Determinants of Audit Fee - Evidence from Indian Companies

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Abstract

Several studies have examined the factors influencing audit fees across the world, especially on the possible conflict of interest of auditor and client that may be affecting the quality of audit. The paper is about the trend in audit fee in the Indian setting, with the backdrop of two regulatory changes: mandatory auditor rotation and the implementation of Ind AS, the converged version of IFRS. Examining the determinants of audit fees, the paper categorized the explanatory variables into three attributes; auditee (size, risk, and complexity), auditor (auditor size, tenure, joint audit, and auditor rotation), and regulatory (mandatory auditor rotation and IFRS). The sample consisted of all non-financial companies listed on the National Stock Exchange for a period of 10 years from 2009 – 2018 resulting in 12,419 firm years. The paper deployed panel data regression with fixed effects with audit fee as the dependent variable. The key findings suggested that audit fee was positively associated with the size of the auditor and the auditee and the ratio of accounts receivable. The paper also indicated that with the tenure of the auditor, the fee tended to increase, and auditor rotation had a significant impact on the auditor's fee. The findings of the study will help the policymakers on the regulation around auditor engagements.

Keywords : **Auditor rotation, joint audit, complexity, fixed effects model, Ind AS, NSE**

JEL Classification Codes : G3, M2, M4, M41, M42

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Agency problems are inherent to the corporate structure, with shareholders owning the corporation on the one side and the board of directors, the steward of the assets, on the other. This structure could create a situation where the board performs the economic activities for its benefit, neglecting the interest of the shareholders. The board of management presents the financial statements to outsiders. So, it becomes necessary for a neutral, independent party, the auditor, to give an expert and independent opinion on the quality and reliability of these statements.

Availability of trustworthy and timely financial information is one of the most critical aspects of the efficiency of the securities market. Auditors are the gatekeepers who try to mitigate the imbalance of information between shareholders and the board of management, and hence, almost every country has made it mandatory to appoint auditors. One of the contentious issues in auditor engagement is the tenure of the auditor. If the auditor stays with the company for a longer time, the client-auditor relationship could reduce the independence of the auditors and increase the risk of audit failures (Geiger & Raghunandan, 2002). There is a broad debate to mandate the rotation of auditors, to bring more objectivity in the process which led to regulation of auditor rotation.

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Mandatory auditor rotation (MAR) has been practised in several countries in the world in some form or the other, and as of February 2015, more than 35 countries had regulations regarding the auditor rotation. European Union was the pioneer in MAR with the legislation passed in 2006 where it issued directives to rotate the audit partners once in 7 years mandatorily. Several other countries such as the UK, Canada, Italy, Slovakia, Slovenia, Argentina, Indonesia, Brazil, USA, and China have adopted MAR. In South Africa, it is in the consultation stage. A slew of accounting scandals raised questions on the accountability of auditors when clearing audit reports without a qualification, and various studies explored the association between audit fee and the attributes of the audit firm and the client.

The pricing of the services of various auditing firms differed significantly, and hence, the factors determining the audit fee have always been an area to explore for the researchers. The recent amendment to laws relating to corporate governance across countries put several burdens on the auditors for financial misstatements, thus increasing the audit risk and the consequent fee premium.

India joined the bandwagon of auditor rotation effective from April 2017. India passed regulations to provide for auditor rotation through the provisions of the Companies Act, 2013. Just before the auditor rotation directive, India also witnessed the implementation of new accounting standards, Ind AS, in line with international requirements of reporting.[1]

The effect of new regulations around accounting standards on the audit fee was empirically tested in the previous studies with mixed results. Lin and Yen (2016) found that IFRS implementation in China resulted in higher audit fees particularly of the auditors with experiences on IFRS. The latest study on audit fee and IFRS implementation in the UK setting, by El Guindy and Trabelsi (2020), concluded that audit fee increased during transition, suggesting that the low-balling[2] effect did not exist.

Kamath et al. (2018) concluded that audit rotation would result in high audit fees as the specialization of the auditors played a key role. Investigating the effect of auditor rotation on audit fee, Hải et al. (2019) found that auditor rotation resulted in higher audit fees.

We found the research gap arising on the regulation around mandatory auditor rotation, particularly in the Indian setting. The very landscape of the ownership pattern of Indian companies gives another motivation for the study. Gul et al. (2010) found that concentrated ownership had an association with auditor quality. Indian companies are predominantly promoter-driven, with the average promoters holding of listed companies in India increasing from 49% in 2001 to 55% in June 2019 (Prime Database Group, 2019). The latest study in this context by Narayanaswamy and Raghunandan (2019) found that auditor rotation did not result in audit change and it empirically tested the data of 2017, the year of implementation. Another study by Biswas (2019) on the research on audit fees in India concluded that it increased by size of the client, but differed across group listed and standalone firms.

To the best of our knowledge, there is no longitudinal study in India on the determinants of auditor fee during the rotation of auditors. The study addresses the following questions: (a) Is there an association between the client attributes and the audit fees ? (b) Do the Big 4 auditors command higher auditor fees ? (c) Is there an audit fee increase due to IFRS implementation? and (d) Is auditor rotation having any effect on the auditor fees ?

The study analyzes the data of all non-financial companies listed on the National Stock Exchange from 2009 – 2018 involving 12,419 firm year observations and applied panel data with fixed effects models.

The study shows that audit fee increases with rotation of auditors and it has a positive association with size and

[1] Ind AS is the converged version of International Financial Reporting Standards and was made mandatory from the year 2016–17 for every company with the networth of INR 5 billion.

[2] Low balling effect refers to the persuasion by a service provider to a client by offering an attractive price.

complexity of the auditee. It is also found that joint audit, IFRS convergence, and Big 4 auditors influence the audit fees. Being one of the first studies on the change in audit fee during rotation, this study would help regulators to be watchful on the change in audit fee, the firms during negotiations, and the auditing firm on the estimation of fee during regulatory change.

Auditing Practices in India

The Institute of Chartered Accountants of India (ICAI) is the body responsible for the audit of financial statements. The Institute constituted the Auditing Practices Committee in 1982, which was later converted to the Auditing and Assurance Standard Board (AASB) in 2002. Post the infamous Satyam episode, considered as India's Enron, there was rethinking on the need to monitor the quality of audit services by an independent body which gave rise to the National Financial Reporting Authority (NFRA).

The Companies Act, 2013 brought in provisions for setting up the NFRA to regulate the auditors. The scope of the body, among other things, includes (a) recommending accounting and auditing standards, (b) ensuring compliance to the standards and quality of audit services, and (c) investigating matters of professional misconduct of auditors.

Indian audit firms work under either of three structures : the domestic network of CA firms, the international network where domestic CA firms network using the membership route, or the international network where domestic CA firms network using the sub-licensing route. The Big 4 audit firms work as a coordinating entity of independent firms (Ministry of Corporate Affairs, Government of India, 2018).

As per Section 139(2) of the Companies Act, 2013, all listed companies and unlisted public companies with a paid up capital of INR 100 million, private companies with a paid-up capital of INR 500 million, or any other companies with a public deposit of INR 500 million are covered under this provision. Accordingly, the companies with the same auditor for more than 10 years have to appoint new auditors beginning April 1, 2017. During the same decade, India also undertook another milestone of financial reporting, the convergence of International Financial Reporting Standards (IFRS). In January 2015, the Ministry of Corporate Affairs issued notes of the different phases on the implementation of the converged standards, termed as Ind AS, mandated for certain categories of companies (listed companies, unlisted companies with more than INR 5000 million of the net worth as also the holding and subsidiary companies of those covered under the convergence). However, the converged standards are not yet implemented for banking and insurance companies or overseas subsidiaries.

A survey on the readiness and implications of Ind AS and mandatory auditor rotation among Indian companies gave interesting insights, including the following : (a) 78% of the respondents believed that the auditor rotation would achieve its purpose of bringing more objectivity and lead to better financial reporting, (b) 61% of the companies had to rotate their auditors by FY 2017–18, and only 18% of them were ready for auditor rotation, (c) most of the respondents linked the mandatory firm rotation to another key regulatory change, the implementation of the new accounting standard, Ind AS (Grant Thornton, 2018).

Indian companies also faced several episodes of accounting frauds involving Punjab National Bank and IL&FS where the role of auditors was questioned. There were also several incidences of resignation of auditors triggering the fall in the share prices of the companies involved. The massive pile of non-performing assets of Indian banks also intensified the need for the quality of the audit assignments.

At this juncture of the regulations around auditing and financial reporting, it is important to empirically verify the relationship between audit fee and the attributes of the client, auditor, and the regulation. Hence, a detailed review of literature was conducted to identify the variables of the study.

Review of Literature and Hypotheses Development

Audit fee is the amount paid by a company (auditee, or the client) to the auditor. Audit services require specialized knowledge and the audit fee is usually agreed upon by the client and the auditor based on several factors that include the scope of the work, estimation of the time, the number of resources required etc., and is generally fixed before the commencement of the audit (El - Gammal, 2012). According to Amba and Al-Hajeri (2013), audit fee is important for the auditor to cover the cost and continue to stay competitive and, for the auditee, this is a necessary cost to fulfil the compliance requirements. The independence of the auditor should not be compromised, and thus, the audit fee shall be clearly determined by the identified variables.

Audit fee has been under scrutiny across the world and a contentious issue with the practice of auditors providing both audit and consultancy services. According to Venkatesh and Aghajan (2008), non-audit service by auditors could increase the client retention and increase the tenure of the audit. The non-audit fees could also create a potential conflict of interest. There was also subsequent regulation around many countries to disclose the audit fees paid to audit firms both on account of audit and non-audit services (Joshi et al., 2017). The literature on the determinants of audit fees is presented in the following sections under three aspects : Auditee attributes, auditor attributes, and regulatory attributes.

Auditee Attributes and Audit Fees

The client is the auditee, the company that is being audited. Studies found that the audit fee would depend on the size, profitability, and complexity of the client.

Client size measured by the turnover and the value of the assets of the auditee company is considered as an important factor of the audit fee. Auditing the larger companies would involve more audit efforts in terms of staff employed for the engagement and time required in client meetings. Stewart and Munro (2007) found that the auditor had to spend a substantial amount of time to verify the efficacy of internal control systems which were more often high for large companies. Studies by Kaawaase et al. (2016) and Al-Mutairi et al. (2017) established that large companies had a higher stake in the capital market and hence needed to pay high audit fees to signal the market to win the confidence of the players. Studies across different country settings found a positive relationship between the size of the firm and the audit fee in the emerging economies of Canada and Kuwait (Ahmed & Goyal, 2005 ; Al-Harshani, 2008 ; Gonthier - Besacier & Schatt, 2007). Hence, we hypothesize (in the alternative form):

↳ **H_1 :** There is a positive relationship between the size of a company and the audit fee.

Studies analyzed if the profitability of the client had an impact on the audit fee with two viewpoints: (a) more profitable companies got into public scrutiny and larger coverage by analysts, thereby bringing risk of loss of reputation for the auditors in case of audit misstatements factored in remuneration that tends to increase the audit fee (Joshi & Al-Bastaki, 2000), and (b) profitable companies tend to have more capacity to pay a higher fee (Curry & Peel, 1998 ; Ivanova & Prencipe, 2020). Hence, the following hypothesis is drawn:

↳ **H_2 :** There is a positive association between profitability of a company and the audit fee.

The third attribute of the client is the complexity. A complex business is difficult to audit and increases the audit fee (Boon et al., 2005). Complexity is measured in the literature in several ways. According to Cohen and Leventis (2013), if a company is characterized by more substantial inventory, the time involved in the audit would be longer, thereby increasing the scope of the audit engagement. The number of subsidiary companies was another

measure of complexity as used in previous studies. Sandra and Patrick (1996) found that companies with foreign subsidiaries make the auditing procedure complex and time consuming ; hence, resulting in an enhanced audit fee. The extent of receivables was another measure of complexity (Francis, 2004 ; Simon & Taylor, 2002) which was found to have a positive association with audit fee. Thus, we used three proxies of complexity, namely receivables, the number of subsidiaries, and inventory to frame the hypothesis:

↳ **H_3 :** Audit fee is positively associated with the complexity of the operations of a client.

Previous studies found the risk of the auditee to be a factor that influenced the fee due to factoring of the risk premium. Audit risk arises due to the possible misstatement of financial statements after the auditor completes and issues an unqualified opinion (Arens & Loebbecke, 1994). Since each audit assignment comes with similar risk, the audit fee always gets factored (Pratt & Stice, 1994). Litigation risk is another aspect in the audit assignment as the lenders of a company can sue the auditors for failing to disclose the going-concern opinion and thus posing litigation risk (Gates et al., 2006). Most other researchers also found that the risk of the client increases the audit fee (Francis, 2004 ; Mohamed & Habib, 2013). Hence, the following hypothesis is formulated :

↳ **H_4 :** There is a positive relationship between risk of a firm and audit fee.

Auditor Attributes and Audit Fees

The literature on auditor attributes consisted of auditor type, joint-audit, and tenure of the audit firm. There are vast differences in the scale of operations of audit firms, right from small firms with one geographical operation to firms with international presence, like PricewaterhouseCoopers, KPMG, Ernst & Young, and Deloitte, together called as Big 4 auditors.

Auditor size is positively related to audit quality as bigger audit firms have greater ability to provide greater resources and better audit services (DeAngelo, 1981). Similar studies on the operating process of Big 4 auditors also provided evidence of better audit quality as the companies in the network strive to live up to the reputation, and the perceived credibility of Big 4 auditors could increase the audit fee (Al-Ajmi, 2009 ; Li et al., 2008). Thus, the following hypothesis is framed:

↳ **H_5 :** There is a positive relationship between size of the audit firm and audit fee.

Joint audit is the process where two or more audit firms split the work and take responsibility in a particular area. Several regulators endorse joint auditing in the UK and France necessitated by the concentration of big audit firms leading to lack of competition. The provisions of the joint audit include proper splitting of the specific responsibilities and one of the joint auditors being outside the Big 4. Studies have focused on the process of the joint audit and the possible influence of audit fee (Gonthier - Besacier & Schatt, 2007). In India, a joint audit is already in practice by public sector companies, especially in the banking and insurance sectors. Joint auditing thus proved to increase the audit quality, thereby resulting in higher audit fees. Hence, the following hypothesis is framed :

↳ **H_6 :** Joint audit increases the audit fee of a company.

Tenure refers to the length of years an audit firm serves a client. According to Pouraghajan (2009), the longer duration of the audit period increased the independence of the auditor resulting in better audit quality. The

literature, however, found mixed evidence on the relationship between tenure of the auditor and audit fee. Vanstraelen (2000) claimed that longer tenure could bring pressures from the client that could lead to increased audit fee. Jackson et al. (2008) found that tenure of the audit did not affect the audit fee. In the Indian context, due to the concentration of higher promoters holding, the tenure of the audit firm tends to be longer, resulting in enhanced fees. Hence, the study hypothesizes that :

↳ **H_7 :** There is a positive and significant relationship between the tenure of auditors and audit fees.

Regulatory Attributes

While most of the empirical studies looked at auditor and auditee attributes as the possible determinant of audit fee, regulator attributes were not considered. Developing countries like India, which is at the cusp of internationalization of business, bring in regulations to make the financial statements universal and transparent.

International financial reporting standards are a set of principle-driven accounting standards emphasizing fair value measurements. Migrating to new accounting standards for harmonization brought in interesting research questions to the academicians on the impact on relevant aspects, including the quality of audit.

Several studies by Kim et al. (2012), Abu Risheh and Al-Saeed (2014), and Higgins et al. (2016) found that the new accounting standards increased the audit fee in the first year of convergence.

India converged to IFRS with the implementation of Ind AS and we found a dearth of longitudinal studies on the effect of the new accounting standards on the fee. Several experts, for example, Rawat (2017) opined that India needed high quality trained professionals to implement the new accounting standards, particularly changes with respect to revenue recognition and lease commitments. Thus, the study framed the following hypothesis :

↳ **H_8 :** Audit fees significantly increases due to IFRS implementation.

Hay (2010) argued that new auditors offer low ball fees to attract the audit fee, and hence, the audit fee reduced during the rotation ; whereas, an experimentation study on factors affecting the perception on auditor rotation by Kamath et al. (2018) suggested that audit fee did not get impacted due to rotation. The Indian auditing scenario is dominated by the Big 4 firms, and a study by Prime database revealed that the companies moved from one of the Big 4 to another during rotation. Thus, the following hypothesis is drawn:

↳ **H_9 :** There is a significant change in audit fee during the year of auditor rotation.

Research Design

Sample

The sample was selected from all the listed and permitted companies in the National Stock Exchange (NSE) of India totalling 1,940 as of July 2019. NSE is the leading stock exchange and the second largest in terms of number of trades in the equity market between January and December 2018. With the entries of highly liquid stocks, the companies listed in NSE can be construed to represent the overall markets in India. The study involved variables such as asset size and debt-equity, which are measured differently for banking and insurance businesses, and hence, 237 companies were dropped in the financial services industry (NIC code was used to identify industry type). Another 218 companies were dropped for lack of availability of data, resulting in 1,485 firms. With the study period of 10 years, the total number of observations was thus 12,648 firm years.

Data and Variables of the Study

Table 1 describes the variables used in the study and all the data and variables were obtained from the database developed by CMIE, ProwessIQ.

Table 1. ***Variables of the Study***

Type		Definition	Acronym	Operationalisation
Dependent variable		Audit fees	*Ln AF*	The logarithm of audit fees.
Independent variables				
Auditee / Attributes	Firm Size	Total assets	*LnTA*	The logarithm of total assets as on the last day of the financial year.
	Profitability	Return on Assets	*ROA*	Net profit/Assets.
	Complexity	Number of subsidiaries	*SUB*	The number of subsidiaries.
		Receivables/Total Assets	*RECTA*	The proportion of receivables to total assets ; both the numbers taken on the last day of the financial year.
		Inventory/Total Assets	*INVTA*	The proportion of inventory to the total assets ; both the numbers taken on the last day of the financial year.
	Risk	Debt/Equity	*DE*	The proportion of debt to the equity of the firm as on the last day of the financial year.
Auditor Attributes	Auditor size	Big 4 Auditors	*Big4*	Dichotomous variable = 1 if the auditor of the company is from Big 4 ; 0 otherwise.
	Joint Audit	More than one audit firm	*JtAUD*	Dichotomous variable = 1 if the company had more than one auditor for the year ; 0 otherwise.
	Tenure	Tenure of the auditors	*TEN*	The number of years the auditor served the company.
	Rotation	Rotation of the auditors	*ROTA*	Dichotomous variable = 1 if the auditor rotated ; 0 otherwise.
Regulatory Attributes	IFRS	Whether the company reported financial statements in IFRS	*IFRS*	Dichotomous variable = 1 if the company followed the converged version of IFRS ; 0 otherwise.
	Mandatory Rotation of Auditors	Whether the auditor got rotated mandatorily in the year	*MAR*	Dichotomous variable = 1 if the auditor rotated mandatorily ; 0 otherwise.
Control Variables	Industry type	The Industry Classification Code	*IND*	The NIC classification code.
	Ownership type	Whether the company is a public sector unit	*PSU*	The ownership group code.

Methodology

The study period consisted of 10 years from the financial years 2009 – 2018. These 10 years saw several regulatory changes in the financial reporting landscape with the convergence of IFRS in the year 2008 and mandatory auditor rotation from 2017. The hypotheses were tested on the basis of a linear relationship between LnAF and the set of

independent variables mentioned in Table 1. The dichotomous variables Big4, JtAUD, TEN, IFRS, ROTA, and MAR are dummy coded as 0 or 1 depending on the presence or absence of the relevant factor, with 0 being the reference level.

In general, there are several alternative models that can be considered for any dataset, notable among these being the OLS regression model, the fixed effects model, and the random effects model. Given the nature of our data, we have reason to believe that a fixed effects model is more appropriate. Unlike in OLS regression, we need to consider company specific intercept terms, which are called as fixed effects, in our model. It is also our strong belief that these effects are correlated with the regressors in the model and are not random in nature. According to Greene (2018), this setup is suitable for fitting a fixed effects model to our data. Also, our panel has a wide cross section of companies, covering almost the entire population of listed companies, and so the presence of random effects is discounted. Another justification for the use of a fixed effects model is also that we are solely interested in analyzing the effect of variables that vary over time for which a fixed effects model is appropriate. In what follows, we will also test some of our claims justifying the use of a fixed effects model for our data.

Model

The following is the form of our fixed effects model :

$$LnAF_{it} = \beta_0 + u_i + \beta_1 LnTA_{it} + \beta_2 ROA_{it} + \beta_3 SUB_{it} + \beta_4 RECTA_{it} + \beta_5 INVTA_{it} + \beta_6 DE_{it} + \beta_7 Big4_{it} + \beta_8 JtAUD_{it} + \beta_9 \text{TEN}_{it} + \beta_{10} IFRS_{it} + \beta_{11} ROTA_{it} + \beta_{12} MAR_{it} + \varepsilon_{it} \quad (1)$$

where, the suffix i relates to each of the N companies and t to each of the years. Here, β_0 is the overall intercept independent of the time point t, u_i is the fixed effect for the i^{th} group independent of the time point, t. $\beta_1 - \beta_{12}$ are the coefficients of the 12 independent variables we have used in the model, and ε_{it} is the random error in estimating the dependent variable.

Empirical Analysis and Results

This section tabulates the empirical results of the paper. At the outset, we checked for the presence of multivariate outliers considering all the numeric variables to be used in the model. A total of 229 observations were identified to be outliers using the Blocked Adaptive Computationally Efficient Outlier Nominators (BACON) algorithm proposed by Billor et al. 2000. Given that we have a large panel, preferring not to influence the original pattern of the data, we dropped these observations from further analysis. We proceed with 12,419 observations on 1,458 companies.

Exploratory Data Analysis

The summary statistics for the numeric variables related to our proposed model are given in Table 2.

Table 2. ***Descriptive Statistics***

Statistics	*Audit Fees*	*Total Assets*	*ROA*	*SUB*	*RECTA*	*INVTA*	*DE*	*TEN*
Mean	4.84	41367.66	2.93	2.32	0.19	0.17	2.34	3.97
Median	1.40	6204.10	3.07	0.00	0.14	0.14	1.33	4.00
SD	15.56	209047.50	10.74	9.27	0.22	0.21	4.26	2.51

Minimum	0.10	3.30	–156.50	0.00	–0.03	0.00	0.00	1.00
Maximum	437.60	8163480.00	131.04	140.00	3.27	3.32	65.34	10.00
Skewness	13.95	17.20	–2.43	7.93	5.13	5.14	7.12	0.49
Kurtosis	275.30	450.29	34.25	78.85	48.54	50.90	73.53	2.08

We observe that audit fee ranges from INR 0.1 to 437.60 million, with an average of 4.84. Total asset ranges from INR 3.3 to 8,163,480 million, averaging at 41,367.66. Observing the difference between the mean and the median as well as the skewness and kurtosis values, we perform a log transformation of these two variables so as to normalize the values. The graphs of the log transformed values are given in Figure 1 and Table 3 presents the frequency table of the data.

Figure 1. ***Log Transformed Variables LnAF and LnTA***

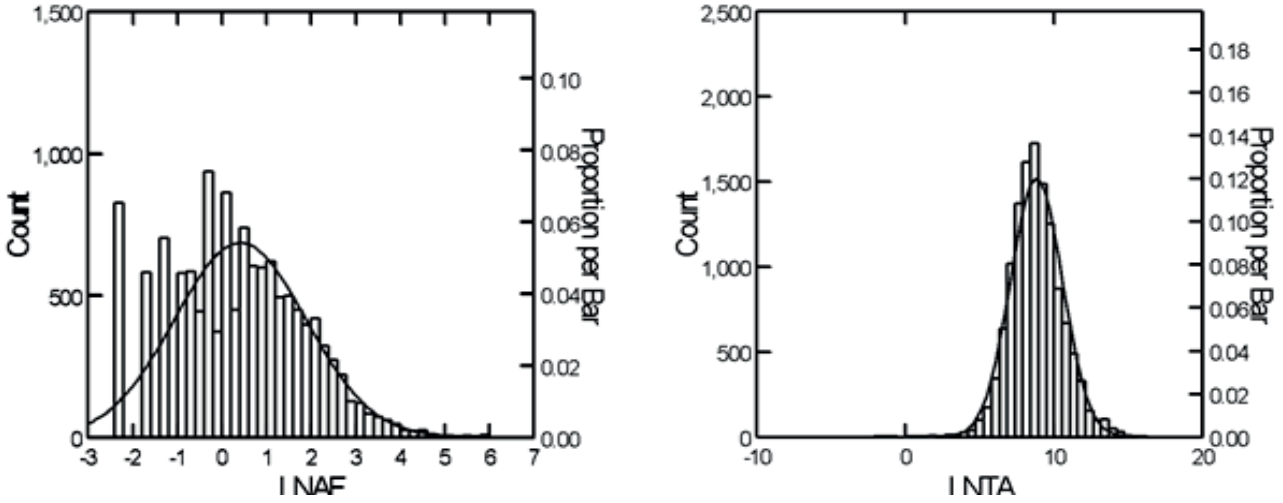

Table 3. ***Frequency Table***

Attribute	Item	Description	No. of Companies Reporting	Percentage
Auditor Attributes	Auditor Size	Big 4	2,672	21.52
		Non-Big 4	9,747	78.48
	Joint Auditor	Single Auditor	11,568	93.15
		Joint Auditors	851	6.85
	Tenure (No. of years)	One	2,681	21.59
		Two	1,854	14.93
		Three	1,673	13.47
		Four	1,449	11.67
		Five	1,210	9.74
		Six	1,078	8.68
		Seven	935	7.53
		Eight	829	6.68
		Nine	679	5.47
		Ten	31	0.25

Regulatory Attributes	IFRS	Non-IFRS	9,867	79.45
		IFRS	2,552	20.55
	Rotation	No Rotation	10,577	85.17
		Rotation	1,842	14.83
	Mandatory Auditor Rotation	No MAR	11,596	93.37
		MAR	823	6.63

Around 20% of the companies we considered had Big 4 auditors and/or had adopted IFRS by the year 2018. Only about 7% of the companies had joint auditors. About 15% rotated their auditors, of which around 7% rotated the auditors due to mandatory requirements. About 22% of the auditors had a tenure of only 1 year ; whereas, only about 0.3% of the auditors had a tenure of 10 years. We have also noted that only about 4% of the companies in our study are public sector undertakings.

Apart from these tables, it is also observed that there are various two-way cross-tabulations indicating the joint distribution of the companies or auditors in terms of the categories defined. The study tries to assess the associations between pairs of them using a Pearson chi-squared test statistic. This reveals that significant associations exist among the various categorizations. Notably, whether an auditor is a Big 4 auditor or not influences auditor rotation (including mandatory) and whether or not the company is a PSU. Similarly, whether or not the auditors are joint auditors influences auditor rotation (including mandatory) and whether or not the company is a PSU. Also, mandatory audit rotation significantly influences adoption of IFRS and whether or not the company is a PSU. Moreover, joint auditing significantly influences the adoption of IFRS, auditor rotation (including mandatory), and whether or not the company is a PSU. To a slightly lesser extent, whether or not an auditor is a Big 4 auditor influences whether or not the auditor is involved in joint auditing (3% chance of error in judgement) and adoption of IFRS (about 7% chance of error in judgement). However, there is no significant association between adoption of IFRS and whether or not a company is a PSU.

Correlation

The pairwise correlations for the numeric variables are given in Table 4.

Table 4. ***Correlation Matrix***

	Audit Fee	*LnAF*	*Total Assets*	*LnTA*	*ROA*	*SUB*	*RECTA*	*INVTA*	*DE*	*TEN*
Audit Fee	1.000									
LnAF	0.513*	1.000								
Total Assets	0.533*	0.308*	1.000							
LnTA	0.405*	0.726*	0.440*	1.000						
ROA	0.028	0.063*	0.014	0.060*	1.000					
SUB	0.370*	0.339*	0.336*	0.349*	0.040*	1.000				
RECTA	–0.050*	–0.103*	–0.087*	–0.216*	–0.016	–0.067*	1.000			
INVTA	–0.043*	–0.066*	–0.052*	–0.094*	–0.009	–0.061*	0.379*	1.000		
DE	0.051*	0.045*	0.028	0.097*	–0.123*	0.001	0.006	0.026	1.000	
TEN	0.037*	0.069*	0.001	0.045*	–0.027	0.060*	–0.081*	–0.019	0.004	1.000

Note. * indicates significance at the 5% level.

Table 4 brings out the improvements in the correlation, going from Audit Fee to its log transformation, with ROA in particular and all the variables in general. This is also true going from total assets to its log transformation. In support of our contention that no multicollinearity exists among the independent variables, it is noticed that the correlations are not that pronounced between pairs of independent variables.

Panel Data Analysis

The results of estimating the fixed effects model, as given by Equation 1, are given in Table 5. Before fitting the model, we performed the modified Wald test to test for groupwise heteroskedasticity. The Wald χ^2 test statistic's *p*-value turns out to be nearly zero. This indicates the presence of heteroskedasticity. To address this problem, we used robust standard errors while estimating the model.

Table 5. ***Fixed Effects (Within) Regression Results***

	Dependent variable : ***Ln AF***			
LnAF	**Coef.**	**Robust Standard Error§**	***t***	***P>t***
LnTA	0.2736***	0.021	12.91	0.000
ROA	–0.0024***	0.001	–3.26	0.001
SUB	0.0016	0.001	1.32	0.187
RECTA	0.5100***	0.094	5.43	0.000
INVTA	0.1024	0.079	1.29	0.196
DE	0.0002	0.001	0.16	0.869
1.Big4	0.1406***	0.037	3.79	0.000
1.JtAUD	0.1937***	0.068	2.86	0.004
TEN	0.0571***	0.004	16.27	0.000
1.IFRS	–0.0866***	0.010	–8.46	0.000
1.ROTA	0.1123***	0.020	*h*	0.000
1.MAR	0.2008***	0.025	7.96	0.000
_cons	–2.4007***	0.181	–13.27	0.000
Number of observations :	12,419			
R-square :				
Within :	0.20			
Between :	0.60			
Overall :	0.54			
F(12, 1457) =	68.20			
Corr (u_i, *X*β) =	0.53			
σ_u =	1.11			
σ_e =	0.46			
ρ =	0.85			

Note. § standard error adjusted for 1,458 companies (clusters).

*, **, *** indicates significance at the 10%, 5% and 1% levels.

The process also involved testing for endogeneity in the fixed effects model. Endogeneity occurs when an independent variable is correlated with the error term. Testing for endogeneity in a fixed effects model essentially means the same as testing whether a random effects model is more appropriate for our data. The Wald χ^2 test statistic's *p*-value is found to be nearly zero. This endorses the choice of using a fixed effects model to fit data of the research.

Since there is a large panel with relatively few time series observations, time series related tests like the test for autocorrelation are not so relevant. Table 5 displays the fixed effects regression results. From Table 5, we notice that the correlation between the fixed effect and the regressors is 0.53, which is quite significant and characteristic of a fixed effects model as elucidated by Greene (2018). We also note that the *p*-value corresponding to the *F*-statistic is nearly zero, indicating that the fixed effects model is a good fit for our panel data and the LnAF is indeed significantly related to the independent variables as per Equation 1.

From Table 5, it can be inferred that the debt equity ratio does not seem to have any significant effect on the audit fees, as seen from the coefficient value and from the corresponding *p*-value. Thus, there is no evidence to accept the hypothesis H_4 ; whereas, the number of subsidiaries and INVTA only marginally influence the audit fees, and all the other variables significantly influence the audit fees.

Table 5 also helps to depict the estimated fixed effects model, which can be used for predicting the audit fees (through its logarithm), given the values of the independent variables.

$$LnAF_{est} = -2.4007 + 0.2736LnTA - 0.0024ROA + 0.0016SUB + 0.51RECTA + 0.1024INVTA + 0.0002DE + 0.1406Big4 + 0.1937JtAUD + 0.0571TEN - 0.0866IFRS + 0.1123ROTA + 0.2008MAR \quad (2)$$

In terms of audit fees,

$$AF_{est} = e^{k}.TA^{0.2736},$$

where,

$$k = -2.4007 - 0.0024ROA + 0.0016SUB + 0.51RECTA + 0.1024INVTA + 0.0002DE + 0.1406Big4 + 0.1937JtAUD + 0.0571TEN - 0.0866IFRS + 0.1123ROTA + 0.2008MAR \quad (3)$$

From the model equation, it can be inferred that the baseline audit fee, when all the independent variables are zero, is about 0.09 million rupees. If TA increases by 10%, the audit fee increases by about 2.64%. Thus, the hypothesis H_1 can be accepted. An increase in ROA by one unit decreases the audit fee by 0.24%. Thus, the hypothesis H_2 cannot be accepted as it predicts a positive relationship between the two. If a company adds a subsidiary, then the audit fee increases by 0.15%. If the proportion of receivables to the total assets increases by 1, then the audit fee increases by as much as 67%. If the proportion of inventory to the total assets increases by 1, then the audit fee increases by 11%. Hence, the study finds evidence to support the hypothesis H_3. The Big 4 auditors charge about 15% more in terms of audit fees. Thus, the hypothesis H_5 can be accepted. If a company is audited jointly, then the audit fee increases by 21%. Hence, the hypothesis H_6 can be accepted. If the auditor continues to audit for one more year, then the audit fee increases by about 6% and hence the hypothesis H_7 can be accepted. If IFRS is adopted, then the audit fee decreases by about 8%. Thus, the hypothesis H_8 cannot be accepted as it hypothesized that an increase in audit fee is due to IFRS implementation. If the auditor is rotated, then the audit fee increases by about 12%. If the auditor rotation is mandatory, then the audit fee increases by about 22%. Hence, the hypothesis H_9 also stands to be accepted.

The 95% confidence intervals for each of the model coefficients indicate that similar results would be obtained in the case of 95% of all possible samples drawn from the same population of companies. They also indicate that

the direction of change in audit fees (increase or decrease) remains the same for any similar sample panel of companies selected from this population. This cements our inferences about the increase or decrease in audit fees due to the various factors we have considered as influencing the determination of audit fees.

From the ratio ρ, one may conclude that 85% of the total variance in audit fees is due to differences across panels. This means that there is some amount of subjectivity by companies in determining the audit fees for various reasons that may need further investigation.

One of the characteristics of a fixed effects model is that time invariant independent variables get absorbed in the intercept. This is the reason we will not be able to infer the effect of our control variables like PSU and INDS on audit fee by considering a fixed effects model. We have fit a random effects model so as to be able to test the significance of PSU and INDS on audit fee ; whereas, only certain industry groups may be significant, whether or not a company is a PSU certainly has an impact on audit fee.

Managerial and Policy Implications

The study provides interesting insights for policy makers and managers, as discussed in this section.

Among the auditee attributes, size and complexity of the operations increased the audit fee, which is similar to the findings obtained by Al-Ajmi (2009) and Houqe et al. (2015). These findings would help companies as the reference for fixing up the audit fees. With respect to the auditor attributes, the study finds that Big 4 audit firms bring the audit premium in the market. With the introduction of NFRA, the compliance burden for auditors, particularly the Big 4 got high, thus increasing the audit fee. Thus, our study provides evidence to the regulators. With respect to the findings on joint audit, our study has empirically proven that joint audit increases the cost, and hence the regulators need to look at the cost benefit analysis of any possible regulations around joint audit, particularly in the PSU companies.

In the aspects of regulatory attributes, the findings show that IFRS implementation has in fact reduced the audit fee, and regulators could use this as a point of reference for extending IFRS implementation to other sets of companies in the forthcoming phases of convergence.

Another important implication of the study is the evidence of audit fee increase during audit rotation. The low balling effect of new auditors reducing the fee to attract the clients has not been proven in this study, which would help companies in fixing the audit fee with the new auditor and help the regulators in extending or continuing the rules on audit rotation. The loss of reputation for Big 4 auditors for lack of audit judgement brings in substantial compliance risk to them specifically, and our study helps the regulators as there is a concentrated market of Big 4 auditors pushing the audit premium for companies. This result would also help the regulators' policies around joint auditors and tenure of the auditors, as both had increased the audit fee of the companies.

Conclusion

The paper intends to find determinants of audit fees by classification of the variables under auditor, auditee, and regulator attributes, with the backdrop of the regulation on mandatory auditor rotation in India. The results show that the size of the firm and the proportion of accounts receivable significantly increase the audit fee and other auditee attributes of profitability or risk do not have any bearing on the audit fee. Similarly, in the auditor attributes, Big 4 audit appointment, joint audit, and tenure influence the audit fee, and in the regulatory attributes, the rotation of auditors increased the fee, while IFRS convergence reduced the fee.

Our findings will help the policy makers to analyze trends of audit fees in India and draw regulation around the areas of conflict of interest between auditors and clients. Ensuring an effective mechanism of the external audit

process is an important step to bring back the confidence of the investors in the market, and empirical research on the audit practices of corporations is a step in this direction.

Limitations of the Study and Scope for Future Research

While the study adds to the existing literature on audit fee and regulatory change, the limitations could include the dependence on secondary sources of data for the analysis. The study could not provide evidence on the relationship between auditee risk and audit fee, and indicates a negative relationship with profitability. Future studies could look at different proxies of risk of the auditee in determining the audit fee. The effect of audit fee on the audit quality (as measured by earnings quality) with the auditor rotation scenario is another area where this research could be extended.

Authors' Contribution

Dr. Latha Ramesh conceived the idea, extracted research papers with high repute, filtered these based on keywords, generated concepts and codes relevant to the study design, developed the qualitative and quantitative design, and wrote the manuscript. Dr. Rajashree Kamath conducted the statistical and numerical computations using Stata, interpreted the results, wrote the Analysis part of the paper, and edited the manuscript for language and consistency.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest, or non-financial interest in the subject matter, or materials discussed in this manuscript.

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References

Abu Risheh, K. E., & Al-Saeed, M. A. (2014). The impact of IFRS adoption on audit fees : Evidence from Jordan. *Accounting and Management Information Systems, 13*(3), 520 – 536.

Ahmed, K., & Goyal, M. K. (2005). A comparative study of pricing of audit services in emerging economies. *International Journal of Auditing, 9*(2), 103 – 116. https://doi.org/10.1111/j.1099-1123.2005.00236.x

Al-Ajmi, J. (2009). Audit firm, corporate governance, and audit quality : Evidence from Bahrain. *Advances in Accounting, 25*(1), 64 – 74. https://doi.org/10.1016/j.adiac.2009.02.005

Al-Harshani, M. O. (2008). The pricing of audit services: Evidence from Kuwait. *Managerial Auditing Journal, 23*(7), 685 – 696. https://doi.org/10.1108/02686900810890643

Al-Mutairi, A., Naser, K., & Al-Enazi, N. (2017). An empirical investigation of factors affecting audit fees : Evidence from Kuwait. *International Advances in Economic Research, 23,* 333–347. https://doi.org/10.1007/s11294-017-9649-5

Amba, S. M., & Al-Hajeri, F. K. (2013). Determinants of audit fees in Bahrain : An empirical study. *Journal of Finance & Accountancy, 13* (July), 1– 9.

Arens, A. A. & Loebbecke, J. H. (1994). *Auditing : An integrated approach.* Englewood Cliffs.

Billor, N., Hadi, A. S., & Velleman, P. F. (2000). BACON: Blocked adaptive computationally efficient outlier nominators. *Computational Statistics & Data Analysis, 34*(3), 279 – 298.

Biswas, S. (2019). Do audit fees adjust quickly ? – Evidence from India. *Global Business Review,* 1 – 18. https://doi.org/10.1177/0972150919843382

Boon, K., Crowe, S., McKinnon, J., & Ross, P. (2005). Compulsory audit tendering and audit fees : Evidence from Australian local government. *International Journal of Auditing, 9*(3), 221–241. https://doi.org/10.1111/j.1099-1123.2005.00288.x

Cohen, S., & Leventis, S. (2013). An empirical investigation of audit pricing in the public sector : The case of Greek LGOs. *Financial Accountability & Management, 29*(1), 74 – 98. https://doi.org/10.1111/faam.12003

Curry, B., & Peel, M. J. (1998). Neural networks and business forecasting : An application to cross-sectional audit fee data. *International Journal of Commerce and Management, 8*(2), 94–120. https://doi.org/10.1108/eb047370

DeAngelo, L. E. (1981). Auditor size and audit quality. *Journal of Accounting and Economics, 3*(3), 183 – 199. https://doi.org/10.1016/0165-4101(81)90002-1

El Guindy, M. N., & Trabelsi, N. S. (2020). IFRS adoption/reporting and auditor fees: The conditional effect of audit firm size and tenure. *International Journal of Accounting & Information Management, 28*(4), 639 – 666. https://doi.org/10.1108/IJAIM-09-2019-0107

El-Gammal, W. (2012). Determinants of audit fees : Evidence from Lebanon. *International Business Research, 5*(11), 136 – 145. https://doi.org/10.5539/ibr.v5n11p136

Francis, J. R. (2004). What do we know about audit quality ? *The British Accounting Review, 36*(4), 345 – 368. https://doi.org/10.1016/J.BAR.2004.09.003

Gates, S. K., Jordan Lowe, D., & Reckers, P. M. J. (2006).Restoring public confidence in capital markets through auditor rotation. *Managerial Auditing Journal, 22*(1), 5–17. https://doi.org/10.1108/02686900710715611

Geiger, M. A., & Raghunandan, K. (2002).Auditor tenure and audit reporting failures. *Auditing : A Journal of Practice & Theory, 21*(1), 67–78. https://doi.org/10.2308/aud.2002.21.1.67

Gonthier - Besacier, N., & Schatt, A. (2007). Determinants of audit fees for French quoted firms. *Managerial Auditing Journal, 22*(2), 139–160. https://doi.org/10.1108/02686900710718654

Grant Thornton. (2018). *The future of audit in India – A series by Grand Thornton.* Grand Thornton Prime Database.

Greene, WH. (2018). *Econometric analysis* (8th ed.). Pearson.

Guedhami, O., & Pittman, J. A. (2006). Ownership concentration in privatized firms : The role of disclosure standards, auditor choice, and auditing infrastructure. *Journal of Accounting Research, 44*(5), 889 – 929. https://doi.org/10.1111/j.1475-679X.2006.00219.x

Gul, F. A., Kim, J. - B., & Qiu, A. A. (2010). Ownership concentration, foreign shareholding, audit quality, and stock price synchronicity: Evidence from China. *Journal of Financial Economics, 95*(3), 425–442. https://doi.org/10.1016/j.jfineco.2009.11.005

Hải, P. T., Toan, L. D., & Quy, N. L. D. (2019). Effect of audit rotation, audit fee and auditor competence to motivation auditor and audit quality: Empirical evidence in Vietnam. *Academy of Accounting and Financial Studies Journal, 23*(2), 1–15.

Hay, D. (2010). The accumulated weight of evidence in audit fee research : Further steps in meta - analysis. *Sixth Asia Pacific Interdisciplinary Research in Accounting Conference,* 1 – 40.

Higgins, S., Lont, D., & Scott, T. (2016). Longer term audit costs of IFRS and the differential impact of implied auditor cost structures. *Accounting & Finance, 56*(1), 165 – 203.

Houqe, M. N., Ahmed, K., & Van Zijl, T. (2015). Effects of audit quality on earnings quality and cost of equity capital: Evidence from India. *International Journal of Auditing, 21*(2), 177–189.

Ivanova, M. N., & Prencipe, A. (2020). The effects of board interlocks with an allegedly fraudulent company on audit fees. *Journal of Accounting, Auditing & Finance,* 1– 31. https://doi.org/10.1177/0148558X20971947

Jackson, A. B., Moldrich, M., & Roebuck, P. (2008). Mandatory audit firm rotation and audit quality. *Managerial Auditing Journal, 23*(5), 420 – 437. https://doi.org/10.1108/02686900810875271

Joshi, P. L., & Al-Bastaki, H. (2000). Determinants of audit fees : Evidence from the companies listed in Bahrain. *International Journal of Auditing, 4*(2), 129 – 138. https://doi.org/10.1111/1099-1123.00308

Joshi, P.L., Krishnan, A., Nik Salleh, N.M. (2017). The determinants of firms' characteristics on the audit and non-audit premium : An analysis of firms listed in the Malaysia Stock Exchange. *Indian Journal of Finance, 11*(4), 7 – 22. https://doi.org/10.17010/ijf/2017/v11i4/112627

Kaawaase, T. K., Assad, M. J., Kitindi, E. G., & Nkundabanyanga, S. K. (2016).Audit quality differences amongst audit firms in a developing economy : The case of Uganda. *Journal of Accounting in Emerging Economies, 6*(3), 269 – 290. https://doi.org/10.1108/jaee-08-2013-0041

Kamath, R., Huang, T. - C., & Moroney, R. A. (2018). Auditor rotation and perceived competence and independence : The effect of fees and industry specialization. *Journal of International Accounting Research, 17*(3), 153–175. https://doi.org/10.2308/jiar-52227

Kim, J. - B., Liu, X., & Zheng, L. (2012). The impact of mandatory IFRS adoption on audit fees : Theory and evidence. *The Accounting Review, 87*(6), 2061–2094. https://doi.org/10.2308/accr-50223

Li, C., Song, F. M., & Wong, S. M. (2008). A continuous relation between audit firm size and audit opinions : Evidence from China. *International Journal of Auditing, 12*(2), 111–127. https://doi.org/10.1111/j.1099-1123.2008.00374.x

Lin, H. - L., & Yen, A. - R. (2016). The effects of IFRS experience on audit fees for listed companies in China. *Asian Review of Accounting, 24*(1), 43 – 68. https://doi.org/10.1108/ARA-02-2014-0028

Ministry of Corporate Affairs, Government of India. (2018). *Findings and recommendations on regulating audit firms and the networks*. http://www.mca.gov.in/Ministry/pdf/2018_CommitteeExperts_Report_08112018.pdf

Mohamed, D. M., & Habib, M. H. (2013). Auditor independence, audit quality and the mandatory auditor rotation in Egypt. *Education, Business and Society : Contemporary Middle Eastern Issues, 6*(2), 116 – 144. https://doi.org/10.1108/EBS-07-2012-0035

Narayanaswamy, R., & Raghunandan, K. (2019). The effect of mandatory audit firm rotation on audit quality, audit fees and audit market concentration : Evidence from India. *SSRN Electronic Journal*. https://dx.doi.org/10.2139/ssrn.3360256

Pouraghajan, A. A. (2009). Factors influencing audit quality: With evidence. *Indian Journal of Finance, 3*(7), 16 – 24. Retrieved from http://www.indianjournaloffinance.co.in/index.php/IJF/article/view/71600

Pratt, J., & Stice, J. D. (1994). The effects of client characteristics on auditor litigation risk judgments, required audit evidence, and recommended audit fees. *The Accounting Review, 69*(4), 639–656. https://doi.org/10.2307/248435

Prime Database Group. (2019). *Mutual fund & DII ownership at all time high ; FPI holding at 2-year high : NSEinfobase.com*. http://www.primedatabase.com/doc_email/nseinfobase.com_Quarterly%20Shareholding%20Tracker_%20June%202019_Detailed%20Report.pdf

Rawat, V. (2017, September 7). 'Ind – AS is still a moving goal post': IFRS expert. *CFO.com*. https://cfo.economictimes.indiatimes.com/news/ind-as-is-still-a-moving-goal-post/60374017

Sandra, W. M. H., & Patrick, P. H. N. (1996). The determinants of audit fees in Hong Kong: An empirical study. *Asian Review of Accounting, 4*(2), 32 – 50. https://doi.org/10.1108/eb060673

Simon, D. T., & Taylor, M. H. (2002). A survey of audit pricing in Ireland. *International Journal of Auditing, 6*(1), 3 – 12. https://doi.org/10.1111/j.1099-1123.2002.tb00002.x

Stewart, J., & Munro, L. (2007). The impact of audit committee existence and audit committee meeting frequency on the external audit : Perceptions of Australian auditors. *International Journal of Auditing, 11*(1), 51 – 69. https://doi.org/10.1111/j.1099-1123.2007.00356.x

Vanstraelen, A. (2000). Impact of renewable long-term audit mandates on audit quality. *European Accounting Review, 9*(3), 419 – 442. https://doi.org/10.1080/09638180020017140

Venkatesh, & Aghajan, A. P. (2008). The relationship between non-audit service and auditor independence with evidence. *Indian Journal of Finance, 2*(5), 26–32. Retrieved from http://www.indianjournaloffinance.co.in/index.php/IJF/article/view/71658

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