

# Determinants of Audit Fees: Evidence from Jordan

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Received: November 4, 2014

Accepted: November 30, 2014

Online Published: December 8, 2014

doi:10.5430/af.v4n1p42

URL: <http://dx.doi.org/10.5430/af.v4n1p42>

## Abstract

This study sets out to examine the factors influencing the level of external audit fees paid by firms to their auditors in Jordan. Specific attention is focused on the investigation of the potential influence of auditee size, complexity of client, profitability, client risk, auditor size and auditor tenure on audit fees, by using the Sample which contains 117 non-financial Jordanian companies which listed on Amman Stock Exchange, meet the selection standards and have the applicable and appropriate financial data from 2010 until 2012 (351 observation). The current study strongly reinforces that greatest of prior studies results are also appropriate and applicable to the Jordanian audit market. Moreover, the current study provides further evidence connecting variables such as the auditor tenure effects and auditee risk which have been found to have an inconclusive relationship with the amount of external audit fees in prior studies. However, the auditee size seems to have been the key determinant of external audit fees. Furthermore, financial risk is found to be negatively and significantly associated with the level of external audit fees. On other side, empirical results found that the audit tenure has no significant relationship with audit fees. Finally, the current study is unique because it is the first to empirically examine factors impacting the level of audit fees in Jordan for a total of three years; it revisits the audit fee literature and highlights the important determinants that affect audit fees.

**Keywords:** Audit fees, Jordan, Auditee attributes, Client attributes

## 1. Introduction

The external audit services and audit fees paid by companies to their auditors are obviously of interest to both companies and auditors: Companies are statutorily required to have their financial statements audited and want the fees they pay to be reasonable, auditors provide such services and want to ensure that the fees they charge are sufficient to enable a satisfactory service to be provided (Gist, 1992). In addition to companies and auditors, the shareholders in particular and the public in general are concerned that the audit fee is not set of such a level, (it is either too high or too low) it might undermine confidence in the audit opinion. Furthermore, the level of audit fees and how they are determined are significant matters to both national and international professional accounting bodies to indicate the basis on which audit fees should be determined, the costs which should be covered by an audit fee, and the factors which should be taken into account when determining the audit fee. In addition these statements were also designed to restrict auditors from charging their fees on a basis which might be incompatible with the ethical values associated with the audit profession. Consequently, they seek to protect the auditors from losing their objectivity, and effectiveness as independent auditors. Moreover, information about determination of audit fees can be provided to legislators who set business regulations that are imposed on companies. In general, the external audit fee has four basic aspects: Determining the fee, selling the fee, billing the fee and collecting the fee. The current study is concerned with the first aspect which is the determination of audit fees. Moreover, this study focuses on the identification of the factors that enter into the determination of audit fees, factors which may directly affect the time of the audit work or indirectly the level of audit fees.

In point of fact, both US and UK are the original countries to investigate the matters related to external audit fees. Consequently, in researches on pricing of audit service determinants, both of the countries have been focused on: US (Taylor & Simon, 1999; Bedard & Johnstone, 2010; Callaghan et al, 2008) and the UK (Moizer, 1997; Pong, 2004). In addition, scholars have also taken companies of Australia (Carson et al, 2004; Carson & Fargher, 2006), France (Gonthier-Besacier & Schatt, 2007), India Bangladeshi, and Pakistan (Ahmed and Goyal, 2005), Denmark (Thinggaard and Kiertzner, 2008), Bahrain (Joshi and Bastaki, 2000), Kuwait (Meshari, 2008) into consideration. In most of the mentioned studies, relationships between external audit fees and some factors are usually found.

Gonthier-Besacier and Schatt (2007) indicated that external audit fees paid by listed French companies have an important and significant association with auditee size, auditee risk and auditor size. Meanwhile, Joshi and Bastaki (2000) conclude that audit fees paid by Bahrain listed companies rely on size of the reporting entity, profitability, company risk, company complexity and providing non-audit services. Furthermore, Bedard and Johnstone (2010) pointed out that audit tenure is positively associated with the level of external audit fee. Moreover, they suggest that the closer association between external auditors and their clients can generate a financial dependence of auditors on their clients which threatens audit independence. The study of Ahmed and Goyal (2005) examines the determinants of audit fees charged to listed companies in South Asia including Bangladesh, India and Pakistan. They show that auditor size and auditee size are the most important determinants of audit fees, but the results indicated that audit fees and auditee complexity are not associated. To sum up the above, audit fee structure has been displayed as complex by the empirical research of audit fee determinants in different countries. Nearly all research has shown connections between auditee size, auditee risk, and auditor size and audit fees. Research indicates that, in specific situations, investors may even trust companies that pay high audit fees. Furthermore, these results also show that the concern about audit independence impairment derived from high external audit fees is reasonable. Consequently, it is important to regulate audit rotation. Furthermore, this finding can be an indication for other countries that audit tenure may cause audit independence impairment.

The aforementioned arguments indicate that it is essential to empirically research pricing of audit service. Moreover, many research projects have been focused on the market for audit profession and services in developed and developing countries, but few research projects have been conducted on the Arabic world in particular. Thus, the current study extends previous studies by presenting a new evidence about the audit market in Jordan, where there are difficulties and problems facing the audit profession involve the following: Lack of independence while performing the audit services because of relying on personal relationship, poor quality of audit evidence and poor auditor qualification due to the lack of continuous education (World Bank, 2004). Additionally, there is a gap between accounting profession and education due to the lack of adequate academic research publications, and this gap justifies doing more studies in this issue. Furthermore, the study has potential implications for relevant countries which have similarities in legislative framework and government oversight.

## **2. Literature Review and Hypotheses Development**

According to previous research, the factors which influence the level of audit fees can generally be categorized into two main groups: Auditee characteristics and auditor characteristics. It should point out that, auditee characteristics have taken great attention in previous studies. They include the characteristics of client size (Simunic, 1980) risk (Hogan & Wilkins, 2008) complexity (Ghosh & Lustgarten, 2006) and profitability (Hay, Knechel & Wong, 2006). As indicated before, auditor characteristics are also considered as significant drivers of external audit fees. Auditor tenure (Yidi, 2011) and whether it is from the Big Four (Mansi et al., 2004) are features of audit firms that impact the level of audit fees as many previous studies suggested. Based on prior research, several organizational factors have been identified in affecting audit fees. Hence, the researcher will classify these studies into two groups: The first one related to characteristics of the audited company and other one related to the auditor.

### *2.1 Client Characteristics*

#### *2.1.1 Auditee size*

Auditee size is considered an important factor in determining the audit fees (Hay et al., 2006). The number of hours needed to complete the audit work mainly determines the amount of external audit fee. Generally, it can be hypothesized that the larger the company size, the longer the audit process, and consequently the higher the audit cost. In other word, large client will have more transactions, therefore, requires the auditor to perform more detailed audit processes and procedures, and thus the auditors have to be more attentive and diligent to audit and review their clients business, which results in higher audit fees (Simunic, 1980; Taylor & Simon, 1999; Meshari, 2008).

Generally, company size can be measured by the balance sheet items, which give certain dimensions of size, such as, total assets, stocks, debtors, creditors, etc. These measures of size might indicate the items where the auditing work load is heaviest, and which major efforts could be expended. Size can also be measured by the profit and loss account items, such as turnover, profit, and total employment costs. The size of total assets was the factor most often used in previous studies to represent company size (Hay, Knechel & Wong, 2006; Waresul et al., 2012). However, for current study, the researcher believes that the audit fee increases as the size of the company increases. Based on the above discussion, this study suggests the following hypothesis to present the relationship between auditee size and audit fees.

**Hypothesis 1:** Auditee fee is positively associated with size of the auditee.

#### 2.1.2 Auditee Complexity

The complexity of the company is another factor affecting the cost of time, as auditing requirements will be influenced by the degree of the complexity of the engagement. Therefore, it denotes that auditee companies with complexity are charged higher level of audit fees (Simunic, 1980). Jordanian firms in the manufacturing sector are relatively more complex and big in size in conducting their transactions and activities than companies in the service sector (Abdul Latif et al., 2013). Furthermore, manufacturing companies are bigger and need considerable capital investment, therefore, maybe expected to increase funds via bank borrowing and thus, they tend to record many transactions, therefore, the auditors should perform more auditing procedures, which result in higher audit fees. Several factors can be used to reflect the complexity of the company. Previous studies (Simunic, 1980; Francis & Simon, 1987; Joshi & Bastaki, 2000; Carson et al., 2004; Gonthier-Besacier & Schatt, 2007; Thinggaard and Kiertzner, 2008) included several measures of complexity such as, firstly, physical complexity as measured by number and location of operating units, and the diversification of product lines. Secondly, legal complexity as measured by number of the company's subsidiaries and affiliates, and number of countries in which the company operates. Thirdly, reporting complexity as measured by number of separate audit reports issued annually for the company such as combining financial statements and separate reports on subsidiaries and affiliates. Generally, while the definition of complexity has varied a great deal across prior research, the empirical evidence mostly supports a positive association between audit fees and complexity, therefore, it can be hypothesized that the greater the complexity of the company the higher the audit fees.

**Hypothesis 2:** Auditee fee is positively associated with the degree of Auditee's complexity.

#### 2.1.3 Auditee risk

The degree of the risk involved in the audit work could be a consideration when determining the audit fee, as it could affect the auditor's responsibility. This responsibility is closely related to the risk involved. Therefore, the more risk involved in the audit work the greater the responsibility which deserves a higher fee to compensate the external auditor for taking such risk. In general, the degree of risk involved in the audit work differs depending on the nature of the company's business. Audit risk with materiality has to be regarded in determining audit work (AICPA, 2012). Consequently, the current study considered an effect of auditee risk on audit fees. However, the higher auditee risk, obviously, causes more efforts exerted by auditors to lower future litigation risks. A study has been done by Sun and Liu (2011) pointed out that the client with high level of risk will force the external auditors to perform audit procedures effectively, therefore, financial risk must be incorporated in audit program to determine "red flags" signals which points out to opportunities of fraudulent activities. Moreover, a risky company is expected to run the risk of audit failure; this would require an intensive audit testing which result in increase in audit fees (Simunic, 1980). Furthermore, Hay and Knechel (2004) point out that the demand for auditing is a function of the set of risks faced by stakeholders in an organization (creditors, management, shareholders, etc.) and set of control mechanisms available for mitigating those risks. In addition, Firth (1993) discover that higher level of client risk will increase the auditor effort which result in higher audit fees; therefore, the accounting firm will have to undertake detailed work to resolve or moderate the risk. However, the following hypothesis has been developed to test this association:

**Hypothesis 3:** Audit fee is positively associated with the clients' risk.

#### 2.1.4 Profitability

Auditee profitability is an important variable in determining audit fees and is regarded as a significant sign of management performance and its effectiveness in allocating available resources. Realizing the income or loss figure presented through the income statement can help to identify the auditee profitability. Profitable firms pay more audit fees to their external auditors in view of the fact that higher profits may require accurate audit testing of the authority for the identification of revenue and expenses which require more audit time (Joshi and Al-Bastaki, 2000). Empirical evidence has not been decisive in this respect. For instance, no association was identified between profitability and audit fees in the UK, even though studies conducted by Simunic (1980) Francis and Simon (1987) and (Hay et al., 2008) concluded that the profitability was significantly associated with audit fees. Only few researchers (Simon and Francis, 1988; Joshi and Al-Bastaki, 2000; Whisenant et al., 2003) have used profitability in their studies. The most common variables that are typically used to measure profitability are profitability ratio and a dummy variable for the existence of a loss. In one word, while the logic for the association between audit fees and profitability is intuitive appealing, but the actual metrics in use may not effectively capture the market dynamics. However, following the

majority of the work done on profitability, researcher in this research used return on assets (ROA) as the measure of profitability. The fourth hypothesis is as follows:

**Hypothesis 4:** Audit fee is positively associated with Client's firm profitability.

#### 2.1.5 Type of Industry

The industry type is another important factor in determination of audit fees. Certain industries (e.g., banking) need special audit work because of their natures. These industries have different accounting policies regarding among other things, recognition of revenue and expense, and valuation of assets. Identifying significant audit areas and inspection of records need distinct skills. The audits of firms in such an industry call for specialised knowledge of the industry and the firms that operate within the industry. Prior studies point out that there is possible association between the level of audit fees and the type of Industry. In this regard, Gonthier, Besacier and Schatt (2007) found that the level of audit fees paid by French listed firms under the IT sector is higher than that paid by firms belong to other sectors. However, for current study and taking into consideration Jordanian business environment, the researcher believes that manufacturing companies in Jordan are required to charge higher level of audit fees than other companies for two reasons. Firstly, manufacturing companies contain large capital investment which forces them to look for external sources of funding; therefore, they are most likely to report more information than non-manufacturing. Secondly, manufacturing companies normally have negative effect on environment; therefore, they are expected to confront extra public pressure more than other companies, so they seek to disclose detailed voluntary information which may help to avoid public pressure and additional regulations. Hence, manufacturing companies require more auditing procedures which result in higher audit fees than other companies. Therefore, this study presents the following hypothesis.

**Hypothesis 5:** Audit fee is associated with industry type.

### 2.2 Auditor Characteristics

#### 2.2.1 Audit Tenure

Auditor tenure is also considered as a significant determinant factor of audit fee. Over the last few decades the association between audit quality and auditor tenure has been constantly debated (e.g., Jackson et al, 2008; Daniels & Booker, 2011), especially after the failures of Enron and Worldcom. Belen et al., (2014) studied the auditor tenure association with audit quality by using a sample of 254 audits carried out on Spanish state-owned foundations between 2003 and 2010. The results reveal that audit quality, measured as the likelihood that an auditor will submit a qualified opinion, increases over the first five years of the relationship and then decreases. Nevertheless, Jackson et. al (2008) conclude that audit tenure can enhance audit quality. On other hand, Bedard and Johnstone (2010) examined the relationship between audit partner tenure, audit planning and audit fees. The results reveal a strong association between audit fees and audit tenure of American companies. Furthermore, this study mentioned that the amount of audit fees for longer partner tenure is significantly positively associated with realization rates and audit partners contribute more audit effort in the first year of engagement. Moreover, Bedard and Johnstone (2010) suggest that a long tenure means painstaking knowledge of the client, which results in a more valuable auditor-client relation. However, previous research pointed to possible association between the change of the auditor firm and audit fees, thus, auditor change will include in the regression model as the determination of audit fee. It is, therefore, hypothesized that:

**Hypothesis 6:** Audit fee is positively associated with auditor change.

#### 2.2.2 Auditor size

The size of audit firm is an important factor in the provision of audit services. A number of previous studies were interested in observing whether audit fees paid to "Big" audit firms are significantly higher than fees paid to "non-Big" firms. Big four audit firms have efficiencies due to large-scale operations. Moreover, they have more resources to invest in staff training, technology and facilities. In prior research, an important focus of attention has been on whether there are identifiable differences between the amount of audit fees charged by big audit firms and those charged by non-big audit firms? However, the reason for studying the audit firm size comes from the assumption that the size indicates the audit quality. Thus, an association may occur between audit firm size and the amount of audit fees which comes from audit quality perceived. It should be noted that, the big audit firms were once known as the "Big Eight", and were reduced to the "Big Six" and then "Big Five" by a series of mergers, and the Big Five became the Big Four after the demise of Arthur Andersen in 2002, following its involvement in the Enron scandal.

Some of previous studies have concluded that there is no association between audit fees and auditor size, for instance, Meshari (2008) studied the factors influencing the amount of audit fees in Kuwait. Of particular interest is the investigation of the potential effect of the size of the audit firm on external audit fees. The study's results indicated that the audit firm size ("Big" audit firm vs "non-Big" audit firm) is not statistically influential in determining the amount of audit fees. On the other hand, Walid (2012) concluded that the size of the audit firm is important factor in affecting the amount of external audit fees in Lebanon. Presently, the Big 4 audit firms dominate the audit services market, and consequently, smaller firms face huge obstacles to enter the market of big companies. Moreover, the fee charged by big audit firms may be higher than that of non-big ones, due to the reputation impact and advantage of the former. In Jordan, Naser and AL-Khatib (2000) mentioned that there is association between audit status and quality of corporate reporting, thus companies which audited by audit firms affiliated to big international firms seek to publish high quality information. One could draw the conclusion that, the results of previous research are mixed about the potential impact of auditor size on external audit fees; therefore, further research of this issue is warranted. Hence, the current study includes in its investigation the potential effect of the auditor size on audit fees. Therefore, this study will employ audit firm size (Big four as a dummy variable) to measure the auditor size, then to find the association with the amount of audit fee.

**Hypothesis 7:** Audit fee is positively associated with audit firm size.

### 3. Auditing Profession in Jordan

The audit profession has increased meaningfully in size in Jordan since the independence in 1946, so at present, there are about 300 audit firms in Jordan, ranging from a majority of very small audit firms to a minority of firms who are significantly larger and contract with much larger clients, including multinationals operating in Jordan (Abdullatif, 2013). Moreover, several audit firms have some kind of association with an international audit firms, including the Big Four. Currently, many of these Jordanian firms have managed a full membership in their international audit firm groups. This requires Jordanian firm to follow the audit methodology and detailed programs of its international audit firm. Closely-held firms are the main audit clients in Jordan, particularly family-dominated. There is a limited separation between ownership and management; in addition, the most senior positions in management are given to the biggest shareholders along with their relationships.

Abdullatif (2013) indicates that, although Jordanian public listed companies are required to establish audit committees, the efficiency of these committees might be limited under such a governance system due to the fact that nonexecutive and executive members of boards of directors are supposed to have strong relationships. At the same time, audit committee members do not have strong financial expertise. In conclusion, much more development is needed to supply the ways for setting national auditing and accounting standards, despite all the efforts exerted by the Jordanian Authorities to improve accounting and auditing professions. Until now, the pertinent laws the most influential factor in formatting the accounting principles used in the presentation of financial statements of Jordanian companies. Furthermore and specifically, there exists a disparity between the profession and accounting education because of the lack of adequate academic research publications. However, Abdullatif and Al-Khadash (2010) indicated that in Jordan where the most observed feature is ownership concentration which induces agency problems, such a corporate governance system is likely to affect the nature of the application of the audit function and lower audit quality (and therefore lower audit fees).

The Jordanian Association of Certified Public Accountants (JACPA) is the professional accounting body in Jordan, which enhanced its operations with the endorsement of the new Accountancy Profession Law in 2003. Nonetheless, JACPA has undergone challenges when functioning as a professional body in Jordan; it has a shortage of resources and no quality guarantee procedures to follow. However, there are minimum audit fees determinations implied by the (JACPA) for the auditors to receive from their clients, therefore, these limits ought to be protected from being breached by other uncommitted auditors.

### 4. Methodology

#### 4.1 Sample and Data Collection

This section discusses the process of collecting data and the sample selection procedures. The analyses are based on consolidated data from the 2010 until 2012 for financial statements of companies listed on (ASE). This goes back to the difficulty in providing online annual reports of some companies before 2010. Besides that, a numbers of companies have not disclosed their annual reports for 2013 while doing this research. Taking into consideration the research needs and the comparability of data, the researcher selected the sample data along with the following standards: Firstly, excluding listed companies that have not disclosed annual external audit fee in their annual reports;

Secondly, the company is listed on ASE during the study period (2010, 2011, and 2012); Thirdly, excluding listed companies that stopped trading during the study period; Fourthly, bearing in mind the variance between the financial listed companies and listed companies in other sectors whether in term of the nature of business or the applicable accounting system could have an effect on the audit fees, so the sample does not comprise financial companies; Finally, if any required indicator is not available in the disclosure of firm, this company is excluded from the sample.

Eventually, 126 companies (out of 130 firms in total) meet the selection criteria and have the applicable financial data obtainable. The sample is considered suitable because financial companies excluded from this research have extra regulatory environments and the treatment of items in their financial statements is dissimilar, making the determination of audit fees different from the non- financial companies. In Table (1) the sample description is specified. From this table, it can be seen that the highest contributing sector is the industrial sector with (69) companies and the services sector contributes (57) companies, for the finance sector and as we indicated above, the sample does not include financial companies because of the difference between the financial listed firms and listed firms in other sectors whether in term of the nature of business or the applicable accounting system could have an effect on the audit fees. The expected company-year observations total to 378.

Table 1. Sample Description

| Sector            | Population | observations( *3) | Sample | Sample(*3) | Percentage |
|-------------------|------------|-------------------|--------|------------|------------|
| <b>Industrial</b> | 72         | 216               | 69     | 207        | 54.76%     |
| <b>Services</b>   | 58         | 174               | 57     | 171        | 45.24%     |
| <b>Finance</b>    | 112        | 336               | -      | -          | -          |
| <b>TOTAL</b>      | 242        | 726               | 126    | 378        | 100%       |

#### 4.2 Model specification

This study uses the ordinary least squares (OLS) regression as the method of data analysis. The selection of variables which included in the fee model was limited to variables measuring auditee size, auditee complexity, auditee risk, profitability, type of industry, audit tenure and the size of the audit firm (Table 2 presents independent variables identification). The form of the fee regression model is as follows:

$$FEES = B_0 + B_1 \ln ASST + B_2 \text{RATIO} + B_3 \text{FR} + B_4 \text{IND} + B_5 \text{ROA} + B_6 \text{CHANG} + B_7 \text{BIGFOUR} + e$$

## 5. Results

### 5.1 Descriptive Statistics

According to sample size, the primary sample size was (126) companies which listed on ASE and meet the selection criteria and have the relevant financial data obtainable, but the researcher found that there are (9) companies considered as outliers, needed to be excluded because they provided data that causes outliers. Additional analysis of these outliers caused in the fact that (7) companies of them experienced large incidental losses due to impairments of write-offs, other (2) companies reported high level of audit fees because they did not disclose audit fees clearly and separately as other companies, they disclosed audit fees with other fees, the researcher tried to contact with both of them in order to obtain the clear number of audit fees, but no response has been received, therefore the researcher excluded those companies from the sample size. However, a sample of 117 companies (126 primary sample – 9 companies consider as outliers) is sufficient to predict large effects and thus legitimizes the size of sample in this article. Table (3) presents summary statistics (mean, standard deviation, minimum and maximum) for all variables which used in the study. It is remarkable to note that, the mean of audit fees is about (4654) JOD (Jordanian Dinar) ranging from (877) JOD to (25610) JOD with standard deviation equals (5890) JOD, which implies that some Jordanian companies does not follow the Jordanian Association of Certified Public Accountants (JACPA) role which recommends that the minimum audit fees is (7500) JOD.

Table 2. Independent Variables Identification

| Independent variables   | Formula | Measurement  |
|-------------------------|---------|--|
| <b>Auditee Size</b>     | LnASST  | Natural log of sample firm's total assets.   |
| <b>Complexity</b>       | RATIO   | Sum of inventory and accounts receivable divided total asset.  |
| <b>Auditee Risk</b>     | FR      | The ratio of Equity to total assets.   |
| <b>Type of Industry</b> | IND     | Dummy variable: 1= manufacturing firm; 0 = non- manufacturing firm.  |
| <b>Profitability</b>    | ROA     | Return on assets.  |
| <b>Audit Tenure</b>     | CHANGE  | If the listed company changed the auditor in the last three years, Change= 1; if it did not change, Change= 0. |
| <b>Auditor Size</b>     | BIG4    | Dummy variable having value of 1 if the auditor belongs to the Big-four and 0 otherwise.                       |

Table 3. Descriptive Statistics

| Variable                    | Mean   | N   | St.Dev | Min     | Max    |
|-----------------------------|--------|-----|--------|---------|--------|
| <b>Dependent variable</b>   |        |     |        |         |        |
| <b>FEES</b>                 | 4654   | 351 | 5890   | 877     | 25610  |
| <b>Independent variable</b> |        |     |        |         |        |
| <b>lnASST</b>               | 42.125 | 351 | 1.855  | 21.305  | 63.572 |
| <b>RATIO</b>                | 0.273  | 351 | 0.222  | 0.000   | 1.000  |
| <b>FR</b>                   | 0.412  | 351 | 0.266  | 0.010   | 0.822  |
| <b>IND</b>                  | 0.557  | 351 | 0.509  | 0.000   | 1.000  |
| <b>ROA</b>                  | 0.168  | 351 | 0.221  | - 0.178 | 0.473  |
| <b>CHANGE</b>               | 0.443  | 351 | 0.376  | 0.000   | 1.000  |
| <b>BIGFOUR</b>              | 0.381  | 351 | 0.488  | 0.000   | 1.000  |

### 5.2 Correlation among Independent Variables

Correlation analysis is considered as a preliminary test to measure the association between the variables and their strength of the relationship. Correlation coefficients (the Pearson product-moment correlation) offer a numerical summary of the strength and direction of the linear relationship between two variables. The association between variables can be inspected visually by generating a scatter plot. Moreover, the correlation coefficient (the Pearson) offers an indication of the linear association between variables. Table (4) is asymmetrical matrix that presents the correlation values between the variables of the study over three year (2010, 2011 and 2012). The diagonal cells having value 1 represents the correlation between variables themselves.

Table 4. Correlation Statistics for Variables used in the Analyses

| Variables | FEE     | lnASST  | RATIO    | FR      | IND     | ROA   | CHANGE   | BIG4  |
|-----------|---------|---------|----------|---------|---------|-------|----------|-------|
| FEE       | 1.000   |         |          |         |         |       |          |       |
| lnASST    | 0.568** | 1.000   |          |         |         |       |          |       |
| RATIO     | 0.328** | 0.197** | 1.000    |         |         |       |          |       |
| FR        | -0.138* | -0.133* | -0.243** | 1.000   |         |       |          |       |
| IND       | 0.146*  | 0.145*  | 0.220**  | 0.227** | 1.000   |       |          |       |
| ROA       | 0.118*  | 0.315** | 0.012    | 0.143*  | 0.132*  | 1.000 |          |       |
| CHANGE    | 0.094*  | 0.065   | 0.043    | 0.154** | 0.123*  | 0.071 | 1.000    |       |
| BIGFOUR   | 0.293** | 0.134*  | 0.087    | 0.074   | 0.205** | 0.062 | -0.198** | 1.000 |

The sample is based on observations of 117 firms over the 2010-2012 periods. Note: \*\*indicates significant at 1% level; \* indicates significance at 5% level (two-tailed).

### 5.3 Multivariate Analysis

The ordinary least squares (OLS) regression model is used as the method of data analysis. The model is similar to the cross-sectional audit fees regression model used by Simunic (1980). The audit fees model is estimated for four times that is for 2010, 2011, and 2012 then for the three years al-together. The results of all these models are almost quantitatively similar to each other. The results of the year's analysis are presented in Table (5). For current research the values of R squared are almost close to each other and consistently move around 76% to 79%. The adjusted R-squared gives an idea of how much variance in the response variable would be accounted for if the model had been derived from the population. The adjusted R-squared move around 74% to 77%.

One could draw the conclusion that, we can depend in the last model whereas includes the whole years (2010, 2011 and 2012). Moreover, this model is significant with F-statistic value of (39.182) and  $p=0.000$ , suggesting that the model is statistically valid. The R-squared for this model is (0.772) which means that 77.20% of the variance in audit fees is explained by the model. The adjusted R-squared is (0.752), which means that 75.20% of the variance would be explained by the model if it had been a sample of the whole population. Based on that, the present study will test the hypothesis according to the last model which includes the whole years (2010, 2011 and 2012). The whole year's model is:  $FEES = 7.459 + 0.510 \ln ASST + 0.279 \text{RATIO} - 0.061 \text{FR} + 0.117 \text{IND} + 0.087 \text{ROA} + 0.064 \text{CHANGE} + 0.259 \text{BIGFOUR} + e$

Table 5. Multiple Regression Results for 2010, 2011, 2012 and for whole year together

| Variable    | 2010   |          | 2011   |          | 2012   |          | Whole years |          |
|-------------|--------|----------|--------|----------|--------|----------|-------------|----------|
|             | Coeff. | p-value  | Coeff. | p-value  | Coeff. | p-value  | Coeff.      | p-value  |
| Intercept   | 5.078  | 0.000    | 6.078  | 0.000    | 5.925  | 0.000    | 7.459       | 0.000    |
| lnASST      | 0.532  | 0.000*** | 0.516  | 0.000*** | 0.489  | 0.000*** | 0.510       | 0.000*** |
| RATIO       | 0.296  | 0.032**  | 0.271  | 0.041**  | 0.285  | 0.021**  | 0.279       | 0.037**  |
| FR          | -0.091 | 0.023**  | -0.079 | 0.062*   | -0.085 | 0.048**  | -0.061      | 0.031**  |
| IND         | 0.092  | 0.076*   | 0.122  | 0.042**  | 0.106  | 0.058*   | 0.117       | 0.057*   |
| ROA         | 0.091  | 0.064*   | 0.109  | 0.041**  | 0.097  | 0.085*   | 0.087       | 0.077*   |
| CHANGE      | 0.054  | 0.128    | 0.087  | 0.175    | 0.034  | 0.154    | 0.064       | 0.166    |
| BIGFOUR     | 0.277  | 0.008*** | 0.245  | 0.017**  | 0.215  | 0.026**  | 0.259       | 0.018**  |
| F-statistic | 16.552 |          | 15.792 |          | 17.756 |          | 39.182      |          |
| Sift        | 0.000  |          | 0.000  |          | 0.000  |          | 0.000       |          |
| R-squared   | 0.786  |          | 0.761  |          | 0.792  |          | 0.772       |          |
| Adjusted R2 | 0.768  |          | 0.742  |          | 0.771  |          | 0.752       |          |

\*\*\*indicates significance at 1% level; \*\* indicates significance at 5% level and \* indicates significance at 10% level. The reported p-values are all tow-tailed. All variables are defined in previous sections.

### 5.4 Analysis of the results

Firstly, auditee size has strong relationship with audit fees, Ln (ASST) has a positive coefficient, and it supports the study's argument and hypothesis. This result goes in the same line with most of previous studies results which indicate that firm size is the major determinant of audit fees. Consistent with previous research, the current study used the ratio of the sum of accounts receivable and inventory to total assets (RATIO) to measure the complexity. The study points out that audit complexity is significantly positively associated with audit fees, the positively signed coefficient ( $\beta = 0.037$ ,  $p < 0.05$ ). Thus it can be argued that the audit complexity consider as important dominant determinant of audit fees and therefore, the hypothesis which indicates that the more complex the operations of a firm are, the higher will be the external audit fee, is accepted. The return on assets (ROA) is another factor which explains the variation in audit fees. This variable is found to be statistically significant ( $\beta = 0.077$ ,  $p < 0.10$ ), this is in line with the findings of Simunic (1980) and Wallace (1984). However, subsequent studies (e.g. Francis and Simon, 1987) did not detect its significance. Thus, the present study provides additional evidence of a positive association.

The results also indicated that the auditee risk measured by financial risk is negatively associated with audit fees at 5% significance level, One possible conjecture concerning this result consistent with the notion that the companies that



have low equity-to- total assets ratio characterized by greater risks, they will bring greater litigation risk to the auditor, and thus the auditors will charge more audit fees in order to increase the engagements efforts and perform more procedures to avoid the litigation risk. The significantly positive co-efficient of the industry type supports the study's hypothesis. This suggests that manufacturing companies tend to pay higher audit fees than in other companies. Moreover, the results reveal that auditor changes did not induce significant changes in audit fees, this shows that the audit fee was not the reason for listed companies to change their auditors and this study does not provide significant evidence. The findings also reveal positive association between audit fees and auditor size (BIG4). The result suggests that audit firms affiliated to big four are expected to charge more than local firms, however, this result goes in line with previous results achieved by researchers.

### 5.5 Robustness tests

There are some fundamental assumptions to be fulfilled in order for the OLS regression model to be valid. Most important assumptions are (Hair et al., 2010): Multi-collinearity, Homoscedasticity, Outliers and Normality.

#### 5.5.1 Multi-collinearity (values of variance inflation and tolerance factor)

Despite the fact that the correlation matrix can be used to detect potential multi-collinearity problems between two explanatory variables, the nonexistence of high correlation does not always mean that there is no multi-collinearity. To deal with this problem, the multi-collinearity was tested by finding the variance inflation factor values for independent variables relevant to the model. The values of the tolerance factor closer to zero and variance inflation factor greater than 10 will show the presence of multi-collinearity in the audit fees model. The tolerance factors (TF), as we can see from table (6), vary from (0.434) to (0.762). Similarly the results of Variance inflation factor (VIF) ranges from 1.265 to 1.751, which shows no signs of multi-collinearity in the model.

Table 6. Collinearity Tests

| Variables | TF    | VIF   |
|-----------|-------|-------|
| lnASST    | 0.587 | 1.683 |
| RATIO     | 0.644 | 1.465 |
| FR        | 0.692 | 1.392 |
| IND       | 0.653 | 1.432 |
| ROA       | 0.762 | 1.265 |
| CHANGE    | 0.434 | 1.751 |
| BIGFOUR   | 0.713 | 1.288 |

The sample is based on observations of 117 firms over the 2010-2012 periods.

#### 5.5.2 Homoscedasticity

A statistics term indicating that the variance of the errors over the sample is similar. This type of error structure is most often assumed in statistics, but is not always the case when regression is done. If the variance of the errors around the line of best fit varies much, it will not show a pattern or tendency. Arguably, the assumption of homoscedasticity that the variability in scores for one continuous variable is roughly the same at all. The results for Homoscedasticity tests of all independent variables are presented in table (7).

Table 7. Homoscedasticity

| Variables | Significance to the absolute value residuals |
|-----------|--|
| ASST      | 0.032**                                      |
| RATIO     | 0.539  |
| FR        | 0.668  |
| IND       | 0.449  |
| ROA       | 0.254  |
| CHANGE    | 0.432  |
| BIGFOUR   | 0.467  |

As table (7) indicated that almost all the independence variables except firm size variable measured by total assets break homoscedasticity's assumption. In order to solve such problem, the researcher transformed this variable to logged measure. Moreover, a considerable body of empirical auditing literature has focused on researching the role of auditee size (measured by log of total assets) in charging audit fees. Therefore, the auditee size is an important predictor while determining the level of audit fees.

### 5.5.3 Outliers

An outlier is a data point distinct or deviant from the rest of the data. The presence of outliers can influence results significantly and thus must be considered for treatment. There are several ways to identify outliers. In this study, outliers were identified using Cook's distance measures the difference between the regressions co-efficient obtained from the full data and the regression coefficients of the sample after removing a case from the estimation process (Chatterjee and Hadi, 2006). Moreover, any case has value of Cook's distance more than 1.0 is considered as a possible outlier as Maindonald and Braun (2010) suggested. Table (8) reflected the outcome of Cook's distance calculation. As can be seen from table (8), the maximum value for Cook's distance for the observations is 0.568, according to Maindonald and Braun (2010), there is no outliers due to the notion that maximum value of Cook's distance for the (351) firm-year observation is lower than benchmark 1.0.

Table 8. Cook's Distance.

|                        | Mean  | Minimum | Maximum | St. deviation |
|------------------------|-------|---------|---------|---------------|
| <b>Cook's Distance</b> | 0.032 | 0.000   | 0.568   | 0.069         |

### 5.5.4 Normality

Normality refers to the shape of data distributions for an individual quantitative data variable and its correspondence to the normal distribution. Since the current research examined data from a large sample, this condition may not distort the results as significant departure from non-normality may be negligible for a sample size of 200 or more (Hair et al., 2006).

## 6. Conclusion and Recommendations

The main objective of this study has been to see whether the key audit fee determinants identified by prior audit research (namely auditee size, complexity, financial risk, type of industry, profitability, auditor tenure and audit firm size) prove to be relevant in determining the amount of audit fees in Jordan. Using the sample of 117 non-financial companies which listed on Amman Stock Exchange (ASE) and meet the selection criteria and have the relevant financial data obtainable from 2010 until 2012, the current study investigated the study hypotheses. The ordinary least squares (OLS) regression model is used as the method of data analysis. It has been chosen because of its advantages. Furthermore, this approach helps in explaining the relationships among the various variables of the study. The outcomes of the current study offers an important insight into the determination of audit fees from an emerging economy like Jordan and the results were as following:

Based on this study, it is found that audit fees in Jordan is positively related to the auditee size measured by natural log of total assets of listed companies and this outcome is similar to that obtained by numerous audit fee research performed in several countries. Moreover, the results revealed that the amount of audit fees is positively related to the profitability of the audit client. This finding leads to the assumption that better-off audit clients might be viewed to have a "deeper pocket," and so are charged higher amounts of external audit fees. In addition, the study points out that the audit fees significantly negatively associate with financial risk. According to the existing evidences, the audit tenure has no significant relationship with audit fees and empirical result found that the in the Jordanian stock market, the companies which audited by Big Four have significantly higher audit fees than the companies which audited by Jordanian domestic audit firms.

This study is bound by two limitations. Firstly, the market for audit services broadly consists of two major kinds of services, auditing or routine audit work, and other services or non-audit work such as, accounting, taxation, and management consultancy services. Such services are beyond the scope of this study as they require different types of skills and experience, and may entail different bases for determining their fees. Therefore, this study focuses only on the routine audit services rendered annually by auditors to companies. Secondly, the small sample size is a limitation of the current study, but such small sample size does not inevitably lead to decreasing the power of the statistical tests used. This study, nonetheless, contributes insights into the international audit fee literature by empirically investigating the pricing of fees in Jordan, therefore, the audit scholars can benefit from the findings of this study in the development of future research about the audit market in Jordan.

The boundaries of this study open opportunities for future studies. Firstly, future research can conduct comparative study of Jordan with other developing or developed countries. This kind of studies will be useful to see the influence of institutional setting on the level of audit fees. Moreover, these studies will be helpful in explanation how diverse regulatory requirement affect the level of audit fees in different institutional setting. Secondly, financial companies are excluded from this research due to more highly regulatory environment applicable to this sector. Further research using a sample from this sector can be carried out to research audit fees. Finally, Future research might also examine the potential impact of audit firm industry specialization (e.g. expertise) on external audit fees.

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