

# An examination of the association between interim audits and final audits

Hsiao-Lun Lin

*Department of Accountancy, National Taipei University,  
New Taipei City, Taiwan, and*

Ai-Ru Yen

*Department of Accounting, Business Law, and Finance,  
Northeastern Illinois University, Chicago, Illinois, USA*

## Abstract

**Purpose** – This study investigates the association between interim audits and final audits. The authors focus on whether interim audits affect the audit time lag and the risk of restatement associated with final audits.

**Design/methodology/approach** – Two regression models are established to empirically test if an interim audit helps to reduce the audit time lag and the restatement risk on annual reports based on a sample of Chinese listed firms.

**Findings** – The authors find that performing interim audits helps to reduce the audit time lag. This result suggests that final audits can be completed more efficiently when interim audits are performed during the same period. The authors also find that the decision to audit interim reports is associated with a lower risk of restating annual reports. The lower risk of restatement in turn suggests more effective final audit results.

**Originality/value** – Together, the results from this study demonstrate that interim audits could benefit final audits, which highlight the value and importance of the continuous auditing.

**Keywords** Interim audits, Audit time lag, Restatement

**Paper type** Research paper

## 1. Introduction

In response to the demand for better financial reporting quality, ways to improve the quality of final audits at year end has been an issue of both practical and academic concern. The extant literature indicates that time pressure, among other factors, may hinder the audit quality and the financial reporting quality (e.g. [McDaniel, 1990](#); [Willett and Page, 1996](#); [Coram et al., 2004](#); [Pierce and Sweeney, 2004](#); [Bryant-Kutcher et al., 2013](#); [Lambert et al., 2017](#)). During an audit, auditors must maintain a mindset of professional skepticism in order to conduct tests and critically assess audit evidence. Increasing time pressure may work against this mindset, limiting auditors' ability to apply the appropriate level of professional skepticism and thereby negatively affecting the quality of their work ([Lambert et al., 2017](#)). One reasonable way to reduce the time pressure of annual audits is to perform some audit procedures during interim periods. Auditors are able to understand the business entity, evaluate its internal control, and assess its material accounting estimates and policies during the interim audits [1]. Any disputes between auditors and



---

clients can therefore be communicated and solved earlier. With audit efforts continuing throughout the year, auditors would be under less time pressure by year end which would in turn tend to improve the quality of final audits.

Although interim audits are not mandatory in major capital markets, in practice it can be observed that some firms voluntarily audit their interim reports due to various factors such as firm size, profitability, agency cost, capital need, or quality of corporate governance (Haw *et al.*, 2008; Lin and Yen, 2017). The literature on voluntary auditing also indicate that firms could benefit from voluntary auditing by reducing errors on audited information (Clatworthy and Peel, 2013), obtaining lower cost of debt (Kim *et al.*, 2011), or improving the credibility of financial information (Haw *et al.*, 2008; Lin and Yen, 2017). These benefits all could motivate firms for voluntary auditing.

In this study, we investigate the association between interim audits and final audits based on a sample of listed firms in China that includes both firms that audited interim reports and firms that did not [2]. We examine the association from two perspectives. First, we assess whether interim audits promote the efficiency of final audits in terms of shorter lags in the issuance of audit reports [3]. We expect that audit reports could be issued earlier if interim audits had been performed in the same accounting period. Thus, a negative association between interim audits and audit time lag is anticipated. Second, we examine whether interim audits promote the effectiveness of final audits in terms of reducing the risk of issuing restatements. A restatement due to accounting misstatements indicates that an auditor was not able to detect or correct material accounting errors by the audit procedures performed. This would in turn suggest ineffective auditing and an inferior quality of financial reports. Should interim audits be performed, the auditors could concentrate on material accounting issues during final audits and thus increase their capacity to reduce the audit risk.

The finding suggests that conducting interim audits is significantly and negatively associated with the time lag involved in issuing audit reports. This means that those auditors who have audited interim reports are able to issue audit reports earlier during the same period. We also find that conducting interim audits is negatively associated with the likelihood of issuing restatements. This result is in line with the expectation that interim audits help to reduce the audit risk. The above findings are not affected when we consider the effects of changes in interim audit decisions and the selection bias of voluntary auditing.

This study contributes to the prior literature as follows. First, the study adds understanding about the effects of interim audits by exploring the association between interim audit efforts and final audit results. The results from this study indicate that interim audits help to reduce the audit time lag and risk of restatement from the final audits. This suggests that interim audits benefit not only interim reports but also annual reports. Previous studies on the effects of interim audits focus on their impact on interim reports (Haw *et al.*, 2008; Lin and Yen, 2017). We extend this stream of literature by demonstrating the ongoing effects of interim audits on final audits, which highlights the value and importance of the continuous auditing. Second, this study adds insights about audit efficiency and effectiveness to the extant literature on the subject. Prior studies have documented a tradeoff between the efficiency and effectiveness of final audits (McDaniel, 1990; Willett and Page, 1996; Bryant-Kutcher *et al.*, 2013; Lambert *et al.*, 2017). The quality of financial reporting tends to be impaired when auditors are under time pressure. In response, this study explores the issue from a different angle by showing that audit efficiency and effectiveness can be maintained simultaneously when the time pressure is alleviated by interim audits.

The rest of the paper is organized as follows. Section 2 reviews the literature and develops the hypotheses. Section 3 describes the research design, while Section 4 describes the data selection process and presents descriptive statistics of the variables. Section 5 discusses the empirical test results. Section 6 concludes the study.

## 2. Literature review and hypothesis development

Several studies have indicated that audit time pressure could impede audit quality in different settings. For instance, [McDaniel \(1990\)](#) demonstrates a tradeoff between audit efficiency and audit effectiveness when the time pressure changes. [Willett and Page \(1996\)](#) survey newly qualified UK chartered accountants and find irregular short cuts in audit procedure under the time budget pressure. [Coram et al. \(2004\)](#) find that time pressure affects auditors' actions by reducing audit quality via an increasing tendency to accept doubtful audit evidence regardless of the level of misstatement risk. [Pierce and Sweeney \(2004\)](#) show that auditors tend to engage in increasingly quality-threatening behaviors when the deadline pressure grew. [Bennett et al., \(2015\)](#) document that auditors tend to concede more than their clients on their initial negotiation position under higher time pressure.

Empirical evidence regarding the effects of time pressure on audit quality has also been provided by a few studies. For example, [Bryant-Kutcher et al. \(2013\)](#) examine the effects of accelerating the 10-K filing date by the SEC of the US. Their results indicate an increase in the restatement risk when auditors face significant time pressure. Similar negative effects of 10-K accelerations on earnings quality is found by [Lambert et al. \(2017\)](#). The results from both [Bryant-Kutcher et al. \(2013\)](#) and [Lambert et al. \(2017\)](#) thus lend support to the concern that accelerating the filing date of annual reports imposes greater time pressure on the auditors which in turn impairs financial reporting quality.

In order for auditors to complete the substantial amount of audit work involved at year-end and subsequent to year-end, the extent to which they will employ a questioning mind and critically evaluate the available evidence will likely be limited by time pressure ([Lambert et al., 2017](#)). Prior studies often focus on how the personalities of auditors and the ethical culture and training activities of audit firms could alleviate the effects of time pressure on audit quality (e.g. [Gundry and Liyanarachchi, 2007](#); [Svanberg and Öhman, 2013](#); [Svanström, 2016](#)). One more direct way to tackle the time pressure of final audits would be to conduct part of the audit procedures, such as understanding the client and its environment, assessing material accounting policy or estimates, or evaluating the client's internal control, during interim periods. Thus, performing audits on interim reports represents both a plausible and a potentially productive consideration. When interim reports are audited, auditors can assess the level of internal control over financial reporting at an earlier stage. Further, both firms and auditors can benefit from being able to communicate with each other regarding material accounting estimates or accounting policies before year-end audits. Auditors could, accordingly, make recommendations to improve the quality of financial reporting earlier. With some work being completed during the interim audits, auditors could better concentrate on other critical issues and meet the engagement deadline without rushing their work or compromising their professional skepticism.

The literature on voluntary auditing indicates that, in the absence of mandatory requirements, firms can voluntarily audit their financial reports for various reasons. For instance, private firms have been found to have their annual reports audited in order to obtain a lower financing cost ([Blackwell et al., 1998](#); [Kim et al., 2011](#)) or obtain a better credit rating ([Lennox and Pittman, 2011](#)). In addition, agency cost, capital need, company risk and profitability, and market perception all affect voluntary auditing decisions (e.g. [Collis et al., 2004](#); [Collis, 2012](#); [Clatworthy and Peel, 2013](#); [Dedman et al., 2014](#)).

While an audit on interim reports is not mandatory in major capital markets, some studies have provided evidence for why public firms choose to have their interim reports audited. For example, [Haw et al. \(2008\)](#) and [Lin and Yen \(2017\)](#) examine public firms' decisions for voluntary interim auditing. In addition to investigating the determinants of voluntary auditing, both [Haw et al. \(2008\)](#) and [Lin and Yen \(2017\)](#) further consider the effects of voluntary interim auditing on market valuation. Based on public firms in China,

Haw *et al.* (2008) find that the earnings response coefficient was higher when firms have their interim reports audited, which supports the viewpoint that audits enhance the credibility of financial information. Lin and Yen (2017), using public firms in Taiwan as a sample, assess the choice of firms to audit or review their interim reports. They find that the market tends to place more weight on audited information than on reviewed information. This suggests that interim audits could enhance the information content of interim reports.

To our knowledge, empirical evidence regarding the effects of continuous auditing efforts on final audits has not been widely generated. One study that examines similar issue is by Lee *et al.* (2014) who address the association between a review of interim reports and audit quality of annual reports based on firms in Korea. Results from Lee *et al.* (2014) suggest that abnormal audit hours from the first three-quarters negatively affect the discretionary accruals on annual reports. Despite the results from Lee *et al.* (2014) underlining the importance of continuous auditing efforts for audit quality, they emphasize audit efforts in the context of a review engagement rather than in the context of an *audit* engagement. In addition, given that a review on interim reports is mandatory in Korea, the institutional setting did not provide a basis for comparing the effects of a “review” with the effects of “no review.” To enhance understanding about the value of continuous auditing, we examine the association between interim audit efforts and final audit results when not all firms are required to have their interim reports audited in this study.

Specifically, we focus on whether the quality of final audits can be improved when interim audits are performed. In contrast to the added time pressure associated with accelerated filing requirements or budget cuts, we expect that auditors would experience less time pressure during final audits when interim audits had been performed. Furthermore, we expect that there would be no tradeoff between meeting the filing deadline and the quality of an audit, as documented by Bryant-Kutcher *et al.* (2013) and Lambert *et al.* (2017). Instead, we anticipate that auditors could issue audit reports earlier and, at the same time, maintain financial reporting quality. As a result, there would be shorter time lags in issuing the audit reports and lower risk of restating annual reports. The following two hypotheses are established accordingly:

- H1. The audit time lag is shorter when an audit has been performed on interim financial reports than when it has not.
- H2. The risk of financial restatements is lower when an audit has been performed on interim financial reports than when it has not.

### 3. Research design

Equation (1) is established to investigate whether an interim audit is associated with shorter audit time lags. We use an indicator variable *INTAUD* to capture a firm’s decision to conduct interim audits. *INTAUD* equals one when a firm’s semiannual reports is audited, and zero otherwise. We measure the audit time lag by counting the number of days between the end of a year and the date of issuing audit reports following prior literature (e.g. Bamber *et al.*, 1993; Knechel and Sharma, 2012; Knechel *et al.*, 2012; Chan *et al.*, 2016; Durand, 2019; Habib *et al.*, 2019). The natural logarithm of time lag (*LAG*) is included in Equation (1) as the dependent variable. Fewer days between the end of a year and the issuance date of audit reports indicate shorter audit time lags and more timeliness of financial reporting. We expect the interim audit decision is negatively associated with the audit time lag based on the first hypothesis.

$$LAG_{it} = \alpha_0 + \alpha_1 INTAUD_{it} + \alpha_2 LNNTA_{it} + \alpha_3 LEV_{it} + \alpha_4 ROA_{it} + \alpha_5 LOSS_{it} + \alpha_6 CONT_{it} + \alpha_7 OVERLIST_{it} + \alpha_8 SOE_{it} + \alpha_9 BIG10_{it} + \alpha_{10} SUB_{it} + \alpha_{11} SWITCH_{it} + \alpha_{12} OPIN_{it} + \sum IND + \sum YEAR + \varepsilon_{it} \quad (1)$$

All variable definitions are provided in [Appendix](#). Following previous literature on audit time lag (e.g. [Bamber et al., 1993](#); [Carslaw and Kaplan, 1991](#); [Knechel and Sharma, 2012](#); [Knechel et al., 2012](#); [Chan et al., 2016](#); [Durand, 2019](#); [Habib et al., 2019](#)), we include several variables in [Equation \(1\)](#) to control the effects of financing and operational risk, audit complexity, and auditor characteristics on the audit time lag [\[4\]](#). The leverage ratio (*LEV*), the rate of returns on assets (*ROA*), whether a loss is reported (*LOSS*), and whether a firm reports contingent liabilities (*CONT*) are included to capture the effects of financing and operational risk of audit clients on audit delay. The natural logarithm of assets (*LNNTA*) and the number of subsidiaries a firm has (*SUB*) are included to control the effects of client size and audit complexity. Following [Chan et al. \(2016\)](#) who examine the determinants of reporting lag in China, we also include Chinese listed firms' characteristics such as whether a firm is also listed on a stock exchange other than the Shanghai and Shenzhen Stock Exchanges (*OVERLIST*), and whether a firm is a state-owned entity (*SOE*) in [Equation \(1\)](#) [\[5\]](#). Whether a firm is audited by a Big 10 audit firm (*BIG10*), whether a firm changes its auditors (*SWITCH*), and whether a modified opinion is issued (*OPIN*) are included to capture the effects of auditor related characteristics. Large audit firms may be more demanding for better audit quality and thereby require more time to audit. Audit firms may need more time to understand their clients in a new engagement and also to resolve disputes with clients concerning financial reporting issues. Lastly, both the industry (*IND*) and year (*YEAR*) indicator variables are included in [Equation \(1\)](#) to capture the industry and year effects.

The association between interim audits and the restatement risk is examined by a logistic regression as stated in [Equation \(2\)](#). In [Equation \(2\)](#), we use an indicator variable *RESTA* to capture whether a restatement of annual reports was issued. *RESTA* equals one when a restatement on annual reports is issued and zero otherwise. A restatement indicates some errors or misapplications of accounting standards were not detected by the auditing procedures performed. We hypothesize that the likelihood of restatement is reduced when an interim audit has been performed. Thus, a negative association between *RESTA* and *INTAUD* is expected.

Other factors affecting the likelihood of restatements have been examined extensively by the extant literature (e.g. [Richardson et al., 2002](#); [Aier et al., 2005](#); [Romanus et al., 2008](#); [Chin and Chi, 2009](#); [Blankley et al., 2012](#); [Fang et al., 2018](#)). In general, this stream of literature indicates that the strength of internal control, the incentives of earnings management, and the auditor quality are common factors that affect the restatement risk. We adapt the restatement models from the abovementioned studies and include several variables that relate to the risk of restatements in [Equation \(2\)](#). Specifically, *LNNTA* and a firm's age (*AGE*) may affect the strength of firms' internal control and in turn affect the restatement risk ([Romanus et al., 2008](#)). *LEV*, *ROA*, *LOSS*, and whether the firm has cash flows from equity financing (*RAISE*) are included to control the operational and financing risk and the capital needs, which relate to the incentives of earnings management ([Aier et al., 2005](#); [Romanus et al., 2008](#); [Chin and Chi, 2009](#); [Blankley et al., 2012](#)). Whether a firm maintained a string of positive earnings (*EPSG*) is included to account for the tendency to engage in earnings management ([Aier et al., 2005](#); [Romanus et al., 2008](#); [Blankley et al., 2012](#)). The growth in sales (*GROWTH*) and the market-to-book ratio (*MVBV*) are included to address the effects of growth opportunity ([Chin and Chi, 2009](#); [Fang et al., 2018](#)). We include auditor tenure (*TENURE*) and *BIG10* to capture the effects of auditor quality. *SOE* and *OVERLIST* are included to capture the effects of

ownership structure of listed firms in China. Lastly, *IND* and *YEAR* are included to control the industry and years effects. All variable definitions are provided in [Appendix](#).

Interim audits  
and final audits

$$\begin{aligned}
 RESTA_{it} = & \beta_0 + \beta_1 INTAUD_{it} + \beta_2 LNTA_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 LOSS_{it} \\
 & + \beta_6 GROWTH_{it} + \beta_7 EPSG_{it} + \beta_8 MVBV_{it} + \beta_9 RAISE_{it} \\
 & + \beta_{10} OVERLIST_{it} + \beta_{11} SOE_{it} + \beta_{12} AGE_{it} + \beta_{13} BIG10_{it} + \beta_{14} TENURE_{it} \\
 & + \sum IND + \sum YEAR + \varepsilon_{it}
 \end{aligned} \tag{2}$$

7

#### 4. Data

The sample consists of firms listed on the Shanghai and Shenzhen Stock Exchanges in China from 2007 to 2016. We collect data from the Taiwan Economic Journal (TEJ) database. A total of 19,859 firm-year observations are included initially. We exclude 407 observations from financial industries given that these firms are subject to different regulations. 246 sample observations are withdrawn due to missing data. A total of 19,206 firm-year observations are included in the final sample. We winsorize the variables at the 1st and the 99th percentiles to control the effects of extreme variables.

The descriptive statistics of the variables are provided in [Table 1](#). As shown in [Table 1](#), slightly higher than six percent of firms in the sample have their semiannual reports audited [\[6\]](#). The mean value of *RESTA* is 0.035, which suggests that only 3.5 percent of sample observations restated their annual reports to correct accounting misstatements. Given that we only include restatements due to accounting misstatements, the mean value of *RESTA* is small [\[7\]](#).

The average ROA is 3.6% and 10% of observations report a loss. The mean leverage ratio is 47.7%, suggesting sample firms are moderately leveraged on average. About 21% of observations report contingent liabilities and 66.6% have positive earnings in consecutive quarters. In general, the above statistics indicate a low operational and financing risk of the sample firms. Most firms receive unqualified auditors' opinions and only 4.6% of firms receive modified opinions. 3.6% of sample firms are cross-listed and nearly half of firms are state-owned. 53% of firms are audited by Big 10 audit firms and the average auditor tenure period is 8.3 years.

Variables <sup>a</sup>	Mean	Std. Dev	Median	Variables <sup>a</sup>	Mean	Std. Dev	Median
<i>INTAUD</i>	0.061	0.239	0	<i>SUB</i>	14.501	17.984	9
<i>LAG</i>	4.462	0.312	4.488	<i>SWITCH</i>	0.078	0.268	0
<i>RESTA</i>	0.035	0.185	0	<i>OPIN</i>	0.046	0.209	0
<i>LNTA</i>	15.085	1.309	14.936	<i>GROWTH</i>	0.209	0.631	0.106
<i>LEV</i>	0.477	0.219	0.478	<i>MVBV</i>	4.227	4.536	2.996
<i>ROA</i>	0.036	0.061	0.035	<i>RAISE</i>	0.270	0.444	0
<i>LOSS</i>	0.105	0.306	0	<i>AGE</i>	11.050	6.239	11
<i>CONT</i>	0.211	0.408	0	<i>TENURE</i>	8.323	5.610	7
<i>EPG</i>	0.666	0.471	0	<i>ARTA</i>	0.124	0.111	0.097
<i>OVERLIST</i>	0.036	0.187	0	<i>IPO</i>	0.104	0.305	0
<i>SOE</i>	0.498	0.500	0				

**Note(s):** <sup>a</sup>All variables are defined in [Appendix](#)

**Table 1.**  
Descriptive statistics  
(*N* = 19,206)

## 5. Empirical results

### 5.1 Main results

Table 2 reports the regression results from Equation (1), which tests the association between interim audits and audit time lags for final audits. The coefficient of *INTAUD*, as reported in Table 2, is significantly negative. This supports the first hypothesis that the audit time lags are shorter when interim reports are audited. This is also consistent with the findings from a separate *t*-test (untabulated) which shows that audit reports can be issued five days earlier when interim audits have been performed during the same period [8].

The majority of the other variables in Equation (1) are significantly associated with *LAG*. The positive coefficient on *LNTA* indicates that it takes longer for larger firms to receive their auditors' reports than smaller firms. The audit time lag is also longer for loss firms and when contingent liabilities are reported. The positive association between *BIG10* and *INTAUD* is consistent with the viewpoint that large audit firms demand a higher audit quality, which is typically associated with more audit time (Lin and Cho, 2014). Modified opinions are also associated with a greater audit time lag. Before the issuance of a modified opinion, auditors may need to spend more time communicating with their clients to solve pressing issues. This process could result in a greater time lag. The audit time can also increase when the number of subsidiaries increases, considering the complicated consolidation process.

On the other hand, *LEV*, *ROA*, *OVERLIST*, and *SOE* are negatively associated with the audit time lag as reported in Table 2 [9]. The negative coefficient on *LEV* indicates more timely financial reporting from firms with a higher leverage risk. Firms with a higher rate of returns tend to receive audit reports earlier. State-owned firms are associated with shorter audit time lags. This is consistent with the perception that state-owned entities have lower bankruptcy risk and thus may require less attention from auditors. Cross-listed firms also experience shorter time lags in receiving audit reports. These firms are traded on multiple stock exchanges and are thus subject to different filing requirements and informational demands. Consequently, they may be urged to provide more timely information than that required of domestically listed firms.

Variables <sup>a</sup>	Coefficient	Dependent variable: LAG	
			<i>p</i> -value
Intercept	4.351	0.001	***
<i>INTAUD</i>	-0.057	0.001	***
<i>LNTA</i>	0.014	0.001	***
<i>LEV</i>	-0.077	0.001	***
<i>ROA</i>	-0.551	0.001	***
<i>LOSS</i>	0.033	0.001	***
<i>CONT</i>	0.018	0.002	***
<i>OVERLIST</i>	-0.066	0.001	***
<i>SOE</i>	-0.023	0.001	***
<i>SUB</i>	0.001	0.001	***
<i>BIG10</i>	0.014	0.002	***
<i>SWITCH</i>	0.014	0.094	*
<i>OPIN</i>	0.093	0.001	***
<i>IND</i>		Included	
<i>YEAR</i>		Included	
Adj. <i>R</i> <sup>2</sup>		5.17%	

**Table 2.**  
The association  
between interim audits  
and audit time lag

**Note(s):** <sup>a</sup>Variable definitions are provided in Appendix

\* and \*\*\* represent for the 10% and 1%, significance level, respectively

Equation (2) tests the association between the interim audit decision and the risk of restatements. As reported in Table 3, the logistic regression results from Equation (2) indicate that *INTAUD* is significantly and negatively associated with the likelihood of issuing restatements. When an audit has been performed on an interim report, it is less likely that a firm will restate its annual reports. The decrease in the risk of restatement suggests that final audits can be done more effectively when interim audits have first been performed. This is consistent with Hypothesis 2.

Among the control variables in Equation (2), we find that *LNTA*, *ROA*, *EPSG*, and *GROWTH*, are negatively associated with the likelihood of restatement. This suggests that larger firms and profitable firms may be able to provide financial reports with better quality. The appointment of Big 10 auditors and the length of auditor tenure also relate to a lower risk of restatement. This is consistent with the expectation that Big 10 auditors can provide better audit quality and that auditors with a longer tenure become more familiar with their clients and can gain relevant expertise. Meanwhile, *LEV*, *LOSS*, and *AGE* are positively associated with *RESTA*. The positive association between these variables and the restatement risk suggests that highly leveraged firms, loss firms, and older firms are more likely to issue restatements, and thereby, have a higher audit risk [10].

To test the robustness of the main results, we perform several additional analyses. First, we consider the effects of financial distress by splitting the samples into two groups: high and low bankruptcy risk based on the Altman's Z-Score. Second, we classify the samples into two groups based on auditor size: Big 10 vs Non Big 10. Lastly, we estimate the absolute value of discretionary accruals based on Kothari et al. (2005) and classify samples into two groups: high and low discretionary accruals. Under each classification, we separately estimate Equations (1) and (2) for each group. We find that *INTAUD* is negatively and significantly associated with *LAG* and *RESTA* regardless of the classifications. In other words, the above analysis suggests that the main results are not affected by the bankruptcy risk, auditor size, or the degree of earnings management.

Variables <sup>a</sup>	Dependent variable: RESTA		
	Coefficient		p-value
Intercept	-2.391	0.001	***
<i>INTAUD</i>	-1.087	0.001	***
<i>LNTA</i>	-0.122	0.004	***
<i>LEV</i>	0.658	0.002	***
<i>ROA</i>	-1.735	0.037	**
<i>LOSS</i>	0.143	0.339	
<i>GROWTH</i>	-0.183	0.020	**
<i>EPSG</i>	-0.456	0.001	***
<i>MVBV</i>	0.005	0.492	
<i>RAISE</i>	0.125	0.227	
<i>OVERLIST</i>	-0.370	0.216	
<i>SOE</i>	0.144	0.112	
<i>AGE</i>	0.024	0.005	**
<i>BIG10</i>	-0.372	0.001	***
<i>TENURE</i>	-0.029	0.001	***
<i>IND</i>		Included	
<i>YEAR</i>		Included	
Pseudo R <sup>2</sup>		3.07%	

Note(s): <sup>a</sup>Variable definitions are provided in Appendix

\*\* and \*\*\* represent for the 5% and 1% significance level, respectively

**Table 3.**  
The association between interim audits and the likelihood of restatement



### 5.2 Effects of changing the interim audit decision

We also consider the effects of *changing* the interim audit decision on the audit time lags and restatement risks. Specifically, for the same company, we expect that both the audit time lag and the risk of restatement would be smaller in a year when an interim audit is performed than those in a year when no interim audit is performed. To test this conjecture, we identify a group of companies that have their interim reports audited in the current year but not in the preceding year (*adopters*), and a group of companies that have their interim reports audited in the preceding year but discontinue in the current year (*withdrawers*). We then re-estimate [Equations \(1\) and \(2\)](#) for the two groups of firms considered.

For the *adopters*, the results (untabulated) indicate that both the audit time lag and the restatement risk are lower in the year when a firm begins to audit its interim reports; however, the effects are insignificant. This suggests that firms may not benefit from the interim audits immediately. On the other hand, for the *withdrawers*, we find that the audit time lag and the restatement risk become significantly higher in the year when an interim audit is discontinued, suggesting a decline in the audit efficiency and quality. The above test suggests that without interim audits being performed in the preceding year, the interim audits in the current year alone will not have significant effects on audit time lags or restatement risk. However, once the interim audits become an ongoing practice, final audits can be done more timely and the restatement risk can be reduced more significantly.

### 5.3 Effects of voluntary and mandatory interim audits

Given that not all interim audits are mandatory, an additional analysis is performed to address the potential effects of selection bias of voluntary auditing. We first distinguish mandatory interim audits from voluntary interim audits. Specifically, a mandatory interim audit is identified when, in the same period of interim audits, the firm distributes profits, transfers reserves into share capital, or uses the reserve to offset losses in the next half of the current year according to the rules of listing firms in China [\[11\]](#). Other interim audits are then classified as voluntary interim audits. Based on this classification, 36% (64%) of interim audits are classified as voluntary auditing (mandatory auditing) in the sample.

We then perform Heckman's two-stage analysis ([Heckman, 1979](#)). In the first stage, we regress the voluntary auditing decision on various determinants following [Haw et al. \(2008\)](#). We also consider the earnings management motivation of special treatment firms as indicated by [Chu et al. \(2011\)](#). [Equation \(3\)](#) is developed to estimate an inverse Mills ratio.

$$\begin{aligned} V - INTAUD_{it} = & \gamma_0 + \gamma_1 ROA_{it} + \gamma_2 LNTA_{it} + \gamma_3 LEV_{it} + \gamma_4 ARTA_{it} \\ & + \gamma_5 SWITCH_{it} + \gamma_6 OVERLIST_{it} + \gamma_7 BIG10_{it} + \gamma_8 RAISE_{it} \\ & + \gamma_9 IPO_{it} + \gamma_{10} ST_{it} + \varepsilon_{it} \end{aligned} \quad (3)$$

where for firm  $i$  in year  $t$ ,  $V-INTAUD$  equals one for a voluntary interim audit and zero otherwise,  $ARTA$  is the accounts receivable scaled by total assets,  $IPO$  equals one when a firm has an initial public offering in the current or previous year and zero otherwise,  $ST$  equals one when a firm is a special treatment firm (i.e. when net losses are reported in two consecutive years) and zero otherwise, and the other variables are as defined in [Appendix](#).

In the second stage, we incorporate the estimated inverse Mills ratio from [Equation \(3\)](#) into [Equations \(1\) and \(2\)](#) to account for the potential selection bias of voluntary auditing. We further replace  $INTAUD$  in both [Equations \(1\) and \(2\)](#) by two indicator variables,  $V-INTAUD$  and  $M-INTAUD$ , where  $M-INTAUD$  equals one when the interim audit is mandatory and zero otherwise, and  $V-INTAUD$  is as defined previously. The untabulated results indicate that both  $M-INTAUD$  and  $V-INTAUD$  are significantly and negatively associated with  $LAG$  and  $RESTA$  after the selection bias is controlled.

## 6. Conclusion

This study examines the association between interim audits and final audits. We demonstrate that interim audits are associated with a shorter audit time lag in final audits and a lower restatement risk of the audited annual reports. The shorter audit time lag suggests that final audits are completed more efficiently, while the lower restatement risk indicates that final audits are more effective in dictating material accounting misstatements. These results demonstrate the value and importance of continuous auditing. When audit procedures are performed on the interim reports, auditors can better focus on critical issues after the end of the year and will therefore be able to simultaneously exercise due diligence and meet filing deadline requirements. Thus, audit efforts on interim reports not only ensure the quality of the interim reports but also benefit the final audits as well.

We believe this study contributes to the prior literature on interim audits by exploring the association between interim audit efforts and final audit results. This study also adds insights about audit efficiency and effectiveness. In particular, we show that audit efficiency and effectiveness can be maintained simultaneously when the time pressure is alleviated by interim audits. Moreover, the results from this study have some practical implications. The shorter audit time lag suggests that public firms can satisfy the market demand for more timely information by doing interim audits. The lower risk of restatement suggests that the decision for interim audit can be used as a signal to convey the good quality of annual reports. Given those general benefits of interim audits, policy makers could consider making interim audits a more extensive mandatory requirement in order to improve the financial reporting quality for certain firms of concern (e.g. firms in financial distress or firms reporting falsified financial information). The cost-effectiveness of interim audits can be further analyzed in order to provide additional policy recommendations.

## Notes

1. The audits performed on interim reports are referred to as interim audits in this study. In China, a listed company needs to prepare and disclose the interim report (i.e. semiannual report) within two months from the end of the first half of each financial year.
2. The interim report is exempt from auditing unless the company plans to distribute profits, transfer reserves into share capital, or use the reserve to offset its losses in the next half of the current year, or when auditing is required by the China Securities Regulatory Commission (CSRC) or the Exchange under other circumstances.
3. Durand, G. (2019) reported that audit report lag is used as a proxy for audit efficiency in many studies. Bamber *et al.*, (1993) also noted that audit time lag is one of the few externally observable variables that can be used to measure audit efficiency by outsiders.
4. In a separate analysis, we included two variables in Equations (1) and (2) to control for the effects of corporate governance quality: the ratio of independent board of director and the holding percentage of the largest shareholder. The results after including these variables are qualitatively the same as what we reported in Tables 2 and 3.
5. Some of our sample observations are also traded on the Hong Kong Stock Exchange, the Stock Exchange of Singapore, the London Stock Exchange, the New York Stock Exchange, or the United States OTC markets.
6. Given that interim audits are not mandatory for all listed firms, the percentage of firms that audited their interim reports is relatively small. We note this as one research limitation of the current study.
7. We only focus on restatements related to accounting misstatements because these undetected or uncorrected misstatements are more likely due to ineffective audits. We recognize that the results based on the small sample size of restatements may not be generalized and acknowledge it as a research limitation.

8. The mean audit time lag for firms that have their interim reports audited is 85.6 days, while the mean audit time lag for their counter group is 90.5 days. The difference between the two mean values is significant at the 1% level.
9. The effects of most control variables on reporting lags are generally consistent with [Chan et al. \(2016\)](#) who examine the determinants of reporting lag in China. Two notable exceptions are SOE and OVERLIST, where the coefficients on these two variables in [Chan et al. \(2016\)](#) are insignificantly positive but the coefficients are significantly negative in this study. This inconsistency is likely due to the use of different sample from different periods.
10. In a separate test, we use *MAO* as the dependent variable in [Equation \(2\)](#) and test its association with *INTAUD*. The result indicates no significant association between auditor's opinion and interim audits.
11. Listed firms in China can also be required to audit their interim reports under other circumstances. However, we cannot identify whether this has applied to any firms. Thus, the classification of mandatory and voluntary interim auditing applied in this study may not be precise. We acknowledge this as one research limitation.

## References

- Aier, J.K., Comrix, J., Gunlock, M.T. and Lee, D. (2005), "The financial expertise of CFOs and accounting restatements", *Accounting Horizons*, Vol. 19 No. 3, pp. 123-135.
- Bamber, E.M., Bamber, L.S. and Schoderbek, M.P. (1993), "Audit structure and other determinants of audit report lag: an empirical analysis", *Auditing: A Journal of Practice and Theory*, Vol. 12 No. 1 (Spring), pp. 1-23.
- Bennett, G.B., Hatfield, R.C. and Stefaniak, C. (2015), "The effect of deadline pressure on pre-negotiation positions: a comparison of auditors and client management", *Contemporary Accounting Research*, Vol. 32 No. 4, pp. 1507-1528.
- Blackwell, D.W., Noland, T.R. and Winters, D.B. (1998), "The value of auditor assurance: evidence from loan pricing", *Journal of Accounting Research*, Vol. 36 No. 1, pp. 57-70.
- Blankley, A.L., Hurr, D.N. and MacGregor, J.E. (2012), "Abnormal audit fees and restatements", *Auditing: A Journal of Practice and Theory*, Vol. 31 No. 1, pp. 79-96.
- Bryant-Kutcher, L., Peng, E.Y. and Weber, D.P. (2013), "Regulating the timing of disclosure: insights from the acceleration of 10-K filing deadlines", *Journal of Accounting and Public Policy*, Vol. 32 No. 6, pp. 475-494.
- Carslaw, C.A.P.N. and Kaplan, S.E. (1991), "An examination of audit delay: further evidence from New Zealand", *Accounting and Business Research*, Vol. 22 No. 85, pp. 21-32.
- Chan, K.H., Luo, V.W. and Mo, P.L. (2016), "Determinants and implications of long audit reporting lags: evidence from China", *Accounting and Business Research*, Vol. 46 No. 2, pp. 145-166.
- Chin, C.L. and Chi, H.Y. (2009), "Reducing restatement with increased industry expertise", *Contemporary Accounting Research*, Vol. 26 No. 3, pp. 729-765.
- Chu, A.G., Du, X. and Jiang, G. (2011), "Buy, lie, or die: an investigation of Chinese ST firms' voluntary interim audit motive and auditor independence", *Journal of Business Ethics*, Vol. 102 No. 1, pp. 135-153.
- Clatworthy, M. and Peel, M. (2013), "The impact of voluntary audit and governance characteristics on accounting errors in private companies", *Journal of Accounting and Public Policy*, Vol. 32 No. 3, pp. 1-25.
- Collis, J. (2012), "Determinants of voluntary audit and voluntary full accounts in micro and non-micro small companies in the UK", *Accounting and Business Research*, Vol. 42 No. 4, pp. 1-29.
- Collis, J., Jarvis, R. and Skerratt, L. (2004), "The demand for the audit in small companies in the UK", *Accounting and Business Research*, Vol. 34 No. 2, pp. 87-100.

- Coram, P., Ng, J. and Woodliff, D.R. (2004), "The effect of risk of misstatement on the propensity to commit reduced audit quality acts under time budget pressure", *Auditing: A Journal of Practice and Theory*, Vol. 23 No. 2, pp. 159-167.
- Dedman, E., Kausar, A. and Lennox, C. (2014), "The demand for audit in private firms: recent large-sample evidence from the UK", *European Accounting Review*, Vol. 23 No. 1, pp. 1-23.
- Durand, G. (2019), "The determinants of audit report lag: a meta-analysis", *Managerial Auditing Journal*, Vol. 34 No. 1, pp. 44-75.
- Fang, J., Lobo, G.J., Zhang, Y. and Zhao, Y. (2018), "Auditing related party transactions: evidence from audit opinions and restatements", *Auditing: A Journal of Practice and Theory*, Vol. 37 No. 2, pp. 73-106.
- Gundry, L. and Liyanarachchi, G. (2007), "Time budget pressure, auditors' personality type, and the incidence of reduced audit quality practices", *Pacific Accounting Review*, Vol. 19 No. 2, pp. 125-152.
- Habib, A., Bhuiyan, M.B.U., Huang, H.J. and Miah, M.S. (2019), "Determinants of audit report lag: a meta-analysis", *International Journal of Auditing*, Vol. 23 No. 1, pp. 20-44.
- Haw, I., Qi, D. and Wu, W. (2008), "The economic consequence of voluntary auditing", *Journal of Accounting, Auditing and Finance*, Vol. 23 No. 1, pp. 63-93.
- Heckman, J. (1979), "Sample selection as a specification error", *Econometrica*, Vol. 47 No. 1, pp. 153-161.
- Kim, J.B., Simunic, D.A., Stein, M.T. and Yi, C.H. (2011), "Voluntary audits and the cost of debt capital for privately held firms: Korean evidence", *Contemporary Accounting Research*, Vol. 28 No. 2, pp. 585-615.
- Knechel, W.R. and Sharma, D.S. (2012), "Auditor-provided nonaudit services and audit effectiveness and efficiency: evidence from pre-and post-SOX audit report lags", *Auditing: A Journal of Practice and Theory*, Vol. 31 No. 4, pp. 85-114.
- Knechel, W.R., Sharma, D.S. and Sharma, V.D. (2012), "Nonaudit services and knowledge spillover: evidence from New Zealand", *Journal of Business Finance and Accounting*, Vol. 39 Nos 1/2, pp. 60-81.
- Kothari, S.P., Leone, A. and Wasley, C.E. (2005), "Performance matched discretionary accrual measures", *Journal of Accounting and Economics*, Vol. 39 No. 1, pp. 163-197.
- Lambert, T.A., Jones, K.L., Brazel, J.F. and Showalter, D.S. (2017), "Audit time pressure and earnings quality: an examination of accelerated filings", *Accounting, Organizations and Society*, Vol. 58, April, pp. 50-66.
- Lee, J.W., Kang, M., Oh, Y. and Pyo, G. (2014), "Does continuous auditing enhance the quality of financial reporting? Korean evidence", *Asia-Pacific Journal of Accounting and Economics*, Vol. 21 No. 3, pp. 284-307.
- Lennox, C. and Pittman, J. (2011), "Voluntary audits versus mandatory audits", *The Accounting Review*, Vol. 86 No. 5, pp. 1655-1678.
- Lin, H.L. and Cho, C.C. (2014), "Analysis of accounting firms operational efficiency: the impact of mergers", *NTU Management Review*, in Chinese, Vol. 24, S1, pp. 175-201.
- Lin, H.L. and Yen, A.R.A.R. (2017), "Determinants and market valuation of the decision to audit or review: evidence from Taiwan", *Journal of Contemporary Accounting and Economics*, Vol. 13 No. 3, pp. 209-224.
- McDaniel, L.S. (1990), "The effects of time pressure and audit program structure on audit performance", *Journal of Accounting Research*, Vol. 28 No. 2, pp. 267-285.
- Pierce, B. and Sweeney, B. (2004), "Cost-quality conflict in audit firms: an empirical investigation", *European Accounting Review*, Vol. 13 No. 3, pp. 415-441.
- Richardson, S., Tuna, I. and Wu, W. (2002), "Predicting earnings management: the case of earnings restatements", Working paper, University of Pennsylvania.

- Romanus, R.N., Maher, J.J. and Fleming, D.M. (2008), "Auditor industry specialization, auditor changes, and accounting restatements", *Accounting Horizons*, Vol. 22 No. 4, pp. 389-413.
- Svanberg, J. and Öhman, P. (2013), "Auditors' time pressure: does ethical culture support audit quality?", *Managerial Auditing Journal*, Vol. 28 No. 7, pp. 572-591.
- Svanström, T. (2016), "Time pressure, training activities and dysfunctional auditor behaviour: evidence from small audit firms", *International Journal of Auditing*, Vol. 20 No. 1, pp. 42-51.
- Willett, C. and Page, M. (1996), "A survey of time budget pressure and irregular auditing practices among newly qualified UK chartered accountants", *British Accounting Review*, Vol. 28 No. 2, pp. 101-120.

## Appendix

Variable	Definition
LAG	Natural logarithm of the number of days between the end of the year and the audit report issuance date
INTAUD	1 when an interim audit is performed, and 0 otherwise
LNTA	Natural logarithm of total assets
LEV	Total liabilities divided by total assets
ROA	Net income divided by average total assets
LOSS	1 when a loss is reported, and 0 otherwise
CONT	1 when a firm reports contingent liabilities, and 0 otherwise
OVERLIST	1 when a firm is also listed on a stock exchange other than the Shanghai and Shenzhen Stock Exchanges, and 0 otherwise
SOE	1 when a firm is a state-owned entity, and 0 otherwise
BIG10	1 when a firm is audited by a Big 10 audit firm, and 0 otherwise
SUB	Number of subsidiaries
SWITCH	1 when a firm changes its auditor(s), and 0 otherwise
OPIN	1 when a modified opinion is issued, and 0 otherwise
RESTA	1 when a restatement is issued, and 0 otherwise
GROWTH	Growth in sales
EPSG	1 when a firm has positive earnings changes for four consecutive quarters, and 0 otherwise
MVBV	Market-to-book value ratio
RAISE	1 when a firm has cash flows from equity financing, and 0 otherwise
AGE	Number of years since the firm is listed on the Shanghai and Shenzhen Stock Exchanges
TENURE	Length of period of the auditor-client relationship
IND	Industry indicator variables
YEAR	Year indicator variables

**Table A1.**  
Variable definitions

## About the authors

Hsiao-Lun Lin is a Professor in the Department of Accountancy at National Taipei University in Taiwan. Her research interests include auditing and assurance, corporate governance, capital market, effects of change in regulation, and quality of financial reporting.

Ai-Ru Yen is a Professor in the Department of Accounting, Business Law, and Finance at Northeastern Illinois University in the U.S. Her research interests include auditing and assurance, corporate governance, capital market, effects of change in regulation, and quality of financial reporting. Ai-Ru Yen is the corresponding author and can be contacted at: [a-yen@neu.edu](mailto:a-yen@neu.edu)

For instructions on how to order reprints of this article, please visit our website:

[www.emeraldgroupublishing.com/licensing/reprints.htm](http://www.emeraldgroupublishing.com/licensing/reprints.htm)

Or contact us for further details: [permissions@emeraldinsight.com](mailto:permissions@emeraldinsight.com)