

Determinants Of Audit Fees: Empirical Evidence From Emerging Economy

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Abstract

This study investigates the structure of audit fees in an emerging economy, Jordan. Data were collected from a sample of companies listed on the Amman Stock Exchange that forms 90% of the total population and fairly presents all industrial sectors within the economy. Consistent with previous research, the results of the analysis revealed that corporate size, status of the audit firm, industry type, degree of corporate complexity and risk are the main determinants of audit fees in the Jordanian environment. Unlike previous studies, however, variables such as corporate profitability, corporate accounting year-end and time lag between year-end and the audit report date appeared to be insignificant determinants of audit fees in the sampled companies.

Key Words: Audit fees, Emerging Economy, Jordan.

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Introduction

Although a number of studies have provided empirical evidence on the relationship between audit fees and the attributes of audited companies, most have tended to focus on developed economies (see for example: Australia: Francis, 1984; Francis and Stokes, 1986; Haskins and Williams, 1988; Craswell et al., 1995; Jubb et al., 1996; Houghton and Jubb, 1999; Craswell and Francis, 1999. Canada: Chung and Lindsay, 1988; Anderson and Zeghal, 1994. Ireland: Haskins and Williams, 1988. Japan: Taylor, 1997; Netherlands: Langendjik, 1997; New Zealand: Firth, 1985; Haskins and Williams, 1988; Johnson et al, 1995; Adams et al, 1997; Mike et al, 1997; Norway: Firth, 1997. UK: Taylor and Baker, 1981; Taffler and Ramalingam, 1982; Haskins and Williams, 1988; Brinn et al, 1991; Chan et al, 1993; Brinn et al., 1994; Pong and Whittington, 1994; O’Sullivan and Diacon, 1994; Che et al., 1996; Gregory and Collier, 1996; Ezzamel et al, 1996; Iyer and Iyer, 1996; O’Sullivan and Diacon, 2000; Peel and Clatworthy, 2001; Chung and Narasimhan, 2002; Ezzamel, et al., 2002; Neimi, 2002; O’Sullivan and Diacon, 2002; Simon and Taylor, 2002.

Nevertheless, a limited number of studies have been undertaken that relate to emerging economies¹ (See for example: Bahrain: Joshi and Al-Bastaki, 2000; Bangladesh: Waresul Karim and Moizer, 1996. Hong Kong: Simon et al., 1992; Lee, 1996; Sandra and Patrick, 1996; Rose, 1999. India: Simon et al, 1986; Dugar Rahmanan and Simon, 1995. Malaysia: Simon et al., 1992; Che Ahmad and Derashid, 1996; Rose, 1999. Pakistan: Simon and Taylor, 1997; Singapore: Low et al, 1990; Simon et al., 1992. South Korea: Taylor et al., 1999; South Africa: Simon, 1995). Apart from the study undertaken by Joshi and Al-Bastaki (2000), no other research has been undertaken that provides empirical

evidence on factors that impact audit fees in the Middle East. This study is therefore important as it provides, for the first time, evidence on the determinants of audit fees in Jordan. The choice of Jordan is for a number of reasons. First, Jordan enjoys a unique geographic location with stable political environment and runs a free market economy. Second, it offers an attractive incentive package and provides an attractive climate to foreign investors. Unlike many Arab countries, Jordan adopts an open economic policy where both Arab and Non-Arab foreign investors are openly permitted to invest in most companies listed on the Amman Stock Exchange (ASE). For example, in March 2002, total foreign investment amounted to 20 per cent of total trading volume of shares which two fifths was owned by Arab foreign investors and three fifths owned by Non-Arab investors (ASE, 2002). In the light of this, the structure and work of audit firms is of crucial importance to these investors. Third, this has coincided with the ongoing privatisation programme adopted by the government in the early 1990s and the signing of agreements with the European Union (EU) and the World Trade Organisation (WTO). Fourth, unlike many Arab countries, since the early 1990s Jordan has applied both international accounting and auditing standards (IASs). As a result, a number of the big international audit firms entered the Jordanian audit market either on their own or as partners to local audit firms. As many as 90 per cent of the companies on the Amman Stock Exchange are audited by large local audit firms that are affiliated to the “big 5” international firms. This is also likely to impact levels of audit fees in Jordan. Fifth, in the last two years an increasing number of companies listed on the ASE have begun disclosing audit fees in their annual reports. This makes Jordanian companies the only companies to disclose such information in annual reports in the entire Middle East

region. Sixth, the presence of international audit firms, whether on their own or as affiliates with local audit firms, is expected to give foreign investors quality assurances over the proper allocation of their resources. This is expected to affect audit fees. Finally, Jordan hosts one of the oldest stock exchanges and arguably the liveliest in the region. The ASE website page shows that, at the end of June 2002, market capitalisation of traded shares formed 75.8% of the national Gross Domestic Product (GDP). For a country that is trying hard to attract foreign investment and trading in companies' shares that account for a significant proportion of its economy, the activities of audit firms, and subsequent audit fees, become crucial. Thus, a study that investigates determinants of audit fees is not only expected to shed valuable insight from a unique environment such as Jordan but also add a new dimension to the literature.

The remainder of the paper is organised as follows. A summary of the auditing system and auditing practice in Jordan is offered in the following section. Previous studies on determinants of audit fees and hypotheses of the study are presented in section three. Data collection and methodology employed are discussed in section four. While the findings are addressed in section five, the conclusion is provided in the final section.

Background To Auditing And Audit Practice In Jordan

Accounting and auditing improved alongside the economic development of Jordan. Auditors from Palestine undertook auditing in Trans-Jordan until 1944, when George Khader's firm established the first audit office in Amman. After 1948, other auditors moved from Palestine to Jordan, and the profession in Jordan began to increase in size (Abdullah, 1986). By 1995, the number of audit firms and offices expanded to about 190 (Saadah, 1996). In the last few years, however, the audit profession in Jordan witnessed concentration and by the middle of 2002 the number decreased to 131 firms. More than 90% of the companies listed on the Amman Stock Exchange are currently audited by audit firms affiliated with the "big five" audit firms.

Jordan began implementing its own accounting and auditing regulations in the early 1960s. However, these laws were relatively simple, given the simplicity of the economy of the country itself, which was small and with a large degree of government intervention. The laws governing accounting and auditing were sporadically amended by modern rules. However, until 1988, the accounting and auditing profession did not have an established professional body that represented it when new laws were formulated. This led to laws that were limited in detail, were relatively ambiguous and sometimes addressed issues that were not applicable to audit practice. Nevertheless, during the 1990's, laws governing auditing and accounting began to improve and became much more detailed. In reality, it was the compulsory adoption of both International Accounting Standards (IAS) and International Standards of Auditing (ISA) in 1998 that helped Jordan improve the overall status of financial reporting and public listed companies in particular, appreciated this. In addition, the adoption of IAS and ISA facilitated government plans for implementing privatisation and made the ASE an internationally recognised market.

Currently, two important laws govern audit practice in Jordan: The Law of Audit Profession 1985 and The Companies Law 1997. With regard to audit licensing, Article 4 of the Audit Profession Law, 1985 stipulates that in order to be licensed as a professional auditor, the following criteria must be met:

- The applicant must be a Jordanian citizen, of good moral character, and must meet at least one of the following requirements:
 - A PhD. degree in accounting, with a minimum of one year of practical accounting and auditing experience, or a two-year minimum of teaching experience, or;
 - A master's degree in accounting or its equivalent, with a minimum of two-years' practical accounting and auditing experience, or;
 - A bachelor's degree in accounting or its equivalent, with a minimum of three years' practical accounting and auditing experience, or;
 - Any holder of a college degree who has adequate experience of seven years or more, or;
 - Any holder of a professional qualification from an accredited accounting body, such as AICPA.

The Law of Audit 1985 also stipulated the requirements of the establishment of audit firms and called for the establishment of the government Audit Bureau. The Audit Bureau has authority to license auditors, approve audit laws and regulations in co-operation with

the Jordanian Association of Certified Public Accountants (JACPA) for submission to Parliament, and penalise auditors violating rules. The Law of Audit 1985 also recommended the establishment of the JACPA, which was to be a professional association of all licensed practising auditors and responsible for the professional welfare of auditors. The JACPA was eventually established in 1988 and its responsibility is to propose audit laws and regulations to the Audit Bureau. The law specifies that auditors should ensure that clients' books, records & accounts are prepared properly and issue a report on financial statements under professional guidelines, undefined at that time, in which the auditors attest to the correctness of the financial statements.

The Companies Law 1997 is the last enacted law regarding companies. It specifies procedures for the audit of financial statements of companies and specifically highlights the responsibilities of auditors. These responsibilities include:

- Auditing the company's financial statements according to ISA;
 - Ensuring that internal control systems in the company are suitable for the proper running of its business and safeguarding its assets;
 - Ensuring existence of, and legal title to the company's assets and liabilities;
 - Observing decisions of the company's board of directors and management's instructions; and
 - Producing an audit report to the shareholders of the company.

The Law prescribes that the audit report should include statements that the auditors have reviewed all relevant information and verified that the company holds proper accounts and documents according to ISA. The audit report should also state that sufficient audit procedures were applied and offer an opinion on the financial statements according to ISA. This is to ensure that the information included in the management's report conforms to the company's records. It should include all information about any violations of law that have a material effect on the company's financial statements.

In spite of all the efforts made by the Jordanian Authorities to develop both accounting and audit professions, much still needs to be developed to provide the means for setting national accounting and auditing standards. At present, the Jordanian authorities do not seem to get involved in setting national accounting and auditing standards. It seems that relevant laws in Jordan are the most effective factor in shaping the accounting principles used in the presentation of financial statements of Jordanian companies. Again, there is no statement of auditing standards such as those used by auditors in other countries, such as the ICAEW in the UK, and AICPA in the US. In these countries, auditors are allowed to select the methods they deem necessary to guarantee the regularity and accuracy of financial statements and accounts. Additionally, there is a shortage of Jordanian accountants and, in particular, there is a gap between accounting education and the profession. Moreover, there are insufficient academic and professional accounting research publications, which contribute to a general perception that auditing services are no more than external financial audits. Consequently, all this suggests that the status of accounting and auditing in Jordan remains underdeveloped.

Interestingly, the IMF did recommend in 1998 that Jordan develop its own national accounting and auditing system instead of merely adopting IAS's & ISA. However, to date, the JACPA has been unable to establish its own national accounting and auditing practice system, and instead recommended the adoption of IAS. This move was probably because it would save enormous time and effort as well as establish international credibility with end users.

Theoretical Arguments And Testable Model

Theoretical Arguments

A number of variables have been used in previous literature to explain variations in audit fees. The choice of variables from one country to another was mainly determined with data availability. In the following sections the main variables relevant to this study and the rationale behind their use in prior studies are discussed.

Corporate Size

Corporate size is the main variable that has been frequently used in most of the earlier studies (Taylor and Baker, 1981; Francis, 1984; Firth, 1985; Simon, et al., 1986; Low et al., 1990; Simon et al., 1992; Chan et al., 1993; Iyer and Iyer, 1993; Anderson and Zeghal, 1994; Johnson et al, 1995; Collier and Gregory, 1996; Firth, 1997; Mike et al, 1997; Langendjik, 1997). Corporate size was used on the grounds that auditors who deal with large sized companies tend to spend more time on transactional audits of clients' more complex businesses. In a Jordanian setting, large companies tend to operate mainly in the banking and manufacturing sector. Auditing the accounts of companies that belong to these industries arguably requires more time because of the complexity of their operations than that spent on companies

operating in other industries. In an emerging economy like Jordan, large sized companies are also more likely to be diligently monitored by the public and expected to incur higher agency costs. Hence, these companies attempt to minimise agency costs by assuring investors as well as creditors by employing a prestigious audit firm that cost more than an ordinary one. In addition, large sized companies can afford to employ expensive auditors.

Large firms also rely on financial markets to raise funds more than their small size counterparts and this naturally requires detailed good quality disclosure that might entail recruiting a prestigious and expensive audit firm. In addition, since large companies are more exposed to scrutiny by financial analysts and are more recognised by the public, they tend to disclose more detailed information that requires extra audit. Large companies are also subject to political costs and can reduce such costs by appointing a well-known audit firm for additional cost.

The counter argument, however, is that large sized companies adopt advanced accounting and internal audit systems. This is expected to reduce the work of the audit firm. In this case, large sized companies pay less audit fees. Furthermore, auditor concentration may result in specialisation and economies of scale in the auditor's costs. This would also result in low audit fees.

In all cases, corporate size was the most consistent and significant factor that explained audit fees in previous research. Although different measures have been used in the literature to proxy corporate size, total assets featured in most of them. Chan et al. (1993) contend that total assets can be a suitable measure only when the audit approach is based

on the balance sheet. They further note that turnover can be a better measure since total assets vary for the same companies due to differences in asset age, replacement policy and the accounting policies employed. They also argue that the use of assets as a size measure might influence other variables that measure the degree of corporate complexity such as current assets to total assets ratio, inventory to total assets ratio or debtors to total assets ratio. Yet the use of turnover as a size measure does have problems. Turnover is still affected by corporate policy and its capital intensity. Turnover definition varies among industries. For example, it is difficult to define turnover in the financial sector.

Audit Firm Status

In Jordan, audit firms are classified into two main categories: national and national affiliated to the big international audit firms. Previous studies on the quality of corporate reporting in Jordan by Naser and Al-Khatib (2000) indicated that good quality corporate reporting is associated with the status of the audit firm. Companies audited by audit firms affiliated to big international firms tend to publish high quality information. In fact, large international audit firms have their audit quality and credibility to protect and this might entail extra cost. In Jordan, audit firms with international affiliation are larger and supported by more technical experts from those international firms with which they are affiliated than are small local firms that lack international affiliation. Hence, it is assumed that audit firms that fall into the first category tend to supply better auditing quality than those that fall into the second category. One expects big firms to incur more overhead costs, which is in turn reflected on their customers. Thus, large companies are expected to deal with such firms, since they can afford their fees and would want to minimise agency costs. More importantly, big audit

firms are expected to give more assurance to stockholders and hence reduce monitoring costs.

Corporate Complexity

Jordanian companies in the service sector are relatively small in size and less complex in conducting their activities and reporting their transactions than companies in the manufacturing and financial sectors. For example, manufacturing companies in Jordan are larger and need significant capital investment and thus, may be expected to raise funds via stock exchanges or by bank borrowing. Hence, they tend to embark on many transactions and this is very likely to lead to high audit fees. Sandra and Patrick (1996) revealed that auditing a group of companies with many subsidiaries/ branches is associated with extra work in examining a greater number of subordinate financial statements to ensure the accuracy of the consolidated financial statements. These subsidiaries/branches must comply with reporting requirements in the countries where they operate. According to Chan et al. (1993) variations in financial reporting requirements among countries would result in differences in the levels of materiality between subsidiaries/ branches and the parent company. This would result in additional audit testing and require extra work and expertise that would entail more audit fees. Chan et al. (1993) also maintain that additional monitoring and checking costs are incurred in cases where not all subsidiaries/branches are audited by the same audit firm. They believe that complex companies are expected to pay more audit fees since the auditor is likely to check 'intra-group transactions, the taxation implications of pricing policy, the existence of related part transactions etc'. In their opinion, these issues become more important if the group does not own part of the subsidiary/ branch and minority

interest need to be protected. Furthermore, subsidiaries/ branches might operate in different fields that entail additional costs. There is also the pragmatic point that a geographically diversified organisation will automatically generate higher audit costs in terms of travel and accommodation expenses.

Different measures have been employed in the literature to measure the degree of corporate complexity. Some studies employed corporate scope of operations in terms of the number of subsidiaries/ branches (see for example, Taylor and Baker, 1981; Collier and Gregory, 1996; Langendijk, 1997; Joshi and Al-Bastaki, 2000). Others used different balance sheet composition measures such as inventory/ total assets, accounts receivable/ total assets (see for example Chan et al., 1993, Peel and Clatworthy, 2001).

Due to the difficulty of collecting data about subsidiaries and foreign branches in Jordan, in this study, we employ balance sheet composition ratios as measures of complexity. Such ratios are expected to capture large costs associated with auditing certain types of assets and liabilities. For example, current assets such as accounts receivables and inventory are more difficult to audit than other assets such as cash and equipment. A manufacturing company might deal with a range of inventory that carries different costs. Attaching costs to the inventory is a difficult costly task. Similarly, accounts receivables require more complex verification techniques such as circularisations.

Corporate Profitability

Corporate profitability is viewed as an indicator of management performance and its efficiency in allocating available resources. Hence,

the direction of the relationship between audit fees and profitability can be positive or negative. Some might argue that companies reporting high levels of profits will be subject to rigorous audit testing to related revenues and expenses and this entails more audit fees (Joshi and Al-Bastaki, 2000). Others make the point that under-performing companies are more likely to control their overheads and this would result in less audit work (Chan et al., 1993). Nevertheless, it must be remembered that cost cutting may result in reduced internal control and thus engender more audit control.

In reality, different variables have been used in previous research to proxy corporate profitability. A number of studies used profit or loss figures (Firth, 1985; Simon et al., 1986; Chung and Lindsay, 1988; Low et al., 1990; Dugar et al., 1995 and Waresul Karim and Moizer, 1996). Other studies use different profitability ratios such as return on assets (ROA), return on equity (ROE), return on capital employed (ROCE), return on investment (ROI), income to total assets (I/TA) and earnings before tax over total assets (EBT/TA). In all cases most of these studies reported significant association between audit fees and corporate profitability.

Corporate risk

According to Chant et al. (1993) audit firms may base their fees on the perceived risk of audit failure. Hence, corporate risk is viewed as being an important factor that determines audit fees and high audit corporate risk would result in higher audit fees. In recent times, this theory is very likely to be emphasised after the collapse of Enron and WorldCom and the increase in lawsuits against audit firms.

Measuring corporate risk, however, is not a straightforward exercise. In this respect, Sandra and Patrick (1996) rightly argue that it is difficult to find an objective way to measure corporate risk and finding a proxy for risk is difficult. Some studies, however, used corporate levels of gearing, liquidity and profits as proxies of corporate risk (Sandra and Patrick, 1996 and Joshi and Al-Bastaki, 2000). Yet, Firth, 1985; Chan et al. (1993); Che Ahmad and Houghton (1996) and Gregory and Collier (1996) contend that market based measures of risk may form better proxies of corporate risks and subsequently, employed betas and unsystematic risks in their studies. They, however, do admit that these risks might not accurately proxy audit risk.

Empirical evidence on the relationship between audit fees and corporate risk is not consistent. While Francis and Stokes (1986), Collier and Gregory (1996) and Joshi and Al-Bastaki (2000) reported significant association between the level of gearing and audit fees, Francis and Simon (1987) found the relation insignificant.

Given the culture of Jordanian society, which is based on Islamic principles, companies in Jordan mainly depend on equity financing (Naser, 1998). In addition, the banking sector in Jordan tends to impose vigorous conditions on borrowers. In this respect, Naser (1998) found that the banking sector in Jordan is prepared to lend to large companies with good performance records to avert risk. Hence, it is expected that large-sized prestigious Jordanian companies will be more involved in borrowing. The corporate risk argument in the Jordanian environment is thus highly associated with corporate size, as discussed earlier.

Corporate Year End and the Time Lag between Year End and Audit Report

The year-end for the majority of Jordanian companies is 31 December. Several companies, however, report their operations at different times of the year but mainly on 31 March. In this respect, one expects audit firms in Jordan to be busy in January and February. In an attempt to ease up the pressure during these months, it is assumed that audit firms increase fees in this period. A number of studies in the literature used what is described as a “busy season” variable and found it one of the significant determinants of audit fees (Francis, 1984; Francis and Stock, 1986; Chan et al. 1993; Craswell et al., 1995; Che Ahmad and Houghton, 1996; Ezzamel et al., 1996)

Another variable that is used in the literature to assess variations in audit fees is the lag between the audit report and the end of the accounting year (Chan et al., 1993; Ezzamel et al., 1996). A Short time lag could be associated with either expensive audit fees or with efficient corporate accounting practices and internal control systems that could result in less audit work and hence lower fees. A longer time lag might suggest that a company is facing accounting problems that may require extra audit work and hence additional audit fees.

Testable Model

Based on the above discussion we test the following model:

$$ADFEES = f (SIZE, AUST, COMP, INDS, PROF, RISK, YEND, TLAG) \dots$$

(1)

$$f_1 > 0; f_2 > 0; f_3 > 0; f_4 > 0; f_5 > 0; f_6 > 0; f_7 > 0.$$

Where:

ADFEES = Audit fees;

(±) *SIZE* = Corporate size measured by the number of employees

(+) *AUST* = Status of the audit firm; (0) score is given to a local audit firm and (1) score is given to a local firm affiliated to a big international firm.

(+) *COMP* = Corporate complexity measured by accounts receivables/total assets and inventory/total assets.

(±) *INDS* = Industry

(±) *PROF* = Profitability measured by return on equity
(ROE)

(±) *RISK* = Risk measured by total liabilities/ total assets

(+) *YEND* = Corporate accounting year end

(±) *TLAG* = The lag between the audit report and the end of the accounting year

Data Collection And Methodology

Data Collection

Our sample is mainly drawn from the annual reports of companies listed on the Amman Stock Exchange (ASE) and the directory of the ASE for the year 2000/ 2001. According to the directory of ASE 2001/2002, 202 companies were listed on the exchange. A standard letter was forwarded to all companies requesting the latest copy of their annual report. 181 reports were received in total after reminders. Details of the population and a breakdown of the received annual reports between different industries are given below in Table 1.

Table1: Sectoral Distribution of Sample Companies

Industry	Companies listed on the ASE	Sample of Annual Reports Received	Response Rate %
Banking	18	18	100
Insurance	26	24	92
Services	68	60	88
Manufacturing	90	79	88
Total	202	181	90

Methodology

The model is tested by running a cross-sectional linear ordinary least squares (OLS) regression of the audit fees on corporate size, the status of the audit firm, the degree of corporate complexity, profitability, risk, corporate accounting year end and the lag between the audit report and the end of the accounting year, as stated in equation (1).

Results

Descriptive Statistics

Table 2 presents summary statistics (mean, median, standard deviation, minimum, maximum, skewness and kurtosis) for all variables used in the study. In line with the distribution properties of financial figures referred to by Ezzamel and Mar-Molinero (1990), most of the variables reported positive skewness and kurtosis. However, the *PROF* variable showed a high degree of skewness and kurtosis. It is interesting to note that the mean of the audit fees is about JD 4,600 (around \$6,600). It is also important to note the range of audit fees, which vary from as little JD 847 (\$1,210) to JD 25,000 (\$35,700). This reflects variations in the size and complexity of the audited companies. In this respect, it should be borne in mind that five-audit firms audit more than 93% of the companies listed on the Amman Stock Exchange². Significant differences between the sampled companies also appeared between their size as measured by total number of employees, varying between 30 and 6,129. The table also points to variations in levels of profitability and gearing. The year-end of the vast majority of the surveyed companies is 31 December and the average time lag between the year-end and the publication of the annual report is 60 days. Once again, the descriptive statistics show that variations exist in time lag between the year-end and the publication of the annual report, ranging from as little as 10 days to

a maximum of 148 days. Yet, the average delay in the publication of annual report for the surveyed companies is shorter than that reported by Ng et al. (1994) and Sandra and Patrick (1997) in an emerging economy (Hong Kong). This result supports the conclusion of Abu-Nasser and Rutherford (1996) that the various users of corporate annual reports in Jordan viewed timeliness as an important criterion of useful corporate information.

Table 2: Descriptive statistics of all variables used in the study

	Mean	Median	St. Dev.	Minimum	Maximum	Skewness	Kurtosis
<i>ADFEES</i>	4,641	3,054	4,784	847.00	25,000	2.668	7.351
<i>SIZE</i>	457.00	81.00	1,089	30.00	6,129	3.716	14.428
<i>AUST</i>	1.4063	1.000	0.5347	1.00	2.00	0.807	-0.509
<i>COMP</i>	0.2831	0.2495	0.2128	0.00	1.00	1.435	4.844
<i>INDS</i>	3.00	3.00	0.9291	1.00	4.00	-0.742	-0.238
<i>PROF</i>	0.1041	0.0678	0.9264	-0.49	0.84	-9.022	85.428
RISK	0.4025	0.3767	0.2627	00.00	0.98	0.357	-0.705
YEND	11.00	12.00	3.285	3.00	12.00	-1.924	1.736
TLAG	60.00	54.00	32.00	10.00	148.00	0.992	0.665

Correlations

Table 3 reports the Pearson correlation coefficients of all variables employed in the study. It can be observed from the table that almost all variables exhibit significant correlations with audit fees with the exception of corporate year-end (YEND) and time lag between year-end and the publication of corporate annual report (TALG). Table 3 also points to a number of significant correlations between the explanatory variables, suggesting possible multicollinearity problems in the multivariate analysis (see for example, SIZE and AUST, COMP and INDS, COMP and RISK, INDS and RISK).

Furthermore, correlation among the variables used in this study may provide interpretation to the regression and to a possible multicollinearity problem. Hence, different tests have been performed to assess the severity of the multicollinearity problem. Simple correlations among the variables that are reported in Table 2 are quite low. The largest reported value (0.528) was between *RISK* and the *INDS* variable. In this respect, Judge *et al.* (1988, P. 868) suggest that correlation values below 0.80 do not pose a potential multicollinearity problem. While the correlation matrix can be used to detect potential multicollinearity problems between two explanatory variables, the absence of high correlation does not always mean that there is no multicollinearity. To deal with this problem, a diagnostic procedure that utilises the variance inflation factor (VIF) was also undertaken. VIFs for all variables, reported in Table 4, were below 2. According to Neter et al (1989) multicollinearity is viewed as a serious problem only when the VIF exceeds 10. Hence, the explanatory variables used in this study do not seem to pose a serious multicollinearity problem and this allows for standard interpretation of the regression coefficients.

Table 3: Correlation Coefficients Matrix of all Variables

	<i>ADFEES</i>	<i>SIZE</i>	<i>AUST</i>	<i>COMP</i>	<i>INDS</i>	<i>PROF</i>	<i>RISK</i>	<i>YEND</i>	<i>TLAG</i>
<i>ADFEES</i>	1.000	0.534**	0.490**	0.335**	-0.541**	-0.018	0.518**	0.015	0.063
<i>SIZE</i>		1.000	0.384**	0.058	-0.105	-0.016	0.256*	-0.046	0.038
<i>AUST</i>			1.000	0.072	-0.254*	0.102	0.149	-0.103	0.008
<i>COMP</i>				1.000	-0.323**	0.019	0.280**	0.224*	-0.007
<i>INDS</i>					1.000	-0.013	-0.528**	0.217*	-0.016
<i>PROF</i>						1.000	-0.234*	0.211*	-0.090
<i>RISK</i>							1.000	0.040	0.085
<i>YEND</i>								1.000	0.086
<i>TLAG</i>									1.000

Multivariate Analysis

Three regression models are estimated to identify the variables responsible for variations in audit fees in a sample of companies listed on the ASE. In the first model eight explanatory variables, including corporate year-end (YEND) and the lag between the accounting year-year (TLAG) and the audit report date, were used. In the second model, all variables except YEND were regressed against the audit fees. In the third model, however, the other time variable was included in the regression while YEND was excluded. It can be observed from Table 4 that the coefficient signs of almost all variables are as predicted. In addition, R2 and adjusted R2 of the three regression models is more than 60% with high and significant F-statistics values, suggesting that the models represent fair prediction to audit fees in Jordan. This implies that more than 60% of the variations in audit fees are due to corporate size, status of the audit firm, corporate complexity, industry type and corporate level of risk.

Size, measured by the number of employees, emerges as the strongest variable that determines audit fees, as it is featured in the three regression models with the highest coefficient. The result is consistent with previous studies undertaken in different countries (see for example, Chan et al., 1993; Pong and Whittington, 1994; Che Ahmad and Derashid, 1996; Ezzamel et al., 1996; Gregory and Collier, 1996; Iyer and Iyer, 1996; Joshi and Al-Bastaki, 2000).

The findings reported in Table 4 also reveal a positive association between audit fees and status of the audit firm. This result is predictable since audit firms affiliated to big international firms are expected to

charge more than local firms since affiliated firms pay for using the name of big international firms. The audit firm is therefore expected to pass on the cost to clients. The finding is in line with previous results achieved by researchers such as Pong and Whittington (1994), Johnson et al. (1995), Gregory and Collier (1996) and Craswell and Francis (1999).

Table 4: Results of the multivariate regression (audit fees is the dependent variable)

	Model 1			Model 2			Model 3		
	<i>t-Ratio</i>	<i>Sig.</i>	<i>VIF</i>	<i>t-Ratio</i>	<i>Sig.</i>	<i>VIF</i>	<i>t-Ratio</i>	<i>Sig.</i>	<i>VIF</i>
SIZE	4.984	0.000	1.174	4.974	0.000	1.166	5.025	0.000	1.232
AUST	2.886	0.005	1.241	2.948	0.004	1.235	2.905	0.005	1.783
COMP	2.010	0.49	1.237	1.925	0.059	1.126	2.054	0.044	1.232
INDS	-2.665	0.010	1.786	-3.045	0.003	1.595	-2.668	0.010	1.241
PROF	0.857	0.395	1.302	0.689	0.493	1.138	0.885	0.379	1.298
RISK	2.574	0.012	1.780	2.513	0.014	1.664	2.556	0.013	1.745
YEND	-0.609	0.544	1.356	-----	-----	-----	-0.658	0.513	1.342
TLAG	-0.420	0.676	1.060	-0.485	0.629	1.050	-----	-----	-----
CONSTANT	1.478	0.144		1.394	0.168		1.430	0.157	
R^2 =	0.650			0.648			0.649		
R^2 Adj. =	0.607			0.610			0.612		
F =	15.076			17.342			17.422		
Sig. F =	0.000			0.000			0.000		

Our findings also point to a negative and significant association between audit fees and industry type. This implies that companies operating in the services sector tend to pay lower fees than those in manufacturing and financial sectors. This finding is also related to corporate complexity. The regression results in all three models revealed that audit fees are positively and significantly associated with corporate complexity. Our findings are therefore consistent with

previous research (see for example, Taffler and Ramalingam (1982), Brinn et al., 1994; Pong and Whittington, 1994; Lee, 1996; Sandra and Patrick, 1996; Joshi and Al-Bastaki, 2000).

Another finding is that audit fees are associated with risk measured by the level of gearing in our sample of Jordanian companies. This is also consistent with results achieved by other studies such as Firth (1985), Francis and Stokes (1986), Che Ahmad and Derashid (1996), Gregory and Collier (1996), Sandra and Patrick, 1996, Langendijk (1997) and Joshi and Al-Bastaki (2000) in both developed and emerging economies.

Unlike previous studies undertaken by Haskins and Williams (1988), Chan et al. (1993), Che Ahmad and Derashid (1996), Ezzamel et al. (1996) and Craswell and Francis (1999), both corporate year-end and time lag between year-end and the audit report date appeared to be insignificant determinants of audit fees in Jordan. This might be due to the fact that a relatively small number of companies are listed on the ASE and that audit firms can predict client workload with some accuracy and thus forecast when to embark on serious auditing activities. Hence, high peak season is unlikely to occur and the time lag between the year-end and the audit report date is unlikely to affect audit fees.

Another variable used in the regression models and which appeared to be an insignificant determinant of audit fees is corporate profitability. This finding is inconsistent with a number of previous studies (see for example, Francis, 1984; Firth, 1985; Chung and Lindsay, 1988; Low et al., 1990; Chan et al., 1993; Anderson and Zehgal, 1994; Craswell et al., 1995; Ezzamel et al., 1996; Firth, 1996; Waresul Karim and

Mosier, 1996; Craswell and Francis, 1999 and Joshi and Al-Bastaki, 2000). This might be due to the fact that Jordan was experiencing recession during the period surveyed and that a significant number of the surveyed companies had reported losses. Hence, the result might be different if the study were undertaken in normal economic conditions.

Conclusion

The outcome of the study offers an important insight into the determinants of audit fees from an emerging economy like Jordan. Audit fees are determined by corporate size, status of the audit firm, industry type, corporate complexity and risk level. Our results are consistent with previous research. Unlike previous research, however, variables such as corporate profitability, corporate year-end and time lag between year-end and the date of the audit report appeared to be insignificant determinants of audit fees in Jordan. A major contribution of this study is the use of total number of employees as a size measure. Previous researchers have tended to use assets to proxy corporate size. Since, total assets are likely to be affected by age, asset replacement decisions and the choice of accounting policies in use within the company. It is possible to see similar companies reporting similar assets at different values. Hence, the number of employees employed by a company forms a more objective measure of size.

A further contribution of this study is that it has been undertaken in a unique environment (i.e., the Middle East). In the last few years, the region has witnessed immense political and economic instability that has adversely affected Jordanian companies. Also, the country has a limited number of sizeable companies, with audit being concentrated in the hands of only a few audit firms. In particular, almost all

companies and audit firms are located in the capital city, Amman. More importantly, Jordanian companies are the only Arab companies that disclose audit fees in their annual report³. Providing empirical evidence on determinants of audit fees within this environment adds a new dimension to the literature. However, the limitations of the current study are well recognised. Studying determinants of audit fees only a year after some Jordanian companies began disclosing such information is unlikely to give a complete picture. Repeating the study in two or three years' time might produce different results.

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(Footnotes)

- ¹ Only articles published in international academic journals in English reviewed in the study.
- ² These companies account for more than 98% of total assets of all companies listed on the ASE.
- ³ Companies listed on the Amman Stock Exchange have begun to disclose audit fees in their annual report since 2001. However, it is important to mention that until now not all companies have disclosed such information.