

# **The Association Between Audit Committee Financial Expert Characteristics and Audit Fees**

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*Using a sample of 136 Fortune 500 companies for the year 2011 (Post-Dodd Frank Act of 2010 has increased additional scrutiny on the monitoring activities of the audit committee members), we investigate whether certain characteristics of ACFE (number of financial experts, tenure, age, education, and gender) have contributed to increase in audit fees. We assume that audit efficiencies occur in audits of firms with certain ACFE characteristics, possibly contributing to increases in audit coverage and subsequent increase in audit fees. We find that older female ACFE tend to ask for higher audit coverage leading to increased audit fees thereby influencing audit quality.*

*Keywords: audit committee, audit fees, financial expert*

## **INTRODUCTION**

A financial expert on the audit committee plays a significant role in ensuring the integrity of the financial statements (Endrawes, Feng, Lu, and Shan, 2020; Sultana and Mitchell Van der Zahn, 2015; Carcello, Hollingsworth, Klein, and Neal, 2006; Agrawal and Chadha, 2003; McMullen and Raghunandan, 1996). Section 407 of the Sarbanes-Oxley Act of 2002 requires public companies to disclose if at least one member of the audit committee is a “financial expert” or state the reason why if they do not have any. However, an unresolved issue that has not been examined is how certain characteristics of the audit committee financial expert (hereinafter, ACFE) can add further value to the monitoring effectiveness of the audit committee. The role of the audit committee and its monitoring effectiveness have come into strong focus after the Dodd Frank Act of 2010. The Act recommends best practices regarding the presence of financial experts on the audit committee, which in turn should improve oversight and accountability.

Prior research posits that a firm's audit fees depend on the effort exerted by auditors and the level of risk involved (Eshleman and Guo, 2014; Simunic and Stein, 1996). Auditors will charge higher fees to deliver a higher-quality audit report (Goodwin-Stewart, and Kent, 2006; Francis, 2004, p. 352; Palmrose, 1986;) and to reflect higher level of audit coverage (Abbott, Parker, Peters, and Raghunandan, 2003).

Prior research also presents evidence that the aftermath of the accounting scandals in the early 2000s and the Sarbanes-Oxley Act of 2002 (hereafter, SOX), have led to an increased demand in audit work and therein, audit fees for public companies. SOX and the preceding accounting scandals have significantly changed the relationship among U.S. public companies, their external auditors appointed and overseen by the audit committees, and audit fees (Abbott et al., 2003).

A recent report from the Financial Education and Research Foundation's (hereafter, FERF) 11<sup>th</sup> annual public company audit fee survey indicates that audit fees are on the rise, with a 6.0% increase in the average audit fees in the year 2019 when compared to 2018. The increase in audit fees was more prominent for public companies that had to pay higher audit fees to their external auditors for overseeing the quality of their financial statements. One major reason for the increase in audit fees is due to changes in accounting standards in addition to acquisition (FERF, 2021).

Therefore, the motivation for this study comes from recent increases in audit fees, which are an important metric that serves as a proxy for audit coverage. Further, regulations require ACFEs in the corporate governance structure of firms, particularly in an oversight role on the audit committee. This study examines whether the presence of certain characteristics of ACFE influence a firm's level of audit coverage proxied by audit fees.

DeFond, Hann, and Hu (2005) find that the market reacts positively to public firms' disclosure of a financial expert on their audit committee but not to the presence of non-accounting financial experts. Likewise, Dhaliwal, Naiker, and Navissi (2006) suggest that the use of a broad definition of financial expert is too encompassing and argue that an audit committee with a combination of accounting and finance expertise tends to be very efficient and that the presence of supervisory expertise adds no value. They find a positive association between audit committee accounting expertise and accruals quality and find that this relationship is stronger when both accounting and finance expertise is combined.

Prior literature documents the effect of factors such as audit coverage, risk, board quality, and problem board directors on audit fees (Habib, Bhuiyan, and Rahman 2019; Cao, Myers, and Omer, 2012; Abbott et al, 2003; Carcello, Hermanson, Neal, & Riley, 2002; Simunic & Stein 1996). However, there is still an unanswered question whether certain characteristics of an ACFE influence audit fees in a positive or negative manner. On the one hand, certain ACFE characteristics may require additional audit coverage, leading to an increase in audit fees. On the other hand, the characteristics of an ACFE may reduce the perceived risk of a firm, thus requiring less audit coverage and leading to lower audit fees.

This paper fills a gap in the literature by conducting a cross-sectional study of certain characteristics related to ACFEs (i.e., number of financial experts, tenure, age, education, gender) and audit fees using 136 Fortune 500 companies for the year 2011. Prior studies argue that younger people are less innovative (Frosch, 2011) but become more innovative and conservative as they become older (Peterson, Smith, & Hibbing, 2020; Hoisl, 2007; Sundaram and Yermack, 2007). This means that as a female ACFE becomes older, she tends to become more conservative and innovative, as she gains expert knowledge over years of experience. Therefore, she may require more innovative, and effective higher-quality audit procedures (Kang & Piercey, 2020) as she gets older. Kang & Piercey (2020) find that "audit committee members perceive a higher level of comfort regarding the issues surrounding the accounting estimate when more innovative procedures are adopted. This higher level of comfort is likely due to audit committee members' belief that more innovative procedures will lead to higher audit quality"

Therefore, our variable of interest is the interaction of a firms' ACFE Age and ACFE Gender. Results show a positive association between the interaction term and audit fees. This indicates that as a female ACFE becomes older, she requires more expansive coverage and higher audit quality, leading to enhanced financial reporting quality. This in turn will result in higher audit fees.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Prior research indicates that audit fees reflect the risk, level of coverage, and quality of an audit ((Habib, Bhuiyan, and Rahman 2019; Cao, Myers, and Omer, 2012; Abbott et. al, 2003; Carcello, Hermanson, Neal, & Riley, 2002; Simunic and Stein 1996). After SOX, all public companies are required to have independent audit committee directors and to disclose whether they have a financial expert on their audit committee. If a firm does not have a financial expert on its audit committee, SOX requires the firm to state the reason. Further, audit committees appoint and compensate independent auditors and act as a liaison between the management and the external auditor. The efficiency of the capital markets depends on enhanced quality of financial statements, and the audit committee is responsible for ensuring that quality (Tysiac, 2022). Audit committees can influence the level of audit coverage by seeking a higher level of audit coverage, which in turn can lead to higher audit fees (Abbott et al., 2003, Goodwin-Stewart, & Kent, 2006). In the same vein, certain characteristics of the ACFE can influence the level of audit fees. It has been argued that financial expertise is necessary to make sure that audit committees fulfill their oversight role over the financial reporting process and ensure high-quality financial reporting (DeFond, Hann, and Hu, 2005).

Deslandes, Fortin, and Landry (2020) find that tax aggressiveness is constrained by audit committee size, financial expertise, and tenure. Thiruvadi, Thiruvadi, and Carter (2021) find a negative association between a female audit committee chair with prior auditor experience and real earnings management. Sellami and Cherif (2020) find a positive relationship between audit fees and a woman on the audit committee. Rummell, DeZoort, & Hermanson (2019) find that audit committee member experience and CPA status are positively associated with support for the auditor. Bilal, Chen, and Komal (2018) study the association between audit committee financial expertise and earnings quality. Their findings reveal a positive association between the two. Zalata, Tauringana, & Tingbani (2018) find a negative association between earnings management and the number of financial experts on the audit committee. They further find that the number of female financial experts on the audit committee significantly constrains earnings management when compared to the number of male financial experts on the audit committee. Aldamen, Hollindale, & Ziegelmayer (2018) find that the presence of female members on the audit committee leads to an increase in audit fees. Tanyi and Smith (2015) find a negative relationship between the proportion of audit committee chair positions and other audit committee financial expertise positions occupied by an audit committee chairman and finance reporting quality. Badolato, Donelson, and Ege (2014) find that earnings management, proxied by accounting irregularities and abnormal accruals, is lower when audit committees have a financial expert. Dao, Huang, and Zhu (2013) find that the cost of equity becomes lower as the average age of an audit committee member increases. Liu and Son (2010) show a negative relationship between the number of long-tenured directors on the audit committee and earnings management. Mustafa & Youssef (2010) find that an independent audit committee who is also a financial expert can reduce the frequency of asset misappropriation in public companies. Ittonen, Miettinen, & Vähämaa (2010) find that audit fees are lower in the presence of a female audit committee chair. Dhaliwal, Naiker, and Navissi (2006) document a positive association between accounting experts and accruals quality. In addition, DeFond, Hann, and Hu (2005) find a positive market reaction to the appointment of accounting financial experts but no reaction to the appointment of non-accounting financial experts.

In summary, prior research has discussed the consequences of different components of audit committee outcomes. However, no study has established an association between audit committee financial expert characteristics (i.e., number of financial experts, tenure, age, education, and gender) and audit fees. This paper addresses that issue.

### **Audit Committee Financial Expert Characteristics**

#### *Number of Financial Experts*

Sections 406 and 407 of SOX require public firms to disclose whether they have an ACFE. A firm that does not have an ACFE is required to disclose this fact and state the reason (SEC, 2003). On one hand, the importance accorded by the SEC to an ACFE on the audit committee could motivate such experts to want extensive audit coverage to mitigate instances of poor financial reporting quality and misstatements, thus

increasing the likelihood of higher audit fees. On the other hand, auditors could perceive that the presence of an ACFE implies that the firm has less inherent risk and thus requires less audit coverage, likely leading to lower audit fees. Rani (2018) finds that there are lower audit fees in the presence of audit committee experts, as they tend to require lower audit efforts due to their effectiveness in overseeing the quality of the financial statements.

### *Tenure*

Alhababsah & Alhaj-Ismail (2021) find that prolonged co-tenure between audit committee chair (ACC) and engagement partner (EP) increases the quality of accruals and decreases the inclination to meet or beat an earnings benchmark. Further, they do not find any sufficient association between audit fees and ACC-EP shared tenure. Chan, Liu, and Sun (2013) examine how the tenure of independent audit committee members affects audit fees and find that audit fees are lower for firms with a high proportion of long-tenured directors on the independent audit committee. These results suggest that auditors price monitoring effectiveness based on long board tenure. Beasley (1996) also documents that financial reporting fraud is less likely to occur for firms with long tenured outside directors. In addition, long board tenure is associated with lower earnings management (Bedard, Chtourou, and Courteau, 2004) and better accrual quality (Dhaliwal et al., 2010).

Conversely, other studies argue that shorter director tenure is associated with effective monitoring activities (Bhagat and Black 1999; Vafeas, 2003). One reason is that long tenure creates a situation whereby board members develop friendly relationships with the management over time, which can negatively affect their monitoring effectiveness (Rickling, 2014).

### *Age*

Hambrick and Mason (1984) find that there is a lower likelihood of older managers to take up risky projects since older people tend to lean more towards future financial security. Research shows that individuals become more conservative as they become older (Peterson, Rhoads, and Vaught, 2001; Sundaram and Yermack, 2007). In addition, Huang, Green, and Lee (2012) document that older CEOs are associated with higher-quality financial reporting. They argue that CEO age is negatively associated with firms' meeting or beating analyst earnings forecasts.

### *Education*

Iyer, Bamber, and Griffin (2013) conduct a survey to find out the educational qualifications of ACFE on the audit committee and to find out if the board of directors values those qualifications. They discover that accounting certification and audit committee experience are valued positively by the board of directors. Therefore, we argue that the educational background of an ACFE has a positive impact on his or her monitoring activities. ACFEs with higher educational background will have more knowledge on internal control issues, amongst others. Therefore, on one hand, if they have more knowledge, they will require more audit coverage, thereby positively affecting audit fees; on the other hand, if they are more knowledgeable, they will do their due diligence, and this will reduce the work that external auditors will need to conduct. This in turn will have a negative impact on audit fees.

### *Gender*

Thiruvadi, Thiruvadi, and Carter (2021) find that the presence of a female chair of the audit committee is related to higher transparency in the financial statements. Thiruvadi (2012) find that audit committees were likely to meet more often in the presence of at least one female director. Huang, Huang, and Lee (2014) argue that female CEOs are associated with higher audit fees. Using a sample of 8,402 firm year observations, they document gender-based differences have implications for financial reporting. Females are more risk averse than males (Barber and Odean, 2001; Bernasek and Shwiff, 2001; Huang, Huang, and Lee, 2014) and are associated with higher-quality financial reporting (Abbott et al., 2012; Barua, Davidson, Rama, and Thiruvadi, 2010; Srinidhi, Gul, and Tsui, 2011). Therefore, we argue that audit committees with

at least one female ACFE will likely place more pressure on the audit committee to purchase more audit coverage relative to male ACFEs, leading to higher audit fees for such firms.

Conversely, Ittonen, Miettinen, and Vähämaa (2010) document a negative association between the presence of a female on the audit committee and audit fees. This result suggests that female representation on the audit committee reduces the inherent risk of financial misstatements, increases the effectiveness of internal control activities, and improves the integrity of the financial reporting process.

## DATA AND METHODS

### Data

The sample includes all 481 Fortune 500 companies with a December 31, 2011, fiscal year-end date. We restrict the sample in this way so that we are able to focus on the immediate impact of Dodd-Frank on the monitoring effectiveness of audit committees. Since Dodd-Frank passed in 2010, using data from 2011 allows us to measure Dodd-Frank's impact on audit committee effectiveness. Also, to be consistent with, we use only firms with a December 31 fiscal year-end date. The financial data were collected from Compustat, and the audit committee data were collected from Institutional Shareholder Services (ISS), formerly Risk Metrics. We merge and delete firms with missing data from Compustat, Audit Analytics, and ISS. Our final sample consists of 136 firms. We hand-collect data on audit committee characteristics such as ACFE tenure and ACFE educational background from the EDGAR and Lexis Academic databases.

### Regression Model

We test the relationship between ACFE characteristics and audit fees using OLS regression. The regression models the log of audit fees as a function of ACFE characteristics -- namely, the number of financial experts, educational background, tenure, gender, and age. Following Raghunandan and Rama (2006), we control for variables that may impact audit fees. The model is shown below.

$$\text{LNAUDITFEES} = \beta_0 + \beta_1 \text{ACFE\_NO} + \beta_2 \text{ACFE\_DEGREE} + \beta_3 \text{ACFE\_TENURE} + \beta_4 \text{ACFE\_GENDER} + \beta_5 \text{ACFE\_LNAGE} + \beta_6 \text{ACFE\_GENDER} * \text{ACFE\_LNAGE} + \beta_7 \text{LNATA} + \beta_8 \text{RECINV} + \beta_9 \text{SQSEG} + \beta_{10} \text{LIQ} + \beta_{11} \text{DA} + \beta_{12} \text{ROA} + \beta_{13} \text{BIG4} + \beta_{14} \text{FORGN} + \varepsilon \quad (1)$$

### Dependent Variable

The dependent variable is the natural log of audit fees. Audit fees are used as a proxy for audit coverage (Simunic and Stein, 1996).

### Independent Variables of Interest

The independent variables of interest are the variables that capture the characteristics of ACFE -- namely, ACFE\_NO, ACFE\_EDUCATION, ACFE\_TENURE, ACFE\_GENDER, ACFE\_LNAGE and ACFE\_GENDER\* ACFE\_LNAGE, respectively.

The independent variables are defined as follows. Following Raghunandan and Rama (2006)<sup>1</sup>, we control for (1) total assets, (2) the ratio of receivables and inventory to total assets at year-end, (3) firms with foreign operations, (4) the number of a firm's operating segments, (5) a firm's current ratio, (6) total debt, and (7) return on assets. We also control for the use of a Big Four auditor.

LNAUDITFEES = natural log of audit fees

ACFE\_NO = number of financial experts on the audit committee

ACFE\_EDUCATION = Average education level of an ACFE on the audit committee (PhD set equal to 2, Master's degree set equal to 1, and bachelor's degree set equal to 0)

ACFE\_TENURE = Average tenure of ACFEs on the audit committee (sum of tenure of all ACFEs on an audit committee divided by the total number of ACFEs on the audit committee)

ACFE\_GENDER = 1 if female is a financial expert else 0

ACFE\_LNAGE= Natural log of average age of ACFEs on the audit committee (sum of ages of all ACFE on a firm’s audit committee divided by the total number of ACFE on a firm’s audit committee)  
 LNTA = natural log of total assets at year-end  
 RECINV = receivables and inventory as a proportion of total assets at year-end  
 SQSEG = square root of the number of operating segments  
 LIQ = current ratio at year-end  
 DA =total debt divided by total assets at year-end  
 ROA = return on assets, defined as operating income divided by total assets  
 BIG4 = 1 if Big4 auditor, else 0  
 FORGN = 1 if the firm has foreign operations, else 0.

**RESULTS**

**TABLE 1  
 SAMPLE SELECTION**

Initial sample from Mergent Online	481
Less: firms with missing Compustat data	-27
Less: firms with missing AuditAnalytics data	-236
Less: firms with missing ISS data	-82
Final sample	136

*Table 1 shows the sample selection process and Table 2 provides descriptive statistics. The mean (median) of the log of audit fees is \$15.81 (\$15.76) million. The mean (median) log of total assets is \$9.86 (9.90) million. The average debt-to-asset ratio is 0.30, while the mean return on assets is 0.06. The mean (median) number of audit committee financial experts is 1.97 (1.0).*

**TABLE 2**  
**DESCRIPTIVE STATISTICS**

	Mean	Median	Std.Dev	Var.	Min	Max	25% Percentile	50% Percentile	75% Percentile
ACFE_NO	1.97	1.00	1.27	1.61	1.00	6.00	1.00	1.00	3.00
ACFE_DEGREE	0.87	1.00	0.53	0.28	0.00	2.00	0.54	1.00	1.00
ACFE_TENURE	8.35	8.00	3.83	14.68	1.00	19.00	6.00	8.00	10.00
ACFE_GENDER	0.60	0.00	1.11	1.23	0.00	6.00	0.00	0.00	1.00
ACFE_LNAGE	4.14	4.14	0.09	0.01	3.87	4.32	4.08	4.14	4.20
ACFE_GENDER *	2.50	0.00	4.61	21.29	0.00	24.86	0.00	0.00	4.16
ACFE_LNAGE									
LNTA	9.86	9.90	1.11	1.23	7.04	12.71	8.97	9.90	10.70
RECINV	0.21	0.19	0.14	0.02	0.02	0.81	0.10	0.19	0.29
SQSEG	3.11	3.00	0.92	0.85	1.41	6.78	2.45	3.00	3.61
LIQ	1.55	1.39	0.74	0.55	0.56	5.45	1.09	1.39	1.80
DA	0.30	0.26	0.18	0.03	0.02	1.56	0.18	0.26	0.38
ROA	0.06	0.06	0.05	0.00	-0.08	0.24	0.03	0.06	0.09
Big4	0.99	1.00	0.09	0.01	0.00	1.00	1.00	1.00	1.00
FORGN	0.82	1.00	0.38	0.15	0.00	1.00	1.00	1.00	1.00
LNAUDITFEES	15.81	15.76	0.82	0.67	13.59	17.38	15.35	15.76	16.34

**TABLE 3**  
**REGRESSION RESULTS**

	Coefficient	t	Sig.
constant	8.543	3.397	0.001
ACFE_NO	0.027	0.829	0.409
ACFE_DEGREE	0.068	0.856	0.394
ACFE_TENURE	0.005	0.463	0.645
ACFE_GENDER	-4.106	-1.786	0.077
ACFE_LNAGE	0.111	0.193	0.847
ACFE_GENDER * ACFE_LNAGE	0.972	1.755	0.082
LNTA	0.604	12.314	0.000
RECINV	0.672	1.962	0.052
SQSEG	0.134	2.565	0.012
LIQ	-0.014	-0.217	0.828
DA	0.442	1.757	0.081
ROA	0.759	0.827	0.410
Big4	-0.379	-0.790	0.431
FORGN	0.479	3.811	0.000

Dependent variable: LNAUDITFEES

N = 136;  
F. Stat = 22.219  
P < .001;  
Adj.R2 = .087

Table 3 presents the regression results. The overall regression is significant ( $F = 22.219$ ,  $p < .01$ ). The negative and significant coefficient of -4.106 on ACFE\_Gender indicates that the presence of a female financial expert on the audit committee reduces the audit fees of the firm. This coefficient suggests that a female financial expert on the audit committee is associated with a reduction in audit fees.

However, the coefficient on ACFE\_GENDER \* ACFE\_LNAGE is positive and significant. This indicates that as an audit committee financial expert gets older, he or she is more likely to be associated with an increase in the audit fees of the firm. Prior research shows that older members tend to be more careful, conservative, and innovative (Peterson, Smith, & Hibbing, 2020; Hoisl, 2007; Sundaram and Yermack, 2007). Therefore, as an audit committee financial expert gets older, she may require more efficient, innovative, and high-quality audit procedures ((Kang & Piercey, 2020) of the auditing firm. This will lead to expansive audit coverage for increased financial reporting quality as well as increased audit fees. Further, Huang, Green, and Lee (2012) in their study document that older CEOs are associated with higher-quality financial reporting.

## CONCLUSION

This paper examines if certain characteristics (i.e., number of financial experts, tenure, age, education, and gender) of the ACFE can influence audit fees. The audit committee and its monitoring effectiveness have come into strong focus after the Dodd-Frank Act of 2010. The Act recommends best practices regarding the presence of ACFEs, and those recommendations should improve oversight and accountability. We use a final sample of 136 firms from the Fortune 500 with a December 31, 2011, fiscal



year-end date. One of our main findings is that a female ACFE is related to lower audit fees. The other main finding is that as the female ACFE gets older, audit fees increase, reflecting a more thorough audit.

The paper is subject to the following caveats. First, the data set consists of a subset of the Fortune 500 companies from 2011 because our goal is to measure the immediate effect of Dodd-Frank on audit committee effectiveness. Second, it would be interesting to see if the results hold in other markets with different regulations. A future avenue of research is to examine this research questions in a country with norms and regulations different than the United States.

## ENDNOTE

- <sup>1</sup> We refer interested readers to Raghunandan and Rama (2006), for the rationale for including the control variables in the model.

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