

# Assessing audit fees: Turnover, inflation & minimum stipend rate

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**Abstract.** Auditing firms rely on audit fees to generate revenue. The audit fee is generally agreed upon by auditee and auditor. For the calculation of audit fees, no standard formula exists. Pakistan's regulatory body for audit firms 'ICAP' has imposed certain cost constraints on audit firms. As per the literature, stipend rates have been used rarely to determine audit fees. As a result, this paper examines audit fee determination using variables such as the company's assets, turnover, current ratio, inflation, and minimum stipend rate. These variables are especially influential in a developing country such as Pakistan. To determine audit fees, a panel regression model is being developed. We used data from 40 publicly traded companies from 2014 to 2017 to regress on our model. After extensive testing with the Hausman and F-tests, the fixed effect model is finally applied. Empirically, it was discovered that the current ratio, the entity's turnover, and the stipend amount all have a significant positive effect on the calculation of audit fees. The study's findings have significant implications not only for audit firms, but also for auditees in determining audit fees.

## 1 Introduction

As per Companies Ordinance 1984, every limited liability company is required to conduct at least one external audit in a year. This audit has been made compulsory for the limited liability firms so that reasonable assurance could be given to the shareholders of the company that the financial statements are free from material misstatements. These audit services are being provided to companies by audit firms which itself has a structure of partnership form of business. These partnership firms themselves have a legal barrier that the owners (partners) of partnership firms must be a group of qualified chartered accountants. Teams of chartered accountants with the help of their apprentices are the people who used to visit companies to companies for audit. Apprentices attached with the team of a chartered accountant for audit are those individuals who are pursuing their chartered accountant studies are mandatorily required to go through a rigorous articulation of 3.5 years for the necessary completion of their Chartered Accountancy (CA).

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Institute of Chartered Accountants of Pakistan shortly called 'ICAP' is the sole regulatory body in Pakistan who not only monitors the overall audit practices by audit firms but also regulates and supervises the examination system for CA studies. Alongside CA exams regulation, ICAP also sets the stipend rate which is supposed to be given to apprentices doing CA articles. Audit services provided by audit firms always have a price, formally called, 'audit fee'. The audit fee is generally agreed between the 'audit firm' and the 'company' based on the mutual agreement before the starting of the audit. The audit firm's main cost of providing this audit fee is the stipend rate set by ICAP which is supposed to be given to each trainee. Moreover, stipend rates itself vary for two levels. For apprentices who are at the initial level will be getting lesser as compared to experienced combatant. So, the audit fee quoted by an audit firm will be influenced by the minimum rate as for stipend set by ICAP.

### **1.1 Problem Statement**

Before the issuance of ATR-14 by the Institute of Chartered Accountants of Pakistan, it was the mutual agreement between audit firms and auditee which determines the price of an audit. This price generally augments by five to ten percent in the next periods. The setback with the price of audit emerges with a boost of more than two hundred percent in the stipends for audit apprentices. Moreover, the hyperinflation in Pakistan leads to the increased cost of goods and services (S. E. A. Ali & Khurram, 2017). These factors force audit firms to increase audit prices considering the increase in stipend rates and the inflation rate.

### **1.2 The objective of the study**

This study has the following objectives,

- a. To set up a replica to evaluate the price of an audit by inculcating novel variables such as minimum stipend rate, inflation rate and revenues impacting the determination of audit fee. This model will be tested by not only inculcating the new variables as discussed above but also the previously experimented variables that are considered for the assessment of the audit fee.
- b. To establish a model of revenue for audit firms. Considering the importance of audit fees for any audit firm, a model can be formed for audit firms to predict the audit fee.

### **1.3 ATR (Audit Technical Release)-14**

It was a notification circulated by ICAP in August 2008 for all firms involved in audit services setting the minimum price for all audit assignments. As a result, all audit firms who were involved in the audit of public and private limited firms were forced to value their audit fee considering the annual revenue of auditees. In this way, the minimum price for any audit will also consider the business revenue. E.g place a bottom price of audit as Rs.3,00,000 (Approx \$1900) for businesses with revenues of Rs.500 million (Approx \$ 3.1 Million). Moreover, as per the notification, the impact of inflationary pressure and surge in minimum stipend can also be considered in the finalization of the audit fee.

### **1.4 Minimum Stipend Rates**

Most of the audit assignment by an audit firm is conducted by a group of audit staff, which mainly comprises the trainee staff. These trainee staff members are paid stipends at a fixed rate as set by ICAP. These stipends, though fixed by ICAP, but are paid by audit firms and the stipend rates are different according to each trainee's certification level i.e. according to

the number of exam papers being cleared by a trainee from ICAP in pursuance of their chartered accountant studies.

#### **1.4.1 Stipend-1**

It is the amount that is paid to apprentices who are at the intermediate phase of their CA studies (30% completed).

#### **1.4.2 Stipend-2**

It is the amount that is paid to apprentices who are in the final phase of their CA studies (70% completed).

## **2 Literature Review**

Researchers (Simon & Francis, 1988) addressed the audit fee determination problem. Their objective was to figure out if the audit fees deduction were targeted from the launch of the primary assignment or not and if they were then to know how and when they returned to the industry normal. Their major motivation behind this research was that auditor's independence is hindered due to lowering audit fees. They studied 226 firms who did not change their auditors over the period of study 1979-1984 and found that in the first year of assignments the audit fees are almost 24% less than the industry normal, but they tend to reduce to 15 % in the following years and from the fourth year onwards it became normal. (Gandía & Huguet, 2019) studied the impact of Audit fees, voluntary or mandatory, on the cost of debt. Many other researchers have also studied about the Audit fee determinants as in the papers by (Chan, Ezzamel, & Gwilliam, 1993; Pong & Whittington, 1994; Joshi & Al-Bastaki, 2000; Pakravan, 2014; Mohammed & Saeed, 2018).

Another research was conducted by (Hoitash, Markelevich, & Barragato, 2007), in which they examined the auditor's fee and the audit quality for a period of 4 years. They argued that auditor's independence is influenced by risk and efforts. The variable used by the authors were client size, the difficulty level of the task and risk involved as concluded in latest study by (Shad, Lai, Fatt, Klemeš, & Bokhari, 2019; S. E. A. Ali, Lai, Dominic, et al., 2021). Thus, the auditors' fees are dependent on auditors' behavior rather than on the firm's reputation. In another study by (Mitra, Hossain, & Deis, 2007), the researchers employed a cross-sectional regression model on a sample of 1142 firms over a period of 6 years and found that the expected and unexpected audit fees, both are correlated with revenue quality. The study also establishes a relationship between audit fees and financial reporting practices, pre, and post SOX period (S. E. A. L. F.-W. and H. R. Ali, 2020; Jan et al., 2021; S. E. A. Ali, Lai, Hassan, & Shad, 2021). Work by (Mitra, Deis, & Hossain, 2009) was related to the audit charges in connection to Sarbanes-Oxley. The motive of Mitra's article was to validate the association of inspection price with occurrence, strictness, and rectification of (ICMW) as concluded by the SEC members by SOX 404 and the price of a review. His work makes use of a regression tool for a dataset of 854 business (2004-2006). The fallout discloses that audit fees has a significant positive relation with sternness and occurrence while the businesses were revealing ICMW. Likewise, the inspection price was seen inversely linked during the time when in the periods when the business's ICMW rectification took place. Another study by (Ferguson, Francis, & Stokes, 2003) inculcates the position of knowledge of an examiner at office or industry level. They scrutinize these parts in charging audit fees by Australian five biggest audit businesses. It was summed up expertise by an auditor, in any case, will lead to having an audit fee as a 24 percent premium. It was lastly

acknowledged that expertise at the office level will play a major role in the determination of audit fees.

In recent times, (Liu, 2017) make use of age, gender, educational background, industry specification all have a considerable association with audit fee. His outcomes prove that the auditee used to review the profile of auditors by education and his experience. (THI PHUONG HONG & LE HOANG MY, n.d.) studies about the audit fee behavior of public limited companies in Vietnam. They concluded that auditee size, audit complexity, and reputation of audit companies are the most significant factors for audit fee determination. (Durand, 2019) conducted a meta-analysis to explore if the previous researchers display a consistent audit report lag or not and he found that auditee benefits and complexities and auditee opinion discriminations helped to positively increase the gap.

(Apadore & Letchumanan, 2016) also make use of variables like profitability, complexity, corporate size, the status of the audit firm and client's risk as to the predictors to forecast the value of audit fee. They used the data of Malaysian listed companies during the period 2009 to 2015 and found that audit risk as to the vital factor in the calculation of audit remuneration. (El-Gammal, 2012), studied the perception of external auditors, accountants, financial controllers and internal auditors concerning factors determining the auditors' fees, firm and client characteristics. The researcher found that the Big 4 factor was the most important to determine the audit fee and that the size of the firm was the least important.

## 2.1 Hypothesis Development:

Based on the literature review and considering the objective of this research, the following research hypothesis could be developed.

*H<sub>1</sub>: Total assets of a business have a considerable influence on audit fee determination.*

*H<sub>2</sub>: The current Ratio of a business has a considerable influence on audit fee determination.*

*H<sub>3</sub>: Leverage Ratio of a business has a considerable influence in audit fee determination.*

*H<sub>4</sub>: Country's rate of inflation has a considerable influence on audit fee determination.*

*H<sub>5</sub>: Revenue has a considerable influence on audit fee determination.*

*H<sub>6</sub>: Stipend payment increase for apprentices has a considerable influence on audit fee calculation after 2008.*

## 3 Methodology

### 3.1 Data Collection Method

For the testing of our hypothesis empirically, relevant data of 40 public limited companies were collected for the year 2014-2017. This data extraction has been done from the websites of these 40 companies. Moreover, secondary data was collected from the websites of the Institute of Chartered Accountants of Pakistan and State Bank of Pakistan. In this way, panel data has been gathered for 40 companies for four years i.e. 2014 to 2017.

### 3.2 Technique of Sampling and Size of Sample

Data of Forty public limited businesses has been gathered from the Pakistan Stock Exchange. This data is a sample of 400 plus firms that are listed on the Pakistan Stock Exchange. An attempt has been made to make this data representative of the whole population by taking companies from various wholes.

From the above-mentioned sectors, data of the last 4 years i.e. 2014 to 2017 were obtained from the financial statements of the companies falling in these sectors.

### 3.3 Research Model Developed

The research model has been developed by keeping an eye on the previous studies and keeping in view the objectives of this research. In alignment with the former audit fees study (Palmrose, 1989; Ferguson et al., 2003; Mitra et al., 2009), this study engaged the multilinear regression function to observe the relationship of planned factors i.e. inflation, revenue and rate of stipend with the fee of an audit.

In addition to the variables as used in the previous studies, three other factors i.e. Total Assets, Leverage Ratio, and Current Ratio were observed as the utmost predictors in examination remuneration calculation. These predictors inculcate all previous studies.

$$\text{Audit Fee} = a + \beta_1 \text{Total Assets} + \beta_2 \text{Leverage} + \beta_3 \text{Current Ratio} + \beta_4 \text{Inflation} + \beta_5 \text{LnTurnover} + \beta_6 \text{Stipend 1} + \beta_7 \text{Stipend 2} + \text{Error}$$

### 3.4 Statistical Technique

Multiple Linear Regression was used in E-Views to our hypothesis. Before testing the data for significance, normality of the data was examined using the Jarque Bera test. Thereafter, tests of homoscedasticity of residuals, multi-collinearity, and auto-correlation of data were also applied to justify the application of regression for our model.

## 4. Results

Our model is further being inspected for the fixed and random effect which further leaves us with a fixed effect as our final model for regression. The above results depict the model with fixed effect. Whereas, the redundant fixed effect test is later checked which shows that the fixed effect will be better in this case as compared to the panel regression model.

The existence of a random effect was also considered. For the validity of the random effect model, it was tested through Hausman Test. From the Hausman test, it was concluded that the fixed effect will be our best model for analysis.

**Table 1:** Correlated Random Effects

Variable	Coefficient	Std. Error	T-Statistic	Prob.
Current ratio	0.111672	0.042739	2.612875	0.0106
Inflation	0.461926	0.320107	1.443036	0.1526
Leverage ratio	0.097039	0.141319	0.686668	0.4941
Stipend	7.99E-05	1.01E-05	7.934966	0.0000
Total assets	1.85E-06	1.27E-06	1.451173	0.1503
Total turnover	2.20E-06	1.25E-06	1.766966	0.0807
C	-1.026421	0.140423	-7.309490	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.890310	Mean dependent var		-0.015418
Adjusted R-squared	0.834219	S.D. dependent var		0.444026
S.E. of regression	0.180790	Akaike info criterion		-0.316893

Sum squared resid	2.876293	Schwarz criterion	0.677887
Log-likelihood	67.23185	Hannan-Quinn criteria.	0.087353
F-statistic	15.87254	Durbin-Watson stat	2.346586
Prob(F-statistic)	0.000000		

The above results describe the autonomous factors as used lastly in our model for analysis and interpretation. These variables are the rate of stipend, assets, Current Ratio, Inflation, Leverage and Total Revenue with the autonomous variable as Log of Audit Price.

The above table also displays the outcome of the coefficient of correlation and especially coefficient of determination as R-square adjusted, 0.89 represents that 89% variation in the audit fee is caused by the predictors in the model. Whereas, lasting 11% variation in audit fee is caused by the factors not explained by our model as it must be due to other variables not inculcated in our model.

From the function, we can also witness that inflation, leverage ratio, total assets, and turnover were found as insignificant since the p-values of all these variables are greater than 0.05. Whereas, current ratio and stipend were found as significant variable since their p-value is less than 0.05. Now, the revised model is:

$$\text{Log\_Audit Fee} = 0.11 \text{ Current Ratio} + 7.99 \times 10^{-5} \text{ Stipend Rate} + \text{Error} \quad (1)$$

The above expression infers that,

- A positive relationship is witnessed between independent variables (Current Ratio and Stipend Rate) and the dependent variable i.e. audit price.
- The log of audit fee will increase by 0.11 units if the current ratio is increased by 1 unit.
- Log of audit fee will increase by 0.00799 units if there is a one-unit increase in stipend rate.

## 4 Hypotheses Assessment Summary

After testing our data conclusions can be made for our established hypothesis. This classification is being made based on the significant value showed with each hypothesis test. Table 2 depicts the assessment of hypotheses tested in this study. We reject the hypothesis if the sig. the value was portrayed greater than 0.05 and otherwise.

Consequently, H<sub>1</sub>, H<sub>3</sub>, H<sub>4</sub>, and H<sub>5</sub> were excluded. While significant indicators for the hypothesis of the current ratio and stipend price were less than 0.05, so were incapable to reject H<sub>2</sub> and H<sub>6</sub>.

**Table 2:** Assessment of Hypothesis

Hypotheses	Result
H <sub>1</sub> : Total assets of a business have a considerable influence on audit fee determination.	Rejected
H <sub>2</sub> : The current ratio of a business has a considerable influence on audit fee determination.	Accepted
H <sub>3</sub> : Leverage ratio of a business has a considerable influence in audit fee determination.	Rejected
H <sub>4</sub> : Country's rate of inflation has a considerable influence on audit fee determination.	Rejected.
H <sub>5</sub> : Revenue has a considerable influence on audit fee determination.	Rejected
H <sub>6</sub> : Stipend rate increase for apprentices has a considerable influence in audit fee calculation after 2008.	Accepted.

## **5. Conclusion**

### **5.1 Introduction**

It was finally determined that the current ratio and stipend increase in the last two periods have a major impact on the determination of the audit fee.

### **5.2 Discussion**

In this learning, a relationship between audit price and some new variables were tested. These new variables incorporate the client's turnover, inflation and stipend rate. Unlike, the effort of (Craswell, Francis, & Taylor, 1995; Ferguson et al., 2003; Mitra et al., 2007) variables like asset size was seen as an insignificant factor in the price calculation. However, the rate of stipend rate as a new variable was established as a major variable in audit fee determination. While other fickle i.e. current ratio was also seen as significant.

However, if we can increase our significance level to 10%, a firm's turnover can also be a significant variable in that case for the determination of audit fees as concluded by the previous studies.

### **5.3 Implications**

This study's deduction can be applied by examination partnerships to predict the examination price. Board of various limited corporations can also make use of this learning to assess the sum which they should reimburse now for audit or even for future years as well. For instance, the management of audit firms can consider the factor of inflation and stipend rate as a new basis for finalizing the audit fee for a client. Moreover, management also needs to consider the current ratio of a client which can play a dominant role in the determination of audit fees. In this regard, this work adds to the current literature and provides a path to forecast audit fee which can be used by the audit firms and the auditees.

### **5.4 Limitations**

As all audit firms have the structure of the business as "Partnership" therefore data cannot be obtained for these audit firms for the actual cost incurred by the audit firms to provide these services. The accessibility of that internal data can add significant value to the proceedings of this study.

### **5.5 Future Research**

Value addition to the study can be done in the future with the increase in sample size and secondly with the availability of internal data for the cost of audits to be provided by audit firms. Additional focus can be made on the stipend rate as the same is found as a major determinant of fee assessment.

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