.06*** | -7.14*** |
| CASH | 0.063 | 0.018 | 0.052 | 0.097 | 4.73*** | -13.52*** |
| BTM | 3.038 | 0.682 | 2.199 | 1.248 | 0.97 | -7.09*** |
| CFO | -0.200 | -0.140 | 0.049 | 0.048 | -39.23*** | -28.92*** |
| LOSS | 0.950 | 1.000 | 0.253 | 0.000 | 38.77*** | 35.86*** |
| n | 595 | | 8,294 | | | |

| Panel B: GCO firms vs. non-GCO firms for the financially distressed sample | | | | | | |
|--|-----------|--------|---------------|--------|----------------|------------------|
| | GCO firms | | Non-GCO firms | | Difference in | |
| | Mean | Median | Mean | Median | Mean (t-stat.) | Median (z-stat.) |
| DA | -0.278 | -0.105 | 0.036 | 0.081 | -20.82*** | -15.32*** |
| VAFC | 0.237 | 0.000 | 0.145 | 0.000 | 5.70*** | 5.67*** |
| MAFR | 0.112 | 0.000 | 0.080 | 0.000 | 2.57*** | -2.57*** |
| SIZE | 17.298 | 17.267 | 18.300 | 18.061 | -17.85*** | -19.41*** |
| BIG4 | 0.250 | 0.000 | 0.476 | 1.000 | -10.25*** | -10.12*** |
| GRW | 0.042 | -0.147 | 0.148 | 0.032 | -1.51 | -10.71*** |
| LEV | 1.339 | 1.024 | 1.443 | 0.904 | -0.09 | 1.87* |
| ROA | -0.202 | -0.164 | -0.155 | 0.003 | -30.48*** | -27.01*** |
| Z | -2.559 | -1.894 | 3.370 | 1.900 | -2.83*** | -29.23*** |
| MCG | 0.152 | 0.153 | 0.224 | 0.194 | -7.79*** | -5.70*** |
| FCG | 0.021 | 0.002 | 0.041 | 0.004 | -5.07*** | -4.93*** |
| CASH | 0.063 | 0.618 | 0.067 | 0.038 | -1.03 | -8.86*** |
| BTM | 3.101 | 0.675 | 2.038 | 1.145 | 0.79 | -5.90*** |
| CFO | -0.208 | -0.144 | -0.049 | -0.029 | -22.09*** | -18.00*** |
| LOSS | 0.974 | 1.000 | 0.631 | 1.000 | 16.95*** | 16.35*** |
| n | 580 | | 3,318 | | | |

***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively (two-tailed test).

DA is discretionary accruals measured following Kothari *et al.* (2005). *GCO* is equal to 1 for firms that received a going-concern opinion for the current fiscal year’s financial statements, and 0 otherwise. *FGCO* is equal to 1 for firms that received a going-concern opinion for the current fiscal year’s financial statements but an unqualified audit opinion for previous fiscal year’s financial statements. *VAFC* is equal to 1 if auditors are voluntarily changed, and 0 otherwise. *MAFR* is equal to 1 if auditors are mandatorily rotated, and 0 otherwise. Financially distressed firms are defined those that have a net loss or negative operating cash flows.

4.4 Empirical Results of Multivariate Regression Analysis

4.4.1 Relation between Mandatory Audit Firm Rotation and FGCO

To test Hypothesis 1 on the association between MAFR and a first-time going-concern audit opinion decision, we confine the test sample to financially distressed firms following the prior literature. Table 5 presents the results of the logistic regressions after controlling for the factors that affect auditors' GCO decisions. According to the results, the coefficient (0.493) of *MAFR* is positive and statistically significant ($p < 0.067$), whereas the coefficient (-0.079) of *VAFC* is negative and statistically insignificant, suggesting that auditors under MAFR are more likely to issue a FGCO to financially distressed firms in their first-year audits compared with auditors under VAFC. These results indicate that newly rotated auditors under MAFR make more conservative reporting decisions than those under VAFC, supporting the adoption of MAFR. See Appendix for variable definitions.

Table 5. Integrated Logit Analysis For Financially Distressed Sample (N=3,898)

| Variable | Exp. Sign | Coefficients | Standard Error | Wald ChiSq. | Pr>ChiSq. |
|-----------|-----------|--------------|----------------|-------------|-----------|
| Intercept | ? | 1.429 | 1.427 | 1.002 | 0.316 |
| VAFC | – | –0.079 | 0.193 | 0.169 | 0.680 |
| MAFR | + | 0.493 | 0.269 | 3.347 | 0.067 |
| SIZE | – | –0.225 | 0.080 | 7.957 | 0.005 |
| BIG4 | ? | 0.155 | 0.156 | 0.987 | 0.320 |
| GRW | – | –0.118 | 0.082 | 2.078 | 0.149 |
| LEV | + | –0.003 | 0.002 | 2.288 | 0.133 |
| ROA | – | –1.542 | 0.503 | 9.397 | 0.002 |
| Z | – | –0.167 | 0.022 | 56.198 | <0.001 |
| CZ | + | 0.000 | 0.001 | 0.021 | 0.885 |
| MCG | + | –0.003 | 0.004 | 0.826 | 0.363 |
| FCG | – | –0.000 | 0.010 | 0.001 | 0.990 |
| CASH | – | –2.591 | 0.931 | 7.746 | 0.005 |

Max-rescaled R-square: 0.196

***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively (two-tailed test).

Dependent variable is *FGCO*, which is equal to 1 for firms that received a going-concern opinion for the current fiscal year's financial statements but an unqualified audit opinion for previous fiscal year's financial statements. *VAFC* is equal to 1 if auditors are voluntarily changed, and 0 otherwise. *MAFR* is equal to 1 if auditors are mandatorily rotated, and 0 otherwise. Financially distressed firms are defined those that have a net loss or negative operating cash flows.

4.4.1.1 Relation between Mandatory Audit Firm Rotation and Discretionary Accruals

Next, we test Hypothesis 2 on the association between MAFR and discretionary accruals. Contrary to previous analysis in Table 5, we expand our test sample to the full sample. First, we test the association between MAFR and discretionary accruals and between VAFC and discretionary accruals. Table 6 presents the OLS regression results. As shown in Table 6, we find that the coefficient for $VAFC+FGCO*VAFC$ ($MAFR+FGCO*MAFR$) is significantly negative at the 5 (1) percent level, suggesting that both voluntarily auditor-changed and mandatorily auditor-rotated firms have relatively lower signed discretionary accruals (i.e., higher earnings quality) compared with auditor-unchanged firms. Also, we find that both coefficients of $FGCO*VAFC$ and $FGCO*MAFR$ are significantly negative at the 1 percent level, indicating that a negative association between auditor change and rotation and discretionary accruals is more pronounced for firms receiving a first-time going-concern audit opinion. Next, we test whether or not the negative association between MAFR and discretionary accruals is stronger than that between VAFC and discretionary accruals. F-test results show that the coefficient difference between $(VAFC+FGCO*VAFC)$ and $(MAFR+FGCO*MAFR)$ or between $FGCO*VAFC$ and $FGCO*MAFR$ is significant at the 1 percent level. Considering that the coefficient (-0.375) of $(MAFR+FGCO*MAFR)$ is more negative than that (-0.110) of $(VAFC+FGCO*VAFC)$ and that the coefficient (-0.382) of $FGCO*MAFR$ is more

negative than that (−0.095) of $FGCO*VAFC$, the F-test results above suggest that firms audited by mandatorily rotated auditors have lower signed discretionary accruals in their initial audits than firms audited by voluntarily changed auditors. Particularly, the results are more pronounced for firms that received FGCOs from mandatorily rotated new auditors in the initial audits.

Taken together, the all findings above suggest that, although both voluntarily changed and mandatorily rotated new auditors are likely to have fresh eyes and conservatively conduct their first-year financial statement audits, mandatorily rotated auditors are more likely to conduct their initial audits with more conservative fresh eyes, particularly for FGCO firms. See Appendix for variable definitions.

Table 6. OLS Results For Association Between MAFR And Discretionary Accruals Focusing On FGCO Firms

| Variable | Exp. Sign | Coefficients | t-statistics |
|---------------------------------|-----------|-----------------------|--------------|
| Intercept | ? | −0.080 ^{***} | −2.61 |
| FGCO | ? | −0.322 ^{***} | −16.49 |
| VAFC | ? | −0.015 ^{**} | −2.49 |
| FGCO*VAFC | ? | −0.095 ^{**} | −2.16 |
| MAFR | ? | 0.007 | 0.81 |
| FGCO*MAFR | ? | −0.382 ^{***} | −5.80 |
| SIZE | + | 0.008 ^{***} | 4.81 |
| BTM | − | 0.002 ^{***} | 3.51 |
| LEV | + | −0.003 ^{***} | −3.67 |
| CFO | − | −0.835 ^{***} | −43.02 |
| GRW | + | −0.014 ^{***} | −7.62 |
| Z | − | 0.000 ^{***} | 2.28 |
| CZ | − | −0.001 | −1.43 |
| Big4 | − | 0.006 ^{**} | 2.22 |
| LOSS | ? | −0.100 ^{***} | −19.63 |
| ROA _{t-1} | ? | 0.183 ^{***} | 10.16 |
| ROA ² _{t-1} | ? | 0.058 ^{***} | 10.78 |
| MCG | ? | 0.000 ^{**} | 1.99 |
| FCG | ? | −0.000 ^{**} | −2.41 |
| IND | ? | Included | |
| YR | ? | Included | |
| Adjusted R ² | | 0.312 | |
| F-statistics | | 145.46 ^{***} | |
| No of Obs. | | 8,889 | |

***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively (two-tailed test).

Dependent variable is *DA*, which is discretionary accruals measured following Kothari *et al.* (2005). *GCO* is equal to 1 for firms that received a going-concern opinion for the current fiscal year’s financial statements, and 0 otherwise. *FGCO* is equal to 1 for firms that received a going-concern opinion for the current fiscal year’s financial statements but an unqualified audit opinion for previous fiscal year’s financial statements. *VAFC* is equal to 1 if auditors are voluntarily changed, and 0 otherwise. *MAFR* is equal to 1 if auditors are mandatorily rotated, and 0 otherwise.

4.4.1.2 Relation between Mandatory Audit Firm Rotation and Accruals Quality

In addition to discretionary accruals, accruals quality is another popular earnings quality measurement (Dechow and Dichev, 2002; Dechow *et al.*, 2011). In this section, we investigate whether mandatorily rotated new auditors under MAFR produce higher accruals quality.

First, we test the association between MAFR and accruals quality and between VAFC and accruals quality. Table 7 reports the association between MAFR and accruals quality for the full sample. Consistent with previous results on discretionary accruals in Table 6, we find that the coefficients for both ($VAFC+FGCO*VAFC$) and ($MAFR+FGCO*MAFR$) are significantly negative at the 1 percent level, suggesting that both voluntarily auditor-changed and mandatorily auditor-rotated firms have relatively higher accruals quality compared with auditor-unchanged firms. The negative association between auditor change and rotation and accruals quality is also more

pronounced for firms receiving a first-time going-concern audit opinion on the basis of the finding that the coefficients of both $FGCO*VAFC$ and $FGCO*MAFR$ are significantly negative at the 1 percent levels. Next, we test whether or not the negative association between $MAFR$ and accruals quality is stronger than that between $VAFC$ and accruals quality. F-test results show that the difference in coefficients between $(VAFC+FGCO*VAFC)$ and $(MAFR+FGCO*MAFR)$ or between $FGCO*VAFC$ and $FGCO*MAFR$ is significant at the 1 percent level. Considering that the coefficient (-1.213) of $(MAFR+FGCO*MAFR)$ is more negative than that (-0.375) of $(VAFC+FGCO*VAFC)$ and that the coefficient (-1.194) of $FGCO*MAFR$ is more negative than that (-0.427) of $FGCO*VAFC$, the F-test results above suggest that firms audited by mandatorily rotated auditors have higher accruals quality in their initial audits compared with firms audited by voluntarily changed auditors. In particular, the results are more pronounced for $FGCO$ firms under $MAFR$ and support the previous findings in Table 6. See Appendix for variable definitions.

Table 7. OLS Results For Association Between $MAFR$ And Accrual Quality Focusing On $FGCO$ Firms

| Variable | Coefficients | t-statistics |
|---------------------------------|--------------|--------------|
| Intercept | -0.179 | -1.06 |
| FGCO | -0.050 | -0.65 |
| VAFC | -0.068* | -1.79 |
| FGCO*VAFC | -0.427*** | -2.86 |
| MAFR | -0.019 | -0.38 |
| FGCO*MAFR | -1.194*** | -5.32 |
| SIZE | 0.080*** | 4.17 |
| BTM | 0.011*** | 5.83 |
| LEV | -0.015*** | -3.62 |
| CFO | -1.167*** | -9.53 |
| LnSALE | -0.077*** | -4.39 |
| Z | 0.005* | 1.76 |
| Big4 | -0.008** | -0.34 |
| LOSS | 0.026 | 0.91 |
| ROA _{t-1} | 1.959*** | 12.24 |
| ROA ² _{t-1} | 0.352 | 1.08 |
| Adjusted R ² | 0.105 | |
| F-statistics | 42.03*** | |
| No of Obs. | 8,889 | |

***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively (two-tailed test).

Dependent variable is *Accrual Quality*, which is studentized residual estimated following McNichols (2002). GCO is equal to 1 for firms that received a going-concern opinion for the current fiscal year’s financial statements, and 0 otherwise. $FGCO$ is equal to 1 for firms that received a going-concern opinion for the current fiscal year’s financial statements but an unqualified audit opinion for previous fiscal year’s financial statements. $VAFC$ is equal to 1 if auditors are voluntarily changed, and 0 otherwise. $MAFR$ is equal to 1 if auditors are mandatorily rotated, and 0 otherwise.

4.5 Sensitivity Analysis

In this section, we develop three subsamples from the full sample: 1) financially distressed firms, 2) only auditor-changed firms, and 3) financially distressed and auditor-changed firms. As mentioned previously, financially distressed firms are defined as firms with a net loss or negative operating cash flows. Then, we re-conduct the same regression in Table 6 for each subsample. The results are shown in Table 8. Columns 3 and 4 in Table 8 report the regression results for financially distressed firms. According to the results, the coefficient (-0.399) of $(MAFR + FGCO*MAFR)$ is negative and significant at the 1 percent level, whereas the coefficient (-0.097) of $(VAFC + FGCO*VAFC)$ is negative and significant at the 5 percent level. Additionally, the F-test for the coefficients between $(VAFC + FGCO*VAFC)$ and $(MAFR + FGCO*MAFR)$ is still significant at the 5 percent level (p-value: 0.017). Collectively, these results support the previous findings that newly rotated auditors with a fresh eye under $MAFR$ more conservatively conduct their initial financial statement audits.

Next, we re-conduct the regression for the subsample of only auditor-changed firms (i.e., firms that voluntarily or mandatorily switched their auditors), and the results are shown in columns 5 and 6 in Table 8.

Consistent with the previous results in Table 6, we find that the coefficient (-0.353) of $(MAFR + FGCO*MAFR)$ is significantly negative at the 1 percent level, suggesting that newly rotated auditors under MAFR are more likely to deter their clients' income-increasing behavior in their initial audits. Lastly, for the subsample consisting of financially distressed and auditor-changed firms, we consistently find that the coefficient (-0.330) of $(MAFR + FGCO*MAFR)$ is significant at the 5 percent level. See Appendix for variable definitions.

Taken together, in line with the arguments made by proponents of MAFR, we find that newly rotated auditors under MAFR are more conservative in conducting their first-year financial statement audits compared with newly switched auditors under VAFC, thus deterring firms' income-increasing behavior.

Table 8. OLS Results On Association Between MAFR
And Discretionary Accruals For Financially Distressed And/Or Auditor-Changed Firms

| Variable | Exp. Sign | Financially Distressed Firms | | Only Auditor-Changed Firms | | Financially Distressed and Auditor-Changed Firms | |
|--------------------------------------|-----------|------------------------------|--------------|----------------------------|--------------|--|--------------|
| | | (1) | (1) | (2) | (2) | (3) | (3) |
| | | Coefficients | t-statistics | Coefficients | t-statistics | Coefficients | t-statistics |
| <i>Intercept</i> | ? | -0.499*** | -6.67 | -0.198* | -1.88 | -0.829** | -2.19 |
| <i>FGCO</i> | ? | -0.351*** | -11.39 | -0.388*** | -6.46 | -0.384*** | -3.65 |
| <i>VAFC</i> | ? | -0.032** | -2.26 | - | - | - | - |
| <i>FGCO*VAFC</i> | ? | -0.065 | -0.96 | - | - | - | - |
| <i>MAFR</i> | ? | 0.022 | 1.16 | 0.002 | 0.02 | 0.031 | 0.75 |
| <i>FGCO*MAFR</i> | ? | -0.421*** | -4.17 | -0.355*** | -3.65 | -0.361** | -2.14 |
| <i>SIZE</i> | + | 0.027*** | 6.57 | 0.001** | 2.34 | 0.041* | 1.90 |
| <i>BTM</i> | - | 0.003*** | 3.83 | 0.001** | 2.11 | 0.008*** | 2.82 |
| <i>LEV</i> | + | -0.004*** | -3.43 | -0.001 | -0.65 | -0.001 | -0.20 |
| <i>CFO</i> | - | -0.728*** | -16.82 | -0.658*** | -11.20 | -0.305** | -2.02 |
| <i>GRW</i> | + | -0.028*** | -6.16 | -0.055*** | -7.18 | -0.067*** | -4.45 |
| <i>Z</i> | - | 0.000 | 1.50 | 0.004*** | 6.30 | 0.004* | 1.83 |
| <i>CZ</i> | - | -0.000 | -0.80 | -0.007*** | -6.63 | -0.008*** | -3.66 |
| <i>Big4</i> | - | 0.018* | 1.81 | 0.013 | 0.91 | 0.045 | 1.00 |
| <i>LOSS</i> | ? | - | - | -0.104*** | -6.33 | - | - |
| <i>ROA_{t-1}</i> | ? | 0.382*** | 7.14 | -0.003 | -0.04 | -0.217 | -0.74 |
| <i>ROA_{t-1}²</i> | ? | 0.039 | 0.28 | -0.350** | -2.45 | -0.512 | -1.09 |
| <i>MCG</i> | ? | 0.001** | 2.44 | 0.000 | 0.27 | 0.000 | 0.13 |
| <i>FCG</i> | ? | -0.000 | -0.05 | -0.001* | -1.80 | -0.004* | -1.83 |
| <i>IND</i> | ? | Included | | Included | | Included | |
| <i>YR</i> | ? | Included | | Included | | Included | |
| <i>Adjusted R²</i> | | 0.222 | | 0.266 | | 0.193 | |
| <i>F-statistics</i> | | 45.19*** | | 26.92*** | | 6.73*** | |
| <i>No of Obs.</i> | | 3,898 | | 2,000 | | 682 | |

***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively (two-tailed test).

Dependent variable is *DA*, which is discretionary accruals measured following Kothari *et al.* (2005). *GCO* is equal to 1 for firms that received a going-concern opinion for the current fiscal year's financial statements, and 0 otherwise. *FGCO* is equal to 1 for firms that received a going-concern opinion for the current fiscal year's financial statements but an unqualified audit opinion for previous fiscal year's financial statements. *VAFC* is equal to 1 if auditors are voluntarily changed, and 0 otherwise. *MAFR* is equal to 1 if auditors are mandatorily rotated, and 0 otherwise. Financially distressed firms are defined those that have a net loss or negative operating cash flows.

5. CONCLUSION

The recent shock to the capital markets from the global financial crisis after the high-profile accounting scandals in the beginning of the 21st century caused regulators and policy makers to again pay more attention to mandatory audit firm rotation as a solution to enhance auditor independence and subsequently improve financial reporting quality. In this study, we investigate whether a difference exists in audit quality and financial reporting quality between mandatory audit firm rotation and voluntary audit firm change from the perspectives of audit opinion decision-making to financially distressed firms, discretionary accruals, and accruals quality.

With regard to MAFR, as noted in the previous sections, two competing forces affect auditor independence in opposite directions. In other words, newly rotated auditors under MAFR are more likely to be independent and have a fresh look during their financial statement audits, leading to an increase in financial reporting quality. However, new auditors under MAFR are less likely to understand their clients' business and industry, which is critical to identifying specific risk factors on financial statements, leading to a decrease in financial reporting quality. In addition, although a positive perspective exists that auditors are less likely to economically depend on their clients, the negative perspective states that MAFR creates high start-up costs. As a result, the association between MAFR and auditor reporting decision or financial reporting quality depends on whether positive (negative) perspectives of MAFR dominate its negative (positive) ones. Accordingly, prior literature provides mixed or no significant results on the effectiveness of MAFR adoption. Therefore, we posit that no significant difference exists between MAFR and VAFC regarding audit reporting decisions and financial reporting quality and test the related hypotheses.

Consistent with the arguments made by proponents for MAFR, in this study, we find that, compared with newly switched auditors under VAFC, newly rotated auditors under MAFR are more likely to issue a first-time going-concern audit opinion to financially distressed firms and deter their clients' income-increasing behavior in their first-year audits. We also find that firms audited by MAFR auditors are more likely to have high accruals quality. These results are more pronounced for FGCO firms.

Taken together, we provide evidence supporting MAFR adoption that mandatorily rotated new auditors under MAFR are more likely to have a fresh eye and be more independent, leading to more conservative audits: a greater propensity to issue a first-time going-concern audit opinion to financially distress firms, greater deterrence to income-increasing behavior, and higher accruals quality.

Although our analyses are limited to first-year financial statement audits under VAFC or MAFR, overall, our findings provide implications to regulators and policy makers in countries considering the adoption of MAFR in the future.

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APPENDIX

1. Variables used in the GCO model

| Variable | Definition |
|-------------|--|
| <i>FGCO</i> | Equal to 1 for firms that received a going-concern opinion for the current fiscal year's financial statements but an unqualified audit opinion for previous fiscal year's financial statements the previous ones, and 0 otherwise; |
| <i>VAFC</i> | Equal to 1 if auditors are voluntarily changed, and 0 otherwise |
| <i>MAFR</i> | Equal to 1 if auditors are mandatorily rotated, and 0 otherwise |
| <i>SIZE</i> | Natural logarithm of total assets |
| <i>BIG4</i> | Equal to 1 if firms are audited by one of the Big 4 auditors (Samil, SamJung, AhnJin, HanYoung), and 0 otherwise |
| <i>GRW</i> | Change in sales deflated by lagged total sales |
| <i>LEV</i> | Total liabilities divided by book value of equity |
| <i>ROA</i> | Earnings before tax and interests divided by lagged total asset |
| <i>Z</i> | Altman (1968)'s Z-score |
| <i>CZ</i> | Change in the Altman (1968) Z-score |
| <i>MCG</i> | The ratio of large shareholders' holdings to the total number of outstanding common shares |
| <i>FCG</i> | The ratio of foreign shareholders' holdings to the total number of outstanding common shares |
| <i>CASH</i> | Cash and cash equivalent deflated by lagged total assets |

2. Additional Variables used in the DA or accruals quality model

| Variable | Definition |
|------------------------|---|
| <i>DA</i> | Discretionary accruals measured following Kothari <i>et al.</i> (2005) |
| <i>Accrual Quality</i> | Studentized residuals estimated following McNichols (2002) |
| <i>BTM</i> | Total book value of owners' equity divided by market capitalization |
| <i>CFO</i> | Operating cash flows deflated by lagged total assets |
| <i>LOSS</i> | Equal to 1 if net earnings is less than 0, and 0 otherwise |
| ROA_{t-1} | Lagged earnings before tax and interests divided by lagged total assets |
| ROA_{t-1}^2 | The square of ROA_{t-1} |
| <i>LnSALE</i> | Natural logarithm of sales |
| <i>ID</i> | Industrial dummies |
| <i>YR</i> | Year dummies |