

Paper#: K125

Do Audit Partners' Market Shares in an Industry Still Capture Audit Partner Industry Expertise in a Mandatory Audit Partner Rotation Regime? Evidence from the Banking Industry in Taiwan

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May 2013

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We thank participants at the 2012 American Accounting Association Annual Meeting for comments and suggestions. Wuchun Chi gratefully acknowledges support from the National Science Council. Hong Xie gratefully acknowledges financial support from the Von Allmen Research Support endowment and the PWC Fellowship endowment at University of Kentucky.

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ABSTRACT: Prior studies commonly use audit partners' market shares in an industry as a proxy for audit partner industry expertise and show that audit partners' market shares are positively associated with audit quality and audit fee premium. However, these studies are conducted in a voluntary audit partner rotation regime where the length of the client-partner relationship is not limited. An audit partner's market share is determined by the market force and competition—expert partners attract more clients and keep the clients longer. Thus, in a voluntary rotation regime, a partner's market share naturally reflects his industry expertise. However, in a mandatory partner rotation regime, a partner's market share can be increased or decreased due to rotating into or out of an industry. We hypothesize and find that mandatory audit partner rotation weakens the link between a partner's market share and his industry expertise. While we find that an audit partner's market share is positively associated with audit quality in the voluntary partner rotation regime in Taiwan in the banking industry, such a positive relation disappears in the mandatory partner rotation regime. We conclude that mandatory audit partner rotation decouples the link between an audit partner's market share in an industry and his industry expertise and thus reduces the usefulness of market share as a proxy for industry expertise. We caution researchers against using audit partners' market shares as a proxy for audit partner industry expertise in a mandatory audit partner rotation regime.

Keywords: earnings quality, auditor expertise, mandatory partner-rotation, client-specific tenure, industry-specific market share

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1. INTRODUCTION

Prior research has extensively examined the association between earnings quality and two auditor attributes: auditor tenure and auditor industry expertise, where auditor tenure is measured as the number of consecutive years in the auditor-client relationship and auditor industry expertise is commonly measured by the auditor's audit market share in an industry. Earlier studies look at these attributes at the audit firm level and find that earnings quality increases in audit firm tenure (e.g., Johnson, Khurana, and Reynolds 2002; Myers, Myers, and Omer 2003) and that it increases with audit firm industry expertise measured at both the national level and specific office level (Reichelt and Wang 2010). Recent studies shift the unit of analysis from audit firm to audit partner because it is engagement partners who plan and implement the audit and ultimately issue the audit report. Chen, Lin, and Lin (2008) find that earnings quality increases with audit partner tenure after controlling for audit firm tenure in Taiwan. Chin and Chi (2009) examine whether the likelihood of accounting restatements is associated with Big 4 industry auditor specialists, measured at both the partner level and the audit firm level. They find that clients of signing auditor specialists or experts, either alone or in conjunction with firm-level experts, are less likely to make accounting restatements relative to clients of other auditors in Taiwan where industry experts are identified based on auditors' market shares in an industry as in prior literature. Using audit data in Sweden, Zerni (2012) find that audit fees are higher for clients audited by an audit partner who is an industry expert or a specialist in public companies, consistent with audits by such partners are perceived to be of higher quality. The above studies suggest that audit partners' client-specific experience, as measured by audit partner tenure, and

their industry-specific knowledge and expertise, as measured by partners' market share in an industry, enhance earnings quality or command a fee premium.

However, these studies on audit partner tenure and partner-level industry expertise are conducted in a voluntary audit partner rotation regime where the length of the client-partner relationship is not limited. Under the mandatory audit partner rotation regime, the length of client-partner relationship, and thus the accumulation of client-specific experience, is constrained. Mandatory partner rotation, thus, potentially has a negative impact on earnings quality in the early years of rotation due to the loss of outgoing partner's client-specific experience and the lack of client-specific experience of the incoming partner (Chi et al. 2009). In other words, the positive effect of audit partner tenure on earnings quality documented in the voluntary audit partner rotation regime (Chen et al. 2008) is likely reduced by mandatory partner rotation due to its limiting the length of the client-partner relationship. Similarly, mandatory audit partner rotation also interrupts the accumulation of audit partners' industry-specific knowledge and expertise and will make a partner's market share in an industry unstable over time. For example, assume that Partner A held the largest market share in an industry under the voluntary audit partner rotation regime and thus was classified as an industry expert. Partner A may fall in the rank of his market share and thus be classified as a non-expert if being mandatorily rotating out of the industry.¹ On the other hand, Partner B did not hold the largest market share in that industry and thus was not classified as the industry expert before the mandatory rotation. If Partner B is mandatorily rotated to take more clients in that industry, Partner B can potentially hold the large market share and thus be classified as the industry expert in the year of mandatory rotation. But is Partner B really an industry expert relative to Partner A in the year of mandatory rotation just because Partner B now holds the largest market share due to mandatory rotation?

¹ We use 'he,' 'him,' and 'his' to indicate both male and female audit partners.

Another consequence of mandatory partner rotation is that Partner B may lose the largest market share status quickly in the future years if some of Partner B's clients in that industry are up for rotation

Based on the above example, we argue that a partner's market share in an industry becomes a less reliable proxy for industry expertise under the mandatory audit partner rotation regime than under the voluntary rotation regime. Consequently, the association between earnings quality and the market share-based proxy for industry expertise documented in the voluntary audit partner rotation regime (e.g., Chin and Chi 2009) becomes weaker under the mandatory rotation regime. In this study, we empirically examine the relation between earnings quality and the market share-based proxy for an auditor's industry expertise and test whether such a relation is weakened by mandatory audit partner rotation. Our research questions are important because the relation between earnings quality and an audit partner's industry expertise for the banking industry and whether mandatory partner rotation affects such a relation are unexplored in the extant literature.

We examine a sample of firms in the banking industry in Taiwan during 2001 to 2009. We find that, as in prior studies of other industries, the market share-based audit partner industry expertise in the banking industry, combined with the market share-based audit firm expertise, is positively associated with earnings quality in the voluntary partner rotation regime before 2004 in Taiwan. After the implementation of mandatory audit partner rotation in 2003 in Taiwan, however, the positive association between earnings quality and the market share-based audit partner industry expertise disappears in the mandatory rotation regime during 2004 to 2009. This suggests that mandatory audit partner rotation has decoupled the link between the market share-based proxy for industry expertise and industry expertise thus eliminates the association between

earnings quality and the market share-based proxy for industry expertise (i.e., the market share-based proxy for industry expertise no longer captures an audit partner's real industry expertise after mandatory audit partner rotation).

We contribute to the auditing literature by examining the effect of mandatory audit partner rotation on the relation between earnings quality and the market share-based industry expertise. Chen et al. (2008) and Chin and Chi (2009) show that audit-partner tenure and the market share-based proxy for industry expertise, respectively, are positively related to earnings quality. Zerni (2012) finds that the perception that expert auditors perform higher quality audits allows Swedish audit firms to charge higher fees for the services of such expert auditors. These papers, however, exclude financial industries and cover the voluntary partner rotation regime or do not explicitly consider mandatory partner rotation. Chi et al. (2009) find that mandatory audit-partner rotation does not enhance earnings quality due to the incoming partner's lack of client-specific experience and the loss of the outgoing partner's client-specific experience. Their finding implies that mandatory audit partner rotation limits the accumulation of client-specific experience. Consequently, the positive association between earnings quality and partner tenure documented in the voluntary audit partner rotation regime (e.g., Chen et al. 2008) is weakened by mandatory partner rotation. We show that mandatory audit partner rotation has a similar effect on the relation between earnings quality and the market share-based proxy for industry expertise. Specifically, we find that mandatory audit partner rotation makes an audit partner's market share in an industry a noisy proxy for the partner's industry expertise. The justification for using market share as a proxy for industry expertise is the assumption that a *free* market for accounting services will allow experts to garner greater shares of the market (Zerni 2012). Mandatory partner rotation, however, forces changes in the market shares of affected partners.

An audit partner's market share in an industry no longer flows naturally from the partner's industry expertise. Rather, it is influenced by mandatory rotation, i.e., mandatory audit partner rotation introduces noise into the market share-based proxy for industry expertise. This is an issue that has not received attention in the literature. With the wide adoption of mandatory audit partner rotation in the world and the consideration for mandatory audit firm rotation and for requiring signatures of signing audit partners on the audit report, we caution researchers in using the market share-based proxy for industry expertise in the mandatory partner rotation regime.²

The remainder of the paper is organized as follows. Section 2 reviews the literature, and discusses Taiwan's institutional background. Section 3 describes the research design. Section 4 presents the sample selection. Section 5 provides regression results, and Section 6 concludes.

2. LITERATURE REVIEW

The role of auditor industry expertise

Prior research documents a positive association between earnings quality and industry-specific auditor expertise. For example, Balsam et al. (2003), Krishnan (2003), and Reichelt and Wang (2010) show that auditor industry expertise reduces the level of accrual-based earnings management. In addition, DeBoskey and Jiang (2011) find that U.S. banks use loan loss provision to smooth earnings and that such earnings management behavior is significantly moderated by industry specialist or expert auditors. Moreover, many studies find that firms audited by industry experts enjoy higher valuations (Knechel et al. 2007) and better disclosure quality (Dunn and Mayhew 2004). Furthermore, industry expert auditors are more likely to issue

² A recent article by Floyd Norris (2011) in the *New York Times*, "Companies May Face Rule to Shift Audit Firms," quotes James R. Doty (chairman of the Public Company Accounting Oversight Board) as saying that PCAOB is considering all methods, including audit firm rotation, in addressing the problem of audit quality. Regarding partner signature, Article 28 of Directive 2006/43/EC of the European Parliament requires that audit reports be signed by audit partners who carry out the statutory audit on behalf of the audit firm.

going concern opinions (Griffin et al. 2009), and are less likely to see their audited earnings just meet or beat analysts' forecasts (Payne 2008; Reichelt and Wang 2010), or to be involved in SEC enforcement actions (Carcello and Nagy 2004) or restatements (Romanus et al. 2008). These studies suggest that industry expert auditors perform a higher quality audit or are perceived to produce a higher quality audit as compared to non-expert auditors.

In addition, examining data from around the world, Kwon et al. (2007) find that the benefits, as measured by discretionary accruals and earnings response coefficients, from engaging the services of industry expert auditors increase in inverse proportion to the strength of a country's legal environment; that is, looser regulation allows better auditors to stand out from their peers. Finally, while the above studies measure industry expertise only at the audit-firm level (i.e., based on the audit firm's market share in an industry), Chin and Chi (2009) also measure industry expertise at the audit partner level (i.e., based on the audit partner's market share in an industry). They find that audit partner industry expertise, whether alone or in conjunction with firm-level industry expertise, significantly reduces the likelihood of accounting restatements. Zerni (2012), in an analysis of Big 4 audit firms in Sweden, find that (1) higher audit quality in audits performed by expert audit partners is rewarded with higher fees and (2) an audit partner's industry expertise is human capital that is not transferable between offices or partners in the same audit firm. Few studies, except for the following notable exception, have considered the banking industry, so the role of industry expertise in this industry remains largely unknown.

Kanagaretnam et al. (2009) find a positive association between the discretionary part of loan loss provision and market return if banks are audited by an industry expert auditor, a phenomenon which implies that expert auditors of banks can alleviate the information

asymmetry between bank managers and investors. Kanagaretnam et al. (2010), using banks data of 29 countries, find that an industry expert audit firm can constrain earnings management of banks.

Accrual-based proxies for earnings quality

There are two accrual-based approaches to measure earnings quality: the *portfolio* approach and the *representative* approach. While the portfolio approach used by most researchers (e.g., Chen et al. 2008; Chi et al. 2009) includes all accruals, the representative approach considers a single account. As explained by McNichols and Wilson (1988), who use abnormal bad debt expenses to proxy for earnings quality, the trade-off between the two approaches is comprehensiveness and precision. Specifically, the portfolio approach offers greater comprehensiveness, while the representative approach offers more precision. For the banking industry, in which a single account—provision for bad debts—commonly makes up the majority of accruals, the best approach to detect earnings quality using abnormal accruals is the representative approach.³

Audit-firm tenure and audit-partner tenure in a voluntary rotation regime

Regarding audit-firm tenure, Johnson et al. (2002) document that short audit-*firm* tenures of two to three years are associated with lower-quality financial reporting relative to medium (four to eight years) or long (nine or more years) tenure. Similarly, Myers et al. (2003) find a positive relation between audit quality and audit-*firm* tenure. As for audit-*partner* tenure, using data from Australia, where partner information is publicly disclosed and partner rotation was

³ The research sample examined by McNichols and Wilson (1988) is comprised of publishers, business service providers, and wholesalers of nondurable goods, but does not include the banking industry.

voluntary at the time of their study, Carey and Simnett (2006) find a diminution in audit quality, as proxied by the propensity to issue going-concern opinions and the incidence of just beating (missing) earnings benchmarks, for long partner tenure. In contrast, using data from Taiwan, where partner rotation was voluntary during their research period, Chen et al. (2008) find that audit quality, as measured by absolute abnormal accruals, increases with audit-*partner* tenure after controlling for audit-*firm* tenure. Again, the role of tenure within the banking industry has not been addressed.

Mandated audit-firm and audit-partner rotation

Auditor rotation involves a tradeoff between the benefits and drawbacks of familiarity (AICPA 1978, 1992; GAO 2003, 2004). One view of rotation holds that familiarity with clients is crucial to producing greater understanding and an improved ability to identify and evaluate risks for clients, and that rotation limits an auditor's ability to develop such an understanding and ability. On the other hand, some auditing professionals also recognize that over-familiarity may be a significant threat to auditor independence. The potential impairment of auditor independence constitutes the basic reason for requiring audit-*partner* and/or audit-*firm* rotation. In addition, new auditors, an inevitable consequence of auditor rotation, may provide a fresh look at the financial statements of a company during the audit process.

Empirically, the effect of mandatory audit-*partner* rotation has been examined using Taiwan data (Chi et al. 2009), and that of mandatory audit-*firm* rotation using Spain data (Ruiz-Barbadillo et al. 2009).⁴ Their conclusions are similar. In the study of Chi et al. (2009), which examines abnormal accruals and earning response coefficients, no evidence is found to support

⁴ In an examination of the forced auditor change in the wake of the collapse of Arthur Andersen, Blouin et al. (2007) also fail to offer supporting evidence that mandatory rotation improves financial reporting.

the argument that audit-partner rotation can enhance earnings quality; instead, their study finds that the earnings quality of companies in the mandatory rotation sample under new audit partners is lower than the audit quality of these same companies one year earlier under the old audit partners. In the study of Ruiz-Barbadillo et al. (2009), which examines the propensity of issuing going-concern audit opinions in periods with and without mandatory rotation, the evidence also suggests that mandatory audit-firm rotation fails to enhance auditor independence. Similar conclusions are reached by Martinez and Reis (2010), who examine audit-firm rotation in Brazil, and by Lindscheid et al. (2010), who study audit-partner rotation in Germany. Yet again, the banking industry receives no coverage because financial industries are excluded when calculating accruals or discretionary accruals.

Background and regulations in Taiwan

As we have explained, the effect of audit partner industry expertise and audit partner tenure on earnings quality in the banking industry is unexplored in the extant literature and remains an empirical issue. The unique institutional features of Taiwan banks allow us to examine this issue. This section introduces the institutional and regulatory background of the banking industry in Taiwan: audit partner signatures, banking regulations, and audit partner rotation.

First, and most importantly, audit reports included in annual reports contain the names of *two* audit-partners and the name of the audit-firm. We can use this feature of the data to examine whether earnings quality can be explained by auditor characteristics such as tenure and industry expertise at the partner level. In addition, financial statements of both listed and unlisted banks are prepared and audited according to the same accounting and auditing standards, so differences

in standards cannot account for differences in audit quality between listed and unlisted banks. Finally, because all financial statements are publicly available, we can determine where earnings quality differs between listed banks and non-listed banks.

Second, in Taiwan, five-year partner rotation was made mandatory by the Taiwan Stock Exchange Corporation (TWSE) and GreTai Securities Market (GTSM) in 2004 (Chi et al. 2009).⁵ The rule went into full effect in 2004, when it was applied retroactively to auditors already in service; 2003 was a transition period, when a listed firm was allowed to have one audit partner, but not both, who had already audited that firm for five or more years.⁶ Using information from this unique setting, we can examine the effect of an audit partner's market share-based industry expertise on earnings quality of banks in the pre- and post- mandatory audit partner rotation regime.

Third, listed banks in Taiwan are regulated by the Company Act (as are all firms) and the Securities and Exchange Act (as are all listed firms), and monitored by the Financial Supervisory Commission of Taiwan (FSC hereafter, which is similar to the Securities and Exchange Commission in the U.S.), but, unlike non-banking firms, also fall under the regulations of the Bank Act and the monitoring of the Banking Bureau (an arm of the FSC). In addition, banks under the control of financial holding companies are further regulated by the Financial Holding Company Act, which requires that all financial holding companies be listed and that each holds only one bank. After the Financial Holding Company Act was passed, many financial holding companies were set up, and many formerly listed banks delisted and became subsidiaries of their

⁵ TWSE and GTSM in Taiwan are analogous to NYSE and NASDAQ in the United States.

⁶ In our research sample, only four audit partners of banks were switched in 2003 due to the mandated partner-rotation. Due to the small number of rotations, we exclude these four observations in our sample but retain the rest of the 2003 observations and classified 2003 as a non-rotation required regime.

listed financial holding companies. For example, Hua Nan Bank was a listed company before 2001, but delisted in 2001 and became a subsidiary of Hua Nan Bank Financial Holding.

3. RESEARCH DESIGN

This study addresses two related questions in the banking industry: (1) the relation between earnings quality and the market share-based proxy for audit partner industry expertise and (2) whether such a relation is weakened by mandatory audit partner rotation. We take the following two-stage approach to examine these issues.

First, following Kanagaretnam et al. (2010), we fit Equation (1) yearly and then take the *residuals* to measure the abnormal loan loss provisions (*AbnLLP*).

$$LLP_t = a_0 + a_1 LLA_{t-1} + a_2 NPL_{t-1} + a_3 \Delta NPL_t + a_4 LCO_t + a_5 \Delta Loan_t + a_6 Loan_t + e_t \quad (1)$$

where

| | | |
|-----------------|---|--------------------------------|
| LLP_t | = | provision for loan losses; |
| LLA_{t-1} | = | beginning loan loss allowance; |
| NPL_{t-1} | = | beginning nonperforming loans; |
| ΔNPL_t | = | change in nonperforming loans; |
| LCO_t | = | net loan charge-offs; |
| $\Delta Loan_t$ | = | change in total loans; |
| $Loans$ | = | total loans outstanding. |

All variables are deflated by beginning-of-year total assets. Note that LLP is a *negative* accrual and so positive (negative) *AbnLLP* decreases (increases) reported earnings.

Following Myers et al. (2003) and many other studies, we measure *AbnLLP* at three levels: absolute value ($|AbnLLP|$), positive value ($AbnLLP^+$), and negative value ($AbnLLP^-$). Also following Myers et al. (2003) and a large volume of prior studies, we deem reported earnings that are *less* extreme (i.e., less positive if earnings are positive or not extremely negative if

earnings are negative) as being of higher quality. That is, if a company's $|AbnLLP|$ is not extremely positive, or if the company's $AbnLLP^+$ is not extremely positive (extremely positive $AbnLLP^+$ makes reported earnings extremely negative, representing a "big bath" and creating "cookie jar reserves" to boost future earnings), or if the company's $AbnLLP^-$ is not extremely negative (extremely negative $AbnLLP^-$ makes reported earnings extremely positive), then that company's reported earnings are of high quality.

In sharp contrast, Kanagaretnam et al. (2010) deems reported earnings that are *smaller* (i.e., less positive if earnings are positive or extremely negative if earnings are negative) as being of higher quality. In their framework, $AbnLLP$ are signed and cannot be measured at its absolute value. If a company's $AbnLLP^+$ is extremely positive (extremely positive $AbnLLP^+$ makes reported earnings extremely low, which is a "big bath" but considered as being of high quality) or if the company's $AbnLLP^-$ is not extremely negative (extremely negative $AbnLLP^-$ makes reported earnings extremely positive), then that company's reported earnings are of high quality.

Comparing the above two approaches, it is clear that the difference is that we (also Myers et al. 2003 and a large number of studies) regard extremely positive $AbnLLP^+$, which makes reported earnings extremely negative (a "big bath"), as of low earnings quality but Kanagaretnam et al. (2010) regard extremely positive $AbnLLP^+$, which makes reported earnings extremely negative (a "big bath"), as of high earnings quality (because the reported earnings are extremely negative and thus conservative). In 1998, then Chairman of the SEC Arthur Levitt criticizes some firms taking "big bath" to create "cookie jar reserves" so as to boost future earnings (Levitt 1998). "Big bath" was under close scrutiny at that time and is always considered as earnings management in the accounting literature.

In this paper, we follow Myers et al. (2003) and a large volume of other studies and regard earnings that are less extreme (less extremely positive or less extremely negative) as being of high quality because “big bath” and “cookie jar reserves” also represent earnings management just like managing earnings up (Levitt 1998).

Second, we use equation (2) to examine the relation between tenure, industry expertise, and earnings quality.

$$\begin{aligned} EarnQuality = & b_0 + b_1 Expert + b_2 PT + b_4 FT + b_3 Listed \\ & + b_4 BigN + \Sigma CVs + e \end{aligned} \quad (2)$$

where *EarnQuality* ($|AbnLLP|$, $AbnLLP^+$, or $AbnLLP^-$) is our proxy for earnings quality. *Expert* is a dummy to indicate industry expertise at audit-firm level, audit-partner level, or both (as specified in equations below). Similar to Chin and Chi (2009), the audit firm that captures the largest market share measured by the number of clients is regarded an industry expert at the firm level and the partners who captures the first and second largest market share in terms of number of clients are regarded an industry expert at the partner level. *PT* and *FT* are the auditor tenure of the longer of the two audit partners (as in Chen et al. 2008) and of the audit firm, respectively. *Listed* is a dummy to indicate a listed bank and *BigN* is a dummy for a Big N audit firm.

Since we regard less extreme earnings as being of high quality, a negative coefficient on *Expert* ($b_1 < 0$) when $EarnQuality = |AbnLLP|$, $AbnLLP^+$ and a positive coefficient on *Expert* ($b_1 > 0$) when $EarnQuality = AbnLLP^-$ indicate that industry expertise enhances earnings quality.

We also include several control variables (*CV*) in equation (2): the natural log of total assets (*Size*),⁷ the percentage of net interest revenue growth (*Growth*), the prior period’s loan loss provision (*LagLLP*), earnings before extraordinary items and loan loss provision (*EBEL*),

⁷ Kanagaretnam et al. (2010) use the natural log of market value of common equity. Since this study includes non-listed banks, which do not have stock prices, we use the natural log of total assets.

whether a firm incurs a loss or not (*Loss*), capital adequacy ratio (*CADQR*), and dummies of years. *Size* is to control for the size effect by which earnings quality is a function of firm size (Lawrence et al. 2011). *Growth* is included because growing firms have a greater level of extreme accruals (Ghosh and Moon 2005). *LagLLP* is added to control for the likely reversal of the previous year's abnormal accruals seen in this year's (Lim and Tan 2008). Finally, to consider the effect on loan loss provision of bank performance and capital regulations, *EBEL*, *Loss*, and *CAAQR* are also included as explanatory variables in equation (2) (as in Kanagaretnam et al. (2010). Appendix A provides detailed definitions of all variables.

Following Gow et al. (2010), we report test statistics based on the two-way cluster-robust standard errors (cluster by firm and by year) which adjust for both cross-sectional and time-series dependence in panel data.

4. SAMPLE SELECTION

Our research sample runs from 2001 to 2009. Since information on loan loss allowance has been publicly available in Taiwan since 2000, a 2001 starting point allows us to use its lag value. We divide this sample into two sub-samples, one *before* and the other *after* the imposition of mandatory audit-partner rotation for annual reports, which went into effect in 2004, with a transition period in 2003.⁸ We classify 2003 as a non-rotation-required regime because (1) only four signing audit-partners of companies are switched due to required rotation; and (2) if the observations of 2003 are deleted, there will be only two years' data in the pre-rotation regime.

⁸ Since 2003, the two stock exchanges in Taiwan (the TWSE and the GTSM) have required five-year mandatory partner rotation (applied retroactively). However, the Taiwanese Accountants Union argued that it would be difficult for audit firms, especially small audit firms, to rotate two partners in the same year. In response to this and other concerns, both stock exchanges postponed the full implementation of the five-year rule for *both* audit partners to 2004, with 2003 (annual audits) as a transition period when audit firms were allowed to have *one* partner, but not both, auditing the same client for five or more years.

Thus, the first sub-sample is 2001-2003, the *non-rotation-required regime* period, and the second sub-sample is 2004-2009, the *rotation-required regime*. The merit of analyzing the two sub-samples is that in this way we can test whether the usefulness of the expertise of audit partners (as measured by market share on a year-by-year basis, not a cumulative basis, in the variable *Expert*) to explain the variation of audit quality decreases, or even disappears, after the imposition of mandatory partner rotation.

Panel A of Table 1 reports the sample selection in the *non-rotation-required* regime. In the last column are the initial 102 company-year observations (70 of listed and 32 of non-listed firms) we obtained from TEJ's financial institution database. We eliminate the 4 observations of listed firms which rotated audit-partners during the transition period, and 15 (6 listed and 9 non-listed firms) observations in which variables were missing.⁹ This leaves us with 83 company-year observations in our discretionary loan loss provision analysis. Among them, 60 observations involve listed banks, and the remaining 23, non-listed banks. Similarly, Panel B summarizes the sample in the *rotation-required regime*, which consists of 177 company-year observations. Among them, 75 (102) observations are of listed (non-listed) banks.

[Insert Table 1]

The sample described in Table 1 is the source of the basic statistics that are analyzed in Table 4. The categories in Table 4 are derived from a more complex classification of the distribution of expertise shown in Table 2 and Table 3. As will become clear, the actual results in Table 2 and Table 3 suggest the simpler classification of Table 4 that we will use in our calculations.

⁹ As explained above, 2003 was a *transition* period for partner rotation. We classify this year as a non-rotation-required regime because 1) as Panel A of Table 1 reports, only four signing audit-partners of companies were switched due to required rotation; and 2) if the observations of 2003 are deleted, there will be only two years' data in the pre-rotation regime.

[Insert Table 2]

[Insert Table 3]

The classification scheme in Tables 2 and 3 was designed with the following considerations in mind. Since there are three signatures in an audit report, one representing the audit-firm (F), and those of two audit-partners (A), there are six possible specifications of industry expertise: (a) all three are experts (FAA); (b) the audit firm is expert but only one of the audit partners is expert (FA); (c) the audit firm is expert while neither of the audit partners is expert (F); (d) both the audit partners are expert but their audit firm is not (AA); (e) only one of the audit partners is expert (A); and (f) none of them is expert (None). The indicator variable *Expert* is defined as an audit-firm with the highest market share, and as an audit-partner with the highest or second-highest market share (because an audit report in Taiwan is signed by two partners), as in Zerni (2012). Table 2 reports the distribution of expertise under the non-rotation required regime; the distribution under the rotation required regime is provided in Table 3. Both Table 2 and Table 3 contain five panels: one each for the original sample, the research sample, listed banks in the research sample, and non-listed banks in the research sample, plus a final panel to clarify the simplification of categories for the results that appear in Table 4. Each of the first four panels contains six columns that correspond to the six possible specifications of expertise described above; these six columns will be reduced to three columns in Panel A and Panel B of Table 4.

As is readily evident, the actual results in Table 2 suggest a simpler classification of the specifications of expertise, for there are no cases in which all three signers are concurrently leaders in market share (FAA). In Table 4 we therefore combine column FAA (which contains no cases in Table 2 or Table 3) and column FA in a new variable *Both*, which signifies cases in

which both the audit firm and at least one audit partner are leaders in market share. Likewise, the columns A and AA in Table 2 and Table 3 have been combined for simplicity's sake into a single category, *Auditor Only*, in Table 4, since there are only a small number of cases in the original categories. Since in both Table 2 and Table 3 there are cases in which only a firm is a leader but the signing auditors are not (F), this variable is retained and renamed as *Firm Only* in Table 4. The remaining cases, in which neither the audit firm nor audit partners are leaders in market share, are listed in the column *None* in all three Tables. The disappearance of cases where two expert auditors sign the same report under the rotation-required regime (refer to the AA columns in Panel C and Panel D) is entirely reasonable, since it is exactly the existing experts that will be rotated out, thus making it impossible for two expert auditors to sign the audit report of the same firm. Put simply, experts are, due to their greater market share that is the basis of their expertise, also those most rotated. Untabulated data also show a positive correlation between auditor tenure and audit-partner expertise in a non-rotation-required regime; that is, the longer the tenure, the higher the auditor's market share. The question implied by the forced rotation of expert auditors is whether the greater auditor independence that is the rationale for the imposition of rotation can outweigh the possible negative effects of the removal of expert auditors and thus increase overall audit quality.

To explore whether mandated partner rotation affects the accuracy of *Expert* as an indicator of audit quality, we revise Equation (2) and run it separately for the non-rotation required regime and the rotation required regime.

$$\begin{aligned}
 EarnQuality = & \alpha_0 + \alpha_1 Expert^{Both} + \alpha_2 Expert^{Firm-Only} + \alpha_3 Expert^{Auditor-Only} + \alpha_4 PT \\
 & + \alpha_4 FT + \alpha_5 Listed + \alpha_6 BigN + \Sigma CVs + u
 \end{aligned}
 \tag{3}$$

The estimated coefficient of $Expert^{Both}$, α_1 , represents the effect on earnings quality of both audit-partner and audit-firm being experts. Since the two dummy variables $Expert^{Firm-Only}$

and $Expert^{Auditor-Only}$ are mutually exclusive, the estimated coefficient of $Expert^{Firm-Only}$, α_2 , represents the effect on earnings quality of an expert audit-firm while neither audit-partner is an expert. Likewise, the estimated coefficient of $Expert^{Auditor-Only}$, α_3 , represents the effect on earnings quality of either audit-partner being expert while the audit firm is not.

5. EMPIRICAL RESULTS

Univariate analysis

Table 4 reports basic statistics for the variables examined in this study. Panel A shows the details behind Table 2 (the non-rotation required regime, NR-regime hereafter), and Panel B those behind Table 3 (the rotation required regime, RR-regime hereafter). The link between the simplified classification used in Table 4 and the original classification of Table 2 is shown in Panel E of Tables 2 and 3.

[Insert Table 4]

As explained above, the actual results suggest a simplification of the variables of the original classification; consequently, Table 4 reports four variables, *Both*, *Firm Only*, *Auditor Only*, and *None*, in Columns (1), (2), (3), and (4), respectively. The rightmost three columns of table 4 report the pairwise differences; however, due to space limitations, we show only the differences between each of the three cases where a leader is involved (*Both*, *Firm Only*, and *Auditor Only*) and the cases where no leader is involved (*None*).

Panel A, Table 4, reports descriptive statistics for the non-rotation-required regime. There are three important results for each of the three dependent variables of interest, giving a total of nine key results for each. Of the nine differences for our three variables ($|AbnLLP|$, $AbnLLP^+$, and $AbnLLP^-$), two are significantly consistent with predictions: for $|AbnLLP|$, the mean and

median of the difference between the values of *Both* and *None* (−0.003 and −0.002); and for *AbnLPP*⁺, those of the differences between *Both* and *None* (−0.003 and −0.002). The remaining seven results are insignificant. This univariate analysis implies that earnings quality can increase only if *both* audit-partner and audit-firm are experts. In columns (5), (6), and (7) of Panel B, however, none of the differences are significant; thus, experts have no significant effect on earnings quality when rotation is required. Thus, we provide evidence that, in the non-rotation regime, concurrent audit-partner expertise and audit-firm expertise enhance the earnings quality of banks. However, neither partner expertise nor firm expertise alone can enhance earnings quality. In a rotation-required regime, however, auditors with expertise, as measured by market share, will be rotated out, thus affecting the variable $Expert^{Both}$, one element of which is $Expert^{Partner-Only}$. Thus, mandatory rotation may add noise to a previously significant measure, reducing its usefulness as information. The findings detailed in Panel B, which will be discussed shortly, support this hypothesis.

Of the other variables for the non-rotation-required regime given in Panel A, *PT* is insignificant in the mean and median test in columns (5)~(7). However, *FT* is significant in both the mean and the median of the difference between *Both* and *None* (3.783 and 4.500, respectively), and the median difference between *Firm Only* and *None* (5.500). In columns (5)~(7), all results for *Listed* and *Loss* are insignificant. In addition, *BigN* is significant in both the mean and the median of the difference between *Both* and *None*, in those of the difference between *Firm Only*, and in those of the difference between *Auditor Only* and *None*. Banks audited by experts tend to show greater size (*Size*) in the *Auditor Only* – *None* column, greater sales growth (*Growth*) in the *Firm Only* – *None* column, better operating performance (*EBEL*) in

the *Both – None* and the *Firm Only – None* columns, and better capital adequacy ratio (*CADQR*) in the *Both – None* column.

Next is the discussion of the basic statistics of Panel B. Like the comparisons of *PT* in Panel A, the pairwise comparisons between *PT* are insignificant. As in Panel A, the values for *FT* in Column 5 (the difference of the means = 6.011) and Column 6 (the difference of the means = 3.620) in Panel B reveal that expert auditors have longer firm tenure. In addition, *Listed*, *Growth*, and *Loss* are insignificant in Columns (4)~(6). *BigN*, as in panel A, is significant in the differences both between the means and between the medians of *Both* and *None*, as it is for *Firm Only* and *None*, and for *Auditor Only* and *None*. *Size* is significant in the differences both between the means and between the medians of *Both* and *None*, and of *Auditor Only* and *None*. Finally, the *EBEL* is significant in the difference between the means of *Both* and *None*, and in the difference between the medians of *Auditor* and *None*. As in panel A, *CADQR* is significant in the differences both between the means and between the medians of *Both* and *None*.

Regression Results

Table 4 provides univariate results and we provide multivariate regression results reported in Table 5. Consistent with the assumed role of industry expertise, the estimated coefficients on $Expert^{Both}$ are significant, and show the predicted signs in the analyses of $|AbnLLP|$ (-0.0026 , $p < 0.05$), $AbnLLP^+$ (-0.0028 , $p < 0.01$), and $AbnLLP^-$ (0.0037 , $p < 0.10$). However, none of the estimated coefficients of $Expert^{Firm-Only}$ or $Expert^{Auditor-Only}$ is significant. Therefore, in the non-rotation regime, a bank audited by an expert audit-firm, with an expert audit-partner actually performing the audit, is more likely to have better earnings quality.

[Insert Table 5]

Regarding the role of audit-partner tenure and audit-firm tenure, except for the estimated coefficients of FT and PT in the analysis of $AbnLLP^-$, none of the remaining estimated coefficients are significant. Hence, unlike Chen et al. (2008), we fail to find supporting evidence that auditor tenure, firm tenure, or partner tenure can enhance earnings quality in the banking industry. Finally, while Beatty (2002) finds that private banks have better earnings quality, our empirical results do not offer evidence to support the claim that listed banks and non-listed banks have different levels of earnings quality. Other insignificant results include $BigN$, $Size$, $Loss$, and $LagLLP$. There are nevertheless some variables that show a significant correlation to earnings quality. As can be seen in the estimated coefficients of $Growth$ in the analyses of $|AbnLLP|$ (0.0174, $p < 0.05$), $AbnLLP^+$ (0.0154, $p < 0.05$), and $AbnLLP^-$ (-0.0192, $p < 0.05$), banks with a high level of growth have poor earnings quality. Banks with a better operating performance ($EBEL$), on the other hand, have better earnings quality, as is shown by the significantly negative estimated coefficient of $EBEL$ (-0.2067, $p < 0.05$) in the analyses of $|AbnLLP|$ and $AbnLLP^+$ (-0.1798, $p < 0.01$). Finally, banks with a higher capital adequacy ratio tend to show greater provision for extreme abnormal loan losses, as is shown by the significantly positive estimated coefficient of $CADQR$ (0.0001, $p < 0.01$) when $|AbnLLP|$ is examined, although the coefficients are marginally insignificant for the subsamples $AbnLLP^+$ and $AbnLLP^-$.

Taken together, the above results suggest a particularly significant association between expertise (as measured by $Expert^{Both}$) and audit quality in the non-rotation-required regime. In the rotation-required regime, however, the role of the expert disappears: in Table 6 none of the estimated coefficients of $Expert^{Both}$, $Expert^{Firm-Only}$, and $Expert^{Auditor-Only}$ are significant. Therefore, although in Table 5 we find that banks in the non-rotation-required regime that are audited by expert audit-firms, with an expert audit-partner actually performing the audit, show better

earnings quality, this function disappears when audit-partner rotation is required. Thus, mandatory rotation problematizes the use of market share as a proxy for audit-partner expertise. That is, these findings reveal another, less direct, unintended consequence to mandatory partner rotation that complements the one detailed in Chi et al. (2009), i.e. that non-banking firms audited by newly rotated-in auditors have worse earnings quality than the same firms when audited by the rotated-out former auditors, presumably because of differences in client-specific experience between the new and former audit partners. Thus, both tenure (as shown by Chi et al. (2009)) and expertise (as shown by this paper) lose their explanatory power in a rotation-required regime. Our findings further suggest that the function of market share as a proxy for audit-partner expertise is weakened by rotation.

[Insert Table 6]

Further checks and caution

One caveat to these findings lies in the underlying economic conditions during the two different periods of time of the non-rotation-required and the rotation-required regimes. The period of the rotation-required regime includes the years 2008 and 2009, when the financial crisis hurt the performance of banks, most noticeably in the categories of losses (*LOSS* in this study), and earnings before extraordinary items and loan-loss provision (*EBEL*). To account for these effects, we rerun our calculations without these two years. Our untabulated results show that they are qualitatively consistent with the findings reported in Table 6.

6. CONCLUSION

This study finds that in a highly regulated industry such as banking, earnings quality is significantly associated with the market share-based proxy for industry expertise in a way that

suggests auditor industry expertise enhancing earnings quality in the *voluntary* audit partner rotation regime. Such a relation, however, disappears in the *mandatory* partner rotation regime. Our findings suggest that mandatory audit-partner rotation decouples the link between the market share-based proxy for audit partner industry expertise and that partner's industry expertise. This is because, without rotation, an audit partner's market share in an industry is determined by the free choice of the market—expert partners are more likely to attract clients than non-expert partners. Consequently, an audit partner's market share naturally reflects his industry expertise. Mandatory audit partner rotation, however, disrupts the free choice of the market and thus introduces noise into the market share-based proxy for industry expertise. Thus, our findings suggest that one of the unintentional consequences of mandatory partner rotation is the potential inability of an audit partner's market share in an industry to capture that partner's industry expertise because market share under mandatory partner rotation regime is influenced by the rotation rule. We therefore caution researchers in using audit partner market share as a proxy for industry expertise.

There are two caveats about these findings. First, our data, which makes the study possible in the first place, is from an environment with a relatively low level of litigation risk on the part of auditors, as well as less mature capital markets and regulatory regimes for the audited firms (i.e, banks). Second, we deem less extreme earnings as high quality earnings following Myers et al. (2003). In contrast, Kanagaretnam et al. (2010) deem smaller earnings as high quality earnings. We encourage future studies to use different data and alternative proxies for earnings quality to examine whether mandatory audit partner rotation introduce noise into the market share-based proxy for industry expertise.

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Appendix A: Variable Definitions

| Variables | Definition |
|---------------------------------------|---|
| <i>EarnQuality</i> | earnings quality, consists of the following four <i>LLP</i> -related measures: |
| <i>AbnLLP</i> | residuals of equation (1) |
| $ AbnLLP $ | absolute value of <i>AbnLLP</i> |
| <i>AbnLLP</i> ⁺ | positive value of <i>AbnLLP</i> |
| <i>AbnLLP</i> ⁻ | negative value of <i>AbnLLP</i> |
| <i>LLP</i> _{<i>t</i>} | provision for loan losses; |
| <i>LLA</i> _{<i>t-1</i>} | beginning loan loss allowance; |
| <i>NPL</i> _{<i>t-1</i>} | beginning nonperforming loans; |
| ΔNPL_t | change in nonperforming loans; |
| <i>LCO</i> _{<i>t</i>} | net loan charge-offs; |
| $\Delta Loan_t$ | change in total loans; |
| <i>Loans</i> | total loans outstanding; |
| <i>Expert</i> ^{Both} | 1 if both audit firm and at least one audit partner are leader in market share, and 0 otherwise |
| <i>Expert</i> ^{Firm-Only} | 1 if only audit firm is leader in market share while neither of the audit partners is leader, and 0 otherwise |
| <i>Expert</i> ^{Partner-Only} | 1 if at least one audit partner is leader in market share while the audit firm is not a leader, and 0 otherwise |
| <i>PT</i> | number of years the auditor tenure of the longer of the two audit partners has audited the company's financial statements |
| <i>FT</i> | number of years the audit-firm has audited the company's financial statements |
| <i>Listed</i> | 1 if the companies is a listed banks, and 0 otherwise |
| <i>BigN</i> | 1 if auditor is a Big N audit firm, and 0 otherwise |
| <i>Size</i> | Natural log of total size |
| <i>Growth</i> | percentage of net interest revenue growth |
| <i>Loss</i> | 1 if companies incurs loss, and 0 otherwise |
| <i>LagLLP</i> | prior period's loan loss provision |
| <i>EBEL</i> | earnings before extraordinary and loan loss provision |
| <i>CADQR</i> | capital adequacy ratio |

Table 1: Sample Selection

| <i>Panel A: Non-rotation required regime (2001-2003) research sample</i> | | | | |
|--|------|--------|------------|--------|
| | Year | Listed | Non-Listed | Totals |
| Original sample size | 2001 | 29 | 5 | 34 |
| | 2002 | 25 | 9 | 34 |
| | 2003 | 16 | 18 | 34 |
| <i>Original sample</i> | | 70 | 32 | 102 |
| Less: | | | | |
| audit-partner rotation * | | (4) | | (4) |
| missing variables | | (6) | (9) | (15) |
| <i>Research sample</i> | | 60 | 23 | 83 |
| <i>Panel B: Rotation required regime (2004-2009) research sample</i> | | | | |
| | Year | Listed | Non-Listed | Totals |
| Original sample size | 2004 | 16 | 18 | 34 |
| | 2005 | 16 | 19 | 35 |
| | 2006 | 16 | 19 | 35 |
| | 2007 | 12 | 19 | 31 |
| | 2008 | 11 | 21 | 32 |
| | 2009 | 11 | 21 | 32 |
| <i>Original sample</i> | | 82 | 117 | 199 |
| Less: | | | | |
| missing variables | | (7) | (15) | (22) |
| <i>Research sample</i> | | 75 | 102 | 177 |

* We classify 2003, a transition period of partner rotation, as a non-rotation-required regime because (1) as Panel A of Table 1 reports, only four signing audit-partners of companies are switched due to required rotation; and (2) if the observations of 2003 are deleted, there will be only two years' data in the pre-rotation regime.

Table 2: Distribution of Expertise in a Non-Rotation Required Regime

| <i>Panel A: Original sample</i> | | | | | | |
|--|---------|----------|-----------|--------------|---------|----------|
| | FAA | FA | F | AA | A | None |
| Number | 0 | 28 | 13 | 6 | 3 | 52 |
| | (0.00%) | (27.45%) | (12.75%) | (5.88%) | (2.94%) | (50.98%) |
| <i>Panel B: Research Sample</i> | | | | | | |
| | FAA | FA | F | AA | A | None |
| Number | 0 | 23 | 10 | 6 | 2 | 42 |
| | (0.00%) | (27.71%) | (12.05%) | (7.23%) | (2.41%) | (50.60%) |
| <i>Panel C: Listed banks in the research sample</i> | | | | | | |
| | FAA | FA | F | AA | A | None |
| Number | 0 | 16 | 7 | 6 | 0 | 31 |
| | (0.00%) | (26.67%) | (11.67%) | (10.00%) | (0.00%) | (51.67%) |
| <i>Panel D: Non-listed banks in the research sample</i> | | | | | | |
| | FAA | FA | F | AA | A | None |
| Number | 0 | 7 | 3 | 0 | 2 | 11 |
| | (0.00%) | (30.43%) | (13.04%) | (0.00%) | (8.70%) | (47.83%) |
| <i>Panel E: Simplified classification for Table 4, Panel A, suggested by above results</i> | | | | | | |
| | FAA | FA | F | AA | A | None |
| | NA | Both | Firm Only | Auditor Only | | None |

Note: Since there are three signatures in an audit report, one representing the audit-firm (F), and those of two audit-partners (A), there are six possible specifications of industry expertise: (a) all three are experts (FAA); (b) the audit firm is expert but only one of the audit partners is expert (FA); (c) the audit firm is expert while neither of the audit partners is expert (F); (d) both the audit partners are expert but their audit firm is not (AA); (e) only one of the audit partners is expert (A); and (f) none of them is expert (None). Panel E links Table 2 with Panel A of Table 4.

Table 3: Distribution of Expertise in a Rotation Required Regime

| <i>Panel A: Original sample</i> | | | | | | |
|--|--------------|----------------|----------------|--------------|---------------|----------------|
| | FAA | FA | F | AA | A | None |
| Number | 0 (0.00%) | 34 (17.09%) | 56 (28.14%) | 0 (0.00%) | 15 (7.54%) | 94 (47.24%) |
| <i>Panel B: Research Sample</i> | | | | | | |
| | FAA | FA | F | AA | A | None |
| Number | 0 (0.00%) | 29 (16.38%) | 46 (25.99%) | 0 (0.00%) | 14 (7.91%) | 88 (49.72%) |
| <i>Panel C: Listed banks in the research sample</i> | | | | | | |
| | FAA | FA | F | AA | A | None |
| Number | 0 (0.00%) | 14 (18.67%) | 23 (30.67%) | 0 (0.00%) | 4 (5.33%) | 34 (45.33%) |
| <i>Panel D: Non-listed banks in the research sample</i> | | | | | | |
| | FAA | FA | F | AA | A | None |
| Number | 0 (0.00%) | 15 (14.71%) | 23 (22.55%) | 0 (0.00%) | 10 (9.80%) | 54 (52.94%) |
| <i>Panel E: Simplified classification for Table 4, Panel A, suggested by above results</i> | | | | | | |
| | FAA | FA | F | AA | A | None |
| | NA | Both | Firm Only | Auditor Only | | None |

Note: Since there are three signatures in an audit report, one representing the audit-firm (F), and those of two audit-partners (A), there are six possible specifications of industry expertise: (a) all three are experts (FAA); (b) the audit firm is expert but only one of the audit partners is expert (FA); (c) the audit firm is expert while neither of the audit partners is expert (F); (d) both the audit partners are expert but their audit firm is not (AA); (e) only one of the audit partners is expert (A); and (f) none of them is expert (None). Panel E links Table 2 with Panel B of Table 4.

Table 4: Basic Statistics

| <i>Panel A: Non-rotation required regime</i> | | | | | | | | | | | | | | |
|--|--------|--------|-----------|--------|--------------|--------|--------|--------|-------------|----------|------------------|----------|---------------------|----------|
| Variables | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | | (7) | |
| | Both | | Firm Only | | Auditor Only | | None | | Both – None | | Firm Only – None | | Auditor Only – None | |
| | Mean | Median | Mean | Median | Mean | Median | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| <i> AbnLLP </i> | 0.003 | 0.002 | 0.004 | 0.004 | 0.005 | 0.004 | 0.006 | 0.004 | -0.003** | -0.002** | -0.002 | 0.000 | -0.001 | 0.000 |
| <i>AbnLLP</i> | 0.000 | 0.001 | 0.003 | 0.003 | -0.002 | -0.004 | -0.001 | -0.001 | 0.001 | 0.002 | 0.004 | 0.004* | -0.001 | -0.003 |
| <i>AbnLLP⁺</i> | 0.003 | 0.002 | 0.005 | 0.005 | 0.007 | 0.007 | 0.006 | 0.004 | -0.003* | -0.002* | -0.001 | 0.001 | 0.001 | 0.003 |
| <i>AbnLLP⁻</i> | -0.004 | -0.003 | -0.002 | -0.002 | -0.005 | -0.004 | -0.006 | -0.004 | 0.002 | 0.001 | 0.004 | 0.002 | 0.001 | 0.000 |
| <i>PT</i> | 7.826 | 7.000 | 7.600 | 8.500 | 5.375 | 4.000 | 7.429 | 5.000 | 0.397 | 2.000 | 0.171 | 3.500 | -2.054 | -1.000 |
| <i>FT</i> | 11.783 | 11.000 | 11.000 | 12.000 | 5.375 | 4.000 | 8.000 | 6.500 | 3.783** | 4.500*** | 3.000 | 5.500* | -2.625 | -2.500 |
| <i>Listed</i> | 0.696 | 1.000 | 0.700 | 1.000 | 0.750 | 1.000 | 0.738 | 1.000 | -0.042 | 0.000 | -0.038 | 0.000 | 0.012 | 0.000 |
| <i>BigN</i> | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.738 | 1.000 | 0.262*** | 0.000*** | 0.262*** | 0.000*** | 0.262*** | 0.000*** |
| <i>Size</i> | 19.670 | 19.202 | 19.211 | 19.145 | 20.073 | 20.078 | 19.326 | 19.155 | 0.344 | 0.047 | -0.115 | -0.010 | 0.747* | 0.923** |
| <i>Growth</i> | -0.102 | -0.050 | -0.001 | -0.028 | -0.112 | -0.098 | -0.119 | -0.130 | 0.017 | 0.080 | 0.118** | 0.102** | 0.007 | 0.032 |
| <i>Loss</i> | 0.217 | 0.000 | 0.200 | 0.000 | 0.375 | 0.000 | 0.405 | 0.000 | -0.188 | 0.000 | -0.205 | 0.000 | -0.030 | 0.000 |
| <i>EBEL</i> | 0.014 | 0.012 | 0.014 | 0.017 | 0.012 | 0.012 | 0.009 | 0.009 | 0.005* | 0.003** | 0.005* | 0.008* | 0.003 | 0.003 |
| <i>LagLLP</i> | 0.012 | 0.009 | 0.020 | 0.014 | 0.011 | 0.008 | 0.014 | 0.011 | -0.002 | -0.002 | 0.006 | 0.003* | -0.003 | -0.003 |
| <i>CADQR</i> | 13.920 | 11.010 | 9.896 | 9.600 | 9.476 | 9.435 | 9.830 | 10.310 | 4.09*** | 0.7000* | 0.066 | -0.710 | -0.354 | -0.875 |

| <i>Panel B: Rotation required regime</i> | | | | | | | | | | | | | | |
|--|--------|--------|-----------|--------|--------------|--------|--------|--------|-------------|----------|------------------|----------|---------------------|---------|
| Variables | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | | (7) | |
| | Both | | Firm Only | | Auditor Only | | None | | Both – None | | Firm Only – None | | Auditor Only – None | |
| | Mean | Median | Mean | Median | Mean | Median | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| <i> AbnLLP </i> | 0.002 | 0.002 | 0.003 | 0.001 | 0.003 | 0.002 | 0.002 | 0.001 | 0.000 | 0.001 | 0.001 | 0.000 | 0.001 | 0.001 |
| <i>AbnLLP</i> | -0.000 | -0.000 | 0.000 | -0.000 | 0.001 | -0.001 | -0.000 | -0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | -0.001 |
| <i>AbnLLP⁺</i> | 0.002 | 0.001 | 0.003 | 0.002 | 0.004 | 0.002 | 0.002 | 0.001 | 0.000 | 0.000 | 0.001 | 0.001 | 0.002 | 0.001 |
| <i>AbnLLP⁻</i> | -0.002 | -0.002 | -0.002 | -0.001 | -0.002 | -0.002 | -0.002 | -0.001 | 0.000 | -0.001 | 0.000 | 0.000 | 0.000 | -0.001 |
| <i>PT</i> | 5.034 | 4.000 | 3.239 | 3.000 | 4.429 | 4.000 | 4.432 | 3.000 | 0.602 | 1.000 | -1.193 | 0.000 | -0.003 | 1.000 |
| <i>FT</i> | 15.000 | 15.000 | 12.609 | 14.000 | 11.214 | 11.500 | 8.989 | 6.500 | 6.011*** | 8.500*** | 3.620*** | 7.500*** | 2.225 | 5.000* |
| <i>Listed</i> | 0.483 | 0.000 | 0.500 | 0.500 | 0.286 | 0.000 | 0.386 | 0.000 | 0.097 | 0.000 | 0.114 | 0.500 | -0.100 | 0.000 |
| <i>BigN</i> | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.909 | 1.000 | 0.091** | 0.000** | 0.091** | 0.000** | 0.091** | 0.000** |
| <i>Size</i> | 20.311 | 20.528 | 20.023 | 19.683 | 20.523 | 20.775 | 19.804 | 19.483 | 0.507** | 1.045** | 0.219 | 0.200 | 0.719** | 1.292** |
| <i>Growth</i> | 0.039 | 0.037 | -0.020 | 0.009 | 0.015 | 0.017 | 0.015 | 0.004 | 0.024 | 0.033 | -0.035 | 0.005 | 0.000 | 0.013 |
| <i>Loss</i> | 0.241 | 0.000 | 0.370 | 0.000 | 0.357 | 0.000 | 0.352 | 0.000 | -0.111 | 0.000 | 0.018 | 0.000 | 0.005 | 0.000 |
| <i>EBEL</i> | 0.011 | 0.008 | 0.008 | 0.008 | 0.003 | 0.004 | 0.006 | 0.006 | 0.005** | 0.002 | 0.002 | 0.002 | -0.003 | -0.002* |
| <i>LagLLP</i> | 0.006 | 0.005 | 0.012 | 0.007 | 0.008 | 0.006 | 0.008 | 0.005 | -0.002 | 0.000 | 0.004** | 0.002* | 0.000 | 0.001 |
| <i>CADQR</i> | 12.913 | 11.030 | 11.454 | 10.355 | 10.626 | 10.440 | 10.602 | 10.805 | 2.311** | 0.225* | 0.852 | -0.450 | 0.024 | -0.365 |

Note: The upper ***, **, and * in columns (4), (5), and (6) of Panel A, and those in Columns (5), (6), and (7) of Panel B denote the differences are significant at 1%, 5%, and 10% level, using a two-tailed t-test. Variable definitions refer to Appendix A.

Table 5: Regression Results in the Non-Rotation Required Regime

| Variables | $ AbnLLP $ | | $AbnLLP^+$ | | $AbnLLP^-$ | |
|--------------------------------------|------------|---------|------------|---------|------------|---------|
| | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| <i>Intercept</i> | 0.0062 | 0.364 | 0.0153 | 0.193 | 0.0054 | 0.813 |
| <i>Expert^{Both}</i> | -0.0026** | 0.016 | -0.0028*** | 0.000 | 0.0037* | 0.087 |
| <i>Expert^{Firm-Only}</i> | -0.0024 | 0.142 | -0.0015 | 0.235 | 0.0049 | 0.115 |
| <i>Expert^{Auditor-Only}</i> | 0.0010 | 0.541 | -0.0011 | 0.539 | -0.0003 | 0.910 |
| <i>PT</i> | -0.0001 | 0.308 | -0.0001 | 0.781 | 0.0002*** | 0.006 |
| <i>FT</i> | 0.0002 | 0.164 | 0.0001 | 0.516 | -0.0004* | 0.075 |
| <i>Listed</i> | 0.0000 | 0.973 | 0.0004 | 0.889 | 0.0003 | 0.840 |
| <i>BigN</i> | -0.0023 | 0.173 | -0.0024 | 0.137 | 0.0010 | 0.572 |
| <i>Size</i> | 0.0001 | 0.820 | -0.0003 | 0.683 | -0.0006 | 0.537 |
| <i>Growth</i> | 0.0174** | 0.028 | 0.0154** | 0.033 | -0.0192** | 0.025 |
| <i>Loss</i> | 0.0008 | 0.294 | 0.0036 | 0.240 | 0.0011 | 0.342 |
| <i>EBEL</i> | -0.2067** | 0.014 | -0.1798*** | 0.002 | 0.2495 | 0.265 |
| <i>LagLLP</i> | 0.0651 | 0.209 | 0.0643 | 0.495 | -0.0843 | 0.516 |
| <i>CADQR</i> | 0.0001*** | 0.001 | 0.0001 | 0.705 | -0.0003 | 0.228 |
| Adj. R ² | 0.3438 | | 0.4328 | | 0.1924 | |
| F-statistics | 3.1194*** | 0.001 | 4.2143*** | 0.001 | 1.3228 | 0.258 |
| Number of Obs. | 83 | | 41 | | 42 | |

Note: The upper ***, **, and * in columns denote the differences are significant at 1%, 5%, and 10% level, using a two-tailed t-test. Variable definitions refer to Appendix A.

Table 6: Regression Results in the Rotation Required Regime

| Variables | <i> AbnLLP </i> | | <i>AbnLLP⁺</i> | | <i>AbnLLP⁻</i> | |
|--------------------------------------|-----------------|---------|---------------------------|---------|---------------------------|---------|
| | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| <i>Intercept</i> | -0.0014 | 0.471 | 0.0060 | 0.197 | 0.0020 | 0.631 |
| <i>Expert^{Both}</i> | 0.0001 | 0.910 | 0.0015 | 0.162 | -0.0001 | 0.869 |
| <i>Expert^{Firm-Only}</i> | 0.0007 | 0.368 | 0.0018 | 0.105 | -0.0004 | 0.423 |
| <i>Expert^{Auditor-Only}</i> | 0.0012 | 0.318 | 0.0034 | 0.377 | -0.0004 | 0.367 |
| <i>PT</i> | 0.0000*** | 0.002 | -0.0001** | 0.021 | -0.0001*** | 0.000 |
| <i>FT</i> | 0.0000 | 0.526 | -0.0001** | 0.039 | 0.0000 | 0.598 |
| <i>Listed</i> | 0.0002 | 0.780 | -0.0012 | 0.334 | -0.0012*** | 0.001 |
| <i>BigN</i> | -0.0001 | 0.959 | 0.0001 | 0.935 | -0.0001 | 0.872 |
| <i>Size</i> | 0.0001 | 0.374 | -0.0003 | 0.385 | -0.0001 | 0.690 |
| <i>Growth</i> | 0.0002 | 0.815 | -0.0011** | 0.018 | -0.0006 | 0.742 |
| <i>Loss</i> | 0.0023* | 0.049 | 0.0043*** | 0.003 | -0.0008 | 0.371 |
| <i>EBEL</i> | 0.0653** | 0.014 | 0.0973*** | 0.008 | -0.0366** | 0.016 |
| <i>LagLLP</i> | 0.0025 | 0.930 | -0.0769 | 0.264 | -0.0468 | 0.136 |
| <i>CADQR</i> | 0.0000 | 0.347 | 0.0001 | 0.529 | 0.0000 | 0.854 |
| Adj. R ² | 0.1482 | | 0.2488 | | 0.1312 | |
| F-statistics | 1.7076** | 0.043 | 2.5456*** | 0.004 | 3.0751*** | 0.000 |
| Number of Obs. | 177 | | 78 | | 99 | |

Note: The upper ***, **, and * in columns denote the differences are significant at 1%, 5%, and 10% level, using a two-tailed t-test. Variable definitions refer to Appendix A