# Audit Tenure, Audit Fee, and Audit Quality : Evidence from India

*Latha Ramesh* [1]
*Rajashree Kamath* [2]

## Abstract

This paper examined the relationship between the tenure of the auditor and the audit quality of Indian companies, particularly in the wake of two significant regulations in the financial reporting, the implementation of Ind AS (the IFRS compliant accounting standards) and mandatory auditor rotation. Using Discretionary Accruals as a proxy for audit quality, the study took the data of all the companies listed on the NSE for 11 financial years, from 2009 – 2019 (totaling 8,171 firm-year observations). It deployed panel data regression with a random-effects model. The results showed that audit quality improved up to specific auditors' tenure, particularly with the IFRS compliance and Big 4 auditors. The higher audit fee is positively significantly associated with lower earnings quality. The study suggested that mandatory auditor rotation might provide the full benefit only along with other regulations on IFRS, auditor reputation, and audit fee. The study provided an impetus to the regulators, audit fraternity, and companies to improve the relevance of financial statements. This is one of the first longitudinal studies examining the interaction effects of different audit regulations. Robustness checks with other proxies of audit quality provided the same results.

*Keywords :* mandatory auditor rotation, modified Jones model, discretionary accruals, IFRS, audit fees

JEL Classification Codes : M41, M42

Paper Submission Date : May 15, 2021 ; Paper sent back for Revision : February 14, 2022 ; Paper Acceptance Date : March 20, 2022 ; Paper Published Online : May 15, 2022

The latest episodes of corporate scams worldwide brought back the debates on the reliability of financial statements and the quality of audits. The regulations require the auditor to independently verify the books of accounts, study the internal control process, and certify that the financial statements represent the true and fair view of the financial position. Studies, however, have shown that a prolonged period of an auditor serving the same company could impair their objectivity, and the auditors develop empathy with the management (Asthana et al., 2010).

The regulators in several countries propose rotation of auditors after a particular period to bring in fresh perspectives on the accounting policies of the managers. Numerous works of literature investigated the association between audit quality and the tenue of auditors with mixed results. Myers et al. (2003) argued that longer audit duration improved the earnings quality of the financial statements as auditors get more watchful. Similarly, Junaidi et al. (2016) found that auditor independence improved after the mandatory auditor rotation, as reflected in the quality of earnings. In contrast, Gul et al. (2009) argued that rotation of auditors resulted in the loss of client-specific knowledge and hence did not improve the quality of reporting.

With this background, the paper studies the effect of auditor tenure on audit quality in India under the backdrop

[1] *Associate Professor,* School of Business and Management, CHRIST (Deemed to be University), Hosur Road, Bangalore - 560 024. (Email : Latha.ramesh@christuniversity.in) ; ORCID iD : https://orcid.org/0000-0002-9195-1367
[2] *Assistant Professor,* School of Business and Management, CHRIST (Deemed to be University), Kanminike, Bangalore - 560 074. (Email : rajashree.k@christuniversity.in) ; ORCID iD : https://orcid.org/0000-0001-8360-291X

of mandatory auditor rotation (MAR). Characterized with the dominance of promoter-led companies and a high concentration of Big 4 auditors, India provides an exciting setting for the study. We add the unique dimension to bring in the effect of implementing International Financial Reporting Standards (IFRS), which occurred around the same time as the regulation around MAR.

In the last few years, India has witnessed a slew of financial and control scams by Punjab National Bank, IL&FS, Manpasand beverages that brought back the debate on the role of auditors. With stricter regulations on liabilities of auditors and the setting up of the National Financial Reporting Authority (NFRA) with the power to investigate the auditing firms, India sets an interesting context to study the linkage between auditor tenure, audit fee, and audit quality.

Some studies used Indian settings in audit-related studies. Alrashidi et al. (2021) found that higher audit fees were a signal for audit quality that helped companies raise finances easily and at a lower cost. Ramesh and Ramanathan (2021) surveyed the different stakeholders in the audit process and found that it would require stringent external measures unless India improved the perception of audit quality. Huang et al. (2021) analyzed the regulatory reforms of several countries, including India, and found that higher compliance costs due to increased regulation and reformed boards impacted the audit fee.

The regulations on auditor rotation and IFRS convergence are drawn with few objectives, and it is essential to investigate the progress of the impact. To the best of our information, this is one of the first studies to examine the change in audit quality due to auditor rotation using longitudinal data for the entire companies listed on the primary stock exchanges of India.

The paper addresses the following research questions : (a) Is the longer tenure of auditors affecting audit quality? (b) Does the convergence to IFRS have any interactive role in the change of audit quality? (c) Does the appointment of Big Four auditors have any role in audit quality? and (d) Does the audit fee significantly affect the quality of the audit?

Using the modified Jones model, we equate the audit quality with earnings quality and measure it through discretionary accruals. The data consists of all the non-financial companies listed on the National Stock Exchange for 11 years, from 2009 – 2019, totaling 8,346 firm-year observations. We used the random-effects model to find that audit tenure improves audit quality.

## Theoretical Framework and Institutional Setting

In a famous court hearing in Europe, it was observed that economic crises are predictable and avoidable with due process of regulations and control. During Enron and WorldCom scams, it was found that a stringent and vigilant auditor could have prevented the loss of shareholders' value. Shareholders appoint auditors to play the role of a watchdog. There are four main aspects of an auditor's work : (a) the objectivity and independence, (b) quality of audit work, (c) cost involved for the client, and (d) other practical considerations, including specialized industries and non-audit services. The regulations around auditor appointment and engagement would ensure those aspects protect the interest of the shareholders. On the auditors' part, in the case of scams, there is professional negligence or, worse, collusion with management, which resulted in the erosion of shareholders' value (Roy, 2015).

Mandatory auditor rotation, which requires companies to change the auditors after a stipulated year of engagement, was touted to be significant reform in the corporate governance landscape. The proponents argue that MAR brings in (a) effective peer review that could potentially reduce the aggressive accounting policies of the companies to achieve market expected numbers, (b) prevent the conflict of interest of the auditors' role, and (c) promote a healthy competition among the audit category to improve the audit quality. European Union (EU) was the pioneer in implementing the mandatory auditor rotation in 2014. The Public Interest Entities (PIEs) had to rotate auditors every 10 years to extend it to another 10 years through a tendering process.

Moving to the country setting of the study, India is ranked high in the emerging economies with a vibrant capital market and well-regulated governance landscape. Several reforms were announced to attract foreign capital to India, particularly between 2009 and 2019.

The accounting regulator of the country, the Institute of Chartered Accountants of India (ICAI), announced that it would converge the accounting standards to IFRS. It came out with Indian Accounting Standards (Ind AS) that was substantially based on IFRS and rolled out in phases from 2016. As of now, listed non-financial companies with a turnover of INR 250 crores would have to follow Ind AS, and as of 2021, banking and insurance companies are not covered under this standard.

The year 2013 marked the passing of the New Companies Act, which had provisions on the auditor's tenure, and accordingly, only two terms of 5 years each could be extended. The provision of the act had come into force three years from the commencement, and hence, companies having the same audit firm for more than 10 years, as of 2017, had to rotate the auditors. The mandatory auditor rotation is applicable for (a) all listed companies, (b) unlisted, private companies with more than share capital of INR 10 crores and INR 20 crores, respectively, and any other entities having earnings of more than INR 50 crores.

The year 2017 also saw a slew of reforms on corporate governance with the Uday Kotak Committee report. Chapter VI of the report contained accounting and audit-related reforms. The major ones are (a) Any audit qualification to be reported by the companies to the Securities and Exchange Board of India (SEBI), (b) Group audits to be formalized, (c) disclosure of the resignation of the auditors with the reason in case it was pre-term, (d) disclosure of audit and non-audit fees among others (Ministry of Corporate Affairs, n.d.).

According to Pathak (2018), if information symmetry exists, emerging markets would attract global capital inflow into the stock market. The clear focus of the regulators on improving the reliability and quality of the financial statements and control is evident from the reforms, and it is of interest to empirically investigate the impact of these reforms.

## Literature Review and Hypothesis Development

### Audit Tenure and Audit Quality

Literature shows mixed results on the association between auditor tenure and audit quality- both the regimes of MAR and otherwise.

Chen et al. (2008) found that the audit firm's tenure did not significantly affect the audit quality; instead, retaining the audit partner improved the earnings quality due to familiarization with the disclosure. Similar results were reported in a relatively latest study by Garcia-Blandon et al. (2020), which showed the shorter duration of auditor resulted in increased audit fees and reduced audit quality. Still, there was no significant drop when the tenure increased, thus opposing the regulation on mandatory auditor rotation in the European Union.

Conversely, Chi and Huang (2005) argued that auditors are likely to agree with the managers on the accounting policies as the audit engagement is prolonged, thus impairing the auditor's independence. Corbella et al. (2015) argued that auditors' familiarity helped improve audit quality up to specific years of engagement, after which the benefit was not marked. Similar results were found in a study by De Fuentes and Sierra - Grau (2015) of Spanish publicly held companies, where audit quality improved up to the first six years of the tenure, after which it had deteriorated. Thus, there seems to be an optimal tenure for the audit engagement.

In the context of the current study set in India, the previous section described the decision of the regulators to rotate auditors after 10 years. The basis should have come from the proposition that longer tenure affects audit quality. The first hypothesis of the study is drawn as follows:

✤ **H$_{a1}$ :** There is an association between the auditor's tenure and audit quality.

### Auditor Rotation During the IFRS Regime and Audit Quality

Studies worldwide, particularly with the regulation on mandatory auditor rotation, provided mixed results. Jackson et al. (2008) used two proxies: discretionary accruals (DA) and propensity to issue going concern opinion for audit quality. The study conducted in Australia concluded that the audit quality measured by DA improved during the year of rotation. Mostafa Mohamed and Hussien Habib (2013) surveyed the stakeholders' perception of the mandatory auditor rotation in Egypt and found that audit rotation would improve audit independence, particularly for countries with fewer regulations.

Lennox et al. (2014) found that the audit quality significantly improved in the rotation year. The audit adjustment increased dramatically in the last year of the tenure of outgoing auditors; the incoming auditor could onboard as the transfer of knowledge happened seamlessly. Winanto and Trisno Saputro (2019) also proved through their research that auditor rotation provided a positive market signal of investors' protection.

Another set of studies did not prove any benefit of auditor rotation. Gul et al. (2009) looked at industry-specialized auditors' knowledge and evaluated the effect of mandatory auditor rotation. The study found that client-specific knowledge was lost during the rotation and did not improve the audit quality. Other studies proved a neutral view on the effect of audit rotation.

Aschauer and Quick (2018) analyzed the perception of investment consultants on the auditor rotation regime and found that the assessment of auditor independence, specifically of the reputed audit firm, did not change due to rotation.

In India, the mandatory auditor rotation coincided with the convergence of IFRS standards. According to Gupta (2018), the fair value measurement based on IFRS standards reduced the gap between market value and the firm's book value and reduced the scope of window dressing. Hence, the study found it necessary to bring in this element to measure audit quality.

Barth et al. (2008) found that IFRS had due process of timely loss recognition, and thus, the quality of earnings improved with the adoption. Bepari and Mollik (2015) looked at the specific issue of goodwill impairment under IFRS and found that it significantly affected accounting and auditing quality. Gellings (2017) found that European countries that adopted IFRS improved the audit quality and strengthened the reliability of financial statements. Jung et al. (2016) investigated the effect of IFRS on the developing country of Korea and found that it increased the audit fee and the audit quality. As a study on the impact of IFRS on another developing country, Hasan and Rahman (2019) measured the earning quality of the companies in Bangladesh post the IFRS implementation and found a significant improvement in both earnings and audit quality.

As discussed earlier, this study is interested in analyzing the auditor rotation in the context of IFRS convergence. We hence draw the second hypothesis as:

✤ **H$_{a2}$ :** Auditor rotation during the IFRS regime improves the audit quality.

### Big 4 Auditors and Audit Quality During Auditor Rotation Regime

The auditors' reputation and size are often explored to investigate the quality of audits. Big 4 (earlier Big 6) quality is significantly better than that of other audit firms (DeAngelo, 1981). Big auditors hold a well-diversified portfolio of clients and have a mechanism to check and improve the audit quality (Curry & Peel, 1998). Experienced auditors outperform the inexperienced ones (Krishnan, 2003). Hence, it is expected that the reputed auditors improve the audit quality by reducing the earnings manipulation by managers.

Lawrence et al. (2011) found that Big 4 auditors enabled better audit quality, mainly when the client firm was big. Narayanaswamy and Raghunandan (2019) studied the auditor rotation regime in India and observed that the companies that had Big 4 auditors before rotation had chosen another Big 4 firm only as the new auditor; perhaps, to provide the signal of maintaining the same quality of audit. The previous literature thus provides concentered evidence of a positive relationship between Big 4 auditors and audit quality, and hence, the third hypothesis is drawn as follows :

✤ **$H_{a3}$:** Switching to Big 4 auditors during the audit rotation improves audit quality.

### Audit Fees and Audit Quality

Literature looked at the audit fee as another critical variable affecting audit quality and auditor rotation. Theory on lowballing suggests that audit fees would tend to be low when the auditor gets rotated, thus resulting in lower audit quality (Gul et al., 2009).

Huang et al. (2015) showed that there was a fee discount for the new firm during the rotation of auditors to attract the business and lower earnings quality. Lin and Yen (2016) examined the effect of IFRS implementation in China and found that auditors with prior expertise in IFRS commanded higher audit premiums. The clients' exposure to IFRS had only a marginal effect on the audit premium. In analyzing the quality of the firms and the audit fee, Joshi et al. (2017) found that companies with higher audit quality derived that by hiring top auditors and improving audit quality. Coffie and Bedi (2019) did a study on IFRS implementation of audit fees in Ghana to suggest that IFRS implementation increased the auditors' efforts due to the principle-based nature resulting in higher audit fees.

Since the current study corresponds to the period of MAR and IFRS convergence, we have formed the fourth hypothesis as :

✤ **$H_{a4}$ :** Audit fee has a positive association with audit quality.

# Research Design

### Sample

The sample was selected from non-financial companies listed on the National Stock Exchange (NSE) of India. Table 1 describes the sample selection process and the classification of companies on different parameters.

## Variable Measurement

### Dependent Variable

The study is interested in analyzing the impact of audit quality on auditor rotation, among other aspects, and hence the need to find a measure to define audit quality. Empirical studies used two proxies: the Issue of going concern opinion and discretionary accruals. The primary principle of an auditor report is that the company will have an infinite life and no imminent chance of collapse. The auditors evaluate the aspects such as financial strength and the companies' types of disclosures and weigh the risk mitigation. For lack of consolidated data of the going concern opinion in Indian companies, this proxy could not be used to measure audit quality.

The dependent variable of our study is discretionary accruals (DA) as a measure of audit quality. DA is associated with the company's earnings quality, which tries to detect the possible earnings management in

**Table 1. *Sample of the Study***

**Panel A : Sample Selection Process**

| | |
|---|---|
| No. of firms listed on the National Stock Exchange and Bombay Stock Exchange from April 1, 2019 | 1,946 |
| Less: | |
| Financial institutions | 237 |
| Missing information | 78 |
| Final usable sample | 1,631 |

**Panel B : Classification Based on Ownership and Year of Incorporation**

| Ownership | No. of companies | % | Year of incorporation | No.of companies | % |
|---|---|---|---|---|---|
| Public sector undertakings and | 56 | 3% | Before 1950 | 132 | 8% |
| state and private sector | | | Between 1951 – 1971 | 159 | 10% |
| Private group companies | 677 | 42% | Between 1972 – 1985 | 321 | 20% |
| Private Indian companies | 841 | 52% | Between 1986 – 1990 | 233 | 14% |
| Private foreign companies | 57 | 3% | After 1991 | 787 | 48% |
| **Total** | **1,631** | **100** | | **1,631** | **100** |

financial statements using the accrual-based accounting policy. Discretionary accruals try to segregate the accruals that do not arise from regular operating activity, suggesting that a higher DA could mean that the management is trying to exert power to make the auditor approve the financials (Kim et al., 2015). Similar to the study by Myers et al. (2003), we do not look at audit quality as a mere adherence to the accounting standards. Good audit quality should lower earnings management, leading to better earnings quality, a proxy of audit quality.

Thus, a higher DA would mean discretionary accruals, higher earnings management, and lower audit quality. Consistent with prior studies (Chi & Huang, 2005; Krishnan, 2003; Shafie et al., 2009), we measure discretionary accruals using the modified Jones model as used by Dechow et al. (1995), where :

$$\frac{TACC_t}{A_{t-1}} = \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \alpha_3 \frac{PPE_t}{A_{t-1}} + \varepsilon_t \qquad (1)$$

$TACCt/A_{t-1}$ is the total accrual scaled by lag total assets; $TACC$ is estimated using the formula net income before extraordinary items minus cash flow from operations. $A_{t-1}$ is lagged total assets $\Delta REC_t$ $REV_t$ is the change in revenue and receivables, and $PPE$ is plant property and equipment for the year $t$.

DA is the residual of the regression of Equation 1.

### Explanatory Variables

The explanatory variables are the auditor's tenure, measured as the number of years the auditor serves the company, rotation is a dummy variable, with the value of 1 if that auditor had been changed during the particular year by taking the reference of the auditor of the previous year. IFRS would be another dummy variable marked as one firm reporting the financials in the converged Ind AS and 0 otherwise. The fourth explanatory variable, the audit fee, is the natural logarithm of the audit fee reported by the companies.

### Control Variables

In line with prior studies, we want to control for leverage by taking the debt-equity ratio (Chen et al., 2008) as the risk of the company increases with the debt-equity ratio, and companies may have motivation for DA. Size is another variable that significantly affects accruals as larger companies have a higher tendency to report for DA (El Guindy & Basuony, 2018). The natural logarithm of total assets is used as a proxy for size.

The cash flow ratio, measured by cash flow from operations divided by total assets, has a significant effect on the accrual of the companies (Kim et al., 2015), and hence, it is used in the study.

Profitability, as measured by return on assets (Chi et al., 2011) and age, is estimated as the number of years since listing (Myers et al., 2003), which are the other control variables used to increase the robustness in the model. All the data for the variables are extracted from the Prowess IQ database of CMIE.

## Methodology

This is exploratory research using secondary data. As mentioned in the introduction section, the study period is from 2009 – 2019, covering 11 years.

Several alternative models 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 random-effects model is more appropriate. In what follows, we will also test some of our claims, justifying using a random-effects model for our data.

### Model

The following is the form of our random-effects model:

$$LnDA = \beta_0 + \beta_1\,TEN_{it} + \beta_2\,CFRatio_{it} + \beta_3\,LnAge_{it} + \beta_4\,ROA_{it} + \beta_5\,DE_{it} + \beta_6\,LnAF_{it} + \beta_7\,LnTA_{it} + \beta_8\,Big4_{it} + \beta_9\,JtAUD_{it} + \beta_{10}\,ROTA_{it} + \beta_{11}\,IFRS_{it} + \text{(all possible interaction effects of the categorical variables)} + u_{it} + \varepsilon_{it} \qquad (2)$$

The suffix $i$ relates to each of the $N$ companies and $t$ to each of the years. Here, $\beta_0$ is the overall intercept independent of the time point $t$, $u_{it}$ is the random effect (between-entity error) for the $i^{th}$ group at the time point $t$. $\beta_1$ to $\beta_{11}$ are the coefficients of the 11 independent variables we have used in the model, and $\varepsilon_{it}$ is the random (within-entity) error in estimating the dependent variable. We have omitted all possible interaction effects of the categorical variables for obvious reasons; the complete list of interaction terms is depicted in Table 4.

## 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 167 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 have dropped these observations from further analyses. We proceed with 8,178 observations on 1,168 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 and Frequency Tables*

Panel A : Descriptive Statistics for Continuous Variables

| Statistics | DA | Age | CFRatio | AF | TA | ROA | DE | TEN |
|---|---|---|---|---|---|---|---|---|
| Mean | 7.58 | 32.92 | 4.45 | 4.84 | 41367.66 | 2.93 | 2.34 | 3.97 |
| Median | 1.87 | 27.00 | 0.07 | 1.40 | 6204.10 | 3.07 | 1.33 | 4.00 |
| SD | 52.41 | 21.25 | 25.56 | 15.56 | 209047.50 | 10.74 | 4.26 | 2.51 |
| Minimum | .00006 | 2 | –281.40 | 0.10 | 3.30 | –156.50 | 0.00 | 1.00 |
| Maximum | 1387.84 | 156 | 379.18 | 437.60 | 8163480.00 | 131.04 | 65.34 | 10.00 |
| Skewness | 16.017 | 1.73 | 6.33 | 13.95 | 17.20 | –2.43 | 7.12 | 0.49 |
| Kurtosis | 305.17 | 4.05 | 74.44 | 275.30 | 450.29 | 34.25 | 73.53 | 2.08 |

Panel B : Frequency Tables for Categorical Variables

| | Auditor Size | | Joint Auditor | | IFRS | | Rotation | |
|---|---|---|---|---|---|---|---|---|
| | Big4 | Non-Big4 | Single | Joint | Non-IFRS | IFRS | No Rotation | Rotation |
| Frequency | 1,792 | 6,381 | 7,654 | 519 | 5,324 | 2,849 | 6,855 | 1,317 |
| Percentage | 21.9 | 78.1 | 93.6 | 6.4 | 65.1 | 34.9 | 83.9 | 16.1 |

*Note.* The variable definitions as used in Equation 1 and Table 2 are as follows: *DA* is the discretionary accrual, *LnDA* is the natural logarithm of the discretionary accrual, *LnTA* is the natural logarithm of the total assets, *CFRatio* is the cashflow ratio (the ratio of cash flow to the lagged total assets), *LnAge* is the natural logarithm of the age of the company, *ROA* is the return on assets (net profit/total assets), *DE* is the debt/equity ratio (the proportion of debt to the equity of the firm as on the last day of the financial year), *LnAF* is the natural logarithm of the audit fees, *TEN* is the tenure of the auditor (the number of years the auditor served the company), *Big4* is a dichotomous variable indicating whether the firm's principal auditor is an affiliate member of a Big4 audit firm or not, *JtAUD* is a dichotomous variable indicating whether there are joint auditors or not, *ROTA* is a dichotomous variable indicating auditor rotation when it is 1, and *IFRS* is a dichotomous variable indicating whether the company reported financial statements in IFRS.

We observe that the discretionary accrual ranges from almost zero to INR 1,387.84 million, averaging 7.58 million. The company's age goes from 2 to 156 years, with an average of about 33 years. The audit fee ranges from INR 0.1 million to 437.60 million, with an average of 4.84 million. Total assets range from INR 3.3 million to 8,163,480 million, averaging 41,367.66 million. Observing the difference between the mean and the median and the skewness and kurtosis values, we perform a log transformation of these four variables to normalize the values.

About 22% of the companies we considered have had Big 4 auditors, and about 35% adopted IFRS by 2018. About 6.4% of the companies had joint auditors, and around 16% had rotated their auditors. Approximately 15% of the auditors have had a tenure of only one year; whereas, only about 0.5% of the auditors have had a tenure of 10 years.

Apart from these tables, we also observe various two-way cross-tabulations indicating the joint distribution of the companies or auditors in terms of the categories defined. The study attempts to assess the associations between pairs 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 significantly influences auditor rotation, the adoption of IFRS, auditor tenure, and whether joint auditors are involved or not. Similarly, whether or not the auditors are joint significantly influences the adoption of IFRS and auditor tenure. Lastly, the adoption of IFRS significantly influences auditor rotation and tenure.

### Correlation

The pairwise correlations for the numeric variables are given in Table 3.

**Table 3. *Correlation Matrix***

|        | LnDA     | DA       | AGE     | LnAGE   | CFRatio  | AF      | LnAF    | TA      | LnTA    | ROA     | DE  |
|--------|----------|----------|---------|---------|----------|---------|---------|---------|---------|---------|-----|
| DA     | .537**   | 1        |         |         |          |         |         |         |         |         |     |
| AGE    | −.031**  | −.032**  | 1       |         |          |         |         |         |         |         |     |
| LnAGE  | −.032**  | −.041**  | .902**  | 1       |          |         |         |         |         |         |     |
| CFRatio| −0.008   | −.039**  | 0.008   | 0.016   | 1        |         |         |         |         |         |     |
| AF     | −.024*   | −.043**  | .121**  | .110**  | .146**   | 1       |         |         |         |         |     |
| LnAF   | −.083**  | −.125**  | .277**  | .272**  | .144**   | .494**  | 1       |         |         |         |     |
| TA     | −0.018   | −.038**  | .053**  | .061**  | .152**   | .570**  | .299**  | 1       |         |         |     |
| LnTA   | −.106**  | −.188**  | .244**  | .253**  | .195**   | .395**  | .749**  | .403**  | 1       |         |     |
| ROA    | −0.010   | 0.000    | 0.000   | 0.013   | −.031**  | 0.002   | 0.006   | −0.020  | −0.008  | 1       |     |
| DE     | −0.008   | −0.009   | .024*   | 0.016   | 0.013    | −0.008  | 0.000   | −0.006  | −0.008  | .030**  | 1   |
| TEN    | 0.000    | 0.000    | 0.010   | .026*   | .037**   | 0.018   | 0.015   | −0.007  | −0.008  | −.043** | 0.021 |

**Note.** The variable definitions as used in Table 3 are as follows: *DA* is the discretionary accrual, *LnDA* is the natural logarithm of the discretionary accrual, *LnTA* is the natural logarithm of the total assets, *CFRatio* is the cashflow ratio (the ratio of cash flow to the lagged total assets), *LnAge* is the natural logarithm of the age of the company, *ROA* is the return on assets (net profit/total assets), *DE* is the debt/equity ratio (the proportion of debt to the equity of the firm as on the last day of the financial year), *LnAF* is the natural logarithm of the audit fees, *TEN* is the tenure of the auditor (the number of years the auditor served the company), *Big4* is a dichotomous variable indicating whether the firm's principal auditor is an affiliate member of a Big4 audit firm or not, *JtAUD* is a dichotomous variable indicating whether there are joint auditors or not, *ROTA* is a dichotomous variable indicating auditor rotation when it is 1, and *IFRS* is a dichotomous variable indicating whether the company reported financial statements in IFRS.

Table 3 brings out the improvements in the correlation, going from discretionary accrual to its log transformation, with CFRatio in particular and all the variables in general. This is also true from age, audit fee, and total assets to their respective log transformation. Therefore, the log transformations of discretionary accrual, age, audit fee, and total assets will be used.

### *Panel Data Analysis*

The results of estimating the random-effects model, as given by Equation 1, are shown in Table 4. Before fitting the model, we performed the modified Wald test to test group-wise heteroskedasticity. The Wald $\chi^2$ test statistic's *p*-value turned out to be nearly zero. This indicates the presence of heteroskedasticity. We used robust standard errors while estimating the model to address this problem.

The process also involved testing whether the fixed effects model is more appropriate using a Hausman test. The Wald $\chi^2$ test statistic's *p*-value is found to be 0.8508. This endorses using a random-effects model to fit the research data.

Since there is a large panel with few observations, time-series related tests like the autocorrelation test are not relevant. Table 4 displays the random effects regression results. From Table 4, it is noted that the *p*-value corresponding to the Wald $\chi^2$ test statistic is nearly zero, indicating that the random-effects model is a good fit for our panel data. The DA is significantly related to the independent variables as per Equation 1.

Tenure of the auditor has a negative association with DA, lending support to $H_{a1}$, indicating that the auditor's tenure improves the audit quality; individually, the audit rotation did not significantly affect audit quality. IFRS decreased the audit quality, but its interaction effects bring interesting insights. Implementation of IFRS with the

## Table 4. *Random Effects (GLS) Regression Results*

| Dependent : *DA* | Coefficient | Robust Standard Error # | *z* | *P > z* |
|---|---|---|---|---|
| *TEN* | −0.008 | 0.004 | −1.99 | 0.046** |
| *LnAF* | 0.031 | 0.018 | 1.69 | 0.09* |
| *DE* | 0.000 | 0.001 | −0.35 | 0.727 |
| *ROA* | 0.001 | 0.001 | 1.26 | 0.206 |
| *CFRatio* | 0.000 | 0.000 | 0.68 | 0.497 |
| *LnAGE* | −0.024 | 0.036 | −0.66 | 0.509 |
| *LnTA* | −0.155 | 0.021 | −7.2 | 0*** |
| 1. *BIG4* | 0.001 | 0.040 | 0.04 | 0.972 |
| 1.IFRS | 0.061 | 0.027 | 2.25 | 0.024** |
| 1. *JtAUD* | 0.019 | 0.069 | 0.27 | 0.785 |
| 1. *ROTA* | 0.043 | 0.035 | 1.25 | 0.211 |
| *BIG4*IFRS* | 0.037 | 0.039 | 0.96 | 0.339 |
| *BIG4*JtAUD* | 0.062 | 0.081 | 0.76 | 0.445 |
| *IFRS*JtAUD* | 0.074 | 0.099 | 0.75 | 0.454 |
| *BIG4*IFRS*JtAUD* | −0.206 | 0.225 | −0.92 | 0.36 |
| *BIG4*ROTA* | −0.126 | 0.074 | −1.7 | 0.09* |
| *IFRS*ROTA* | −0.115 | 0.054 | −2.13 | 0.033** |
| *BIG4*IFRS*ROTA* | 0.128 | 0.100 | 1.29 | 0.198 |
| *JtAUD*ROTA* | −0.047 | 0.080 | −0.59 | 0.556 |
| *BIG4*JtAUD*ROTA* | −0.021 | 0.161 | −0.13 | 0.897 |
| *IFRS*JtAUD*ROTA* | 0.150 | 0.154 | 0.97 | 0.332 |
| *BIG4*IFRS*JtAUD*ROTA* | 0.109 | 0.294 | 0.37 | 0.71 |
| Constant | 2.252 | 0.201 | 11.22 | 0*** |
| *R* - square | | | | |
| Within | 0.0132 | | Wald $\chi^2$ | 97.44 |
| Between | 0.0608 | | *p* - value | 0.000 |
| Overall | 0.0363 | | | |

**Note.** # standard error adjusted for 1,168 companies (clusters).

*, **, *** indicates significance at the 10%, 5%, and 0.01% level.

**Note.** The variable definitions as used in Table 4 are as follows: *DA* is the discretionary accrual, *LnDA* is the natural logarithm of the discretionary accrual, *LnTA* is the natural logarithm of the total assets, *CFRatio* is the cashflow ratio (the ratio of cash flow to the lagged total assets), *LnAge* is the natural logarithm of the age of the company, *ROA* is the return on assets (net profit/total assets), *DE* is the debt/equity ratio (the proportion of debt to the equity of the firm as on the last day of the financial year), *LnAF* is the natural logarithm of the audit fees, *TEN* is the tenure of the auditor (the number of years the auditor served the company), *Big4* is a dichotomous variable indicating whether the firm's principal auditor is an affiliate member of a Big4 audit firm or not, *JtAUD* is a dichotomous variable indicating whether there are joint auditors or not, *ROTA* is a dichotomous variable indicating auditor rotation when it is 1, and *IFRS* is a dichotomous variable indicating whether the company reported financial statements in IFRS.

rotation significantly reduces DA, indicating higher audit quality, supporting hypothesis $H_{a2}$. Similar results are observed on the combined effects of Big 4 auditors and auditor rotation, which improve the audit quality, thus accepting hypothesis $H_{a3}$. Audit fee marginally influences discretionary accrual (10% level of significance), thus lending evidence to support hypothesis $H_{a4}$.

To the other variables in the model, it can be inferred that the debt-equity ratio does not seem to have any significant effect on the discretionary accrual, as seen from the coefficient value and the corresponding *p*-value. Similar conclusions can be drawn for ROA, CFRatio, and Age. Finally, the company's total assets (0.01% level) significantly influence DA.

Table 4 also helps to write the estimated random-effects model, which can be used for predicting the discretionary accrual (through its logarithm), given the values of the independent variables. The interpretation is explained in the appendix.

### *Robustness Check*

We checked the robustness by using another dummy variable to measure if the rotation had been mandatory or voluntary similar to Firth et al. (2012), and we found that it did not change the results. We also performed a stepwise elimination of the non-significant effects and found that the same set of outcomes is significant, as indicated in Table 4.

## Discussion

The results of the study bring important insights. The finding that the tenure of the auditor improves the audit quality is consistent with several studies such as: Chen et al. (2008), Cameran et al. (2016), and Kim et al. (2015), all of them set in the mandatory auditor rotation regime. It could prove that longer auditor tenure establishes an internal control system and reduces the earnings management scope. The tenure seemed to help only until a particular period, as the study finds that the rotation of auditors and IFRS convergence reduces earnings management. This study lends to the theory purported by Jung et al. (2016) that principle-driven standards and the expertise brought in by the new auditors improve the audit quality. The study also provides evidence that audit fees increase during the transition of regulatory changes. The results are similar to Mitra et al. (2009), which found that audit fees increased substantially during the implementation of SOX in the US. Another study by Abu Risheh and Al Saeed (2014) demonstrated similar results in another developing country.

## Implications

The study's findings have implications for regulatory, professional bodies, and the corporates at large. It is found that IFRS improves the audit quality, and the accounting regulators shall extend Ind AS – the converged version of IFRS. The study provides insights on the appointment, scope, and audit fee for the corporates. The upskill related to new accounting standards would be helpful for the audit profession.

We find that auditors' long tenure helps in improving the audit quality up to a point in time after it reduces, and rotation of auditors with the implementation of IFRS-compliant standards enhance the quality of audit. Our results also indicate that a higher audit fee is associated with lower earnings quality, showing the earnings management motive. Our study will be helpful for regulators to bring in additional regulations, and it also has implications for the audit profession and companies around appointment and remuneration.

## Conclusion

This paper attempts to investigate the effect of auditor rotation and the IFRS implementation on the audit quality of Indian companies with the moderating effects of Big 4 auditors and audit fees. The study finds that auditor tenure brought in familiarity and a better control system and yielded positive results to improve the audit quality. The tenure's effect gets reversed after a few years, after which rotation of the auditors and fair value accounting system continued to help in audit quality. The rotation of auditors, when the incoming auditor belongs to a Big 4 audit firm, helps in a better quality of financial reporting. The convergence of IFRS and auditor processes increased audit fees for corporates. This is one of the earliest studies to give a comprehensive framework on the interaction between multiple regulatory aspects of the study period.

## Limitations of the Study and Scope for Future Research

The study may have limitations for secondary source research, including missing financial indicators data. The going concern opinion of auditors, if made available, could have increased the robustness of the study. The future direction of this study could lead to the effect of joint audits, audit qualification, and auditor resignation on the impact of audit quality.

## Authors' Contribution

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

## 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.

## Funding Acknowledgement

## References

Abu Risheh, K. E., & Al Saeed, M. T. (2014). The impact of IFRS adoption on audit fees: Evidence from Jordan. *Journal of Accounting and Management Information Systems, 13*(3), 520–536. https://EconPapers.repec.org/RePEc:ami:journl:v:13:y:2014:i:3:p:520-536

Alrashidi, R., Baboukardos, D., & Arun, T. (2021). Audit fees, non-audit fees and access to finance: Evidence from India. *Journal of International Accounting, Auditing and Taxation, 43,* Article 100397. https://doi.org/10.1016/j.intaccaudtax.2021.100397

Aschauer, E., & Quick, R. (2018). Mandatory audit firm rotation and prohibition of audit firm-provided tax services: Evidence from investment consultants' perceptions. *International Journal of Auditing, 22*(2), 131–149. https://doi.org/10.1111/ijau.12109

Asthana, S. C., Balsam, S., & Krishnan, J. (2010). Corporate governance, audit firm reputation, auditor switches, and client stock price reactions: The Andersen experience. *International Journal of Auditing, 14*(3), 274–293. https://doi.org/10.1111/j.1099-1123.2010.00417.x

Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International accounting standards and accounting quality. *Journal of Accounting Research, 46*(3), 467–498. https://doi.org/10.1111/j.1475-679X.2008.00287.x

Bepari, M. K., & Mollik, A. T. (2015). Effect of audit quality and accounting and finance backgrounds of audit committee members on firms' compliance with IFRS for goodwill impairment testing. *Journal of Applied Accounting Research, 16*(2), 196–220. https://doi.org/10.1108/JAAR-05-2013-0038

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

Bloomberg. (2019). *In Charts: How big are the Big 4 in India.* https://www.bloombergquint.com/business/in-charts-how-big-are-the-big-4-in-india

Cameran, M., Prencipe, A., & Trombetta, M. (2016). Mandatory audit firm rotation and audit quality. *European Accounting Review, 25*(1), 35–58. https://doi.org/10.1080/09638180.2014.921446

Chen,3 C.-Y., Lin, C.-J., & Lin, Y.-C. (2008). Audit partner tenure, audit firm tenure, and discretionary accruals: Does long auditor tenure impair earnings quality? *Contemporary Accounting Research, 25*(2), 415–455. https://doi.org/https://doi.org/10.1506/car.25.2.5

Chi, W., & Huang, H. (2005). Discretionary accruals, audit-firm tenure and audit-partner tenure: Empirical evidence from Taiwan. *Journal of Contemporary Accounting & Economics, 1*(1), 65–92. https://doi.org/10.1016/s1815-5669(10)70003-5

Chi, W., Lisic, L. L., & Pevzner, M. (2011). Is enhanced audit quality associated with greater real earnings management? *Accounting Horizons, 25*(2), 315–335. https://doi.org/10.2308/acch-10025

Coffie, W., & Bedi, I. (2019). The effects of IFRS adoption and firm size on audit fees in financial institutions in Ghana. *Accounting Research Journal, 32*(3), 436–453. https://doi.org/10.1108/ARJ-07-2017-0114

Corbella, S., Florio, C., Gotti, G., & Mastrolia, S. A. (2015). Audit firm rotation, audit fees and audit quality: The experience of Italian public companies. *Journal of International Accounting, Auditing and Taxation, 25*(1), 46–66. https://doi.org/10.1016/j.intaccaudtax.2015.10.003

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

De Fuentes, C., & Sierra-Grau, E. (2015). IFRS adoption and audit and non-audit fees: Empirical evidence from Spanish listed companies. *Spanish Journal of Finance and Accounting, 44*(4), 387–426. https://doi.org/10.1080/02102412.2015.1075341

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

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review, 70*(2), 193–225. http://www.jstor.org/stable/248303

El Guindy, M. N., & Basuony, M. A. (2018). Audit firm tenure and earnings management: The impact of changing accounting standards in UK firms. *The Journal of Developing Areas, 52*(4), 167–181. https://doi.org/10.1353/jda.2018.0058

Firth, M., Rui, O. M., & Wu, X. (2012). How do various forms of auditor rotation affect audit quality ? Evidence from China. *The International Journal of Accounting, 47*(1), 109–138. https://doi.org/10.1016/j.intacc.2011.12.006

Garcia-Blandon, J., Argiles, J. M., & Ravenda, D. (2020). On the relationship between audit tenure and fees paid to the audit firm and audit quality. *Accounting in Europe, 17*(1), 78–103. https://doi.org/10.1080/17449480.2019.1669808

Gellings, J. (2017). *IFRS and enforcement on audit quality: Incorporating the mediating effect of audit fee* (Unpublished Master's Thesis). Radboud University Nijmegen. https://theses.ubn.ru.nl/bitstream/handle/123456789/4922/Gellings,_Janne_1.pdf?sequence=1

Gul, F. A., Fung, S. Y., & Jaggi, B. (2009). Earnings quality: Some evidence on the role of auditor tenure and auditors' industry expertise. *Journal of Accounting and Economics, 47*(3), 265–287. https://doi.org/10.1016/j.jacceco.2009.03.001

Gupta, A. (2018). Evaluation of the impact of IND AS 113 fair value measurement on financial statements. *Indian Journal of Finance, 12*(11), 7–22. https://doi.org/10.17010/ijf/2018/v12i11/138194

Hasan, M. T., & Rahman, A. A. (2019). Conceptual framework for IFRS adoption, audit quality and earnings management: The case of Bangladesh. *International Business and Accounting Research Journal, 3*(1), 58–66. https://doi.org/10.15294/IBARJ.V3I1.56

Huang, H.-W., Raghunandan, K., Huang, T.-C., & Chiou, J.-R. (2015). Fee discounting and audit quality following audit firm and audit partner changes: Chinese evidence. *The Accounting Review, 90*(4), 1517–1546. https://doi.org/10.2308/accr-50958

Huang, Y., Li, X., & Song, Z. (2021). Board reforms and audit fees: International evidence. *Asia-Pacific Journal of Accounting & Economics,* 1–20. https://doi.org/10.1080/16081625.2020.1870510

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., 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

Junaidi, J., Hartono, J., Suwardi, E., Miharjo, S., & Hartadi, B. (2016). Does auditor rotation increase auditor independence? *Gadjah Mada International Journal of Business, 18*(3), 315–336. https://doi.org/10.22146/gamaijb.16988

Jung, S.-J., Kim, B.-J., & Chung, J.-R. (2016). The association between abnormal audit fees and audit quality after IFRS adoption: Evidence from Korea. *International Journal of Accounting & Information Management, 24*(3), 252–271. https://doi.org/10.1108/IJAIM-07-2015-0044

Kim, H., Lee, H., & Lee, J. E. (2015). Mandatory audit firm rotation and audit quality. *Journal of Applied Business Research, 31*(3), 1089–1106. https://doi.org/10.19030/jabr.v31i3.9245

Krishnan, G. V. (2003). Does Big 6 auditor industry expertise constrain earnings management? *Accounting Horizons, 17*(1), 1–16.

Lawrence, A., Minutti-Meza, M., & Zhang, P. (2011). Can Big 4 versus non-Big 4 differences in audit-quality proxies be attributed to client characteristics? *The Accounting Review, 86*(1), 259–286. https://doi.org/10.2308/accr.00000009

Lennox, C. S., Wu, X., & Zhang, T. (2014). Does mandatory rotation of audit partners improve audit quality? *The Accounting Review, 89*(5), 1775–1803. https://doi.org/10.2308/accr-50800

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. (n.d.). *Accounts and audit.* http://www.mca.gov.in/MinistryV2/accounts+and+audit.html

Mitra, S., Deis, D. R., & Hossain, M. (2009). The association between audit fees and reported earnings quality in pre- and post-Sarbanes-Oxley regimes. *Review of Accounting and Finance, 8*(3), 232–252. https://doi.org/10.1108/14757700910980840

Mostafa Mohamed, D., & Hussien Habib, M. (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

Myers, J. N., Myers, L. A., & Omer, T. C. (2003). Exploring the term of the auditor-client relationship and the quality of earnings: A case for mandatory auditor rotation? *The Accounting Review, 78*(3), 779–799. https://doi.org/10.2308/accr.2003.78.3.779

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://doi.org/10.2139/SSRN.3360256

Pathak, T. (2018). Linkages between global capital flows, stock market, and monetary policy: Evidences from India. *Indian Journal of Finance, 12*(2), 26–42. https://doi.org/10.17010/ijf/2018/v12i2/121369

Ramesh, V., & Ramanathan. (2021). Auditing the auditors: A comparative study about India, UK, and the USA. *Materialstoday: Proceedings, 37*(Part 2), 2495–2500. https://doi.org/10.1016/j.matpr.2020.08.304

Roy, M. N. (2015). Statutory auditors' independence in corporate accounting scandals: A case study of Satyam Computer Services Ltd. *Prabandhan: Indian Journal of Management, 8*(2), 35–48. https://doi.org/10.17010/pijom/2015/v8i2/61399

Shafie, R., Hussin, W. N., Yusof, M. A., & Hussain, M. H. (2009). Audit firm tenure and auditor reporting quality: Evidence in Malaysia. *International Business Research, 2*(2), 99–109. https://doi.org/10.5539/ibr.v2n2p99

Winanto, A., & Trisno Saputro, B. F. (2019). The factors influencing audit quality and its impact upon judgement on materiality level. *The Accounting Journal of Binaniaga, 4*(2), 21–34. https://doi.org/10.33062/ajb.v4i2.339

# Appendix

***Impact of Changes in Independent Variables of the Random Effects Model***

$LnDA = 2.252 - 0.155LnTA + 0.000CFRatio - 0.024LnAge + 0.001ROA + 0.000DE + 0.031LnAF -$
$0.008TEN + 0.001Big4 + 0.019JtAUD + 0.043ROTA + 0.061IFRS +$ (all possible interaction
effects of the categorical variables)   ...... (1)

In terms of discretionary accrual,

$DA = e^k . TA^{-0.155} . AF^{0.031} . AGE^{-0.024}$                     ..... (2)

where,

$k = 2.252 + 0.000CFRatio + 0.001ROA + 0.000DE - 0.008TEN + 0.001Big4 + 0.019JtAUD + 0.043ROTA$
$+ 0.061IFRS +$ (all possible interaction effects of the categorical variables).     ...... (3)

↳ If TA increases by 10%, the discretionary accrual significantly decreases by 1.47%.

↳ If TEN increases by one year, discretionary accrual significantly decreases by 0.8%.

↳ If audit fees increase by 10%, discretionary accrual significantly increases by 0.3%.

↳ An increase in CFRatio, ROA, DE, or AGE does not significantly impact the discretionary accrual.

↳ Adoption of IFRS significantly increases the discretionary accrual by about 6.29%.

↳ However, if a company has adopted IFRS and auditor rotation takes place, discretionary accrual significantly decreases by about 10.86%.

↳ Also, if auditor rotation takes place, where a Big4 auditor is involved, the discretionary accrual significantly decreases by about 11.84%, but with a 10% chance of error in judgment.

**About the Authors**

**Latha Ramesh is an Associate Professor at the School of Business & Management. A PhD in financial reporting, she is a member of the Institute of Cost and Management Accountants of India (ICMAI). Her research interests include corporate governance, valuation, and corporate strategy.**

**Dr. Rajashree Kamath is an Assistant Professor at the School of Business & Management. A PhD in Statistics, she has wide experience working with various statistical software tools. Her research interests include applications of statistics, operations research, and inventory management.**