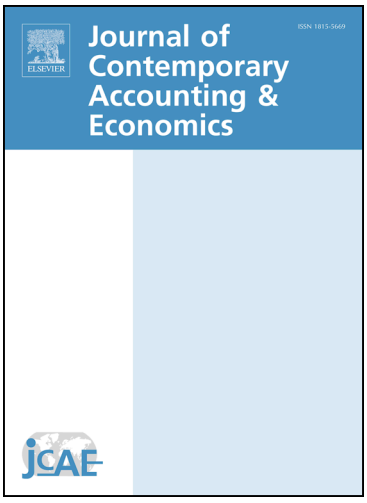

Determinants and market valuation of the decision to audit or review: Evidence from Taiwan

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Determinants and market valuation of the decision to audit or review: Evidence from Taiwan

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Abstract

Using observations of public companies in Taiwan between 2008 and 2012, this study examines the determinants of demand for different assurance services from the perspectives of agency cost, information need, and quality of corporate governance. Our results indicate that the demand for audit assurance is higher in the presence of higher agency costs between controlling and non-controlling shareholders and higher agency costs of debts. We also find that companies with stronger capital need are more likely to have their interim financial statements audited. The quality of corporate governance is found to have a positive effect on the decision to choose audit assurance. Finally, our empirical results demonstrate audited information is more value relevant than reviewed information. This suggests that firms can potentially enjoy benefits from audited information as the market will rely more on their financial information in making investment-related decisions.

Keywords: Motivation, Audit, Review, Interim Reports

JEL Code(s): M4

I. Introduction

Among the services provided by independent certified public accountants, audit and review are two ways to provide assurance regarding the quality of a company's financial information. In an audit engagement, auditors aim to provide positive assurance that no material misstatement has been detected based on the performed auditing procedures. In a review engagement, auditors do not render their opinions and express only limited assurance. Both substantive tests and analytical procedures are required in an audit engagement to provide positive assurance. In contrast, substantive tests are normally skipped, and only inquiries and analytical procedures are generally performed in a review engagement. As the audit procedures involved in a review engagement are less complex and extensive than those in an audit engagement, the cost of a review engagement is typically lower.

To enhance the transparency of corporations' financial reporting, listed companies having subsidiaries in Taiwan were required to disclose their consolidated semiannual reports along with their parent companies' standalone financial reports starting in 2005.[1] Prior to 2013, the consolidated semiannual financial statements needed to be either audited or reviewed. Although the cost of a review engagement is typically lower than the cost of an audit, not every company chose to review their consolidated semiannual reports before 2013. This observation raises two interesting research questions: 1) What motivates a company to choose an audit engagement when a review engagement is acceptable? 2) Can the market detect the difference between audited and reviewed information?

Most extant research focuses on topics related to audit engagement, and many of these studies examine the demand for audit assurance among private firms (e.g., Blackwell et al.,

[1] Listed companies without any subsidiaries were required to report their individual financial reports and were subject to the audit requirement before 2013.

1998; Collis et al., 2004; Collis, 2012; Dedman et al., 2014; Kim et al., 2011). The frequent use of private-firm sample is in part because external audits are required for publicly traded firms in recognized capital markets. Researchers are able to assess *quality of audit* across different auditors, but they cannot examine the *demand for audit per se* (i.e., voluntary auditing) among public firms. In contrast to public firms, private firms control the decision to audit or review their financial reports, and thus researchers are able to examine the demand for voluntary auditing using private-firm samples. Clearly, in the presence of mandatory public reporting requirements, public firms tend to make decisions in a different way from private firms. The different ownership structures, agency issues, and other characteristics also differentiate the decision-making process between the two groups of firms. While public firms dominate the major capital market and proper regulations are expected to be in place, the understanding of the decision-making process of public firms is particularly important for the regulators.

Different from prior studies on the demand for voluntary auditing, the institutional setting in Taiwan prior to 2013 provides us a basis to examine public companies' preferences between audit and review assurance. In particular, the different agency problems and the less-developed corporate governance mechanism in emerging markets may affect the motivations of public firms differently. More importantly, the institutional setting in Taiwan allows us to examine the market perception toward different assurance levels with a sample consisting of public firms. The value of different assurance services stems from users' ability to recognize the difference in the degrees of audit effort and cost. When users respond to various assurance levels in a similar way, the presence of different assurance services becomes irrelevant and companies lose their motivation for higher assurance. The legal liability of auditors can also be affected when users rely on the

assurance conveyed by auditor reports yet fail to recognize the differences in assurance levels. Previously, the user perception toward different assurance levels implied by audit work/reports has mainly been tested through experimental settings. However, the results are mixed and sensitive to the subjects and contexts involved in the experiments (e.g., Pany and Smith, 1982; Johnson et al., 1983; Gay et al., 1998). The market-based approach enables us to examine whether the average market participants are able to identify the dissimilar audit efforts inherent in audit and review engagements, and whether these market participants can value these efforts appropriately.

Based on public companies' audit or review decisions between 2008 and 2012 in Taiwan, we examine the factors affecting companies' decision to choose audit or review assurance for their interim financial statements. We consider the impacts of agency cost, information need, and quality of corporate governance on such decisions. Our empirical results regarding determinants of audit decision are as follows. First, we find that agency cost between controlling and non-controlling shareholders (Type II agency cost) and agency cost of debt both have positive effects on a company's decision to choose audit assurance. Meanwhile, the agency cost between shareholders and managers does not have a significant impact on the demand for audit assurance. Second, we find that audit assurance is preferred when firms issue new shares or new debts. This is consistent with our hypothesis that companies tend to choose an audit to enhance the credibility of their information when they have higher information need. Third, we find that the quality of corporate governance, as measured by the ratio of independent directors and number of financial experts among the directors, is also positively related to the decision to choose an audit.

In addition to the determinants of the demand for different assurance services, we test the difference in value relevance between audited and reviewed information in the final

hypothesis. Previous empirical evidence regarding whether information users can detect the difference between audited and reviewed information is fairly scarce because it is difficult to find an institutional environment that allows different assurance levels for mandatory public reporting. Griffin (2003), for instance, analyzes the differences in market reaction between reviewed 10-Q reports and audited 10-K reports. He finds that the market responds stronger around a 10-K report date than a 10-Q date, suggesting that the market tends to give higher weights in valuing audited than reviewed information. However, it is also likely that the market responds differently due to inherent differences between quarterly reports and annual reports. The audit-or-review option for semiannual reports in Taiwan allows us to further investigate if the market can distinguish the differences in assurance level between audited and reviewed information given the same type of interim reports. The empirical results support the hypothesis that audited information is more value relevant than reviewed information. This suggests that the capital market is able to distinguish the differences in assurance level between audited and reviewed financial information.

This study adds to prior literature in several ways. First, the emphasis on determining the motives for choosing between audit and review assurance complements existing studies regarding auditor choices (better vs. inferior audit quality) and voluntary auditing (audits vs. no-audits). We provide evidence that, with the opportunity to choose between audit and review, public companies make decisions based on factors such as agency cost, information need, and quality of corporate governance. Among the factors examined, the Type II agency problem has seldom been addressed in previous literature on audit demand; yet, we find that Type II agency cost plays a significant role in inducing the demand for higher assurance in an emerging market such as Taiwan. These results not only fill the gap in the existing literature but also provide a better understanding of the motivation behind public firms

choosing different assurance services.

Moreover, this study contributes to previous literature by addressing user perception toward different assurance levels based on value relevance of audited and reviewed information. This issue is critical, as the ability for users to differentiate between varying assurance levels justifies the value for higher assurance and hence the value of audit effort. Prior studies often rely on the experimental setting to study user perception. Compared to results from experimental studies, results from empirical studies have a higher degree of external validity. However, in the absence of an institutional environment that allows different assurance services for mandatory financial reporting, existing empirical evidence regarding user perception toward different assurance levels is limited and indirect. This study directly examines the market perception toward various assurance levels during a period when both audits and reviews were allowed for mandatory semiannual reporting. The finding that assurance level matters to the market participants in Taiwan further clarifies the mixed results from prior experimental research.

Third, compared to prior private-firm based studies, the findings from public firms provide regulators with policy implications regarding mandatory financial reporting requirements. The results indicate that market participants in Taiwan are able to distinguish the difference in assurance level between audited and reviewed information. Additionally, the demand for assurance level varies based on an individual company's characteristics. The implication of these results is that companies may have the opportunity to signal their financial reporting quality to the capital market when they are granted the flexibility of choosing an audit or a review. Public firms will also benefit from the increase in the value relevance of their accounting information when they choose a higher assurance level. This kind of reporting flexibility may also be considered by other jurisdictions where mandatory

reporting requirements are imposed on public firms.[2]

In addition to contributing to prior literature, our results provide accounting firms with new insights into their clients' demand for different assurance services. For instance, in recent decades, corporate voluntary disclosure (e.g., corporate social responsibility reporting) has become a popular way for firms to disseminate relevant information beyond external reporting requirements to outside users. The quality of voluntary disclosures has received increasing attention, as information users rely more heavily on information companies disclose. To assure the quality of these disclosures, accounting firms can design and provide proper assurance services based on their client firms' characteristics. Listed companies can also evaluate the costs and benefits related to different assurance services.

The remainder of the paper is organized as follows. Section II describes the institutional background of this research, reviews previous literature, and develops the hypotheses. Section III presents the research design and Section IV describes the data. Section V discusses the empirical results. Section VI concludes the study.

II. Background, Literature Review, and Hypothesis Development

2.1 Background

In recent years, after several U.S. accounting scandals were uncovered in the early 2000s, the matter of how to enhance the timeliness and quality of financial information has become a global issue. Taiwan is not insulated from this trend. To improve the transparency

[2] For instance, auditing of internal control over financial reporting is mandatory for U.S. public firms. Although the benefits of such auditing are remarkable, the requirement has been criticized due to the increasing cost of performing audits.

of financial reporting, the semiannual reporting requirements for listed companies in Taiwan have undergone several important changes in recent years. Under the Securities Exchange Act of Taiwan, listed companies must file their audited semiannual financial reports within two months following the end of a fiscal semi-year since 1988. The semiannual report filing requirement only applied to individual companies' standalone financial statements because consolidated financial statements were not required at that time. Starting in 2005, listed companies having subsidiaries needed to file consolidated semiannual financial reports in addition to their own standalone reports. The Financial Supervisory Commission (i.e., the Securities and Exchange Commission in Taiwan) further stipulated that a *review* on the consolidated semiannual reports was *allowed*, whereas the parent's standalone semiannual reports remained subject to the audit requirement by the Securities Exchange Act.[3]

The filing requirement of semiannual reports was revised when the IFRS were officially adopted in 2013. To prepare for the adoption of IFRS, the Securities Exchange Act was revised in 2012, and a quarterly reporting system was introduced. Under the revised act, beginning from 2013, listed companies must file their *reviewed* consolidated quarterly financial statements within 45 days following the end of each fiscal quarter.[4] The second quarter reporting requirements thereby replaced the previous semiannual reporting requirements. The newly revised act also exempts a parent company from issuing and auditing its standalone interim reports. Only reviewed consolidated interim reports are required after the 2012 revision of the act.

Before 2013, listed companies often chose to audit their consolidated semiannual reports,

[3] Listed companies without any subsidiaries must file *audited* semiannual reports per the requirement of the Securities Exchange Act.

[4] See the new rule at http://www.3people.com.tw/Government/News/knowpower/incometaxlaw1001111.aspx (in Chinese).

although a review was a permissible option. This filing practice was significantly affected by the 2012 revision of the Securities Exchange Act. After the revised filing requirements on the consolidated interim reports became effective, it became rare to observe listed companies choosing to audit their second quarter consolidated reports.[5] This observation may be attributable to the following factors. First, the newly revised act *explicitly* states that a review is *required* for the consolidated interim reports. The change in regulation is noticeable because there were no major revisions before 2012. Second, there is no need to audit the parent company's standalone financial reports after 2013. The higher incremental cost of an audit could hinder the willingness of listed firms to audit the consolidated interim reports.[6] Moreover, the cost to audit *all* three quarterly reports is significantly higher than the cost to review those reports. It may also appear questionable if a firm only chooses to audit its second quarter reports and review the rest. Third, the filing deadline has been shortened to 45 days from the previous two months. Given that the review process is less rigorous and can be completed more quickly, firms may prefer reviews over audits to meet the new filing deadline. Apart from the above factors, the decision to review can be made simply by referring to other companies' decisions (i.e., herd behavior).

2.2 Literature Review and Hypothesis Development

Previous studies have extensively addressed auditor choice and its determinants.[7] In contrast, studies seldom address why companies choose audit engagement in the first place.

[5] Based on data from TEJ, only one listed firm chose to audit their second quarter consolidated reports in 2013.

[6] Before the 2012 revision, a parent company needed to audit and file its standalone semiannual reports. Given that the parent's individual reports needed to be audited regardless, the incremental cost to audit the consolidated semiannual reports may not be much greater than the cost to review. After the revision, no audit is required for the parent's standalone reports, and the incremental cost to audit the consolidated reports is as expensive as other ordinary audit engagements. Hence, firms may be less willing to audit after 2013.

[7] A review of this stream of study can be found in Defond and Zhang (2014).

As indicated by Kim et al. (2011), to assess the value of an external audit per se, a similar no-audit case needs to be observed for comparison. Given that audited financial statements are mandatory for publicly traded firms in major capital markets, it is difficult to find no-audit cases empirically. Consequently, results from previous archival studies on voluntary auditing are limited and often based on a sample of non-public firms. For instance, Blackwell et al. (1998) use a small sample of private firms to address the economic value of voluntary auditing in loan decisions. They find that audited financial statements are associated with a decrease in basis points of interest rate. A similar finding is documented by Kim et al. (2011) who find that companies with voluntary audits benefit from paying lower interest rates on their debts. In particular, they find that the interest rate is significantly lower for Big 4 audited companies.

Lennox and Pittman (2011) examine the change in credit ratings when larger private companies in the U.K. are permitted to opt out of an audit. They find that companies enjoy the benefit of an upgraded credit rating when they continue to be audited. Companies that withdraw from an audit experienced a downgrade in their ratings. Their finding suggests that voluntarily choosing an audit serves as a positive signal to lenders. Collis et al. (2004) find that size criteria in company legislation, agency cost, and perception of the value of an audit all affect the demand for voluntary audits based on survey data on private firms in the U.K. Collis (2012) further extends Collis et al. (2004) and examines the difference of the demand for voluntary audit between micro and non-micro firms in the U.K.

Later studies, such as Clatworthy and Peel (2013) and Dedman et al. (2014), also examine voluntary audits based on private firms in the U.K. in their studies; yet, the sample sizes in both studies are larger than in prior studies. More specifically, Clatworthy and Peel (2013) examine the effect of voluntary audits on accounting errors. They find that audited

accounts are less likely to contain errors as compared to un-audited accounts. On the other hand, Dedman et al. (2014) focus on the determinants of voluntary audits. Compared to similar prior studies, they examine a more comprehensive set of explanatory variables and document that agency costs, company risk, capital need, demand for non-audit service, and prior demand for assurance are positively correlated with the purchase of voluntary audits.

Different from the above studies on voluntary auditing that use private firms as a sample, Haw et al. (2008) use public firms in China between 1996 and 1999 to examine the determinants and economic consequences for voluntary auditing.[8] They find voluntary auditing is associated with firm size, profitability, and percentage of tradable shares. They also find that the earnings response coefficient is higher for audited firms than for unaudited firms, which supports the viewpoint that audits enhance the credibility of financial information.

Our first research question relates to motives for firms to choose audit assurance when review assurance is a permissible option. Different from previous voluntary auditing research that focuses on "audit versus no-audit" decisions (Collis et al., 2004; Collis, 2012; Dedman et al., 2014; Haw et al., 2008; Kim et al., 2011), our focus is on "audit versus review" decisions. This difference between our study and prior studies is significant. When audit cases are compared to no-audit cases, financial information with audit reports are compared to those with no audit report. In that case, the market will only be able to compare information with audit assurance to information without any assurance. In our analysis of audit versus review, the market will be able to assess the assurance level from both audited

[8] Haw et al. (2008) use public firms as their sample in examining the determinants of voluntary auditing. Our paper differs from their work in several ways. First, we consider other determinants, such as agency cost, information need, and corporate governance quality. Second, we focus on factors that drive the decision of an audit or a review. Haw et al. (2008) focus on the demand for audit per se. Finally, our institutional setting is different from theirs.

and reviewed information, and it can react to different types of assurance accordingly. Moreover, the audit or review decision we examine in this study is subject to the regulatory requirement that one of the services must be chosen. This is also different from the "free to choose" setting in prior studies on voluntary auditing.

In light of previous literature on voluntary auditing, we consider agency costs, information need, and the quality of corporate governance as the factors affecting a company's decision in choosing audit or review assurance. Our first hypothesis tests whether agency costs affect a company's decision to audit or review its financial information. Agency theory hypothesizes that the demand for audit arises from the attempt to reduce the agency cost (Jensen and Meckling, 1978; Watts and Zimmerman, 1983). Due to information asymmetry, there exist conflicts of interest between managers and various stakeholders. By having a third party to verify the financial information, it is believed that managers will be motivated to make decisions that are more aligned with stakeholders' interests, which reduces agency cost. Prior studies have documented that firms tend to hire auditors that provide higher audit quality in the presence of high agency costs (DeAngelo, 1981; Palmrose, 1984). Based on this stream of literature, we hypothesize that agency cost has a similar positive effect on the demand for higher assurance level. Specifically, given the audit or review option, we hypothesize that firms tend to choose audit assurance rather than review assurance in the presence of higher agency costs.

In addition to agency costs between managers and shareholders and agency costs of debt, we further consider the agency costs between controlling and non-controlling shareholders (Type II agency problem) in this study. Prior studies have documented that a Type II agency problem is often observed in emerging markets (Fan and Wong, 2002 and 2005). A few studies from Taiwan examine the effect of Type II agency cost on financial

risk and information quality. For instance, Yeh and Lee (2004) indicate that Taiwanese listed firms are characterized by a high degree of ownership concentration. They find that deviation in control away from the cash flow rights is positively related to the risk for financial distress in the following year.[9] Young et al. (2008) document that firms with greater divergence between controlling shareholders' control rights and ownership rights are more likely to have their financial statements restated. We also test the effects of the agency cost between controlling and non-controlling shareholders on the demand for audit assurance. We state our first set of hypotheses as follows.

H1A: When the agency cost between shareholders and managers is high, companies are more likely to choose audit assurance than review assurance.

H1B: When the agency cost between creditors and managers is high, companies are more likely to choose audit assurance than review assurance.

H1C: When the agency cost between controlling and non-controlling shareholders is high, companies are more likely to choose audit assurance than review assurance.

The information hypothesis indicates that external users need financial information from companies for their decision-making. Information becomes more credible after a high-quality audit, and this allows external users to make a more precise estimate of firm value. Previous studies have tested the information hypothesis in different settings. For instance, Titman and Trueman (1986) develop a model that shows companies signal their more favorable information through the hiring of high-quality auditors. Blavers et al. (1988) develop a model to address the auditor choice by investment bankers. One of their empirical

[9] Deviation rate of control rights to cash flow rights is used to measure the degree of conflict between controlling and non-controlling interests by previous studies (Fan and Wong, 2005; Lei et al., 2013). We also use this proxy to measure the agency cost between controlling and non-controlling interest in this study. See Section III for related discussion.

findings shows that a higher quality auditor reduces underpricing in an initial public offering (IPO). Similar results have been found by Beatty (1989) and Hogan (1997) that IPO firms hire more reputable auditors to minimize underpricing. Wallace (2002), on the other hand, examines the effect of auditor choice on cost of capital. He finds that larger audit firms are associated with lower interest rates. In sum, the above literature indicates that a high-quality audit is used as a tool for companies to convey their favorable private information to different stakeholders. This often happens when a company is in need of capital. Accordingly, we hypothesize that companies with stronger capital needs tend to have greater demand for a higher assurance level. We state our second hypothesis as follows.

H2: Companies with capital needs are more likely to choose audit assurance than review assurance.

Another factor that affects the demand for high audit quality is corporate governance. Previous literature generally uses the quality of the audit committee or the quality of the board of directors to measure the quality of corporate governance. For instance, Abbott and Parker (2000) examine the association between audit committee characteristics and auditor choice decision. Using industry specialist as an indicator for high audit quality, they find that an audit committee that is more independent and active tends to hire an industry specialist auditor. Beasley and Petroni (2001) find that the ratio of external directors is positively associated with the decision to hire industry specialist auditors. Abbott et al. (2003) find that the quality of the audit committee has a positive effect on audit fees. They argue that audit firms possess a stronger bargaining power when the audit committee is effective as they faced less of a threat of dismissal. A similar conclusion has been provided by Carcello and Neal (2000) who document that a high quality audit committee is more

effective in shielding auditors from dismissal after they issue a going concern opinion for firms experiencing financial difficulty. Later studies, such as Chen and Zhou (2007) and Cassell et al. (2012), also provide evidence on the effects of the quality of the board of directors and the audit committee on companies' auditor hiring/switch decisions. In light of this stream of literature, we hypothesize that the quality of corporate governance has a positive effect on the demand for higher assurance level. Thereby, companies with better corporate governance tend to audit their interim reports.

H3: Companies with better corporate governance are more likely to choose audit assurance than review assurance.

Our second research question relates to the difference in market valuation between audited and reviewed financial information. The objective of an audit engagement is to provide a positive assurance level regarding the fairness of financial information that a company provides. In a review engagement, auditors do not express such an opinion. Although the difference in assurance level is obvious by the wording of the auditor's report, empirical evidence regarding whether information users can detect the difference is fairly scarce because it is difficult to find an institutional environment that allows different assurance levels for mandatory public reporting. Griffin (2003), for instance, analyzes the differences in market reaction between quarterly and annual reports. He finds that the absolute value of excess returns is greater around a 10-K report date than a 10-Q report date. Given that audits were performed on 10-K reports and interim reviews were performed on 10-Q reports during the sample period, Griffin (2003) indirectly addresses the market reaction toward audited and reviewed information. However, the audited and reviewed reports examined by Griffin (2003) did not cover the same reporting period. Accordingly, it is likely that the market responded differently to the different information contents carried

by quarterly and annual reports instead of to the different assurance levels. To our knowledge, no empirical study has compared audit assurance with review assurance based on the same type of mandatory reports.

To understand user perception toward various assurance levels, prior studies rely on experimental settings to test whether subjects react differently to audited and reviewed reports. Nevertheless, results from experimental studies are sensitive to the questionnaire employed and subjects involved. As a result, inconsistent results are observed among prior experimental studies. For instance, Pany and Smith (1982) and Johnson et al. (1983) document that users do not differentiate between varying forms of assurance. Yet, Gay et al. (1998) find that the perceived assurance level for a review report is lower than an audit report. Compared to experimental studies, results based on the empirical setting have a higher degree of external validity. By using public firms as a sample, we can test the reaction from the average market participants and thus avoid the bias that may be caused by using varying subjects and contexts.

Although the market valuation toward different assurance levels has not been documented extensively in prior studies, evidence that the market perceives and reacts to the change in audit quality has been well established empirically. For instance, it has been documented that the market reacts negatively to the impairment of auditor reputation. Firth (1990) documents a small but significant adverse return for audit clients following the receipt of criticism of auditors from the Department of Trade Inspections in the U.K. Chaney and Philipch (2002) and Krishnamurthy et al. (2006) examine the impact of the Anderson scandal on market returns for its audit clients. Both studies document a negative market reaction for Anderson's clients surrounding the audit failure dates. Findings from the above studies suggest that the market is able to tell the change in audit quality and responds

correspondingly. In contrast, it has been documented that the market reacts positively to the increase in auditor reputation. For example, Teoh and Wong (1993) find that earnings response coefficients on Big Eight clients are significantly higher than their counterparts. Knechel et al. (2007) document that the market reacts positively when companies switch to auditors who are industry specialists. Both Teoh and Wong (1993) and Knechel et al. (2007) provide evidence that the perceived audit quality affects the market valuation. More recently, Aobdia et al. (2015) examine the market reaction to the quality of engagement partners. Using data from Taiwan, they find that the audit partner's quality is positively associated with the client firms' earnings response coefficients. They also find that the market reacts positively when a lower-quality partner is replaced by a higher-quality partner. Their results suggest that investors in Taiwan do value the quality of audit partners.

In light of the above literature, we expect to observe differences in market valuation if the market participants are able to distinguish the difference in assurance level between audited and reviewed information. We then hypothesize that financial information will be more value relevant when it is audited than when it is reviewed. We state our fourth hypothesis as follows.

H4: The value relevance of audited financial information is higher than reviewed financial information.

III. Research Model

We perform a logistic analysis to test the association between company attributes and audit or review decision for interim consolidated financial statements. Equation (1) shows our empirical model.

$$AUDIT_{it} = \beta_0 + \beta_1 MSHARE_{it} + \beta_2 LEV_{it} + \beta_3 DEV_{it} + \beta_4 ISSUE_{it} + \beta_5 INDBR_{it}$$

$$+\beta_6 FAEXP_{it}+\beta_7 LNTA_{it}+\beta_8 LNSUB_{it}+\beta_9 ROA_{it}+\beta_{10} GROWTH_{it}+\beta_{11} CFO_{it}$$

$$+\beta_{12} ARINV+\beta_{13} AGE_{it}+\beta_{14} BIG4+\beta_{15} YEAR08_{it}+\beta_{16} YEAR09_{it}+\beta_{17} YEAR10_{it}$$

$$+\beta_{18} YEAR11_{it}+\sum_{j=1}^{26}\beta_{18+j} IND_j+\varepsilon_{it}$$

(1),

where for company *i* in year *t*:

AUDIT = one if financial statements are audited and zero if they are reviewed;

MSHARE = the percentage of shares owned by professional managers;

LEV = total liabilities divided by total assets;

DEV = the ratio of the control right to cash-flow right;

ISSUE = one when the growth rate of common stock, preferred stock ,or total debt is more than 10% and zero otherwise;

INDBR = the ratio of independent directors in the beginning of the year;

FAEXP = the ratio of directors who have financial accounting background in the beginning of the year;

LNTA = the logarithm of ending total assets;

LNSUB = the logarithm of number of subsidiaries;

ROA = net income divided by ending total assets;

GROWTH = sales in period *t* minus sales in period *t-1* divided by sales in period *t-1*;

CFO = cash flows from operating activities divided by ending total

assets;

ARINV = total accounts receivable and inventory divided by ending total assets;

AGE = age in years since the firm was founded;

BIG4 = one if auditors are from any of Big Four accounting firms and zero otherwise;

YEAR08 = one if year *t* is 2008 and zero otherwise;

YEAR09 = one if year *t* is 2009 and zero otherwise;

YEAR10 = one if year *t* is 2010 and zero otherwise;

YEAR11 = one if year *t* is 2011 and zero otherwise; and

IND = industry dummy variables.

The dependent variable *AUDIT* is a dummy variable that equals 1 when a company chose to audit its interim consolidated financial statements and it equals 0 when a review is selected. To test the agency hypothesis, we use the percentage of shares owned by professional managers (*MSHARE*) to measure the agency cost between shareholders and managers (Chow, 1982; Jensen and Meckling, 1976).[10] The higher the percentage of shares owned by managers, the lower the agency cost and the less likely managers will be motivated to choose an audit. We use the leverage ratio (*LEV*) to measure the agency cost between creditors and managers (Chow, 1982). The deviation of control rights over cash

[10] A professional manager is commonly known as one possessing specialized skills, experience, or knowledge who is dedicated to a set-apart managerial responsibility within an organization. Based on the Taiwan Economic Journal (TEJ) database, a professional manager is defined as a manager hired by a company or by an affiliated group. In Taiwan, many firms are family owned, and it is common to observe that top managers are relatives of the directors. CEO duality (i.e., when a CEO also holds the position of a director) is also a common phenomenon in Taiwan. The term "professional manager" is used to include managers who are hired due to their expertise and not due to their relationship with the directors.

flow rights (*DEV*), is included to measure the agency cost between controlling and non-controlling shareholders (Fan and Wong, 2005; Lei et al., 2013). We expect that both *LEV* and *DEV* will be positively associated with the decision to audit.

We include the new share/debt issuance (*ISSUE*) to test the information hypothesis. Previous studies document that companies use the audit assurance as a positive signal of financial reporting quality to reduce the underpricing risk ((Beatty, 1989; Hogan, 1997) and the cost of capital (Wallace, 2002). Accordingly, we expect that companies tend to have their financial statements audited in a year when they issue new shares or raise new debts. The ratio of independent directors (*INDBR*) and the number of financial experts among the directors (*FAEXP*) are included to test the effect of corporate governance on the demand for an audit.[11] A positive association between the two measures of the quality of corporate governance and the decision to audit is expected.

Other than the above testing variables, we include company size (*LNTA*), number of subsidiaries (*LNSUB*), current rate of returns on assets (*ROA*), cash flows from operating activities (*CFO*), total accounts receivable and inventory (*ARINV*), age in years since the company was founded (*AGE*), and whether auditors are from Big Four accounting firms (*BIG4*) to control different degrees of risk and complexity of a company. Finally, year and industry dummy variables are added to control the year and industry effects.[12]

Based on Ohlson (1995), we establish equation (2) to test the differences in value relevance between audited and reviewed financial information.

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 AUDIT_{it} + \beta_4 BVPS_{it} * AUDIT_{it}$$

[11] We do not include the audit committee to test the effect of corporate governance as the establishment of an audit committee was not mandatory in Taiwan during the sample period.

[12] Following industry classification by the Taiwan Stock Exchange, we include 26 industry dummy variables to control for the effects of 27 industries.

$$+ \beta_5 EPS_{it} * AUDIT_{it} + \varepsilon_{it} \quad (2),$$

where for company *i* in year *t*,

P = the stock price at the end of August;

BVPS = the ending book value per share;

EPS = the ending earnings per share; and

AUDIT = one if financial statements are audited and zero if they are reviewed.

In equation (2), we regress the ending stock price on the book value per share (*BVPS*), earnings per share (*EPS*), the decision to audit or review (*AUDIT)*, and the interaction terms between the above variables. The Ohlson (1995) model has been used widely in prior literature on value relevance (e.g., Clarkson et al., 2011; Chen et al., 2012; Song et al., 2010). To test the differential effect of audits and reviews on the market price, we include the decision to audit or review (*AUDIT*) in the value relevance model. The interaction terms between the decision to audit and the company's book value and earnings per share capture the incremental effects of audit assurance on market price. Companies in Taiwan are required to disclose their interim reports by the end of August. Chi et al. (2009), for example, use the stock price at the end of August to test the earnings response coefficients. We also include the stock price at the end of August in equation (2) and test its association with the book value per share and the earnings per share at the end of the interim reporting period, (i.e., June 30th).[13] The coefficients on the two interaction terms capture the

[13] Prior studies on the value relevance of annual reports (e.g., Collins et al., 1997; Franzen and Radhakrishnan, 2009) normally test the association between the stock price at the end of March in the year following the reporting year and the book value and earnings per share at the end of the reporting year.

differences in value relevance between audited and reviewed financial numbers. The value relevance of financial information increases when the market assigns more weight on it. Thus, positive coefficients on the two interaction terms, *BVPS*AUDIT* and *EPS*AUDIT*, will indicate audited information is more value relevant than reviewed information.

IV. Data and Sample Selection

Our sample includes publicly traded companies in Taiwan between 2008 and 2012. We collect the sample from various databases provided by the Taiwan Economic Journal (TEJ) including financial report database, security market database, and corporate governance database. TEJ collects the data related to consolidated interim reports starting from June 2007. Because some of our variables require two-consecutive periods of data, our sample begins in 2008. We exclude companies from the financial industry as they are subject to different interim reports filing requirements.[14] We also exclude companies issuing depository receipts or F-shares (foreign issuer) because they are subject to regulations of their origin countries.

Table 1 provides information about the sample selection process and the sample distribution. As reported in Table 1, the initial sample included a total of 6,803 firm-year observations filing consolidated interim reports between 2008 and 2012. A total of 164 firm-year observations were excluded because they issued F-shares and a total of 205 firm-year observations were excluded because they were in the financial industry. In addition, we dropped 160 firm-year observations because they do not have data from the

[14] Finance holding companies are subject to mandatory audit requirements for their consolidated interim reports both before and after 2013. Other financial institutions are subject to the regulations based on their specific business scope (e.g., insurance, securities, bills, futures).

beginning of a period. Another 296 firm-year observations were dropped due to missing market price data. Finally, 184 firm-year observations were dropped when we merged corporate governance data with data from the rest of databases. A total of 5,799 firm-year observations were included in our final sample. Between 2008 and 2012, companies that chose audits account for 21.4% to 24.4% of the total sample population. This means, on average, nearly 75% of companies chose reviews during our sample period.

[Insert Table 1 about here]

Table 2 provides the descriptive statistics of the variables. In the sample, 23.1% of companies chose to have their interim consolidated financial statements audited when a review was a permissible option. The majority of companies chose to have their interim financial statements reviewed. The average shares owned by professional manager is 1.42%, indicating that a low managerial interest in ownership. The mean deviation of control rights over cash flow rights is 2.25 with a median of 1.11. This indicates that the two rights are not severely deviated yet some companies have higher control rights than cash flow rights. This is consistent with the observation that many companies gain control rights over other business through cross-holding. Less than half of our sample companies (44.7%) issued more than 10% of new shares or debts during the sample period. The average ratio of independent directors is 16.9%.[15] On average, companies have 1.57 directors with financial or accounting expertise and have been established for 27.2 years. Lastly, 85% of the

[15] During our sample period, only companies from financial industry and companies with capital stock more than 50 billion NT dollars were required to have two independent directors. In addition, initial public offering firms are also subject to the independent directors requirements after 2003. The decision to have the independent directors for other firms is voluntary. In our sample, only 14 listed firms met the capital stock requirements. About 20% of sample observations met the initial public offering requirement. Thus, many companies in our sample were not subject to the mandatory independent director requirement. This explains why the average ratio of independent directors is small. Our results remain unchanged even if these sample observations are eliminated. Effective from 2015, all listed companies are required to have independent directors by the end of 2017.

companies in our sample hire auditors from Big Four international accounting firms.

[Insert Table 2 about here]

Table 3 reports the Pearson correlation coefficients matrix. The deviation ratio (*DEV*) is positively correlated with the audit decision (*AUDIT*). These results are in line with the agency hypothesis that the demand for high level of assurance increases with the agency cost. The capital need (*ISSUE*) is positively associated with the audit decision. This observation is consistent with the information hypothesis. The ratio of independent directors is positively associated with the audit decision, which is consistent with the positive effect of corporate governance on the demand for audit assurance. Among the independent variables, the absolute value of most correlation coefficients is lower than 0.4 except for the one between *AGE* and *INDBR* and the one between *LNTA* and *LNSUB*. We do not find a severe correlation problem among other independent variables.

[Insert Table 3 about here]

V. Empirical Results

5.1 Determinants of audit or review decision

Table 4 reports the empirical results from equation (1). We use *LEV*, *DEV*, and *MSHARE* to test the effects of various types of agency cost on companies' audit or review decisions. Results indicate that coefficients on *LEV* and *DEV* are both significantly positive at the 5% level (two-tailed). This finding indicates that the agency cost between controlling and non-controlling shareholders and the agency cost of debt are positively associated with the decision to audit. However, we do not find a significant effect of owner-manager agency

cost on the demand for audit assurance, as the coefficient on *MSHARE* is not significant. The results may be due to the fact that most companies in Taiwan are family controlled, and hence the agency conflicts between professional managers and shareholders are not as severe as those in Western countries. Accordingly, our results indicate that the increase in shares owned by professional managers does not lead to an increase in the demand for audit.

[Insert Table 4 about here]

The coefficient on *ISSUE* is used to test the effect of information need on higher assurance. As reported in Table 4, the coefficient on *ISSUE* is significantly positive at the 1% level. This is consistent with our second hypothesis that companies issuing more than 10% of new shares or new debts tend to provide audited financial statements as a signal of better financial reporting quality. A further analysis (untabulated) by separating the issuance of debts from the issuance of stocks indicates that the need for higher assurance happens mainly when a company issues new debts instead of new shares.[16] Both the ratio of independent directors (*INDBR*) and the number of financial experts (*FAEXP*) among the directors are positively associated with the audit decision. This result supports our third hypothesis. Prior studies indicate that companies with better corporate governance tend to choose auditors that provide better quality audits (Abbott and Parker, 2000; Beasley and Petroni, 2001; Chen and Zhou, 2007; Cassell et al., 2012). Our empirical results are consistent with this stream of literature. An examination (untabulated) of the variance inflation factors (VIF) indicates that most of our variables have VIF below 2 except for the one from the electronic industry dummy variable (with VIF 5.1). The observation of VIF indicates no severe multicollinearity between our independent variables.

[16] The coefficient on new debt issuance alone is 0.222 with p-value of 0.001 and the coefficient on new share issuance alone is 0.037 with p-value of 0.569.

Among the control variables, we find that company size (*LNTA*) is significantly associated with the decision to audit. The number of subsidiaries (*LNSUB*) is significantly negative, suggesting that companies with more subsidiaries tend to choose reviews instead of audits.[17] Given that the presence of more subsidiaries implies more work in consolidation, the incremental cost to audit increases as the number of subsidiaries increases. Consistent with the cost-effect perspective, we find that companies with more subsidiaries prefer reviews over audits. Corporate profitability (*ROA*) is found to have positive effects on the demand for an audit, suggesting that firms are more willing to choose audits when they become more profitable. The coefficient on the ratio of accounts receivable and inventory (*ARINV)* is negative and marginally significant. This may be due to the fact that it is more costly to audit accounts receivable and inventory. Hence, firms with more accounts receivable or inventory may prefer reviews from audits. Cash flows from operating activities (*CFO*) have a positive effect on the demand for audit assurance; however, the effect is insignificant in all models. Age of the firm (*AGE)* is significantly and negatively associated with the audit decision. This result suggests that older firms are less in favor of audit assurance for their interim financial statements. In contrast, newer companies have a stronger need of capital and may demand higher assurance from auditors.

The coefficient on *BIG4* is insignificant in all models, suggesting that a firm's audit or review decision is not relevant to its auditor choice. This may be attributable to the fact that the auditor choice decision is normally long-term. Once a company chooses its auditors, it is less likely to change auditors on an annual basis. In contrast, the decision to audit or review interim reports can be changed every year. As documented in our study, factors such as

[17] We separate local subsidiaries from foreign subsidiaries in an additional analysis. The results indicate that the audit decision is significantly and negatively associated with the number of both local and foreign subsidiaries.

issuance of new shares or new debts can vary every year, and these factors affect the decision to audit or review significantly. This explains why we do not observe a significant association between the Big Four choice and the decision to audit. It is also likely that the higher audit fees charged by the Big Four may induce firms to choose review. Another possible explanation is that both the reputation of the Big Four and the assurance provided by audits enhance the credibility of financial statements. Thus, companies that have chosen to audit their interim statements may not need to choose Big Four auditors to further signal their financial reporting quality and vice versa.

5.2 Value relevance of audited and reviewed information

Table 5 reports the results of differences in value relevance between audited and reviewed information. Panel A of Table 5 reports the empirical results of equation (2). Given that a company's decision to audit or review its interim consolidated financial statements is affected by various corporate features, we further consider the possible effects of self-selection bias on the value relevance by using a two-stage approach. In the first stage, we estimate an inverse Mills ratio from equation (1). In the second stage, we add the estimated inverse Mills ratio into equation (2) and perform the multivariate analysis. Panel B of Table 5 reports the results after the self-selection bias is controlled.

Incremental effects of audit decisions on the value relevance of financial information are captured by the two interaction terms: *BVPS*AUDIT* and *EPS*AUDIT*. As reported in Panels A and B of Table 5, the coefficients on both interaction terms are significant and positive, indicating that the association between financial numbers and the market valuation is enhanced by an audit. As reported in Panel A of Table 5, before the effect of self-selection

bias is considered, for every $1 increase in *EPS* (*BVPS*), audited *EPS* (*BVPS*) will receive $7.79 (27 cents) additional increases in the stock price in comparison to when the numbers are reviewed. The incremental effects of audits remain at approximately the same level (the coefficient on *EPS *AUDIT* is 7.81 and the coefficient on *BVPS*AUDIT* is 0.23) after the self-selection bias is properly considered (Panel B of Table 5). The above findings imply that if a firm chose to audit, its price would be 2.35 times (1.20 times) higher for every dollar increase in *EPS* (*BVPS*), compared with firms that chose to review.[18] Taken together, our results are consistent with the expectation that audited information is more value relevant than reviewed information.

In addition to the above findings, we find that both earnings per share and book value per share are positively associated with the stock price, which is consistent with prior studies. The coefficient on *AUDIT* as reported in Panel A of Table 5 is significant and negative before the self-selection bias is controlled. After controlling for factors affecting the audit decision, the coefficient on *AUDIT* becomes positive (Panel B of Table 5). This notable change in the coefficient on *AUDIT* suggests that the self-selection bias has a significant impact on the model estimation. It further suggests that, after considering effects of various corporate features on a company's audit decision, those who chose to audit their interim reports had higher market valuation.

[Insert Table 5 about here]

[18] Panel B of Table 5 reports that the estimated coefficients on *EPS* and *EPS*AUDIT* are 5.79 and 7.81 respectively. This implies that the association between audited *EPS* and price is 2.35 times higher than that of reviewed *EPS* (i.e., [(7.81+5.79)/5.79]). The estimated coefficients on *BVPS* and *BVPS*AUDIT* are 1.121 and 0.229, respectively. This implies that the association between audited *BVPS* and price is 1.20 times higher than that of reviewed *BVPS* (i.e., [(1.121+0.229)/1.121]).

5.3 Additional Analysis

5.3.1 Endogenous Effects of Independent Directors on Audit or Review Decision

As reported in Table 2, the ratio of independent directors in our sample is small. This is because not all companies are required to have independent directors. Financial institutions and companies with capital stock greater than 50 billion NT dollars are required to have at least two independent directors since 2007. Initial public offering firms need to have at least two independent directors, one of whom must be a financial expert, since 2003. Other than the above-mentioned companies, the decision to have independent directors is voluntary. To control for the effects of possible endogeneity of the motivation for firms to have independent directors on the demand for higher assurance, we perform a two-stage analysis based on an instrumental variable approach. In the first stage, we regress *INDBR* on the following independent variables: *LNTA*, *LNSUB*, *ROA*, *ARINV*, *CFO*, *GROWTH*, *AGE* and *CAPITAL*, where *CAPITAL* is an indicator variable that equals 1 when a firm has capital stock greater than 50 billion NT dollars and zero otherwise and other variables are as defined previously. The variable *CAPITAL* meets the requirement of instrumental variable, as it is not highly correlated with the audit/review decision but is correlated with the decision to have independent directors.[19] In our second stage, we replace *INDBR* by its corresponding estimated value, $\hat{INDBR}$, from the first stage, and re-estimate equation (1). Model (1) of Table 6 reports the results from the second stage.

[Insert Table 6 about here]

As reported in Model (1) of Table 6, after controlling for the endogenous effects of

[19] The correlation coefficient between *CAPITAL* and *AUDIT* is -0.004 (p-value= 0.732). The correlation coefficient between *CAPITAL* and *INDBR* is 0.064 (p-value=0.001).

having independent directors, the primary variables of interest, including *LEV*, *DEV*, *ISSUE*, and *FAEXP*, are all significant. The coefficient on the estimated value of *INDBR* (i.e., $\hat{INDBR}$) is also significant, suggesting that the number of independent directors still has significant impacts on the demand for higher assurance after the endogenous effects are controlled. A similar two-stage analysis is performed to account for the possible endogeneity of the decision to have financial experts on the demand for audit assurance.[20] As reported in Model (2) of Table 6, results after controlling the endogenous effects of having financial experts are similar to those found in Model (1) of Table 6. The above robustness tests further support our hypothesis that firms with better quality of corporate governance prefer audit assurance over review assurance.

5.3.2 Effects of the 2012 Revision of the Securities Exchange Act on Audit Fees

After the 2012 revision of Taiwan's Securities Exchange Act, a review for the consolidated interim reports is explicitly required beginning in 2013. Since then, almost no firm audit its consolidated interim reports.[21] To examine the effects on audit fees of moving from audits to reviews in 2013, we conduct a difference-in-difference analysis. Specifically, during the period between 2008 and 2012, when companies were allowed to either audit or review their consolidated semiannual reports, we identify companies that continuously chose audits (*audit-firms* hereafter) and companies that continuously chose reviews

[20] The variable *CAPITAL* is used again as the instrument in the first stage and the estimated value of *FAEXP* ($\hat{FAEXP}$) is included as an additional variable in equation (1) in the second stage. The correlation coefficient between *CAPITAL* and *FAEXP* is 0.026 (p-value=0.049).

[21] In our sample, only one firm (Mutton Optronics Corp.) chose to audit its consolidated second quarter reports in 2013. In 2013, the company issued new shares and increased its' total debt by 74%. This suggests that the company had a strong capital need. In addition, the independent directors of the firm accounts for 42% of the board members and two of the directors are financial experts, suggesting good quality of corporate governance. These characteristics are consistent with our hypotheses that corporates with stronger capital need and better corporate governance have greater demand on the higher level of assurance.

(*review-firms* hereafter). We then examine the difference in audit fees for these two groups of firms before and after the 2012 revision of the act. Given that a review process is less rigorous than an audit, a review typically costs less than an audit.[22] Assuming that cost is affected by audit efforts, we expect a decrease in audit fees when companies moved from audits to reviews in 2013. However, we expect no significant change in audit fees for companies that continuously chose reviews.

In Taiwan, firms are required to disclose audit fees only under certain circumstances.[23] In our sample, a total of 4,609 firm-year observations disclosed the dollar amount of audit fees. Based on this sample, we regress the logarithm of audit fees on an indicator variable (*POST*) that equals one for the post-revision period (i.e., 2013 and 2014) and zero for the pre-revision period (2008–2012), an indicator variable (*AUDIT_G*) that equals one for audit-firms and zero for review-firms, the interaction term between *POST* and *AUDIT_G*, and a set of control variables that are typically controlled in audit fee models (e.g., Simunic, 1980; Hay et al., 2006; Lee et al., 2015). These control variables include company size, corporate profitability and risk, corporate governance factor, audit firm characteristics, and audit complexity. The interaction term between *POST* and *AUDIT_G* captures the difference in the change of audit fees between the two groups before and after the revision of the act.

Model (1) of Table 7 reports the results. As reported in Model (1), the coefficient on *POST* is significantly positive. This suggests that audit fees are significantly higher in the

[22] Our untabulated analysis indicates that audit-firms did pay higher audit fees than review-firms over our sample period. Moreover, after audit-firms moved to reviews in 2013, they still paid higher fees than review-firms in 2013 and 2014. If audit fees serve as a proxy for the demand for audit, our results provide evidence supporting that the decision to audit or review is a function of audit demand.

[23] Companies pay significant amounts of non-audit fees (i.e., greater than one fourth of audit fees), companies change audit firms and pay fewer initial audit fees to the subsequent auditors (i.e., low-balling), and companies experience a significant decrease in audit fees (i.e., greater than 15%), are subject to the fee disclosure requirement. Other firms can voluntarily disclose audit fees or a range of audit fees.

post-revision period. The result is expected because the adoption of IFRS in 2013 has led to an increase in audit fees given that more efforts are needed in the transition period of adopting the new accounting standards. The coefficient on *AUDIT_G* is significantly positive, suggesting that audit-firms on average paid higher fees than review-firms. The coefficient on the interaction term *POST*AUDIT_G* is negative but insignificant. This indicates that the two groups of firms did not experience significantly different changes in audit fees after the act was revised.

The 2012 revision of the filing requirements for interim reports was initiated by the adoption of IFRS. In the presence of IFRS premiums, the cost saving when audit-firms move from audits to reviews, if any, may become insignificant. This provides one reasonable explanation for why no significant difference in change of audit fees between the two groups is observed. To further investigate, we examine the effect of the 2012 revision of the act on audit fees for the two groups separately. Specifically, we regress the logarithm of audit fees on *POST* and a set of control variables for each group. Results are reported in Models (2) and (3) of Table 7.

As reported in Model (2) of Table 7, the coefficient on *POST* is insignificant for audit-firms. In contrast, it is significantly positive for review-firms as reported in Model (3) of Table 7. These results indicate that audit-firms did not experience a significant decrease in audit fees after they moved to reviews in 2013. Yet, review-firms experienced a significant increase in audit fees. We attribute the findings to the adoption of IFRS in 2013. Although cost saving is likely to occur when audit-firms moved from audits to reviews, the IFRS premiums offset the cost saving. This results in no significant change in audit fees for audit-firms. On the contrary, review-firms continued to review in 2013 and thus they did not experience significant cost savings. After adding the IFRS premiums, higher audit fees are

observed in the group of review-firms in the post-revision period.

[Insert Table 7 about here]

One caveat in interpreting the above analysis is that the disclosed audit fees are for the whole year. There is no separate disclosure regarding audit fees for interim reports. Thus, it is difficult to measure the extent of change in annual fees driven by the change in the interim reports requirement. Moreover, the disclosure of audit fees is not mandatory for all firms, and thus, the finding is limited to the firms included herein and may not be representative.

VI. Conclusions

To protect investors' interest, public corporations' external financial reporting is subject to regulatory requirements in major capital markets. The regulation is often restrictive and provides little option for companies to make decisions regarding their public reporting obligations. In this study, we take the advantage of the institutional environment in Taiwan to examine public companies' behavior when both audits and reviews were permissible options for interim financial reports. Our results indicate that the demand for audit assurance is higher in the presence of higher agency costs between controlling and non-controlling shareholders and higher agency costs of debts. Agency costs between shareholders and managers do not have similar positive effects on a company's decision to audit. We also find that companies with stronger capital need are more likely to have their interim financial statements audited. This result is in line with the information hypothesis that companies choose a higher assurance level to enhance the credibility of their financial information. The quality of corporate governance is found to have a positive effect on the

decision to choose audit assurance. We also examine the differences in value relevance between audited and reviewed financial information. Our results indicate that audited information receives a higher weight in market valuation. This suggests that firms can potentially enjoy benefits from audited information as the market will rely more on their financial information in making investment-related decisions.

Taken together, this study not only fills out the gap in previous literature but also provides policy implications for regulators. Although a review normally costs less than an audit, our results show that companies with certain characteristics were willing to pay more and had their interim financial statements audited. Moreover, we find that audit assurance improved the value relevance of financial information that a company presented. These findings suggest that companies may benefit from having the reporting flexibility, as they are provided with an opportunity to signal their financial reporting quality and the market recognizes the differences. Our results also provide implications for audit firms. By studying various company characteristics, audit firms can understand whether their client firms demand a higher or lower assurance level. Services with different degrees of assurance can be provided based on the needs of client firms. The consideration of client features could enhance the value of services provided by audit firms and the overall client satisfaction.

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Table 1: Sample selection and distribution

	2008	2009	2010	2011	2012	Total
Initial Sample	1,200	1,251	1,369	1,465	1,518	6,803
Less: Firms issuing F-shares	(1)	(9)	(25)	(58)	(71)	(164)
Less: Firms from financial industry	(40)	(41)	(41)	(41)	(42)	(205)
Less: Missing beginning period data	(19)	(35)	(43)	(34)	(29)	(160)
Less: Missing stock price data	(68)	(60)	(65)	(55)	(48)	(296)
Less: Missing data due to merge of corporate governance database	(33)	(37)	(47)	(39)	(23)	(184)
Final sample	1,039	1,069	1,148	1,238	1,305	5,799
Firms choosing audits (number)	222	240	269	293	318	1,342
Percentage of firms choosing audits	(21.4%)	(22.5%)	(23.4%)	(23.7%)	(24.4%)	(23.1%)

Table 2: Descriptive statistics (N=5,799)

Variable*	Mean	Std. dev.	Q1	Median	Q3
AUDIT	0.231	0.422	0	0	1
MSHARE	1.423	2.426	0.080	0.460	1.560
LEV	0.444	0.166	0.329	0.442	0.558
DEV	2.252	7.041	1.010	1.110	1.470
ISSUE	0.447	0.497	0	0	1
INDBR	0.169	0.170	0	0.222	0.286
FAEXP	1.573	1.463	0	1	2
LNTA	15.334	1.425	14.342	15.146	16.106
LNSUB	1.938	0.987	1.386	1.946	2.485
ROA	0.019	0.046	-0.000	0.021	0.044
CFO	0.021	0.062	-0.012	0.021	0.057
ARINV	0.346	0.178	0.216	0.338	0.458
GROWTH	-0.116	0.449	-0.507	-0.103	0.124
AGE	27.274	12.363	18	25	35
BIG4	0.851	0.356	1	1	1
P	26.236	36.499	10.47	16.65	28.74
BVPS	17.330	10.171	8.67	15.11	20.17
EPS	0.743	1.729	-0.70	0.52	1.29

* Variable definition

AUDIT	=	one for an audit and zero for a review;
MSHARE	=	the percentage of shares owned by professional managers;
LEV	=	total liabilities divided by total assets;
DEV	=	the ratio of the control right to cash-flow right;
ISSUE	=	one when the growth rate of common stock, preferred stock, or total debt is more than 10% and zero otherwise;
INDBR	=	the ratio of independent directors in the beginning of the year;
FAEXP	=	the ratio of directors who have financial accounting background in the beginning of the year;
LNTA	=	the logarithm of ending total assets;
LNSUB	=	the logarithm of number of subsidiaries;
ROA	=	net income divided by ending total assets;
GROWTH	=	sales in period t minus sales in period t-1 divided by sales in period t-1;
CFO	=	cash flows from operating activities divided by ending total assets;
ARINV	=	total accounts receivable and inventory divided by ending total assets;
AGE	=	age in years since the firm was founded;
BIG4	=	one if auditors are from Big Four accounting firm and zero otherwise;
P	=	the stock price at the end of August;
BVPS	=	the ending book value per share; and
EPS	=	the ending earnings per share.

Table 3: Pearson Correlation Coefficient

Variable*	AUDUT	MSHARE	LEV	DEV	ISSUE	INDBR	FAEXP	LNTA	LNSUB	ROA	CFO	ARINV	GROWTH	AGE
AUDIT	1													
MSHARE	0.017	1												
	(0.186)													
LEV	0.020	-0.036	1											
	(0.132)	(0.006)												
DEV	0.051	0.010	-0.029	1										
	(0.001)	(0.466)	(0.027)											
ISSUE	0.069	0.016	0.035	-0.003	1									
	(0.001)	(0.233)	(0.008)	(0.803)										
INDBR	0.146	0.139	-0.060	0.029	0.092	1								
	(0.001)	(0.001)	(0.001)	(0.030)	(0.001)									
FAEXP	0.087	0.118	-0.067	0.018	0.053	0.364	1							
	(0.001)	(0.001)	(0.001)	(0.177)	(0.001)	(0.001)								
LNTA	0.015	-0.171	0.313	0.073	0.004	-0.216	-0.115	1						
	(0.266)	(0.001)	(0.001)	(0.001)	(0.787)	(0.001)	(0.001)							
LNSUB	-0.051	-0.048	0.214	0.012	0.002	-0.066	-0.045	0.598	1					
	(0.001)	(0.001)	(0.001)	(0.366)	(0.857)	(0.001)	(0.001)	(0.001)						
ROA	0.024	0.042	-0.093	0.018	0.105	0.002	0.052	0.194	0.078	1				
	(0.066)	(0.002)	(0.001)	(0.178)	(0.001)	(0.899)	(0.001)	(0.001)	(0.001)					
CFO	0.038	0.050	-0.096	0.038	-0.081	0.043	0.034	0.099	0.049	0.366	1			
	(0.004)	(0.001)	(0.001)	(0.004)	(0.001)	(0.001)	(0.009)	(0.001)	(0.001)	(0.001)				
ARINV	-0.008	0.117	0.325	-0.031	0.097	0.112	0.031	-0.109	-0.043	0.065	-0.156	1		
	(0.550)	(0.001)	(0.001)	(0.019)	(0.001)	(0.001)	(0.019)	(0.001)	(0.001)	(0.001)	(0.001)			
GROWTH	0.038	-0.063	0.053	0.015	0.172	0.044	0.051	0.051	0.002	0.253	-0.101	0.095	1	
	(0.004)	(0.001)	(0.001)	(0.264)	(0.001)	(0.001)	(0.001)	(0.001)	(0.855)	(0.001)	(0.001)	(0.001)		
AGE	-0.116	-0.126	0.102	-0.092	-0.124	-0.455	0.290	0.290	0.178	0.058	-0.027	-0.102	0.004	1
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.040)	(0.001)	(0.777)	
BIG4	0.015	0.020	0.005	0.033	0.022	0.112	0.119	0.119	0.145	0.079	0.065	-0.018	0.007	-0.155
	(0.242)	(0.123)	(0.700)	(0.013)	(0.089)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.167)	(0.599)	(0.001)

*：See Appendix A for variable definitions. The number in the bracket represents for the p-value (two-tailed).

Table 4：Empirical results for determinants of audit decision

Variable[a]	Coeff.	p-value
INTERCEPT	-2.273	0.001 ***
MSHARE	0.007	0.635
LEV	0.597	0.013 **
DEV	0.008	0.048 **
ISSUE	0.240	0.001 ***
INDBR	1.553	0.001 ***
FAEXP	0.044	0.056 *
LNTA	0.116	0.007 ***
LNSUB	-0.217	0.001 ***
ROA	1.430	0.099 *
ARINV	-0.306	0.192
CFO	0.828	0.168
GROWTH	0.088	0.439
AGE	-0.013	0.001 ***
BIG4	-0.071	0.467
YEAR	Included	
INDUSTRY	Included	
Pseudo R^2	0.069	
N	5,799	

*, **, and ***represent for the 10%, 5% and 1%, significance level (two-tailed), respectively.

a: See Appendix A for variable definitions.

Table 5: Results of Effects of Audit or Review Decision on Value Relevance

Panel A: Value relevance of audited and reviewed information

Variable[a]	Coefficient	p-value
INTERCEPT	0.653	0.422
BVPS	1.157	0.001 ***
EPS	5.804	0.001 ***
AUDIT	-7.524	0.001 ***
BVPS*AUDIT	0.273	0.002 ***
EPS*AUDIT	7.791	0.001 ***
Adj R^2	52.64%	
N	5799	

Panel B: Value Relevance of audited and reviewed information after controlling the effect of possible endogeneity

Variable[a]	Coefficient	p-value
INTERCEPT	-3.163	0.001 ***
BVPS	1.121	0.001 ***
EPS	5.793	0.001 ***
AUDIT	12.558	0.001 ***
BVPS*AUDIT	0.229	0.009 ***
EPS*AUDIT	7.807	0.001 ***
MILLS	-6.759	0.001 ***
Adj R^2	53.03%	
N	5,799	

*, **, and ***represent for the 10%, 5% and 1%, significance level (two-tailed), respectively.

a: MILLS is the estimated inverse Mills ratio from the first stage estimate. Other variables are as defined in Appendix A.

Table 6: Results after controlling the endogeneity effects of having independent directors or financial experts

	Model (1): Controlling the endogeneity of having independent directors in the first stage[b]		Model (2): Controlling the endogeneity of having financial experts in the first stage[b]	
Variable[a]	Coeff.	p-value	Coeff.	p-value
INTERCEPT	-1.359	0.007 ***	-2.120	0.001 ***
MSHARE	0.006	0.639	0.006	0.640
LEV	0.647	0.007 ***	0.596.	0.014 **
DEV	0.008	0.045 **	0.008	0.048 **
ISSUE	0.241	0.001 ***	0.240	0.001 ***
$\hat{INDBR}$	1.607	0.001 ***		
INDBR			1.552	0.001 ***
$\hat{FAEXP}$			0.046	0.044 **
FAEXP	0.045	0.053 *		
LNTA	0.087	0.010 ***	0.113	0.001 ***
LNSUB	-0.199	0.001 ***	-0.215	0.001 ***
ROA	1.768	0.042 **	1.561	0.072 *
ARINV	-0.267	0.255	-0.307	0.190
CFO	0.978	0.103	0.818	0.173
GROWTH	0.078	0.491	0.091	0.424
AGE	-0.020	0.001 ***	-0.014	0.001 ***
BIG4	-0.072	0.457	-0.071	0.466
YEAR	Included		Included	
INDUSTRY	Included		Included	
Pseudo R^2	0.070		0.069	
N	5,799		5,799	

*, **, and ***represent for the 10%, 5% and 1%, significance level (two-tailed), respectively.

a: $\hat{INDBR}$ is the estimated value of INDBR from the first stage, $\hat{FAEXP}$ is the estimated value of FAEXP from the first stage, and other variables are as defined in Table 2.

b: In the first stage, we regress INDBR (FAEXP) on the following independent variables: LNTA, LNSUB, ROA, ARINV, CFO, GROWTH, AGE, and CAPITAL, where CAPITAL is the instrumental variable. All variables are as defined in Appendix A.

Table 7: Effects of the 2012 Revision of the Act on Audit Fees

	Model (1): All firms			Model (2): Audit-firms only			Model (3): Review-firms only		
Variable[a]	Coeff.	p-value		Coeff.	p-value		Coeff.	p-value	
Intercept	4.215	0.001	***	3.367	0.001	***	4.487	0.001	***
POST	0.036	0.009	***	0.003	0.925		0.041	0.001	***
AUDIT_G	0.059	0.001	***						
POST*AUDIT_G	-0.021	0.431							
LNTA	0.183	0.001	***	0.251	0.001	***	0.165	0.001	***
LNSUB	0.141	0.001	***	0.131	0.001	***	0.143	0.001	***
ARINV	0.033	0.397		0.025	0.799		0.012	0.769	
MTB	0.001	0.284		0.019	0.001	***	-0.001	0.584	
LEV	0.027	0.507		-0.123	0.208		0.066	0.131	
ROA	0.032	0.808		0.105	0.726		-0.047	0.738	
AGE	0.006	0.001	***	0.009	0.001	***	0.005	0.001	***
BIG4	0.248	0.001	***	0.074	0.077	*	0.288	0.001	***
INDBR	0.230	0.001	***	0.583	0.001	***	0.130	0.002	***
FAEXP	0.001	0.962		-0.006	0.045	**	0.004	0.315	
TENURE	0.004	0.001	***	0.006	0.011	**	0.004	0.001	***
NAFEE	0.025	0.001	***	0.024	0.001	***	0.027	0.001	***
GC	0.191	0.014	**	-	-		0.177	0.017	**
RESTATE	0.022	0.373		-0.010	0.874		0.030	0.246	
REPLAG	-0.000	0.413		-0.001	0.156		0.000	0.779	

INDUSTRY	Included	Included	Included
N	4,606	1,072	3,534
R^2	61.80%	62.68%	64.36%

*, **, and ***represent for the 10%, 5%, and 1%, significance level, respectively.
a: See Appendix A for variable definitions.

Appendix A

Variable Definition

AGE	Age in years since the firm was founded;
ARINV	Total accounts receivable and inventory divided by ending total assets;
AUDIT	Indicator variable equal to one for an audit and zero for a review;
AUDIT_G	Indicator variable equal to one for firms continuously choosing audits prior to 2013 and zero for firms continuously choosing reviews prior to 2013;
BIG4	Indicator variable equal to one if auditors are from Big Four accounting firm and zero otherwise;
BVPS	The ending book value per share;
CAPITAL	Indicator variable equal one when a firm has capital stock greater than 50 billion NT dollars and zero otherwise;
CFO	Cash flows from operating activities divided by ending total assets;
DEV	The ratio of the control right to cash-flow right;
EPS	The ending earnings per share;
FAEXP	The ratio of directors who have financial accounting background in the beginning of the year;
GC	Indicator variable equal to one if a going concern opinion is received and zero otherwise;
GROWTH	Sales in period t minus sales in period t-1 divided by sales in period t-1;
INDBR	The ratio of independent directors in the beginning of the year;
ISSUE	Indicator variable equal to one when the growth rate of common stock, preferred stock, or total debt is more than 10% and zero otherwise;
LEV	Total liabilities divided by total assets;
LNTA	The logarithm of ending total assets;
LNSUB	The logarithm of number of subsidiaries;
MSHARE	The percentage of shares owned by professional managers;
MTB	The market-to-book ratio;
NAFEE	The logarithm of non-audit fees;
P	The stock price at the end of August;
POST	Indicator variable equal to one for the post-revision period (2013-2014) and zero for the pre-revision period (2008-2012);
RESTATE	Indicator variable equal to one if a firm had a financial statement restatement and zero otherwise;
REPLAG	The number of days between fiscal year-end and earnings announcement date;

ROA	Net income divided by ending total assets; and
TENURE	The duration of auditor-client relation in year.