Journal of Applied Economics and Business Research
JAEBR, 13(2):110-124(2023)

Fair Value Measurement and Audit Pricing

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Abstract
This study examines whether fair value reporting is related to audit pricing. I posit that the extent of assets and liabilities measured at fair value is positively associated with audit fees. When a client firm has a higher level of its assets and liabilities measured at fair values, its risk of financial misreporting is increased, making auditors increase their audit effort and, thereby, charge higher audit fees. Using firms covered in AuditAnalytics and Compustat database, I empirically examine an association between fair value estimates and audit fees. Consistent with my hypothesis, my findings indicate a positive relationship between the level of fair value assets and liabilities and audit fees. I also conduct several additional analyses which support the main findings. This paper contributes to the fair value literature and the audit pricing literature by offering direct empirical indication on the association between fair value reporting and audit fees. It further provides evidence on the economic consequences of SFAS 157 adoption and identifies the extent of assets and liabilities measured at fair value as one of the audit fee determinants.

Keywords: fair value accounting; SFAS 157; ASC 820; audit fees

JEL Codes: M40, M41, M42

1. Introduction

The purpose of this study is to examine an association between fair value accounting and audit pricing. Specifically, I investigate whether the extent of assets and liabilities measured at fair value is positively related to audit fees. In 2006, the Financial Accounting Standards Board (FASB) released Statement of Financial Accounting Standards No. 157 (SFAS 157), *Fair Value Measurements*, which became effective from the fiscal year beginning after November 15, 2007. Fair value is defined as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (FASB, 2006). The standard requires the classification of assets and liabilities into three levels which is based on the observability of the sources of information (i.e., inputs) employed in fair value calculations.

The implication of SFAS 157 has been controversial. Proponents claim that fair value accounting provides financial statement users with more relevant and timely financial information than historical cost information does (Barth, 2006; Bhamornsiri, Guinn, and Schroeder, 2010)

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whereas opponents argue that fair value reporting is not reliable because it is subject to measurement errors and managerial manipulation (Nissim, 2003; Landsman, 2007; Ryan, 2008; Song, Thomas, and Yi, 2010).

Prior empirical studies find that fair value measurements lead to a trade-off between relevance and reliability of financial reporting. The studies on relevance of fair value measurements generally agree that fair value estimates are reflected in stock prices, implying they are value-relevant (Carroll, Linsmeier, and Petroni, 2003; Kolev, 2009; Song, Thomas, and Yi, 2010; Riedl and Serafeim, 2011; Fiechter and Novotny-Farkas, 2011). On the other hand, the studies that have examined the reliability of fair value measurements conclude that fair value estimates are not reliable because they are frequently influenced by managerial opportunistic decisions (Chong, Huang, and Zhang, 2012; Liao, Kang, Morris, and Tang, 2013; Riedl and Serafeim, 2011; Bick, Orlova, and Sun, 2018). In sum, fair value estimates appear to enhance the relevance, such as timeliness and comparability, although they tend to diminish the reliability, such as credibility and verifiability (Bick, Orlova, and Sun, 2018).

This study addresses the following research question: is there a positive association between the extent of assets and liabilities measured at fair value and audit fees? Simunic (1980), one of the earliest studies to propose theoretical audit pricing model, suggests that audit fees are primarily determined by audit costs and auditor-assessed client risk. Audit costs are the costs incurred by the audit work and the auditor-assessed client risk component is the risk premium asked by auditors for possible audit failure. Based on this idea suggested by the seminal work of Simunic (1980), many studies have investigated the factors that affect audit fees.

I posit that the extent of fair value assets and liabilities is positively associated with audit fees. The subjectivity and biases inherent in fair value assessments make auditing fair value measurements a challenging task (Christensen, Glover, and Wood, 2012; Glover, Taylor, and Wu, 2017). The fair value estimation process can produce information asymmetry, resulting in moral hazard and enabling management to exploit the subjectivity in fair value estimates (Landsman, 2007). When estimates are hard to be verified, opportunistic managers are likely to exploit the discretion and subjectivity involved in the estimation process in order to inflate earnings (Watts, 2003; Ramanna, 2008). Fair value measurements may pose a risk to financial reporting quality, providing managerial discretionary choices in the estimation process (Watts, 2003).

The argument that auditing fair value measurements is a challenging task is evidenced by frequent deficiencies reported by Public Company Accounting Oversight Board (PCAOB). PCAOB inspections reveal that fair value measurements often lead to auditors' errors (Church and Shefchik, 2012; Griffith, Hammersley, Kadous, and Young, 2015). High level of uncertainty caused by unstable financial markets and complicated financial instruments is the main reason for such auditors' deficiencies (Cannon and Bedard, 2017).

Auditors are likely to raise the level of audit efforts when client firms are exposed to higher risk in their financial reporting quality which can be caused by manipulation or misstatement (Charles, Glover, and Sharp, 2010). When a client firm poses high audit risk, auditors put more effort and increase audit fees so as to cover a higher level of audit effort (Simunic and Stein, 1996). In short, I expect to find a positive relationship between the extent of fair value assets and liabilities and audit fees.

Using firms covered in AuditAnalytics and Compustat database, I empirically examine an association between fair value estimates and audit fees. Consistent with my prediction, the findings

 ISSN 1927-033X

suggest that client firms are charged with higher audit fees when they measure more assets and liabilities at fair values. I conduct several additional analyses. First, a possible endogeneity problem is controlled by a propensity score matching technique. Second, I control for non-audit service fees by adding an additional variable to the main equation. Third, I control for disclosures of internal control weaknesses. Fourth, I use an alternative dependent variable. All the supplemental analyses support the main findings.

The current study makes several contributions by linking the fair value literature and the audit pricing literature. First, it offers direct empirical indication on the association between the extent of fair value assets and liabilities and audit fees, complementing studies on fair value measurements.

Second, the present research adds to the literature that examines SFAS 157 which has been controversial since its adoption. While existing studies primarily focus on the capital market consequences, this study provides evidence on the economic consequences of SFAS 157 adoption.

Third, this paper contributes to the audit fee literature by identifying the extent of assets and liabilities measured at fair value as one of the audit fee determinants. Although audit fee determinants have been extensively studied, there are few that link audit fees with fair value accounting.

The paper proceeds as follows. The next section discusses literate review and hypothesis development. Section 3 describes research design and sample data. Section 4 shows empirical results. Section 5 includes additional analyses and Section 6 concludes.

2. Literature review and hypothesis development

2.1 Fair value accounting

In 2006, the Financial Accounting Standards Board (FASB) released Statement of Financial Accounting Standards No. 157 (SFAS 157), *Fair Value Measurements,* which became effective from the fiscal year beginning after November 15, 2007. In the updated FASB's Codifications, SFAS 157 is placed in Accounting Standards Codification 820 (ASC 820), *Fair Value Measurements and Disclosures.*

Prior to SFAS 157, there were various definitions of fair value as well as inconsistent guidance for application. To manage such issues, the FASB initiated a fair value measurement project in 2003, which, in turn, resulted in the release of SFAS 157. In an attempt to improve consistency, comparability, and transparency in fair value measurements, SFAS 157 provided practical guidance on fair value accounting by establishing a definition of fair value, setting out a framework for measurement, and expanding related disclosures.

SFAS 157 defines fair value as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (FASB, 2006). For measurement of fair value assets and liabilities, the standard establishes a three-level valuation hierarchy which differentiates the observability of the sources of information (i.e., inputs) employed in fair value calculations. Moreover, the standard requires disclosure of the classification of assets and liabilities into three levels.

Level 1 inputs are quoted prices in active markets for same assets or liabilities (FASB, 2006). Level 2 inputs are classified into three subgroups: quoted prices for similar assets or liabilities in

 ISSN 1927-033X

active markets, quoted prices for identical assets and liabilities in inactive markets, and other valuation inputs that are not quoted (FASB, 2006). Level 2 valuation can be complex because it includes estimation based on quoted prices of similar assets or liabilities, thereby necessitating judgement in identifying similar products (Ahn, Hoitash, and Hoitash, 2020). Level 3 inputs are unobservable, usually using some theoretical way of valuation that is subject to management's estimates and assumptions (FASB, 2006, Alali and Anandarajan, 2015; Ayres, 2016). Because the management's estimates and assumptions are extremely subjective and require substantial managerial judgement, they are difficult to validate (Ahn, Hoitash, and Hoitash, 2020). If the model assumptions are slightly changed, the assessed value of Level 3 products can be substantially changed (Ahn, Hoitash, and Hoitash, 2020).

The implication of SFAS 157 has been controversial. Proponents argue that fair value accounting provides financial statement users with more relevant and timely financial information compared to historical cost information (Barth, 2006; Landsman, 2006; Bhamornsiri, Guinn, and Schroeder, 2010). Fair value assets and liabilities provide timely information because they are market-based inputs (Penman, 2007). Because of these market-based inputs, a firm's financial position can swiftly be updated and investors can quickly take corrective actions on their investment (Laux and Leuz, 2009).

On the other hand, the reliability of fair value information is a major concern shared by the opponents of SFAS 157. They claim that fair value information is not reliable because it is subject to measurement errors and managerial manipulation (Nissim, 2003; Landsman, 2007; Ryan, 2008; Song, Thomas, and Yi, 2010). The measurement of fair value can get very complicated when the quoted market prices in active markets are not available (Dechow, Myers, and Shakespeare, 2010). In such cases, the measurement is not only based on management's subjective assumptions but also susceptible to managerial manipulation (Dechow, Myers, and Shakespeare, 2010). Furthermore, SFAS 157 has been criticized for the possibility of contributing to the 2008 financial crisis (Gaynor et el., 2011).

A stream of research that has examined the relevance of fair value measurements generally concurs that fair value estimates are value-relevant, that is, reflected in stock prices (Carroll, Linsmeier, and Petroni, 2003; Kolev, 2009; Song, Thomas, and Yi, 2010; Riedl and Serafeim, 2011; Fiechter and Novotny-Farkas, 2011). Carroll et al. (2003) provide evidence that fair values of investment securities are more value-relevant than historical cost accounting. Kolev (2009) finds a positive relationship between stock prices and fair values of net assets in a sample of large financial institutions. Song et al. (2010) document that, in the banking section, fair value inputs of all three levels under SFAS 157 are value-relevant. Fiechter and Novotny-Farkas (2011) reveal that the value relevance of fair value measurements differs cross-sectionally and across time in an international setting. Even though valuation coefficients differ across institutional and firm-specific variables, fair values are mostly value-relevant (Fiechter and Novotny-Farkas, 2011).

Another stream of research that has examined the reliability of fair value measurements generally agrees that fair value estimates are not reliable because they are frequently influenced by managerial opportunistic decisions (Chong, Huang, and Zhang, 2012; Liao, Kang, Morris, and Tang, 2013; Riedl and Serafeim, 2011; Ball, Jayaraman, and Shivakumar, 2012; Wang and Zhang, 2017; Magnan, Wang, and Shi, 2016; Bick, Orlova, and Sun, 2018). Chong et al. (2012) examine the impact of SFAS 157 on earnings management in a sample of US commercial banks and provide evidence that the banks engage in earning management by taking advantage of the latitude available for classification of securities under SFAS 157. They conclude that the banks use SFAS 157 as a way of managing earnings. Liao et al. (2013) examine whether US banks' fair value net

 ISSN 1927-033X

assets under SFAS 157are related to information asymmetry which is measured by bid-ask spread and find that all three fair value levels increase information asymmetry. Riedl and Serafeim (2011) provide evidence that information risk increases when fair value estimates are based on unobservable inputs. Ball et al. (2012) also document a higher level of information asymmetry in banks that adopt the fair value accounting model.

Wang et al. (2017) document that the use of fair vale estimates under SFAS 157 is positively related to a demand for convertible debt. They argue that the lack of reliability of fair value measures exacerbates agency conflicts between debtholders and shareholders, thereby increasing a demand for convertible debt. Magnan et al. (2016) find that the extent of fair value estimates under SFAS 157 is positively related to the cost of debt, arguing that debtholders view fair value inputs as less reliable. Bick et al. (2018) document a positive relationship between the use of fair value measures under SFAS 157 and corporate cash holdings, arguing that lower reliability of fair value inputs causes higher agency conflicts which, in turn, increases a level of firm's cash holding.

In short, fair value measurements seem to lead to a trade-off between relevance and reliability of financial reporting. Although fair value estimates appear to enhance the relevance of financial information, such as timeliness and comparability, they tend to decrease the reliability, such as credibility and verifiability (Bick, Orlova, and Sun, 2018).

2.2 Audit fees

The main goal of auditing is to attest that management acts in the best interests of shareholders (Nikkinen and Sahlstrom, 2004). Auditing mitigates agency conflicts between owners and managers and, thus, is a crucial component of the corporate governance mechanisms. Auditors verify the actions undertaken by management in the process of examining a firm's financial reporting (Choi, Kim, Liu, and Simunic, 2008; Choi, Kim, and Zang, 2010). Auditors aim to decrease the information risk, which is the risk that a company's financial records are materially false or misleading, to a socially acceptable level (Cho, Ki, and Kwon, 2017).

Simunic (1980) is one of the earliest studies to propose theoretical audit pricing model with empirical evidence on the determinants of audit fees. Simunic (1980) suggests that audit fees are primarily determined by audit costs and the auditor-assessed client risk. Audit costs are the costs incurred by the audit work and based on the auditor's overall assessment of the audit effort whereas the auditor-assessed client risk is the risk premium asked by auditors for possible audit failure. Based on this idea suggested by the seminal work of Simunic (1980), many studies have investigated the factors that affect audit fees.

A vital component in audit pricing decisions is audit risk, which is the risk that audit opinion is erroneously issued (Stanley, 2011). The level of overall audit effort is determined based on the evaluation of the audit risk which consists of inherent risk, control risk, and detection risk. Inherent risk is the possibility that a significant error exists in the financial statements and control risk is the likelihood that a client firm's internal control fails to detect a material misstatement. Detection risk is the possibility that auditors fail to detect a material error. During the audit fee negotiation process, auditors use a broad range of information sources, public and private sources, in order to assess audit risk and determine audit effort (Hribar, Kravet, and Wilson, 2014; Leidner and Lenz, 2017). Based on this assessment of audit risk and audit effort, audit fees are estimated. When a client firm poses high audit risk, auditors plan to put more effort and increase audit fees so as to cover such a higher level of audit effort

 ISSN 1927-033X

(Simunic and Stein, 1996). Thus, the amount of audit effort exerted in the auditing procedures is a primary determinant of audit fees (Gul, Hsu, and Liu, 2018). Furthermore, higher audit risk increases litigation and reputation risks and auditors attempt to alleviate those risks by increasing audit effort as well as audit fees (Lyon and Maher, 2005).

2.3 Hypothesis development

The subjectivity and biases inherent in fair value assessments make auditing fair value measurements a challenging task (Christensen, Glover, and Wood, 2012; Glover, Taylor, and Wu, 2017). By collecting reliable data and developing assumptions and valuation models, management assesses fair values of various assets and liabilities, such as financial instruments, derivatives, and impaired long-lived assets.

The fair value estimation process can produce information asymmetry, resulting in moral hazard and enabling management to exploit the subjectivity inherent in fair value estimates (Landsman, 2007). For their own personal objectives and benefits, managers can take advantage of private information in determining model parameters, thereby biasing financial reporting (Aboody, Barth, and Kasznik, 2006). When estimates are hard to be verified, opportunistic managers are likely to exploit the discretion and subjectivity involved in the estimation process in order to inflate earnings (Watts, 2003; Ramanna, 2008). Furthermore, management opportunism in fair value assessments can potentially lead to higher compensation for managers (Dechow, Myers, and Shakespeare, 2010). Fair value measurements may pose a risk to financial reporting quality, providing management with discretionary choices in the estimation process (Watts, 2003).

The argument that auditing fair value measurements is a challenging task is evidenced by frequent deficiencies issued by Public Company Accounting Oversight Board (PCAOB) to companies' financial value measurements. PCAOB inspections reveal that a fair value measurement is a key account of concern for auditors' errors (Church and Shefchik, 2012; Griffith, Hammersley, Kadous, and Young, 2015). The deficiency most frequently issued by PCAOB is related to a failure to assess the reasonableness of managers' assumptions and methods (Griffith, Hammersley, Kadous, and Young, 2015). In addition, the frequency of audit deficiencies related to fair value measurements stay constant over time (Church and Shefchik, 2012). Great valuation uncertainty caused by unstable financial markets and complicated financial instruments is the main reason for auditors' deficiencies (Cannon and Bedard, 2017).

Auditors are likely to raise the level of audit efforts when a client firm's financial disclosures are susceptible to manipulation or misstatement (Charles, Glover, and Sharp, 2010). To cope with higher audit risk, auditors perform more extensive work in gathering sufficient evidence as well as conduct additional review (Gul, Hsu, and Liu, 2018). Furthermore, in an effort to detect material misstatements in complex client reporting, auditors with more industry-specific knowledge or more overall experience might be engaged, which, in turn, can increase audit fee (Gul, Hsu, and Liu, 2018; Hay, Knechel, and Wong, 2006; Simunic, 1980; Simunic and Stein, 1996). Glover et al. (2017) indicate that auditors often work with in-house valuation specialists or third-party valuation specialists when auditing fair value measurements.

In responding to higher audit risk, auditors are likely to increase audit fees due to the additional costs arising from higher level of audit efforts (Simunic and Stein, 1996). Charles et al. (2010) document a significant association between audit fees and risk of material misstatement. Using a sample of banks from 24 European countries, Alexeyeva and Mejia-Likosova (2016) document that the use of level 3 fair value measures is positively related to audit fees.

 ISSN 1927-033X

In sum, as a firm has higher level of its assets and liabilities measured at fair values, it has higher risk of financial misreporting. Then, in an attempt to mitigate the risk of issuing an inappropriate audit opinion on financial statements, auditors are likely to exert more effort and, thus, charge higher audit fees. Hence, the following hypothesis in the alternative form is tested.

H_1: The extent of fair value assets and liabilities is positively associated with audit fees.

3. Methods and data

3.1 Research design

I employ an ordinary least squares (OLS) model to test the hypothesis that examines an association between fair value estimates and audit fees (firm and year subscripts are omitted for brevity).

$$\text{LnAuditFee} = \beta_0 + \beta_1 \text{FV} + \beta_2 \text{LnTA} + \beta_3 \text{ROA} + \beta_4 \text{RD} + \beta_5 \text{INTAN} + \beta_6 \text{CARRY} + \beta_7 \text{MB} + \varepsilon \quad (1)$$

Where:
LnAuditFee = natural logarithm of total audit fees
FV = (fair value assets + fair value liabilities) / total assets
LnTA = natural logarithm of total assets
ROA = net income / total assets
RD = R&D expense / total assets
INTAN = intangibles / total assets
CARRY = 1 if the firm has net operating loss carryforward and 0 otherwise
MB = (long term debt + price×common shares outstanding) / total assets

A dependent variable is the natural log of total audit fees (Cho, Ki, and Kwon, 2017; Barua, Hossain, and Rama, 2019; Mitra, Jaggi, and Al-Hayale, 2019). The log of audit fees is employed to decrease the skewness in the distribution of audit fees (Cho, Ki, and Kwon, 2017). The primary variable of interest is FV which measures the extent of assets and liabilities measured at fair values (Magnan, Wang, and Shi, 2016). The hypothesis anticipates a positive coefficient on FV ($\beta_1 > 0$).

Control variables are firm size (LnTA), profitability (ROA), R&D intensity (RD), intangible assets (INTAN), non-debt tax shield (CARRY), and growth opportunities (MB) (Simunic, 1980; Hossain, Mitra, and Salama, 2019; Mitra, Jaggi, and Al-Hayale, 2019; Lobanova, Mishra, Raghunandan, and Aidov, 2020; Fang, Gul, Sami, and Zhou, 2021; Jha, Kulchania, and Smith, 2021). I control for year and firm fixed effects and standard errors are clustered at the firm level.

3.2 Sample and descriptive statistics

I gather necessary financial statement and audit fee data from Compustat and AuditAnalytics, respectively. The continuous variables are winsorized at the 1% and 99% level. The number of firm-year observations is 15,276 for the period of 2009-2013. Table 1 and Table 2 report the descriptive statistics of the variables and Pearson correlations among variables, respectively. LnAuditFee and FV are positively correlated, providing preliminary evidence for H1.

 ISSN 1927-033X

Table 1. Descriptive statistics of regression variables

Variable	N	Mean	Std Dev	First Quartile	Median	Third Quartile
lnAuditFee	15276	13.41	1.59	12.3	13.5	14.46
FV	15276	0.18	1.2	0	0.02	0.19
LnTA	15276	6.2	2.96	4.39	6.55	8.19
ROA	15276	-0.73	17.28	0.01	0.08	0.14
RD	15276	0.09	1.17	0	0	0.03
INTAN	15276	0.13	0.19	0	0.03	0.2
CARRY	15276	0.49	0.5	0	0	1
MB	15276	5.96	144.32	0.54	0.94	1.62

Table 2. Pearson correlations among variables

	1	2	3	4	5	6	7	8
1. LnAuditFee	1							
2. FV	**-0.04**	1						
3. LnTA	**0.85**	**-0.07**	1					
4. ROA	**0.09**	**-0.09**	**0.17**	1				
5. RD	**-0.07**	**0.05**	**-0.13**	**-0.18**	1			
6. INTAN	**0.22**	**-0.04**	**0.09**	**0.00**	-0.02	1		
7. CARRY	**0.04**	0.01	**-0.15**	**0.00**	**0.02**	**0.19**	1	
8. MB	**-0.05**	**0.05**	**-0.11**	**0.00**	**0.08**	-0.02	0.01	1

*Correlation coefficients in bold are significant at 1% level.

4. Results and discussion

The empirical results obtained from estimating the regression (1) are reported in the Table 3. The main model (1) tests the hypothesis that the extent of fair value assets and liabilities is positively associated with audit fees. Such a positive relationship is expected because auditors are likely to exert more audit effort and charge higher audit fees for the clients who measure higher levels of their assets and liabilities at fair values. In such cases, the client firms have higher risks of financial misreporting and thus the auditors endeavor to decrease the risk of issuing an inappropriate audit opinion on financial statements.

The results support my hypothesis, H_1, as the independent variable of interest, FV, is significantly positive at the 1 percent level. Moreover, the main model shows a good fit to the data as evidenced by the value of R^2 which is above 75%. The results indicate that auditors are likely to charge higher audit fees to firms with higher level of fair value measurements. This finding is consistent with prior studies in that fair value measurements decrease the reliability of financial reporting, making the audit of fair value measurements a challenging task (Christensen, Glover, and Wood, 2012; Bratten et al., 2013; Glover, Taylor, and Wu, 2017).

In general, the results of the control variables are signed as expected. For example, firm size (LnTA), R&D intensity (RD), intangible assets (INTAN), and non-debt tax shield (CARRY) display significantly positive coefficients ($p < .01$) and profitability (ROA) displays a negative coefficient ($p < .05$).

 ISSN 1927-033X

Table 3. Fair value and audit fees
Dependent variable: the natural log of total audit fees

	Coef.	p-value
FV	0.030	0.002
LnTA	0.470	0.000
ROA	-0.004	0.030
RD	0.047	0.004
INTAN	0.992	0.000
CARRY	0.455	0.000
MB	0.000	0.627
Year	Yes	
Industry	Yes	
N	15,231	
R^2	0.768	

In general, the results of the control variables are signed as expected. For example, firm size (LnTA), R&D intensity (RD), intangible assets (INTAN), and non-debt tax shield (CARRY) display significantly positive coefficients ($p < .01$) and profitability (ROA) displays a negative coefficient ($p < .05$).

4.Supplemental analyses

I conduct several additional analyses. First, a possible endogeneity problem is controlled by a propensity score matching technique. It is possible that a positive association between fair value estimates and audit fees is caused by correlated omitted variables. To assuage such a concern, I employ a propensity matched sample in which the matched pairs of firm-year observations share similar dimensions except the treatment (i.e., the extent of fair value estimates). In this sample, the level of audit fees can be attributed to fair value measurements rather than to other variables. Using the propensity-matched sample, I re-estimate the primary regression (1) and confirm the main results (Table 4).

Table 4: Propensity Score Matching
Dependent variable: the natural log of total audit fees

	Coef.	p-value
FV	0.027	0.017
LnTA	0.400	0.000
ROA	0.000	0.791
RD	-0.006	0.795
INTAN	-0.233	0.521
CARRY	-0.023	0.923
MB	0.000	0.756
Year	Yes	
Industry	Yes	
N	708	
R^2	0.865	

 ISSN 1927-033X

Second, I control for non-audit service fees by adding an additional variable to the main equation (1). When audit firms provide audit and non-audit services concurrently to client firms, audit costs may be lowered because of either knowledge spillover or economies of scope (Chung and Kallapur, 2003). Therefore, I control for the potential relation between non-audit service fees and audit fees by including the natural log of the sum of tax and other service fees in the primary model and confirm the main results (Table 5).

Table 5: Control for non-audit services fees
Dependent variable: the natural log of total audit fees

	Coef.	p-value
FV	0.029	0.005
LnTA	0.432	0.000
ROA	-0.004	0.014
RD	0.043	0.005
INTAN	0.907	0.000
CARRY	0.430	0.000
MB	0.000	0.595
LnNAF	0.044	0.000
Year	Yes	
Industry	Yes	
N	15,231	
R^2	0.779	

Third, I control for the disclosure of internal control weaknesses because prior studies find that internal control weaknesses affect financial reporting quality as well as audit costs (Doyle, Ge, and McVay, 2007; Krishnan and Wang 2015). Ineffective internal controls may cause material accounting errors (Kinney and McDaniel 1989). When internal control weaknesses are indicated by auditors' opinions, firms are viewed as having ineffective internal control systems.

To control for the disclosure of internal control weaknesses, I include a dummy variable which equals 1 if auditors' opinions report firms' internal control weaknesses under Section 404 of the Sarbanes-Oxley Act (SOX) of 2002. This analysis confirms the main results (Table 6). Lastly, I use an alternative dependent variable. Instead of using the natural log of total audit fees, I use the absolute amounts of audit fees (Liang, Qi, Xin, and Zhan, 2021) and obtain similar results (Table 7).

 ISSN 1927-033X

Table 6: Control for the disclosure of internal control weaknesses
Dependent variable: the natural log of total audit fees

	Coef.	p-value
FV	0.030	0.002
LnTA	0.470	0.000
ROA	-0.004	0.030
RD	0.047	0.004
INTAN	0.995	0.000
CARRY	0.452	0.000
MB	0.000	0.628
ICW	0.305	0.000
Year	Yes	
Industry	Yes	
N	15,231	
R^2	0.769	

Table 7: Alternative Measure of the Dependent Variable
Dependent variable: the absolute amounts of audit fees

	Coef.	p-value
FV	177,784	0.022
LnTA	1,000,264	0.000
ROA	-21,199	0.002
RD	147,221	0.045
INTAN	791,155	0.084
CARRY	841,414	0.000
MB	-207	0.817
Year	Yes	
Industry	Yes	
N	15,276	
R^2	0.238	

5. Conclusion

The present research investigates whether fair value measurements are associated with audit pricing. I hypothesize that the extent of fair value assets and liabilities is positively related to audit fees because fair value measurements are likely to lead to higher risk of financial misreporting. Using a sample of firm-year observations from Compustat and AuditAnalytics, I find that the extent of assets and liabilities measured at fair values is positively associated with a firm's level of audit fees. This paper contributes to the fair value literature and the audit pricing literature by offering direct empirical indication on the association between fair value reporting and audit fees. It further provides evidence on the economic consequences of SFAS 157 adoption and identifies the extent of assets and liabilities measured at fair value as one of the audit fee determinants.

 ISSN 1927-033X

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