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Non-audit services and audit quality — the effect of Sarbanes-Oxley Act

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ABSTRACT

There has been controversy over the restrictions that SOX imposes on non-audit services. Using accounting conservatism as a proxy for earnings quality of financial statements, the paper investigates whether the offerings of non-audit services by auditors impairs earnings quality. And then, to validate the effects of SOX, this paper also explores the association between non-audit services and accounting conservatism before and after SOX enacted. The empirical results show that non-audit services do impair earnings quality before SOX, but yields no conclusive results whether the provision of non-audit services affects earnings quality. This result supports the positive effects of the regulations of SOX in governing the independence of auditors.

1. Introduction

Since the occurrence of the Enron scandal, the U.S. passed the Sarbanes-Oxley Act in 2002 in order to restore confidence in the capital market. The Act imposes new regulations on auditor independence in order to ensure and improve audit quality in response to the offering of the extensive non-audit services by Arthur Andersen to Enron. In 2001, Arthur Andersen charged Enron US$25 million for auditing services and $27 million for non-audit services. The U.S. juridical authorities believe that the offering of non-audit services hampers the independence of auditors. Therefore, the Sarbanes-Oxley Act specifies the scope of non-audit services to clients by auditors, and stipulates the annual disclosure of audit fees and non-audit service fees.

Opinions are divided regarding the restrictions that the Sarbanes-Oxley Act place on non-audit fees. Proponents indicate that, if the percentage of non-audit service fees is too high, auditors are likely to yield to clients regarding the loss of concentrated incomes, thus, losing their independence; while opponents argue that the demand for non-audit services naturally increase with the diversified developments of the corporate world. Meanwhile, non-audit services may cause clients to become even more dependent on auditors; hence, the independence of auditors is augmented. In fact, non-audit services enhance the auditors' understanding of clients, and their ability to identify issues, which improves audit quality without compromising the independence of auditors.

Literature suggests that increased non-audit service offerings enhance the economic dependence of auditors regarding specific clients, while challenging the independence of auditors (Simunic, 1984). However, concern over reputation and litigation costs is a gating factor to the integrity of auditors' independence (Davis & Simon, 1992). In sum, whether the delivery of non-audit services by auditors affects audit quality is a contentious issue. Empirically, Frankel, Johnson, and Nelson (2002) referred to earnings management as an indicator, and found that increased percentages of non-audit fees, as well as a rise in the absolute amount of non-audit fees, have negative effects on audit quality. However, Ashbaugh, LaFond, and Mayhew (2003), Chung and Kallapur (2003), Larcker and Richardson (2004), and Ruddock, Taylor and Taylor (2006) did not suggest that the existence of non-audit services affect audit quality and earnings quality. Krishnan, Sami and Zhang (2005), and Francis and Ke (2006), examined the 2001 data, taken before the Sarbanes-Oxley Act, the results suggested that the audit quality of firms is poorer if the percentage of non-audit service fees is high. Lim and Tan (2008) reviewed the same annual data and concluded that the presence of non-audit services is detrimental to audit quality.

Criticism of the Sarbanes-Oxley Act holds that the act is overly stringent, detailed, and cumbersome, causing extra governance costs to companies. Article 404 in particular increases listing costs and litigation risks, and damages the competitiveness of U.S. capital

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markets. Dispute over the causal relation between non-audit services and audit quality centers on whether such a relation changed after the updated regulations of the Sarbanes-Oxley Act in 2002 regarding the independence of auditors and restrictions over the scope of non-audit services. Therefore, this paper examines whether the rendering of non-audit services within the regulatory framework, post Sarbanes-Oxley Act, continues to affect auditors' independence and audit quality.

Discretionary accrual have been used in a number studies to proxy for audit quality (Ashbaugh et al., 2003), however Cohen, Dey and Lys (2008) indicate that while the Sarbanes-Oxley Act reduces discretionary accruals earnings management, it causes managers to use other means to manage earnings. Thus for the exploring of the influence of SOX on audit quality, discretionary accrual is not a fully appropriate proxy for audit quality. Audit quality is reflected by financial reporting quality, and accounting conservatism is one of the major factors that determine financial reporting quality. Watts (2003a, b) regarded accounting conservatism as one of the key factors that determine financial statements' quality, the rendering of audit quality. Therefore, this paper refers to the level of accounting conservatism as an indicator of audit quality. This paper refers to the method developed by Ruddock et al. (2006), and uses accounting conservatism as the indicator of audit quality. The purpose is to examine whether the increased the percentage of unexpected non-audit service fees damages audit quality around 2002, the year Sarbanes-Oxley Act enacted. The empirical results suggest that audited firms continue to exhibit accounting conservatism, and it is conclusive that the rendering of non-audit services affects audit quality. The results are consistent to Krishnan et al. (2005), and Francis and Ke (2006), that companies with a high percentage of non-audit service fees report worse audit quality before the Sarbanes-Oxley Act. But the results prove non-conclusive that the rendering of non-audit services affects audit quality. This paper concludes that the regulations in tend to Sarbanes-Oxley Act regarding the independence of auditors have positive effects.

2. Literature review and hypothesis development

2.1. Non-audit services and audit quality

Auditing aims to ensure the credibility of the financial statements. According to the definition by DeAngelo (1981), audit quality is the joint probability of auditors finding and reporting frauds in the financial statements. It is relevant to the professional ability and independence of auditors.

From the professional perspective, the delivery of non-audit services enhances the auditors' understanding of clients and empowers the ability to identify frauds. That is, it should elevate audit quality without compromising the auditors' independence. Arruñada (1999) proposed that the rendering of non-audit services equips auditors with additional understanding of their clients, and such knowledge spillover of non-audit services improves the efficiency and quality of audits. Jenkins and Krawczyk (2000) found that the delivery of non-audit services allows auditors to better understand their clients and improve audit quality.

Regarding independence, Reynolds and Francis (2001) suggested that the impact of non-audit services on audit quality is a trade-off between economic bonds and reputation maintenance. Economic constraints mean a growing reliance resulted from overly high percentage of incomes from non-audit services, which imposes pressure on auditors to refrain from expressing their true opinions in a fair and objective manner for fear of income loss. As a result, they lose the independence they are supposed to have (Simunic, 1984; Frankel et al., 2002). The more the percentage of fee income from the particular clients as a total of the firm's income, the greater the reliance on the clients, and the stronger the economic constraints. In order to retain these clients, auditors continue to express unqualified opinions of poor-quality financial statements (DeAngelo, 1981). However, Emby and Davidson (1998) held a contrasting view, and indicated that the professionalism of non-audit services provides auditors with economic power. As a result, auditors tend not to give in to pressure from clients concerning financial statements. Regarding reputation maintenance, Davis and Simon (1992) indicated that high-profile auditors risk their reputation if they compromise their independence to retain certain clients, and other clients may not be willing to pay higher fees. Dopuch, King and Schwartz (2001) also suggested that the offering of non-audit services adds to reputational stakes and enhances auditors' independence, and therefore, reduces the likelihood of misstatement of financial reports.

Empirical literature does not provide consistent views regarding whether the rendering of non-audit services impairs auditor's independence, audit quality, or financial statements' quality. Reynolds and Francis (2001) did not think auditors issued favorable opinions to important clients. Ashbaugh et al. (2003) extended the results of Frankel et al. (2002), and argued that after controlling company performances as a factor, there is no positive correlation between non-audit services and unexpected accruals. Chung and Kallapur (2003) examined the percentages of all fee incomes and non-audit fee incomes from a single client against the firm's total incomes in the evaluation of client's importance. In their study, client's importance was considered a proxy for the motivation for auditors to impair their own independence. The research concluded that client's importance is irrelevant to abnormal accruals. Kinney, Palmrose, and Scholz (2004) referred to the restatement of financial statements as the proxy for the quality of financial reporting in order to examine the relationship between restatements and non-audit service fees. The results did not suggest a significantly positive correlation between non-audit service fees and restatements. Larcker and Richardson (2004) indicated that the limitation of reputational effects on auditors does not facilitate earnings management. Ruddock et al. (2006) referred to accounting conservatism as an indicator of earnings quality presented in financial statements in the examination of whether an increase of unexpected non-audit service fee percentage jeopardizes the independence of auditors and affects the information quality of financial statements. They applied the methods used by Basu (1997), and Ball and Shivakumar (2005), in order to evaluate accounting conservatism and validate whether an increase in the percentage of unexpected non-audit service fees reduces the level of accounting conservatism. The results did not prove any relationship between the percentage of unexpected non-audit service fees and the level of accounting conservatism.

However, Simunic (1984), Beck, Frecka and Solomon (1988), and Beeler and Hunton (2001), observed the relationship between non-audit services and earnings management in order to examine whether non-audit services reduce the earnings quality of financial reporting. The results suggested that the delivery of non-audit services strengthens the economic constraints between auditors and clients. Clients exert pressure on auditors according to their opinions, which renders auditors tolerant of earnings management. The result is greater leeway for earnings manipulation by clients. Frankel et al. (2002) found that an increased percentage and the absolute amount of non-audit service fees leads to more earnings management. Gul, Tsui, and Dhaliwal (2006) proposed that non-audit service fees augment the auditors' economic reliance on clients. The pressure to retain clients facilitates the behavior of earnings management and the release of misleading earnings information. Krishnan et al. (2005), and Francis and Ke (2006),

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examined the 2001 data, which was prior to the reinforcement of the Sarbanes-Oxley Act, and under the SEC requirements for disclosure of audit and non-audit fees. Their studies show that the firms with a high percentage of non-audit service fees report worse audit quality. Lim and Tan (2008) reviewed the same annual data and found that the presence of non-audit fees impairs audit quality. The paper first uses accounting conservatism as the proxy for audit quality to examine whether the offering of non-audit services impairs audit quality before Sarbanes-Oxley Act enacted. The hypothesis is, as follows:

H1. The offering of non-audit services impairs audit quality.

Since the occurrence of the Enron scandal, the U.S. passed the Sarbanes-Oxley Act in 2002 in order to restore confidence in the capital market. The Act imposes new regulations on auditor independence in order to ensure and improve audit quality in response to the offering of the extensive non-audit services by Arthur Andersen to Enron. The U.S. juridical authorities believe that the offering of non-audit services hampers the independence of auditors. Therefore, the Sarbanes-Oxley Act specifies the scope of non-audit services to clients by auditors, and stipulates the annual disclosure of audit fees and non-audit service fees.

Although the Sarbanes-Oxley Act imposes a new set of regulations on auditors' independence to ensure audit quality, these regulations are often criticized as overly stringent and cumbersome, increasing governance costs for companies. Article 404, in particular, raises listing costs and litigation risks. Hence, this paper re-examines whether the offering of non-audit services, within the regulatory regime of the Sarbanes-Oxley Act, affects auditors' independence and audit quality. The purpose is to investigate whether this correlation changes, post the Sarbanes-Oxley Act of 2002, under the new restrictions of non-audit services and the regulations governing auditors' independence. This paper sets the research period as after the Sarbanes-Oxley Act, and observes the impact of non-audit services on audit quality. The level of accounting conservatism is an indicator in the exploration of whether the percentage of unexpected non-audit service fees affects the levels of accounting conservatism. The results are then compared with that pre the Sarbanes-Oxley Act of 2002, concerning the dispute surrounding the correlation between non-audit services and audit quality. The hypothesis is, as follows:

H2. The Sarbanes-Oxley Act mitigates the negative influence of the offering of non-audit services on audit quality.

3. Research design

3.1. Data and sample

To investigate the relation between non-audit service fees and accounting conservatism, this study use a sample of U.S. publicly traded firms from Standard & Poor over the period 2000–2003 (audit fee is only available starting from 2000). The initial sample consist of 36,867 observations. Consistent with the previous studies, the sample excludes the financial services firms (SIC codes 6000–6999). This study construct a sample of 7833 firm-year observations, in which 3847 and 16,085 for the period 2000–2001 and 2002–2003, respectively. The sample-selection procedure is described in Table 1.

3.2. Measurements of related variables

3.2.1. The percentage of non-audit service fees

If non-audit services are a key income source, auditors may compromise with clients during the auditing process in order to avoid the loss of the clients, meaning there is a strong economic constraint between auditors and clients, and in this scenario, the independence of auditors will be questioned. Frankel et al. (2002), and Defond, Raghunandan and Subramanyam (2002), referred to the percentage of non-audit service fees as a metric for this economic constraint. Ruddock et al. (2006), Larcker and Richardson (2004), and Gul et al. (2006), all supported the use of the percentage of non-audit service fees against the total fees as a proxy variable for economic constraints. However, Kinney and Libby (2002) indicated that for specific companies, the use of non-audit services is predictable. For example, companies suffering from poor financial health will have a stronger demand for non-audit services (Barkess & Simnett, 1994; Firth, 1997; Frankel et al., 2002; Parkash & Venable, 1993). Therefore, the existence of expected non-audit services does not affect the independence of auditors, and true economic constraint should stem from unexpected non-audit services, due to an attempt to bribe auditors. Therefore, the higher the amount of unexpected non-audit service fees, the stronger the economic constraint (Ruddock et al., 2006).

Under the viewpoint, the paper first established model of the unexpected non-audit services to estimate expected ratio of non-audit service fees. The difference between actual and expected value of the ratio of non-audit service fees (RNAF) is used to estimate the unexpected ratio of non-audit service fees (UXRNAF). This captures the extent of auditor-client economic bonds resulting from non-audit service. The estimate model is as follows:

$$\begin{aligned}\widehat{RNAF} =& \alpha + \beta_1 B4 + \beta_2 MRET + \beta_3 CFO + \beta_4 LEV + \beta_5 INVREC \\ &+ \beta_6 LOGMVE + \beta_7 MKTBK + \beta_8 ACQ + \sum r_i Industry \\ &+ \sum \varphi_i Year UXRNAF = RNAF - \widehat{RNAF}\end{aligned} \quad (1)$$

In the equations, where *RNAF* is the ratio of non-audit fees measured by non-audit fees divided by total fees. *UXRNAF* represents unexpected ratio of non-audit fees. *B4* is 1 if the firm's auditor is big 4, and 0 otherwise. *MRET* refers to market-adjusted annual stock return. *CFO* denotes cash from operation deflated by beginning-of −year total assets. *LEV* is leverage measured by total liabilities against total assets. *INVREC* denotes audit complexity measured by inventory plus accounts receivable, deflated by beginning-of year total assets. *LOGMVE* is log of the market value of equity. *MKTBK* represents market to book value ratio. *ACQ* is 1 if the firm was engaged in a merger/acquisition activity, and 0 otherwise.

3.2.2. Unexpected non-audit service fees and accounting conservatism

Most literature refers to abnormal accruals as a proxy variable for audit quality, financial reporting quality (Chung & Kallapur, 2003; Myers, Myers and Omer, 2003), or earnings quality (Dechow, Ge, & Schrand, 2010). However, in fact, accounting conservatism is one of the key factors of earnings quality, and 1/3 of accounting treatments are related to it (Watts, 2003a, b). Wang, Gu,

Table 1
Description of sample selection.

Initial sample	36,867
Less: the financial services firms (SIC codes 6000–6999)	−12,052
Less: audit fees or non-audit fees unavailable	−13,385
Less: missing data items to construct related variables	−3597
Final sample	7833
Pre-SOX (2000–2001)	3847
Post-SOX(2002–2003)	3986

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and Chen (2008) suggested that earnings can be seen as the information conveyed to stakeholders, who use this information as a foundation for decisions. If managers intend to conceal adverse news, and only reveal beneficial news by postponing the recognition of bad news, it will be a violation of accounting conservatism. At this juncture, information is not useful and will mislead stakeholders into erroneous decisions resulted from poor quality of financial statements.

Basu (1997) held that the standards for auditors to recognize earnings are higher than the standards to recognize losses. Accounting conservatism is the product of asymmetric recognition of profits and losses. Therefore, accounting conservatism can be defined as the asymmetric recognition of good news and bad news. Basu (1997) developed an asymmetric timeliness measurement to review the correlation between stock returns and earnings during the same period. If the timeliness of bad news recognition is higher than that of good news, it indicates a high level of accounting conservatism. Ball and Shivakumar (2005) referred to the time series concept to measure the relationship between earnings changes during the prior period and the current period for an explanation of accounting conservatism. They argued that the impact of bad news on earnings is transient, thus, while bad news recognized during the prior period reduces earnings, it increases the earnings of the current period due to the reversal. The greater the recognition timeliness of bad news during the prior period, the faster the reversal and reflection onto earnings during the current period.

In Basu (1997) asymmetric timeliness measure model,[1] positive market-adjusted stock returns are used as a proxy for good news and negative return are used as a proxy for bad news. Accounting conservatism indicates that the timeliness of bad news recognition is higher than that of good news, that is, the earnings of the current period response negative stock return in time. The paper includes additional interaction items of the dummy variable of high unexpected non-audit fees ratio (DUXRNAF) and market-adjusted stock return (MRET), to capture the incremental effect of unexpected non-audit fees to accounting conservatism, and estimate the following regression:

$$\begin{aligned} OI_{it} =& \alpha_0 + \alpha_1 DRET_{it} + \alpha_2 DUXRNAF_{it} + \alpha_3 DRET_{it} \cdot DUXRNAF_{it} \\ &+ \beta_0 MRET_{it} + \beta_1 MRET_{it} \cdot DRET_{it} + \beta_2 MRET_{it} \cdot DUXRNAF_{it} \\ &+ \beta_3 MRET_{it} \cdot DRET_{it} \cdot DUXRNAF_{it} \end{aligned} \tag{2}$$

In equation (2), where *OT* is operating income deflated by beginning-of year market capitalization. *MRET* denotes market-adjusted annual stock return. *DRET* is 1 if *MRET*<0, and 0 otherwise. *DUXRNAF* is 1 if *UXRNAF* is in the top third of the pooled sample, and 0 if *UXRNAF* is in the bottom third.

Accounting conservatism implies the higher responsiveness of earnings to bad news than good news, that is, the coefficient β_1 is positive. If the unexpected non-audit fees are associated with the reduction of accounting conservatism, then the coefficient β_3 is negative and statistically significant, that is, unexpected non-audit fees reduce the incremental responsiveness of earnings to bad news.

Ball and Shivakumar (2005) applied the time series behavior of earnings changes of deferred recognition of good news to identify the indicator of accounting conservatism. For accounting conservatism, the deferred recognition of good news lead to take more periods to be realized, hence the probability of positive earnings change is higher than that of negative earnings change, that is, positive earnings changes are less likely to reverse than negative earnings changes. If the level of accounting conservatism is reduced, the faster reversal of negative earnings changes will be reduced. The paper includes additional interaction items of the dummy variable of high unexpected non-audit fees ratio (DUXRNAF) and change in operation income (ΔOI_{t-1}), to capture the incremental effect of unexpected non-audit fees on the reversal of negative income change, the measure of the reduction of accounting conservatism, by means of the following regression:

$$\begin{aligned} \Delta OI_{it} =& \theta_0 + \theta_1 DOI_{it-1} + \theta_2 DUXRNAF_{it} + \theta_3 DOI_{it-1} \cdot DUXRNAF_{it} \\ &+ \varphi_0 \Delta OI_{it-1} + \varphi_1 \Delta OI_{it-1} \cdot DOI_{it-1} + \varphi_2 \Delta OI_{it-1} \cdot DUXRNAF_{it} \\ &+ \varphi_3 \Delta OI_{it-1} \cdot DOI_{it-1} \cdot DUXRNAF_{it} \end{aligned} \tag{3}$$

In equation (3), where ΔOI_{it} represents changes in operating income for firm i in fiscal year t deflated by beginning-of-year market capitalization. ΔOI_{it-1} denotes changes in operating income for firm i in fiscal year t-1 deflated by beginning-of-year market capitalization. DOI_{it-1} is 1 if ΔOI_{it-1}<0, and 0 otherwise. $DUXRNAF_{it}$ is 1 if $UXRNAF_{it}$ is in the top third of the pooled sample, and 0 if in the bottom third.

Accounting conservatism implies the faster reversal of negative earnings changes, that is, the coefficient φ_1 is significantly negative. If the unexpected non-audit fees are associated with the reduction of accounting conservatism, then the coefficient φ_3 is positive and statistically significant, that is, unexpected non-audit fees reduce the reversal of negative income change.

4. Empirical analysis

4.1. Descriptive statistics and correlation

Table 2 reports the summary statistics of the related variables

Table 2
Descriptive statistics.

Variables	mean	median	Std.	Max.	Min.
AF (in $000's)	940.84	1013.11	2018.62	70,211.96	4.21
NAF (in $000's)	1052.41	918.16	318.68	97,925.63	0
TF (in $000's)	1947.81	1467.12	3065.26	127,193.61	8.29
RNAF (%)	40.55	23.61	17.32	90.16	0.00
UXRNAF (%)	3.29	0.37	9.14	35.12	−24.16
OI	−0.14	0.08	0.36	0.67	−2.53
ΔOI	0.09	0.06	0.41	2.62	−1.43
MRET (%)	−43.19	−57.15	67.83	411.15	−176.59
DRET	0.80	1	0.402	1	0
DOI	0.48	0	0.50	1	0
MVE (in $000's)	2077.15	1526.81	2392.15	32,379.38	3.16
TA (in $000's)	2141.89	1361.53	2683.37	36,176.19	0.15
B4	0.72	1	0.451	1	0

Note: *AF* is audit fees. *NAF* is non-audit fees. *TF* is total fees. *RNAF* is the ratio of non-audit fees measured by non-audit fees divided by total fees. *UXRNAF* represents unexpected ratio of non-audit fees. *OT* is operating income deflated by beginning-of year market capitalization. *MRET* denotes market-adjusted annual stock return. *ΔOI* represents changes in operating income deflated by beginning-of-year market capitalization. *MRET* refers to market-adjusted annual stock return. *DRET* is 1 if *MRET*<0, and 0 otherwise. *DOI* is 1 if *ΔOI* <0, and 0 otherwise. *MVE* is the market value of equity. *TA* is total assets. *B4* is 1 if the firm's auditor is big 4, and 0 otherwise.

[1] Considering the individual difference, Khan and Watts (2009) uses C_score to measure accounting conservatism of individual firms by year based on Basu (1997) asymmetric timeliness measure model. Using C_score measure accounting conservatism, the paper test the relationship of the offering of non-audit services and audit quality, and the influence of SOX. The results are identical to the measurement of Basu (1997) asymmetric timeliness measure model.Chen, Folsom, Paek and Sami (2014) indicated asymmetric timeliness measurement base on Basu (1997) model is sensitive to unrelated factor and potentially suffer from measurement error. The paper use the approach of Chen et al. (2014) to measure accounting conservatism. The empirical results are identical to Basu (1997) asymmetric timeliness measure model.

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Table 3
Difference test before and after Sarbanes-Oxley Act enacted.

	Pre-SOX (n = 3847)			Post-SOX (n = 3986)			Test of diff. in mean (*p* value)	Test of diff. in median (*p* value)
	mean	median	Std.	mean	median	Std.		
AF (in $000's)	812.62	1068.92	1158.28	1064.58	1128.51	1016.27	0.015	0.007
NAF (in $000's)	1518.91	1423.67	1753.87	602.17	318.26	403.05	<0.001	<0.001
TF (in $000's)	2265.56	2083.69	2391.59	1641.13	1124.82	1452.23	<0.001	<0.001
RNAF (%)	59.48	32.87	26.62	22.28	18.15	20.07	<0.001	<0.001
UXRNAF (%)	9.64	6.58	8.94	−2.83	−1.31	4.92	<0.001	<0.001
OI	−0.17	−0.02	0.39	−0.11	−0.02	0.48	0.008	0.004
ΔOI	0.08	0.04	0.41	0.05	0.02	0.31	0.015	0.008
MRET (%)	−34.40	−51.68	86.57	−51.68	−58.17	76.85	0.326	0.285
DRET	0.77	1	0.42	0.82	1	0.39	0.038	0.083
ΔOI	0.13	0.03	0.43	0.06	0.01	0.31	<0.001	0.021
DOI	0.53	1	0.5	0.43	0	0.50	0.08	0.013
MVE (in $000's)	2144.46	1989.21	3964.25	2012.19	2002.15	3049.19	0.385	0.327
TA (in $000's)	2154.39	2103.29	4108.19	2129.82	2019.46	3716.39	0.452	0.319
B4	0.76	1	0.43	0.69	1	0.46	0.085	0.057

Notes: The definitions of variables are described in Table 2.

Table 4
Pearson correlation coefficients.

	AF	NAF	TF	RNAF	UXRNAF	OI	ΔOI	MRET	DRET	ΔOI_{t-1}	DOI_{t-1}	MVE_{t-1}	TA_{t-1}
AF	1												
NAF	0.468***	1											
TF	0.812***	0.643***	1										
RNAF	−0.211***	0.207***	−0.192***	1									
UXRNAF	−0.108***	0.312***	−0.112***	0.786***	1								
OI	−0.216***	−0.118***	−0.215***	0.137***	0.012	1							
ΔOI	−0.008	−0.002	−0.015	0.009	−0.016	0.127**	1						
MRET	−0.035***	−0.018	−0.064***	0.153***	0.001	−0.012***	0.121***	1					
DRET	−0.038***	−0.015***	−0.031***	−0.005	−0.002	0.116***	−0.158***	−0.641***	1				
ΔOI_{t-1}	0.113	0.106***	0.015**	0.003	−0.001	−0.103***	−0.182***	0.112**	−0.008	1			
DOI_{t-1}	0.162***	0.071***	0.128***	−0.002	0.004	−0.192***	0.116**	0.137***	−0.099***	−0.386***	1		
MVE_{t-1}	−0.071**	−0.135***	−0.210**	0.116**	−0.002	0.127***	−0.071***	−0.054**	0.102**	−0.116***	−0.121***	1	
TA_{t-1}	−0.128***	−0.148***	−0.172***	0.068***	−0.008	0.109**	−0.109***	−0.116***	0.124***	−0.031***	−0.071*	0.335***	1

Notes: 1. The definitions of variables are described in Table 2.
2. ***, ** and * indicate significant at the 1%, 5%, and 10% levels, respectively.

for 7833 firm-year observations over the period 2000 to 2003. As shown in Table 2, the median non-audit fees (NAF) and total fees (TF) are lower than the means, showing that NAF and TF are right-skewed. It is because of the phenomenon that the higher non-audit fees of the pre-SOX observations, and fast decrease after 2002, the year Sarbanes-Oxley Act enacted. And this also leads to the ratio of non-audit fees (RNAF) and unexpected non-audit fees ratio (UXRNAF) are right-skewed.

To count the influence of Sarbanes-Oxley Act, Table 3 shows the descriptive statistics for the two sub-samples while the sample is partitioned by before and after Sarbanes-Oxley Act enacted. Table 3 also presents the test for difference in mean and median between the two groups. The test results show that the non-audit fees (NAF) of post-SOX sub-sample are significantly smaller than that of pre-SOX. This results indicate that the Sarbanes-Oxley Act specifies the scope of non-audit services to clients by auditors, have reduced the offers of non-audit service. I also find the greater non-audit fees ratio and unexpected non-audit fees ratio before Sarbanes-Oxley Act enacted.

Table 4 presents the results of the Pearson correlations among the related variables for the full sample. Almost all correlation coefficient are less than 0.3 except market-adjusted annual stock return (*MRET*) and the dummy variable *DRET*, changes in operating income for previous period t-1 (ΔOI_{t-1}) and the dummy variable DOI_{t-1}. This indicates that the influence of multi-collinearity is not serious.

4.2. The results of asymmetric timeliness measure model

The regression model (2), Basu's asymmetric timeliness measure model, examines the relationship between operating income and market-adjusted annual stock returns during the same period in order to verify whether the sample is in compliance with the principle of accounting conservatism. The first step is to test the full sample. This paper also divides the sample into three groups, high, median, and low UXRNAF, in terms of the ratio of unexpected non-audit service fees. And then test the three groups respectively to verify the impact of unexpected ratio of non-audit service fees on accounting conservatism. Table 5 summarizes the empirical results.

Analysis of the full sample suggests a significantly positive correlation between stock returns and net incomes during the same period ($\beta_0 = 0.002$, $p = 0.003$), and a significantly positive correlation between negative post-adjusted annual stock returns and net incomes during the same period ($\beta_1 = 0.003$, $p < 0.001$). This suggests that, for the observed sample, bad news is better and more timely reflected on earnings during the current period than good news. In other words, accounting conservatism exists. Meanwhile, this paper divides the sample into three groups, high, medium, and low UXRNAF, in terms of the ratio of unexpected non-audit service fees. Analysis indicates that, for all three groups, β_1 is significantly larger than 0, indicating bad news (vs. good news) is more able to reflect earnings during the current period in a timely manner. All three groups exhibit accounting conservatism.

To considers the impact of the ratio of unexpected non-audit

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Table 5
Accounting conservatism level (asymmetric timeliness measure model).

$OI_{it} = \alpha_0 + \alpha_1 DRET_{it} + \beta_0 MRET_{it} + \beta_1 MRET_{it} \cdot DRET_{it}$

Variable	Pred. Sign	Full Sample	High UXRNAF	Midian UXRNAF	Low UXRNAF
Intercept	?	−0.121*** (<0.001)	−0.119** (0.018)	−0.105** (0.015)	−0.102*** (0.001)
DRET	−	−0.136*** (0.001)	−0.175*** (0.008)	−0.131*** (0.005)	−0.148*** (0.003)
MRET	+	0.002*** (0.003)	0.003** (0.035)	0.004** (0.012)	0.002** (0.021)
*MRET*DRET*	+	0.003*** (<0.001)	0.003*** (<0.001)	0.006*** (0.002)	0.005*** (<0.001)
Adj.R^2		8.81%	6.13%	7.81%	7.29%
Obs.		7833	2611	2611	2611

Notes: 1. The definitions of variables are described in Table 2.
2. Figures in parentheses are p-values.
3. ***, ** and * indicate significant at the 1%, 5%, and 10% levels, respectively.

service fees (*UXRNAF*) when reviewing whether this ratio mitigates the level of accounting conservatism. The highest 1/3 and the lowest 1/3 of the samples, in terms of the ratio of unexpected non-audit fees, are accompanied by dummy variable *DUXRNAF*, in order to examine whether the unexpected non-audit fees reduces the levels of accounting conservatism. Table 6 shows the regression results of Basu (1997) asymmetric timeliness measure model for the two sub-samples while the sample is partitioned by year 2000–2001, the pre-SOX period, and year 2002–2003, the post-SOX period. The empirical results of the two sub-sample indicate that the coefficients of *MRET*DRET*, β_1, are both significantly greater than 0, which supports the presumption that bad news (vs. good news) is reflected on earnings during the current period in a timely manner, and thus, the presence of accounting conservatism. In addition, in pre-SOX sub-sample, the coefficient of *MRET*DRET*DUXRNAF*, β_3, is significantly negative, indicating a high ratio of unexpected non-audit service fees can reduce the level of accounting conservatism. However, the coefficient is not statistically significant in post-SOX sub-sample, indicating that a high ratio of unexpected non-audit service fees cannot prove any change in the level of bad news channeling into earnings in a timely manner, nor can it prove that the rendering of non-audit services affects the level of accounting conservatism.

The empirical findings suggest that the rendering of non-audit services reduces the level of accounting conservatism in the pre-SOX period, that is, the offering of non-audit services impairs audit quality, which is consistent with the viewpoint of H1. However, in the post-SOX period, nor can it prove that the rendering of non-audit services affects the level of accounting conservatism, implying the restrictions of Sarbanes-Oxley Act placing on non-audit service have mitigate the impairment on audit quality, which is consistent with the point of H2 that Sarbanes-Oxley Act can mitigate the negative impact of the offering of non-audit service on audit quality.

4.3. The results of time series behavior measure model

The regression model (3), Ball and Shivakumar (2005) time series behavior measure model, examines the relationship between operating income and market-adjusted annual stock returns during the same period in order to verify whether the sample is in compliance with the principle of accounting conservatism. The first step is to test the full sample. This paper also divides the sample into three groups, high, median, and low UXRNAF, in terms of the ratio of unexpected non-audit service fees. And then test the three groups respectively to verify the impact of unexpected ratio of non-audit service fees on accounting conservatism. Table 7 summarizes the empirical results.

Analysis of the full sample suggests a significantly negative correlation between the interaction of operating earnings change and negative operating dummy in previous period ($\Delta OI_{t-1}{}^{*} DOI_{i,t-1}$), and operating earnings change in this period ($\varphi_1 = -0.308$, $p < 0.001$). This suggests that, for the observed sample, negative earnings changes are more likely to reverse than positive earnings changes. In other words, accounting conservatism exists. Meanwhile, this paper divides the sample into three groups, high, medium, and low UXRNAF, in terms of the ratio of unexpected non-audit service fees. Analysis indicates that, for all three groups, φ_1 is significantly smaller than 0, indicating negative relations between negative operating earnings changes in previous period and operating earnings change in this period. All three groups exhibit accounting conservatism.

To considers the impact of the ratio of unexpected non-audit service fees (*UXRNAF*) when reviewing whether this ratio mitigates the level of accounting conservatism. The highest 1/3 and the lowest 1/3 of the samples, in terms of the ratio of unexpected non-audit fees, are accompanied by dummy variable *DUXRNAF*, in order to examine whether the unexpected non-audit fees reduces the

Table 6
The Influence of unexpected non-audit fees on accounting conservatism (Asymmetric Timeliness Measure Model).

$OI_{it} = \alpha_0 + \alpha_1 DRET_{it} + \alpha_2 DUXRNAF_{it} + \alpha_3 DRET_{it} \cdot DUXRNAF_{it} + \beta_0 MRET_{it} + \beta_1 MRET_{it} \cdot DRET_{it} + \beta_2 MRET_{it} \cdot DUXRNAF_{it} + \beta_3 MRET_{it} \cdot DUXRNAF_{it}$

Variable	Pred. Sign	Full sample		Pre-SOX		Post-SOX	
Intercept	?	−0.241***	(0.002)	−0.121***	(0.001)	−0.142***	(<0.001)
DRET	−	−0.226***	(0.001)	−0.135***	(0.002)	−0.201***	(<0.001)
DUXRNAF	?	0.021	(0.104)	0.015	(0.214)	0.018*	(0.069)
*DERT*DUXRNAF*	−	0.011*	(0.083)	0.016*	(0.068)	0.007	(0.228)
MRET	+	0.004**	(0.037)	0.002**	(0.029)	0.002***	(0.004)
*MRET*DRET*	+	0.002***	(0.002)	0.005***	(0.008)	0.003***	(<0.001)
*MRET*DUXRNAF*	+	0.004	(0.354)	0.002	(0.241)	0.003	(0.357)
*MRET*DRET*DUXRNAF*	−	−0.001**	(0.016)	−0.002**	(0.028)	0.001	(0.236)
Adj.R^2		7.15%	6.27%	6.63%			
Obs.		5222	1216	4006			

Notes: 1. DUXRNAF is 1 if $UXRNAF_{it}$ is in the top third of the pooled sample, and 0 if in the bottom third. The definitions of other variables are described in Table 2.
2. Figures in parentheses are p-values.
3. ***, ** and * indicate significant at the 1%, 5%, and 10% levels, respectively.

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Table 7
Accounting conservatism level (time series behavior measure model).

$\Delta OI_{it} = \theta_0 + \theta_1 DOI_{it-1} + \varphi_0 \Delta OI_{it-1} + \varphi_1 \Delta OI_{it-1} \cdot DOI_{it-1}$

Variable	Pred. Sign	Full Sample	High UXRNAF	Midian UXRNAF	Low UXRNAF
Intercept	?	0.112**	0.089	0.111*	0.172
		(0.018)	(0.205)	(0.056)	(0.116)
$DOI_{i,t-1}$	−	−0.012*	−0.010	−0.015	0.008
		(0.082)	(0.143)	(0.219)	(0.223)
ΔOI_{t-1}	+	0.021***	0.016*	−0.012*	0.047***
		(0.001)	(0.061)	(0.084)	(<0.001)
$\Delta OI_{t-1}{}^{*} DOI_{i,t-1}$	−	−0.308***	−0.462***	−0.307***	−0.425***
		(<0.001)	(<0.001)	(<0.001)	(<0.001)
Adj.R^2		7.21%	8.64%	6.17%	7.53%
Obs.		7833	2611	2611	2611

Notes: 1. The definitions of variables are described in Table 2.
2. Figures in parentheses are p-values.
3. ***, ** and * indicate significant at the 1%, 5%, and 10% levels, respectively.

Table 8
The Influence of unexpected non-audit fees on accounting conservatism (Time Series Behavior Measure Model).

$\Delta OI_{it} = \theta_0 + \theta_1 DOI_{it-1} + \theta_2 DUXRNAF_{it} + \theta_3 DOI_{it-1} \cdot DUXRNAF_{it} + \varphi_0 \Delta OI_{it-1} + \varphi_1 \Delta OI_{it-1} \cdot DOI_{it-1} + \varphi_2 \Delta OI_{it-1} \cdot DUXRNAF_{it} + \varphi_3 \Delta OI_{it-1} \cdot DOI_{it-1} \cdot DUXRNAF_{it}$

Variable	Pred. Sign	Full sample		Pre-SOX		Post-SOX	
Intercept	?	0.018**	(0.045)	0.034**	(0.031)	0.021**	(0.017)
$DOI_{i,t-1}$	−	−0.047	(0.209)	−0.062	(0.226)	0.021	(0.425)
$DUXRNAF_{i,t}$	?	−0.012	(0.336)	−0.018	(0.152)	−0.016	(0.261)
$DOI_{i,t-1}{}^{*}DUXRNAF_{i,t}$	−	−0.027	(0.185)	−0.021*	(0.072)	−0.019	(0.215)
ΔOI_{t-1}	+	0.167**	(0.022)	0.143**	(0.016)	0.116***	(<0.001)
$\Delta OI_{t-1}{}^{*} DOI_{i,t-1}$	−	0.163**	(<0.001)	−0.362***	(<0.001)	−0.418***	(<0.001)
$\Delta OI_{t-1}{}^{*} DUXRNAF_{i,t}$	+	0.128**	(0.012)	−0.124**	(0.027)	−0.116**	(0.043)
$\Delta OI_{t-1}{}^{*} DOI_{i,t-1}{}^{*}DUXRNAF$	+	0.218**	(0.036)	0.128**	(0.022)	−0.102	(0.283)
Adj. R^2		8.27%		8.16%		8.87%	
Obs.		5222		1216		4006	

Notes: 1. DUXRNAF is 1 if $UXRNAF_{it}$ is in the top third of the pooled sample, and 0 if in the bottom third. The definitions of other variables are described in Table 2.
2. Figures in parentheses are p-values.
3. ***, ** and * indicate significant at the 1%, 5%, and 10% levels, respectively.

levels of accounting conservatism. Table 8 shows the regression results of Ball and Shivakumar (2005) time series behavior measure model for the two sub-samples while the sample is partitioned by the pre-SOX period and the post-SOX period. The empirical results of the two sub-sample indicate that the coefficients of $\Delta OI_{t-1}{}^{*} DOI_{i,t-1}$, φ_1, are both significantly smaller than 0, which supports the presence of accounting conservatism. In addition, in pre-SOX sub-sample, the coefficient of $\Delta OI_{t-1}{}^{*} DOI_{i,t-1}{}^{*}DUXRNAF$, φ_3, is significantly positive, indicating a high ratio of unexpected non-audit service fees can reduce the level of accounting conservatism. However, the coefficient is not statistically significant in post-SOX sub-sample, indicating that a high ratio of unexpected non-audit service fees cannot prove that the rendering of non-audit services affects the level of accounting conservatism. The empirical findings suggest that the rendering of non-audit services reduces the level of accounting conservatism in the pre-SOX period, that is, the offering of non-audit services impairs audit quality, which is consistent with the viewpoint of H1. However, in the post-SOX period, nor can it prove that the rendering of non-audit services affects the level of accounting conservatism, implying the restrictions of Sarbanes-Oxley Act placing on non-audit service have mitigate the impairment on audit quality, which is consistent with the point of H2 that Sarbanes-Oxley Act can mitigate the negative impact of the offering of non-audit service on audit quality.

5. Conclusion

The passing of the Sarbanes-Oxley Act in 2002 initiated a new set of rules governing the independence of auditors and restricts the scope of non-audit services. The act requires the annual disclosure of audit fees and non-audit fees in order to ensure audit quality, however, there has been controversy regarding the regulations stipulated by the Sarbanes-Oxley Act. Proponents believe that non-audit services create too strong reliance of auditors on clients and eliminate the independence of auditors, while opponents argue that the delivery of non-audit services enhances the understanding of audited clients and improves the professionalism of auditors without impairing auditors' independence. In other words, non-audit services improve audit quality. In addition, some feel the laws are too strict, tedious, and burdensome, and create extra governance and litigation costs for companies. Therefore, the Sarbanes-Oxley Act is not necessarily productive; hence, adjustments are warranted.

This paper discusses the new set of rules concerning the independence of auditors under the Sarbanes-Oxley Act, as well as the limitations regarding the scope of non-audit services. The purpose is to explore whether the relationship between non-audit services and audit quality are differences in the effect of non-audit services on audit quality pre- and post-the Sarbanes-Oxley Act, and

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whether the Sarbanes-Oxley Act has generated impacts.

Audit quality is reflected by financial reporting quality, and accounting conservatism is one of the major factors that determine financial reporting quality. Therefore, this paper refers to the level of accounting conservatism as an indicator to audit quality, and examines whether an increase in the ratio of unexpected non-audit service fees is detrimental to audit quality. The empirical results suggest that, while accounting conservatism is present in the sampled firms, the pre-SOX group with a high ratio of non-audit service fees report poorer audit quality, while the post-SOX group yields no conclusive results whether the provision of non-audit services affects audit quality. This result supports the positive effects of the regulations of the Sarbanes-Oxley Act in governing the independence of auditors.

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