The Effect of Audit Quality on the Earnings Management Activities

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ABSTRACT

The main purpose of this study was to investigate the effect of audit quality, measured by average clients' size of auditing firm, on the earnings management activities, measured by the value of discretionary accruals. This study was done controlling two moderating variables, which are the client importance and auditor’s name.

Simple and Multiple Regressions were used to study the effects of audit quality on earnings management, and ANOVA was used for comparing the effects of auditor's name on the relation between audit quality and earnings management. The findings of the study indicated that audit quality has a relatively weak negative influence on discretionary accruals, and this, in turn, has a relatively weak negative influence on the manipulations done by management.

The moderating variable client importance has no significant effect on the relationship between audit quality and discretionary accruals. So auditor’s name is the moderating variable. The researchers recommend that audit firms should improve their performance and that regulatory agencies should improve their supervision over audit firms in order to enhance audit quality and help detect and prevent management manipulations in earnings.

Keywords: Auditing, Audit Quality, Earnings Management, Discretionary Accruals.

INTRODUCTION

Earnings management has become an issue of critical importance in today’s capital markets. It is a tool used by the management of a company to manipulate the company's earnings so that the figures match a predetermined target. Thus, rather than having years of exceptionally good or bad earnings, companies will try to keep the figures relatively stable by adding and removing cash from reserve accounts known as "cookie jar" accounts (Levitt 1998).

The concern about the quality of accounting numbers and its relationship with the quality of the audit process is increasing over time following the periodical clusters of business failures, frauds, and the litigation (Chambers 1999, Tie 1999). The audit process is supposed to serve as a monitoring device that will reduce managers’ incentives to manipulate reported earnings. Therefore, it is hypothesized that the higher the audit quality the lower the earnings management activities by managers.

This paper is intended to examine the relationship between audit quality and earnings management behaviour. Many of the previous studies have considered the size of the audit firm as a proxy for the audit quality. DeAngelo (1981) suggested the reputation hypothesis; she argued that large auditors have more incentives to be accurate because they have more client-specific rents to lose if their reports are not accurate. Dye (1993) suggested the deep pockets hypothesis who argued that large auditors will be more accurate because they have greater wealth that is exposed to risk in case of any litigation.

Problem Statement

The main issue in this study was to emphasize the fact that the auditor provides us with reasonable assurance that he/she will discover material misstatements in financial statements including earnings management. If large audit firms provide higher-quality audit than small audit firms, we may expect that the forecast errors of big auditing firms’ clients to be larger.

Therefore, the main questions are:

1- Is there any effect for the size of the audit firm on the prevention of earnings manipulations by management?
2- Is there any effect of the client's importance and
importance of the study

this study gets its importance from the relationship between accounting earnings and the quality of the audit procedures that can eliminate some of the earnings management’s techniques. since accounting earnings is one of the most important information sources for investment decision making, thus, the auditing process is considered to be a very important aspect to be studied, that is supposed to serve as an important device that will reduce managers’ incentives to manipulate reported earnings.

investors, who are one of the users of the financial statements, demand audited financial statements because these statements provide information that is useful in their various decisions. banks, government agencies, media and the general public are also interested in those financial statements. this implies that the audit process adds some value to accounting information and is valued as a means of improving the quality of the financial information (wallace 1980).

so, studying the relationship between audit quality and earnings management on the jordanian companies is expected to be useful for the users of the financial statements in determining which of those companies are manipulating their earnings and which aren’t.

study objectives

the main objective of this study was to examine the relationship between audit quality and earnings management behaviour. the audit process is supposed to serve as a monitoring device (wallace 1980) that will reduce managers’ incentives to manipulate reported earnings. therefore, it is hypothesized that the higher the auditing quality, the lower the earnings management activities by managers. in addition, examining the effect of client importance and auditor’s name on the relationship between audit quality and earnings management activities will be another goal for this study.

operational definitions and measurements of variables

the independent variable, audit quality (aud), is defined as the probability that the auditor will both discover and report a breach in the client’s accounting system (deangelo 1981). the measurement scale for audit quality is the market capitalization of the clients of the audit firm, where:

market capitalization is a measurement of corporate or economic size equal to the share price times the number of shares outstanding of a public company.

the two moderating variables are client importance which is measured by the ratio of the client's sales to the sales of all clients for a given auditor and auditor's name which is measured using the brand-name approach (using the average of sales of all companies in the sample and giving auditors numbers according to their market share).

the dependent variable, earnings management, is a strategy used by the management of a company to manipulate deliberately the company's earnings so that the figures match a pre-determined target. earnings management will be measured using the estimated values for the following model, the modified jones model:

\[ TA_{it}/A_{it-1} = \alpha_1[1/A_{it-1}] + \beta_1[(\Delta REV_{it} - \Delta REC_{it})/A_{it-1}] + \beta_2[PPE_{it}/A_{it-1}] + \epsilon_{it} \]

(dechow et al. 1995)

where:

- \( TA_{it} \) is the total accruals of firm i in year t, \( TA_{it} = NI_{it} - CFO_{it} \)
- \( A_{it-1} \) is the total assets of firm i at the end of year t-1,
- \( \Delta REV_{it} \) is the change in revenues of firm i between years t and t-1,
- \( \Delta REC_{it} \) is the change in receivables of firm i between years t and t-1,
- \( PPE_{it} \) is the total of property, plant, and equipment of firm i in year t,
- \( NI_{it} \) is the net income amount of firm i at year t,
- \( CFO_{it} \) is the amount of cash flow from operations of firm i at year t.

discretionary accruals (da), the usual starting point for the measurement of discretionary accruals, is total accruals. a particular model is, then, assumed for the process generating the non-discretionary component of total accruals, enabling total accruals to be decomposed into a discretionary and a non-discretionary component. previous studies have found that the modified jones model is the most powerful and effective model in identifying discretionary accruals (dechow et al. 1995).

population and sample

the population consists of all companies listed on
Amman Stock Exchange (www.exchange.jo). It consists of 248 companies. This study depends on the information provided by Amman Stock Exchange about those 248 companies for the period from the year 2002 to the year 2006. A sample size of 100 companies is used, and this size exceeds the number obtained from using the following statistical equation:

\[ n = \frac{0.25}{\left\{ \frac{0.25}{N} + \left( \frac{A^2}{E^2} \right) \right\}} \]

where,

- 0.25 is a fixed number,
- \( n \) is the sample size,
- \( N \) is the population size,
- \( A \) is the error level used which is equal to 10%,
- \( E \) is the tabulated value from the standard normal distribution for a 95% confidence interval which is equal to 1.96.

\[ n = \frac{0.25}{\left\{ \frac{0.25}{248} + \left( \frac{0.01}{3.8416} \right) \right\}} \]
\[ = \frac{0.25}{\left\{ \frac{0.25}{248} + 0.0026 \right\}} \]
\[ = \frac{0.25}{0.0036} = 69.444 \text{ which is approximately equal to 70 companies.} \]

Based on the previous information, the sample size is 70 companies. In this study the chosen sample size is 100 companies which is greater than 70 companies.

**THEORETICAL FRAMEWORK**

**Earnings Management**

External stakeholders expect the independent auditor to limit earnings management and ensure fair financial reporting. Thus, stakeholders are more likely to sue the auditor if they perceive a failure in financial reporting (Palmrose 1987, 1988; Stice 1991; Francis et al. 1994a; Lys and Watts 1994).

If the manager has inflated reported financial results and the auditor does not soothe these manipulations, the audited financial reports may not provide adequate warning of future financial problems (Heninger 2001). Managers can opportunistically manipulate accounting reports by managing accruals. However, Kaplan (1985) points out that "normal" accruals arising in the ordinary course of business are unlikely to reflect managerial manipulation. Any manipulation of accounting numbers will most likely be obvious in "abnormal" accruals.

Accruals can be divided into two categories: the normal or expected accruals (referred to as nondiscretionary) and the abnormal or unexpected (referred to as discretionary) accruals. The normal portion of total accruals is unlikely to reflect earnings management (Kaplan 1985). That is the reason why studies focus on discretionary accruals. Dechow et al. (1995) tested several models purporting to parting total accruals into normal and abnormal components. They conclude that the Modified Jones Model is the most effective in identifying abnormal accruals that likely reflect earnings management. Following Dechow et al. (1995), this study estimates abnormal accruals (discretionary accruals) as the prediction error from firm-specific ordinary least squares regressions.

Discretionary accruals are unobservable, that is why estimating them needs some models that help in the estimation process. One of these models is the modified Jones Model. In fact, discretionary accruals are the difference between total accruals and non-discretionary accruals.

**Audit Quality (AUD)**

Audit quality can be measured by whether the auditor has given an appropriate audit opinion through the lack of audit failures. Another measure is whether auditors have done all that is required of them. Auditors try to detect material misstatements through the application of auditing standards and using their judgment and process and then reporting them. They provide a quality service to shareholders if they present audit reports that are independent, reliable, and supported by adequate audit evidence. Auditing standards provide guidance on what auditors need to do to perform audits with satisfactory quality. Therefore, compliance with the standards provides evidence that a quality audit has been done.

Measuring Audit Quality is problematic because the outcome of audit quality is not directly observable, good or bad audit quality, which leads researchers to look for surrogates or indicators of audit quality. One of these surrogates is the audit firm size. Audit firm size is the most commonly studied indicator by researchers (such as Becker et al. 1998) where they defined large firms as the Big Five (or Big Four). DeAngelo (1981) theorized that larger firms perform better audits because they have a greater reputation at risk. In addition, because larger firms have more resources at their disposal, they can attract more highly skilled employees. DeAngelo (1981), defined audit quality as the probability that the auditor will both discover and report a breach in the client’s accounting system. Flint (1988), defined audit quality as an external method to show how much the auditor can
undertake his professional responsibilities. Dies and Giroux (1992), defined audit quality as the probability that the audit firm will discover the weaknesses in the client’s accounting system and report them. Teoh and Wong (2003) defined audit quality as the process that results in high-quality financial reports.

So, the main idea that can be driven from the previously mentioned definitions is that audit quality means that the audit process which is false-free process and results in false-free financial reports.

The Relationship between Audit Quality and Earnings Management:

Davidson (1993) used an indirect method to support the argument that size is a good proxy for auditing quality. He argued that managers have incentives to manipulate the reported earnings to meet the analysts’ forecasts. Therefore, if large auditing firms provide higher-quality audits than small auditing firms, we may expect the forecast errors of big auditing firms’ clients to be larger. Using data for Canadian firms, his results support the expectation indicating that the auditor size is a good proxy for auditing quality.

Lennox (1999) looked at the two explanations of the hypothesized positive relation between audit quality and auditor size: the reputation hypothesis suggested by DeAngelo (1981) who argues that large auditors have more incentives to be accurate because they have more client-specific rents to lose if their reports are not accurate, and the deep pockets hypothesis used by Dye (1993) who argued that large auditors will be more accurate because they have greater wealth that is exposed to risk in case of any litigation. Lennox (1999) examined the relation between auditor size and litigation and found greater support to the deep pocket hypothesis than reputation hypothesis. Finally, Colbert (1998) focused on small CPA firms and the peer review activities between such firms and found some evidence that the auditor quality is positively associated with firm size.

LITERATURE REVIEW

Some prior researches have investigated the relationship between earnings management and audit quality and examined the effect of audit quality on management incentives to manipulate the reported earnings, following are examples of that. Defond (1993) used a modified version of Jones model. Applied on actual data from the USA, he tested a sample of matched pairs of firms that changed auditors because of client-auditor disagreement and other firms that simply changed the auditor. He reported that firms that changed the auditor after a client-auditor disagreement are highly leveraged and more likely to have debt covenant violation. These firms also are more likely to have a decline in reported earnings. His results also show that if the questionable accounting procedures were applied; this would result in smoothed earnings numbers or flat earnings growth. These results show that auditors usually disagree on earnings management activities and lead to hypothesize that higher audit quality will be associated with less magnitude of earnings management.

In his study, Hirst (1994) used an experimental design to test the effect of auditors’ belief that managers may have incentives to manage reported earnings on their expectation of material misstatements in financial statements. His results show that auditors’ assessed probability in which material misstatements exist is higher if auditors think that managers have incentives to manage reported earnings whether upward or downward.

Dechow et al. (1995) used a methodology that evaluated alternative accrual-based models for detecting earnings management. The evaluation compared the specification and power of commonly used test statistics across the measures of discretionary accruals generated by the models and provided the following major insights. First, all of the models appear well specified when applied to a random sample of firm-years. Second, the models all generate tests of low power for earnings management of economically plausible magnitudes. Third, all models reject the null hypothesis of no earnings management at rates exceeding the specified test-levels when applied to samples of firms with extreme financial performance. That result highlighted the importance of controlling for financial performance when investigating earnings management stimuli that are correlated with financial performance.

In her study, Burilovich (1997) didn’t use any model but she used the items that may affect the difference between taxable income and reported income considering the regulations of life insurance industry in order to measure the DA. She looked at specific incentives to manage reported earnings in the case of alternative minimum tax. She used a sample of 72 regulated life insurance firms during the period 1984-1989 and found that income decreasing discretionary accruals (DA) differ
significantly across the companies audited by big auditing firms. She also argued that auditing firms with the greatest market share appear to allow greater discretion to the client in determining accruals. To explain these results, she argued that auditing firms with higher market share will have more experience in the industry, and, therefore, they can allow more discretion to their clients.

In their study, Becker et al. (1998) used cross-sectional version of Jones model to examine the relation between audit quality and earnings management. Clients of non-big auditor’s report discretionary accruals that increased income relatively more than the discretionary accruals reported by clients of big auditors. They used the cross-sectional version of Jones model (Jones 1991) for estimating DA and found that income increasing DA for the clients of non-big auditing firms are higher than big auditing firms. Their paper also looked at the variation in DA in addition to its sign and magnitude and found that the variation was lower for big auditing firms’ clients and higher for non-big auditing firms’ clients. They focused on the income-increasing DA and excluded firms that changed the auditor during their test period (1989-1992) from the analysis.

In his study, Ebrahim (2001) used cash flows from operating activities as reported in cash flows statement to estimate the total accruals and applied a time series version of the modified Jones model to estimate the discretionary accruals. Using a sample of NASDAQ companies in addition to companies listed in NYSE and AMEX. After controlling for the auditor’s tenure and client importance effects, the results provided additional evidence about the negative relation between auditing quality and earnings management behaviour. The results also show that the auditor’s tenure has some positive effect on the efficiency of the audit process and improves the monitoring function assumed by auditors. The results also show no evidence that the client importance may affect the auditor’s independence or that auditors allow their big client more discretion in reporting their earnings.

In his study, Heneniger (2001) used univariate analyses and logit analyses to examine the relation between earnings management and auditor litigation. Using a larger and more recent sample, his study provided evidence that the probability of auditor litigation increased as clients report more positive (income-increasing) abnormal accruals. That result holds in: (1) univariate analyses, (2) logit analyses that also control for auditor size, client importance to the auditor, length of the auditor-client relationship, client industry, client financial condition, client size, and client growth, and (3) the subsample of lawsuits alleging wrongdoing in the more recent time period (1984-1998).

Maijoor and Vanstraelen (2002) used multivariate analysis to investigate the effects of national audit environment, audit firm quality and reliance on international capital markets on earnings management. The results of the study indicated that national differences in audit environments are strongly affecting earnings management. While earnings management is also affected by the audit quality of the audit firm and the reliance on international capital markets, the effect is rather small.

In their study, Kim et al. (2003) used Simple and Multiple Regression and ANOVA to examine the relation between corporate earnings management and firm size. The study indicated that firm size plays different roles in earnings management: Small-sized firms engage in more earnings management to avoid reporting losses than large- or medium-sized firms. On the other hand, large- and medium-sized firms exhibit more aggressive earnings management to avoid reporting earnings decreases than small-sized ones.

The study performed by Chen et al. (2005) used the modified Jones model to investigate the relationship between audit quality (as measured by auditor size and industry specialization) and earnings management (as measured by unexpected accruals) for Taiwan firms. The finding shows that high quality auditors constrain earnings management and provide more precise information.

In their study, Maijoor and Vanstraelen (2006) used multivariate analysis focusing on earnings management in a European context. More specifically, the effects of three factors on earnings management within Europe are studied: member state audit environment, audit firm quality and presence in international capital markets. The national audit environments within Europe vary strongly in terms of independence rules and auditor liability. Hence, it can be expected that the restrictions imposed by national audit environments on earnings management variance. However, there are two factors that can mitigate the national audit environment effect: Big Four audit firm quality and a company’s reliance on international capital markets. The main findings were: 1) a stricter audit environment reduces the magnitude of earnings management, irrespective of the type of auditor (Big Four
audit firm or non-Big four audit firm), 2) there is no evidence of an international Big Four audit quality effect in Europe, 3) a company's reliance on international capital markets does not limit its earnings management.

Piot and Janin (2007) using simple and multiple regression investigated the effect of various audit quality dimensions (auditor reputation and tenure, audit committee existence and independence) on earnings management in France. The main findings of the study are that the presence of an audit committee curbs upward earnings management. Also the study indicated that the presence of a Big Five auditor makes no difference regarding earnings management activities.

In their study, Ming et al. (2007) showed that service-oriented companies engage in income decreasing earnings management during the crisis period. And only the Big-6 firms are able to significantly constrain the earnings management of managers of such companies. The ability of Big-6 firms to constrain earnings management is perceived to add credibility to the quality of reported earnings and, hence, contributes to the competitive advantage of the Big-6 firms in the market for auditing services.

In his study, Miller (2007) explained that corporate managers are expected to operate the company in the best interests of the shareholders. That expectation included a focus on short-term value, using current market price as proxy for shareholders' wealth. That focus was accomplished through earnings management activities. When this activity becomes aggressive, it changes the readers' perception of the story being told by financial statements. The study of earnings management assist stockholders in analyzing corporate financial transparency.

Descriptive statistics and binary logistic regression analysis were used in that study. Increase in the standard deviations from prior years to restatement year observations for the Miller Ratio and Modified Jones Model indicated volatility, suggesting possible earnings management. Binary logistic regression indicated neither the Miller Ratio, nor the Modified Jones Model, was effective in detecting the possibility of earnings management. Regression analysis indicated the Miller Ratio had some validity when regressed against the economic factors of leverage, auditor quality, and change in stock price, identifying issues for further study. Regression analysis determined the Modified Jones Model was not influenced by the economic factors studied.

In his study, Chen (2008) empirically conducted both cross-sectional analysis and time-series analyses to examine the relationship between discretionary accruals and managers' choice of whether to disclose cash flow forecasts with earnings forecasts. In a cross-sectional analysis, it found a significant negative relation between discretionary accruals and the choice of issuing cash flow forecasts along with earnings forecasts. The result was consistent with the hypothesis that companies who issue both management earnings forecasts and cash flow forecasts would be more reluctant to manipulate earnings through discretionary accruals than companies who only issue management earnings forecasts. Similarly, in a time-series analysis, this study also found a significant negative relation between discretionary accruals and the choice of issuing both cash flow forecasts and earnings forecasts. The result supported the hypothesis that the discretionary accruals of the same company are lower at the time. It issues both cash flow forecasts and earnings forecasts rather than it only issues earnings forecasts.

What distinguishes this study?

Collectively, previous studies concentrated on using Jones and modified Jones modules, multiple regression and logit analysis to investigate the relationship between audit quality and earnings management activities. Empirical evidence of the effect of audit quality on earnings management activities is mixed; some studies reported that audit quality reduces management incentives to manipulate earnings. Others reported that the value of auditing is not clear. However, this study is the first study in Jordan- to researchers knowledge- to examine the effect of audit quality measured by size on earnings management activities. This study complements the previous studies; it is an analytical and applied study on the findings of the foreign studies in this field in Jordan.

Theoretical Model and Study Hypotheses

It is expected that managers will be less likely to manage earnings if their financial statements are audited by a high-quality audit firm. So, Audit Quality (AUD) will be the independent variable, and earnings management measured by the value of discretionary accruals (DA) will be the dependent variable.

Studying this relationship will be done by controlling for Client Importance (IMP) and Auditor Name (AUDITOR). Managers are expected to be less likely to
manage reported earnings (whether upward or downward) if their financial statements are audited by a high-quality auditor (Ebrahim 2001). Therefore, the hypotheses to be tested in this study are:

**Hypothesis (1):**
“The magnitude of earnings management activities (measured by the value of Discretionary Accruals) will be negatively correlated with the audit quality as measured by auditor’s size”.

**Hypothesis (2):**
“Client importance has a significant effect on the relationship between audit quality and earnings management”.

**Hypothesis (3):**
“Auditor’s name has a significant effect on the relationship between audit quality and earnings management”.

**Hypothesis (4):**
“Client importance and auditor’s name together have a significant effect on the relationship between audit quality and earnings management”.

This study uses two key equations; the first one shows the relationship between earnings management which is referred to as Discretionary Accruals and will be designated by (DA), and audit quality which will be designated by (AUD). This relationship shows the effect of AUD on DA for each company i at year t by a Simple Linear Regression equation presented as follows:

\[
DA_{it} = \beta_0 + \beta_1 AUD_{it} + \epsilon_{it}
\]  

(1)

The second one will give us an estimate for the discretionary accruals (DA) of a company (which is represented by the residuals of the second equation) based on the relationship between many variables: net income (NI), cash flow from operations (CFO), total assets (A), revenues (REV), receivables (REC), and property plant & equipment (PPE). This relationship shows the effect of NI, CFO, A, REV, REC, and PPE on TAit/Ait-1 for company i at year t by a Multiple Linear Regression equation presented as follows:

\[
TA_{it}/A_{it-1} = \alpha_1[1/A_{it-1}] + \beta_1[(REV_{it} - REC_{it})/A_{it-1}] + \beta_2[A_{it}/A_{it-1}] + \epsilon_{it}
\]

(Dechow et al. 1995)  

(2)

where, \(TA_{it} = NI_{it} - CFO_{it}\)  

(3)

**Data Transformation**

To prepare the data which is collected from the original financial statements for the analyses, some transformations to get the following new variables were made:

1- \(Y = (NI_{it} - CFO_{it}) /A_{it-1}\) to be the dependent variable.
2- \(X1 = 1/A_{it-1}\) to be an independent variable.
3- \(X2 = (REV_{it} - REC_{it}) /A_{it-1}\) to be an independent variable.
4- \(X3 = PPE_{it}/A_{it-1}\) to be an independent variable.

Another transformation that is going to be needed for the analysis will be using the indicator variable AUD as:

AUD = 0 if the auditing firm is small and AUD = 1 if the auditing firm is big.

**Steps for Determining the Auditing-firm Size:**

**Step 1:** for each of the 100 sample companies, the data for: company’s name, auditor’s name, no. of stocks available, closing price (JD), and market capitalization which equals no. of stocks available*closing price, are calculated.

**Step 2:** for each auditing firm the average of the market capitalization for all clients was calculated.

**Step 3:** an overall average for all 23 auditing firms was then calculated.

**Step 4:** a comparison between the average for each auditing firm and the overall average was made, and:
- The auditing firm is small if its average is less than the overall average and in turn, AUD=0.
- The auditing firm is big if its average is greater than the overall average and in turn, AUD=1.

**DATA ANALYSIS**

The statistical package SPSS is used to analyse the data and test the study’s hypotheses. Data analyses include Descriptive Statistics that are used to describe the data and measure the central tendencies and dispersions, such as Mean and Standard Deviation, and, Inferential Statistics that are used to estimate some concepts and test the hypotheses.

The inference will be done in two stages as follows:

**Stage 1:** the values of DA will be estimated using Multiple Regression Analysis.

**Stage 2:** the effect of AUD on DA will be studied using Simple Linear Regression.
The statistical inference in this section will be done using two stages as follows:

**Stage 1:** in this stage, for each of the 100 sample companies a multiple regression will be used to regress the dependent variable Y on the three independent variables X1, X2, and X3.

Recalling that, from data transformation section of chapter 3, Y is the Discretionary Accruals (DA) and is measured by $\frac{(NI_{it} - CFO_{it})}{A_{it-1}}$.

X1 is an independent variable and is measured by $\frac{1}{A_{it-1}}$.

X2 is an independent variable and is measured by $\frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{it-1}}$.

And X3 is an independent variable and is measured by $\frac{PPE_{it}}{A_{it-1}}$.

The data for each company consists of 5 time periods from 2002 to 2006.

The main purpose of this stage of analysis is to estimate the values of Discretionary Accruals (dependent variable Y), which will be a measure of management manipulations. Those estimates are the residual from regressing the following equation:

$$TA_{it}/A_{it-1} = \alpha_1[1/A_{it-1}] + \beta_1[(\Delta REV_{it} - \Delta REC_{it})/A_{it-1}] + \beta_2[S/PPE_{it}/A_{it-1}] + \epsilon_i$$
Stage 2: this stage will consist of all details related to studying the effect of the independent variable AUD on the dependent variable DA controlling for the two moderating variables IMP and Auditor as follows:

Before using regression analysis, one of the most assumptions to use regression analysis is that the data has a normal distribution, therefore, a test for normality must be done for the data that has been used in this analysis. The data shows normality since the Histogram plot as shown in Figure 1, and the P-P normal plot as shown in Figure 2 confirm that.

Looking at Figure 1, the bell-shaped curve is obvious, and this leads to conclude that the data has a normal distribution. And, looking at Figure 2, it is obvious that all scatter points are centred around the diagonal line which means that the data has a normal distribution.

Studying the effect of AUD on DA and testing hypothesis (1):

A simple linear regression will be used to regress the dependent variable DA on one indicator variable AUD, recalling that:

DA are the estimates drawn from stage 1 and represent the management’s manipulations. AUD is an indicator variable, where AUD=0 if the auditing firm is small and AUD=1 if the auditing firm is big.

The model Summary in table (1) shows the negative relationship between DA and AUD since the correlation coefficient is -0.020, and the significance of this correlation coefficient 0.327, which means that this correlation is not significant on the 0.05 level. It appears also from the table that R square and the adjusted R square are very small, which indicated that nearly 0.4% of the variation in discretionary accruals explained by audit quality.
Table 1 Correlations Between DA and AUD

<table>
<thead>
<tr>
<th></th>
<th>DA</th>
<th>AUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson</td>
<td>1.000</td>
<td>-.020</td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.020</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DA</td>
<td>.</td>
<td>.327</td>
</tr>
<tr>
<td>AUD</td>
<td>.327</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

The estimates of the regression coefficients are shown in table 2.

Table 2 Coefficients for the simple regression

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.025</td>
<td>.016</td>
<td>1.593</td>
<td>.112</td>
</tr>
<tr>
<td>AUD</td>
<td>-.012</td>
<td>.026</td>
<td>-.020</td>
<td>-.448</td>
</tr>
</tbody>
</table>

While, the expected value of discretionary accruals for big-auditing firm is:

\[ DA^\prime = 0.025 - 0.012 = 0.013. \]

This means that the expected value of discretionary accruals is smaller for big-auditing firm than for small-auditing firm. This, in turn, means that a big-auditing firm has bigger influence on detecting earnings manipulations. Furthermore, we are interested in studying the effect of the size of the auditing firm on decreasing discretionary accruals. In order to do so, a 95% confidence interval for \( \beta_1 \), the coefficient for Audit Quality indicator variable, is constructed as follows:

\[-0.012 - (1.96) \times (0.026) \leq \beta_1 \leq -0.012 + (1.96) \times (0.026)\]

\[-0.06296 \leq \beta_1 \leq 0.03896\]

where, 1.96 is the tabulated value from the Normal Distribution.

Thus, we are 95% confident that using big-auditing firms tend to decrease discretionary accruals up to 0.06296, on the average, than small-auditing firms.

To test hypothesis (1), the hypothesis can be written as follows:

\( H_0^1: \) the magnitude of earnings management activities will be positively correlated with the auditing quality.

\( H_1^1: \) the magnitude of earnings management activities will be negatively correlated with the auditing quality.

The t-value for this hypothesis equals to -0.448, shown in the previous Table 2. And the significance level is 0.654, which means that the null hypothesis is not rejected.

So, we can conclude that the indicator variable Audit Quality, measured by average clients’ size of auditing firm, has a relatively weak influence on Discretionary Accruals, which in turn means that it has a relatively weak influence on detecting manipulation in earnings done by the management.

This result is not consistent with previous literatures (Defond, 1993; Ebrahim, 2001; Kim et al., 2003). This inconsistency may be referred to that the criteria for classifying an auditing firm as a big firm is not clear in Jordan as it is with international big auditing firms.

Testing hypothesis (2):

To test hypothesis (2), the hypothesis can be written as follows:

\( H_0^2: \) there is no significant effect of client importance on the relationship between audit quality and earnings management (measured by the value of discretionary accruals).

\( H_1^2: \) there is a significant effect of client importance on the relationship between audit quality and earnings management.
Therefore, the new model to be estimated at this point is:

\[ DA_t = \beta_0 + \beta_1 AUD_t + \beta_2 IMP_t + \varepsilon_t \]

This model will be used for studying and estimating the effect of AUD on DA, controlling for some other auditing factors that are expected to affect monitoring efficiency in the auditing process will be done. Following Heninger (2001) and Ebrahim (2001), we will control for the client importance for the auditor (IMP_t), which is measured by the ratio of the client’s sales to the sales of all clients for a given auditor. However, we will not control for the duration of the auditor-client relationship, which would be measured by a dummy variable that takes 1 if this relationship has started in year t-3 or before and 0 otherwise. The reason that we will not control for the second variable is that the used data don’t follow this criteria.

Using multiple regression to regress DA on the two independent variables AUD and IMP, the results will be shown in Table 3 and 4.

<table>
<thead>
<tr>
<th>Table 3: Correlations Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

The model summary in table (3) shows the negative relationship between DA and AUD since the correlation coefficient is -0.025, the significance of this correlation coefficient is 0.586, which means that this correlation is not significant on the 0.05 level. It appears also from the table that R square and the adjusted R square are very small, which indicates that nearly 0.5% of the variation in discretionary accruals explained by audit quality after controlling for client importance.

<table>
<thead>
<tr>
<th>Table 4: Coefficients for the first multiple regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>AUD</td>
</tr>
<tr>
<td>IMP</td>
</tr>
</tbody>
</table>

From Table 4 the estimated regression line is

\[ DA^\wedge = 0.029 - 0.015 \text{AUD} - 0.015 \text{IMP} \]

It is obvious that the effect of AUD on DA is negative since the coefficient for AUD in the regression equation is -0.15, so is IMP since its coefficient is -0.15.

For the testing purpose for the effect of AUD, the significance level is 0.586. This significance level is close to the significance level obtained earlier by regressing DA on AUD only, with a little improvement. Therefore, the new variable, IMP, didn’t add any benefit for studying the effect of AUD on DA. So, the above null hypothesis is not rejected, which means that the IMP has no significant effect on the relationship between AUD and DA.

For testing the effect of IMP on DA, a t-value equals to -0.392 with significance level of 0.695, means that this variable has no effect on DA.

**Testing hypothesis (3):**

To test hypothesis (3), the hypothesis can be written as follows:

**H_03:** there is no significant effect of auditor’s name on the relationship between audit quality and earnings management (measured by the value of discretionary accruals).

**H_A3:** there is a significant effect of auditor’s name on the relationship between audit quality and earnings management.

Another factor that may be useful to affect DA along with the independent variable AUD is the auditor’s name (AUDITOR). It is measured by computing the average sales of all 100 sample companies, and the auditors are given numbers from 1 to 23 according to their market share. To confirm the effect of AUDITOR on DA, a one-way analysis of variance (ANOVA) will be used to compare the average of DA between the 23 auditors who audited the 100 sample companies that are listed in Amman Stock Exchange. The results are shown in the following Table 4.

Table 5 shows that the auditors are not significantly different in their effects on the average of Discretionary Accruals since the significance level for comparing
between groups is 0.180. Therefore, the new suggested regression model will be:

$$DA_t = \beta_0 + \beta_1AUD_t + \beta_2AUDITOR_t + \epsilon_t$$

Using multiple regression, regressing DA on the two independent variables AUD and AUDITOR gives the following Table 6.

From Table 6, the estimated regression line is:

$$DA^\hat{} = 0.033 - 0.016 \text{AUD} - 0.001 \text{AUDITOR}$$

Also, it is clear here that the effect of both AUD and AUDITOR is negative on DA since the coefficient of AUD is -0.016 and the coefficient of AUDITOR is -0.001.

The significance level for testing the effect of AUD is 0.569, which means that the null hypothesis is not rejected, and this means that AUDITOR has no significant effect on the relationship between AUD and DA. To confirm this result we see from Table 7 below that R square is still nearly the same as before, that is, it is 0.0054, and the adjusted R square is 0.0051 which means that the ability of audit quality to explain the variation in discretionary accruals is not significantly improved, that is, nearly 0.54% of the variation in discretionary accruals explained by audit quality.

### Table 5: ANOVA for comparing the effect of auditor's name

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2.190</td>
<td>22</td>
<td>.100</td>
<td>1.277</td>
<td>.180</td>
</tr>
<tr>
<td>Within Groups</td>
<td>37.188</td>
<td>477</td>
<td>.078</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>39.377</td>
<td>499</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 6: Coefficients for the second multiple regression

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>.033</td>
<td>.026</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUD</td>
<td>-.016</td>
<td>.028</td>
<td>-.028</td>
<td>-.569</td>
</tr>
<tr>
<td>AUDITOR</td>
<td>-.001</td>
<td>.002</td>
<td>-.020</td>
<td>-.412</td>
</tr>
</tbody>
</table>

Testing hypothesis (4):

To test hypothesis (4), the hypothesis can be written as follows:

$$H_{4a}: \text{there is no effect of client importance and auditor’s name together on the relationship between audit quality and earnings management (measured by the value of discretionary accruals).}$$

$$H_{4b}: \text{there is an effect of client importance and auditor’s name together on the relationship between audit quality and earnings management.}$$

Although IMP and AUDITOR do not improve the effect of AUD on DA separately, a new multiple regression will be used to regress DA on three independent variables, which are AUD, IMP, and AUDITOR using the following model:

$$DA_t = \beta_0 + \beta_1AUD_t + \beta_2IMP_t + \beta_3AUDITOR + \epsilon_t$$

The results for this multiple regression are shown in Table 6.

From Table 8, the estimated regression line is:

$$DA^\hat{} = 0.033 - 0.017 \text{AUD} - 0.009 \text{IMP} - 0.001 \text{AUDITOR}$$

Again, the effect for AUD is still negative, and also the effect of IMP and AUDITOR.

To test hypothesis (4), the significance level for testing the effect of AUD here is 0.558 and is still not significant, so hypothesis (4) is not rejected.
Table 8: Coefficients for the third multiple regression

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>.033</td>
<td>.026</td>
<td>1.287</td>
</tr>
<tr>
<td></td>
<td>AUD</td>
<td>-.017</td>
<td>.029</td>
<td>-.029</td>
</tr>
<tr>
<td></td>
<td>IMP</td>
<td>-.009</td>
<td>.045</td>
<td>-.011</td>
</tr>
<tr>
<td></td>
<td>AUDITOR</td>
<td>-.001</td>
<td>.003</td>
<td>-.014</td>
</tr>
</tbody>
</table>

Table 9: Correlations Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>Sig. (1-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-.0174</td>
<td>.0055</td>
<td>.0053</td>
<td>.586</td>
</tr>
</tbody>
</table>

Looking on the results of R square and adjusted R square from Table 9 confirms this result, that is, as appears from the table, the values of R square and adjusted R square are 0.0055 and 0.0053, respectively, which means that the ability of audit quality in explaining the variation in Discretionary accruals is slightly but not significantly improved when client importance and auditor's name are added all together, that is, nearly 0.55% of the variation in discretionary accruals explained by audit quality in this case.

CONCLUSIONS AND RECOMMENDATIONS

The main purpose of the study was to investigate the effect of Audit Quality, measured by average clients' size of auditing firm, on earnings management activities, measured by Discretionary Accruals. Conducting the research method done in this study the following conclusions can be drawn:

1- Audit Quality, measured by average clients' size of auditing firm, has a relatively weak negative influence on Discretionary Accruals, which in turn means that it has a relatively weak negative influence on detecting manipulation in earnings done by the managements. It seems that big-auditing firms may have no incremental ability to detect manipulations done by the managements over small-auditing firms.

2- The results of this study are not consistent with the theory (Defond, 1993; Ebrahim, 2001; Kim et al., 2003). This inconsistency may be referred to:
   A) That the criteria for classifying an auditing firm as a big firm is not clear in Jordan as it is with international big auditing firms. B) In Jordan, classifying an auditing firm as big is based on either the long period that this auditing firm spent in the market, or that the auditor's name is connected with some international auditing firms, or that it has a high market share. C) The Jordanian auditing firms may not be able to follow the same methodology as the international auditing firms do. D) The Jordanian auditing firms should be independent especially after noticing the Arthur Andersen’s collapse (which was the biggest auditing firm in the world).

3- Big-auditing firms tend to reduce Discretionary Accruals up to 0.06296, on the average, than small-auditing firms. This conclusion is based on the 95% confidence interval constructed for the coefficient of Audit Quality indicator variable.

4- Studying the effect of audit quality on discretionary accruals would be better implemented if we control for two other variables which are the importance of the client and the auditor name.

Based on the results and the conclusions, the following recommendations can be suggested:

1- Improving the performance audit firms is recommended. So that, this would enhance audit quality and help un detecting and preventing management manipulations in earnings.

2- Good and continuous supervision by regulatory agencies is recommended for both big and small auditing firms.

3- Controlling for other variables in studying the discretionary accruals is suggested. Such variables would be the importance of the client and the auditor’s name (as what was done in this study). Another suggested variable would be audit tenure.
4- For deciding the auditor’s size, all previous literature used the brand-name approach. But, this study used the market capitalization approach. So, a suggestion for looking further to come up with a new approach in this matter is recommended such as the number of employees within the audit firm.

REFERENCES


Hirst, E. (1994), Auditor Sensitivity to Earnings Management, Contemporary Accounting Research, Fall, pp. 405-422.


