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Article

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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

The effect of audit fees on disclosure quality in Jordan

Mohammad Ziad Shakhatreh^{1*}, Safaa Adnan Alsmadi¹ and Ahmad Alkhataybeh¹

Abstract: Disclosure quality is a matter of great importance in the accounting literature. This study examines the effect of audit fees, audit firm size and audit opinion on the quality of disclosures. It focuses on a sample of low-quality financial statements in Jordan that have been reported as breaches by the Jordanian Securities Commission (JSC). Data were collected from the financial statements of the manufacturing and services companies listed on the Amman Stock Exchange (ASE) during the period 2009 to 2016. The logistic regression results suggest that audit fees have a positive significant effect, while audit opinion has a negative significant effect on actual violations. However, audit firm size was found to be insignificant in relation to the level of violations.

Subjects: Auditing; Financial Accounting; Corporate Governance

Keywords: audit fees; audit opinion; disclosures quality

JEL Classification: M40; M41; M42

1. Introduction

The quality of financial statements has always been a matter of concern among investors, stockholders, accounting standard-setting bodies and regulatory agencies. However, more calls are being

ABOUT THE AUTHOR

All the authors have worked together to guarantee the publication of a high-quality article. Each has agreed on the quality of the work and on sending it for publication. Mohammad Shakhatreh conceived the idea of the research, developed the model, collected the data, and participated in the methodology, analysis and discussion of the results. Safaa Alsmadi compiled the overarching research aims and ideas, developed the theory, wrote the manuscript with input from all the authors and also participated in the discussion of the results. Development of the research methodology and the formal analysis was undertaken by Ahmad Alkhataybeh. All the authors contributed to the final manuscript.

PUBLIC INTEREST STATEMENT

We have recently heard of many auditing firms failing to fulfill their duties, and several reputable firms have been associated with scandals that have created turmoil for the industry. Trust in the financial reporting systems in general, and the quality of auditors in particular, has been eroded. Can the public, whose main source of information is independent auditors' reports, trust them when making investment decisions? Restoring public confidence in the auditing profession is key to ensuring the sound function of the financial market. This study therefore aims to examine the association between audit quality and disclosure violation within Jordanian manufacturing and services industries between 2009 and 2016, with a sample of 115 listed firms on the Amman Stock Exchange. The findings are expected to be useful for several parties, such as policymakers, investors, shareholders and auditors, as the study intends to examine what auditor qualities can deter disclosure violation practices adopted by Jordanian firms.

made for high-quality financial reporting, which have been motivated by many factors, including recent financial scandals; the introduction of new complex services; the growth in disclosure requirements; and complex new regulations. These factors increase the need for reliable, high-quality financial reporting in order to enhance user confidence, which has been shaken by various financial scandals, and to account for all the complexities that have emerged (Zalata et al., 2020).

Audit services, as a monitoring tool that restrains misstatements and manipulations in financial reports (Watts & Zimmerman, 1986), are seen as a way to disentangle the various complexities of financial reporting. Hence, great demand has arisen for auditors' professional independent opinion on financial statements. Moreover, audit firms and audit services have received great attention, given their key role in vibrant capital markets in enhancing financial reporting integrity (Fan & Wong, 2005), which helps investors better estimate the values of their options and make better informed decisions (Titman & Trueman, 1986).

However, the impact of auditor's characteristics on financial statement quality is not completely clear, due to the following problems. First, it is difficult to define, and even more difficult to measure, financial statement quality. Second, it is not clear-cut how the characteristics of the audit firm affect audit quality. Empirical research continues to provide mixed results. For example, mixed findings have been reported on the impact of audit fees on financial report quality (Mohammed et al., 2018). Mixed results can be attributed to the fact that research measures specific aspects of financial statements, expecting that these aspects will determine financial statement quality (Van Beest et al., 2009). Third, reports do not only include financial information, but also non-financial disclosures that are necessary for decision making. Hence the relation between audit and financial statement quality needs further examination, a need that this study addresses. Moreover, the study avoids the previous problems and contributes to the literature by examining already proven low-quality financial statements; that is, actual breaches that have already been discovered and reported, using violations published by the Jordanian Securities Commission (JSC).

The issue of financial statement quality is of great importance in Jordan since the number of reported disclosure violations has increased; in 2010, 36% of examined firms were reported as violators, compared with 44% in 2016. The existence of these violations raises many questions concerning audit quality; since such statements with violations are the product of the audit service, it needs to be asked if the violators have received an unqualified opinion in the year of the violation. Moreover, we are motivated by the limited evidence for the effect of auditor quality on disclosure quality (Legoria et al., 2018). Hence, this paper aims to answer the question of whether and how audit quality affects the quality of financial statements, as measured by disclosure violations in annual reports.

This is a question that is likely to be of interest to policymakers in Jordan, as one of their goals is to deter firms from engaging in such violations. Knowledge of the factors that affect disclosure violation will allow the regulatory agencies in Jordan to implement policies that effectively solve such a problem based on empirical evidence. It is also of relevance to the related literature, since the determinants of financial reporting quality are yet to be fully understood and empirical evidence concerning such determinants has obtained mixed results.

Few studies have been made on the effect of audit quality on disclosure in developing markets (Abozaid et al., 2020). In a country such as Jordan, which has a small capital market and depends significantly on foreign capital, there is a need to attract foreign investors (Kengatharan & Kengatharan, 2014), a need for which considerable efforts have been made (Al-Badarneh, 2016; AlQudah et al., 2020). Therefore, the credibility of financial reporting is key to these efforts being successful. This research can, therefore, be of great use to policymakers in Jordan.

Moreover, markets in developing countries have certain cultural values; unstable politics; small capital markets; and weak investor protection (Bao & Lewellyn, 2017), features that can negatively

affect the quality of disclosure and financial reporting (Uddin & Hopper, 2003). This situation has motivated us to study the relation between audit quality and disclosure quality in Jordan.

2. Literature review and hypothesis development

2.1. Financial statement quality

The value of financial statements depends on their quality (Pounder, 2013). The demand for high-quality financial reports has increased dramatically; on one hand, financial scandals have shaken users' confidence in the financial reporting process (Rajab & Schachler, 2009), while on the other hand, complex new accounting and reporting standards and the growing complexities in the world of business have increased concerns over the ability of financial statements to reflect such complexities. According to Dyer et al. (2017), although the length of financial reports has increased, due to complex new rules, the perceived and actual relevance of financial information has not improved.

It has been argued that while financial reporting characteristics (i.e. characteristics applied to measure quality) are easy to compute, they are full of bias and measurement errors (Ball et al., 2011; Patatoukas & Thomas, 2011). Furthermore, difficulties in the measurement of quality are partially attributed to the dearth of a unified definition of it. A clear definition of financial reporting is not easily determined; to a great extent, quality is perceived differently by financial statement users. Different users have different needs, hence different expectations of what is considered to be of high quality.

For example, Biddle et al. (2009) define quality as the extent of the precision of the expected cash flow information reported to users, while Elbannan (2010) perceives quality as the firm's ability to precisely convey its current economic status and performance. On the other hand, Jonas and Blanchet (2000) regard quality as the ability to provide full and transparent information that does not intentionally mislead users. Due to these varying perceptions, researchers have attempted to measure it in different ways.

Several proxies of financial reporting quality can be found in the literature: for example, accrual quality (Dechow & Dichev, 2002; Rajgopal & Venkatachalam, 2011); the Dechow and Dichev (2002) measure of earnings quality (McNichols, 2002); the meeting or beating of quarterly earnings forecasts (Rajgopal et al., 2015); and financial statement restatements (Kedia et al., 2015). To avoid the limitations of the different measurements of financial statement quality, this research uses actual violations in financial statements, as reported by the JSC, as a proxy to measure quality. According to Palmrose et al. (2004), restatements in financial statements are an acknowledgment that generally accepted accounting principles were not being followed.

In examining contagion in earnings management, Rajgopal et al. (2015) employed SEC (Securities and Exchange Commission) Accounting and Auditing Enforcement Releases and lawsuits against auditors to reflect how the users of financial statements assess audit performance. Audit deficiencies reported by the SEC and lawsuits may indicate deteriorating reporting quality and violations of auditing standards. Hence, they reflect poor audit quality. We measure the quality of financial statements by actual violations reported by the JSC.

The need for auditors, according to agency theory, stems from the need to monitor whether agents are acting in the best interests of owners (Helliar et al., 1996; O'Sullivan, 2000). In other words, protecting shareholders rights and ensuring they receive financial reports of high quality rests on the shoulders of auditors (Desender et al., 2011). According to Wallace et al. (1994), the quality of information disclosed by firms depends on the examination of these firms' reports by an independent third party. Clearly, it is the independent auditor's job to discover and report any disclosure violations. Higher quality auditors have an incentive to influence their clients not to make any disclosure violations. We measure audit quality using several measures.

Hussainey (2009) found that investors' ability to forecast future earnings is better if financial statements are audited by one of the Big Four accounting firms. Legoria et al. (2018), who examined the auditor quality and disclosure about their major customers, reported that firms audited by higher quality auditors are more likely to disclose their major customers' identity. However, it is worth noting that studies in developing countries have found no such association (Salehi et al., 2017) or a negative association (Grediani, 2019). between audit quality and disclosures.

Auditors' quality, hence their ability to enhance the quality of disclosure and financial reporting, depends on their ability to discover and report misstatements in financial statements (DeAngelo, 1981). DeAngelo's definition of audit quality is widely accepted in the literature and was later adopted by Watts and Zimmerman (1986) and Becker et al. (1998). The ability of auditors to discover and report misstatements in financial statements depends on their independence and competence. Independence will be measured in this study by audit fees (Ettredge et al., 2007; Mohammed et al., 2018), and competence by the size of the audit firm (Abozaid et al., 2020) and audit opinion (Eilifsen & Willekens, 2008; Gaeremynck & Willekens, 2003).

2.2. Audit fees

In providing their services, audit firms are entitled to fees paid by the client in compensation for their efforts. The level of fees paid usually relates to the efforts exerted by the auditors, depending on the client's size and risk. Therefore, such fees may be discretionary, and if they are not in line with the auditor's efforts might impair independence and hence the quality of the report. The IFAC's Code of Ethics for Professional Accountants suggests that the level of fees could raise doubts over auditor independence (Abu Bakar & Ahmad, 2009).

One established notion in the literature is the importance of independence in determining financial statement quality. Many questions have been raised over the ability of auditors to furnish high quality work objectively and independently if they charge their clients high fees. They might be reluctant to ask a client to make adjustments or even to inquire about suspicious cases in order not to lose a profitable source of income. Markelevich and Rosner (2013) found that fraudulent firms pay more fees for non-audit services (an indicator of less independence). Dhaliwal et al. (2008) indicate that if the audit fee is high relative to the size of the client, the auditor's independence is more likely to be impaired, and financial statements less likely to be reliable.

Higher fees, according to Karsemeijer (2012), increase the chances of auditor-client economic bonding, which may cause auditors to put their professional independence in jeopardy, thus undermining audit quality (Choi et al., 2006; Audoussert-Coulier et al., as cited in Oladipupo & Monye-Emina, 2016; Xie et al., 2010). Lower fees might increase the client's loyalty to the auditor, since they are charging less than the market rate, so the auditor might tolerate management misstatements or aggressive accounting practices (Ettredge et al., 2007). Some research agrees with the view that higher audit fees result in better audit quality (e.g., Larasati et al., 2019; Moizer, 1997; Okolie, 2014), on the grounds that higher fees are a consequence of a greater effort. However, Mohammed et al. (2018, p. 61) argue that the "majority of the crisis-ridden firms in the recent past have been audited by the top-cadre audit firms". Such firms charge higher audit fees than smaller ones (Copley, 1991; Wooten, 2003), yet they fail to provide the high-quality reports expected.

Hay et al. (2006), in their meta-analysis of 147 published studies, found that the size of the client is the predominant determining factor of audit fees in all the papers. The majority of studies used total assets as a measure of client size. They reported that size explained over 70% of the change in audit fees. Simply put, auditing larger firms require more effort and time compared to smaller firms. Hence, it is expected that the larger the client, the higher the audit fees. Simunic (1980) and Palmrose (1986) argue that the major factor in determining audit fees is the effort exerted by the auditor during the audit process. Planning for the audit, meetings with the client, conducting

fieldwork and preparing audit documentation and audit reports definitely takes more time if the auditee is a large firm with more divisions, more extensive operations, and a sophisticated financial reporting system.

Furthermore, bigger firms have more analysts (Christensen et al., 2012), which puts the auditor in more jeopardy of a worsened reputation if something goes wrong. Consequently, auditors will demand higher fees in such cases. Therefore, the positive relation between auditee size and audit fees is somewhat intuitive.

However, Gerrard et al. (1994) argue that due to economies of scale, the increase in audit fees will start to decline; that is, the audit fee/auditee size relationship is not linear. In the same vein, Pong and Whittington (1994) indicate that economies of scale lower audit fees as firm size increases. Hence, it is expected that the audit fee/size ratio will decrease when client size increases, as proven by Gonthier-Besacier and Schatt (2007).

Measurement of audit fees in this research is based on the notion that auditor independence is affected not by the mere level of the fees paid by the client, but by the expected normal fee rates based on the efforts exerted by the auditor; that is, the level of fees adjusted by the size of the client.

Theories have conflicting views on the effect of audit fees on the quality of financial reporting. For example, agency theory (Jensen & Meckling, 1976) suggests that the audit is a monitoring tool over management to reduce agency costs; in other words, the greater the effort needed, the higher the audit fees. However, economic theory (DeFond et al., 2002) suggests that the higher the fees, the more incentive auditors will have to tolerate misstatements in financial statements in order to keep their profitable client. Hence, higher fees are expected to affect the quality of financial statements negatively.

Based on the conflicting empirical results and theoretical points of view, a non-directional hypothesis is expected, as expressed below:

H1: Audit fees have a significant effect on the quality of financial statements.

2.3. Auditor size

According to DeAngelo (1981), when users of financial statements cannot differentiate between the real quality of financial statements, they tend to rely on other obvious factors that serve as an indication of quality; auditor size can fulfil this function.

The association between audit quality and the size of the external auditor has been examined in the literature (Naser & Hassan, 2016). Larger audit firms are expected to provide higher-quality services compared to smaller ones. DeAngelo (1981) argues that the larger the audit firm, the less likely that it will behave opportunistically, given that it has more to lose if a lower quality audit is discovered. Therefore, it is expected to provide better audit quality.

In short, big audit firms are expected to provide higher audit quality for several reasons. First, they are known for their well-established infrastructures, large audit teams and higher levels of competency, and given their scale they are expected to have better technology and training (Chaney et al., 2004; Craswell et al., 1995; DeAngelo, 1981; Dzikrullah et al., 2020; Khurana & Raman, 2004; Zhang et al., 2016). Second, big firms have a great incentive to maintain their good reputation (DeAngelo, 1981; Piot & Janin, 2007), hence they have more to lose should they act negligently. Third, due to the deep pocket policy, (a) they depend less on an individual client's revenues, hence independence is less likely to be impaired; and (b) if anything goes wrong, users of financial statements will be willing to sue big firms for compensation, i.e. there is a higher litigation

risk (Palmrose, 1986). Therefore, audit firms produce high-quality reports in an attempt to avoid such risks.

Moreover, while auditors may benefit from a lower quality audit report by retaining the client, they will lose more if such a report is discovered, such as potential future clients. Hence, large accounting firms with more reach and more clients have more to lose compared to small or medium-sized firms.

Several empirical studies have found that big audit firms provide better audit quality than small ones (e.g., DeAngelo, 1981; Krishnan & Schauer, 2000; Sundgren & Svanström, 2011). Rajgopal et al. (2015) found that the presence of big audit firms is adversely related to the audit deficiencies reported by the SEC and by lawyers.

In line with the literature, this research will refer to the big international firms as the big audit firms and local firms as small firms (DeAngelo, 1981; Haniffa & Cooke, 2002). Empirical studies have found that big international accounting firms (i.e. the Big Four and in some studies the Big Eight) provide higher quality audit services (e.g., Choi & Doogar, 2005; Choi, Kim, et al., 2010b; Simunic et al., 1987).

According to agency theory, the higher the agency costs, the higher the need for better quality financial statements as a monitoring tool over management, who are expected to have self-interests (Francis & Wilson, 1988). Therefore, larger auditors, as an indicator of good audit quality, are expected to reduce agency costs, an expectation that has been proved by Simunic et al. (1987). Based on the previous discussion, the following hypothesis is posited:

H2: Auditor size has a significant negative effect on the probability of the occurrence of violation.

2.4. Audit opinion

Users of financial statements do not have direct access to the source of financial information, which increases concern over the reliability of such statements. There is hence the need for an independent party, i.e. the auditor, with the main purpose of an audit of financial statements being to provide users with reasonable assurance that statements are free from material misstatements. The greater the assurance, the higher the quality of the report.

By providing assurance that financial statements represent fairly the economic condition of the firm, audit reports enhance the quality of information (Eilifsen & Willekens, 2008; Gaeremynck & Willekens, 2003). By verifying the financial information presented by firms, auditors make it possible for users to deem financial information to be of good quality. Moreover, according to Maines and Wahlen (2006), unqualified audit reports are vital for perceiving financial reports to be fair and reliable. Therefore, other types of reports are less desired by users. In a nutshell, a lack of opinion other than an unqualified one raises questions over the financial information presented. According to PWC (2017), auditors issue modified reports (ones which are not unqualified) if they disagree with management about financial statements, or if they have not been able to accumulate sufficient appropriate evidence. Accordingly, the following hypothesis is proposed:

H3: Unqualified audit opinion has a significant negative effect on the probability of the occurrence of violation.

3. Data and methodology

3.1.. Data

The data used were obtained from the annual reports of companies listed on the Amman Stock Exchange (ASE), over the period 2009 to 2016. The balanced-panel dataset had a final sample of 115 firms, comprising 57 manufacturing firms and 58 in the service industry. The data were

retrieved from the financial statements reported on the official website of ASE, while violation data were manually collected from Jordanian Security Commission violation¹ reports.

3.2. Study variables

For the analysis of financial statement quality (i.e., disclosure violation), it is important to describe the main variables used in this investigation, as shown in Table 1.

3.3. Methodology

Since the objective of the paper is to examine the factors that affect the quality of financial statements, the model developed for the research can be tested either by estimation of a binomial logistic regression or by probit regression models. These binomial models can be used when there is a likelihood that a firm commits disclosure violations, which can be converted (interpreted) into two outcomes, 0 or 1, as previously defined. The appropriateness of this technique is derived from the type of predicted variable (namely a dummy variable) and the explanatory variables (that is, a set of dummy and continuous variables). The form of the research model is:

$$DV_{it} = \beta_0 + \beta_1 Fees_{it} + \beta_2 AuditS_{it} + \beta_3 AuditR_{it} + \beta_4 ROA_{it} + \beta_5 Leverage_{it} + \beta_6 Age_{it} + \beta_7 Comp_{it} + YearDummy_t + \varepsilon_{it} \quad (1)$$

where

$$DV_{it} = \{1 \text{ if firm committed a violation at time } t, 0 \text{ otherwise}\}$$

The model also includes the year fixed effect as a controller for macroeconomic fluctuations that might influence the quality of financial reports. We use ROA as a measure of profitability because profitable firms are expected to provide more disclosure (Haniffa & Cooke, 2002). Moreover, firms with good news have less incentive to hide disclosure. Leverage is used as a control variable; firms with more debts are more likely to engage in financial statement violations (Eng & Mak, 2003). The age of firms is also a control variable; firms gain experience and improve their reporting practices over time (Arrow, 1962; Ericson & Pakes, 1995). Hence, we control for auditee characteristics such as corporate reputation measured by the age of the auditee (Age). We use the inventory ratio to control for client complexity, since inventory is a main source of the assets on

Table 1. Description of the main variables used in the paper

Variable	Description ^a
DV_{it}	Dummy variable equal to 1 if firm _i has any disclosure violations at time _t , otherwise zero.
$AuditS_{it}$	Dummy variable equal to 1 if firm _i is audited by one of the Big Four audit firms at time _t , otherwise zero.
$Fees_{it}$	Ratio of the total audit fees of firm _i at time _t to total assets
$AuditR_{it}$	Dummy variable equal to 1 if firm _i obtains an unqualified (clean) audit report at time _t , otherwise zero.
$FirmSize_{it}$	Logarithm of the total assets of firm _i at time _t
$Comp_{it}$	Inventory of firm _i at time _t divided by the total assets of firm _i at time _t
ROA_{it}	Return on assets ratio of firm _i at time _t
Age_{it}	Period between listing date of firm _i on the Amman stock exchange and the date of observation at time _t (firm age).
$Lverage_{it}$	Ratio of the total debt of firm _i at time _t to total equity. Total debt comprises short and long-term debts.

^aThe measurement and definition of variables are consistent with the existing literature.

the balance sheet of the firm and can easily be exposed to errors and violations. Inventories are time-consuming in the auditing process and therefore can increase audit fees (Simunic, 1980).

Theoretical preference for either the logistic and probit regression models depends on the residual regression distribution. As stated by Koop (2008), if the regression residuals are normally distributed, then the preference is to use the probit model, while if the residuals are logistically distributed, then the logistic regression model is more suitable. Accordingly, the normality test results, as reported in Table 2, show that the regression residuals are not normally distributed. Therefore, the research model will be tested by the estimation of a binomial logistic regression model.

White (2014) defines dummy logistic regression as a variation of linear regression, in which dichotomous, continuous or discrete variables, or a combination of all three, are employed to foresee the occurrence or non-occurrence of an event. Logistic regression applies maximum likelihood estimation after transforming the explained variable into a logit variable. A logit variable is defined as the natural log of the odds of the outcome of an event occurring or not. In this way, estimates of logistic regression are the probability of the occurrence of an event (Cramer, 1991).

The mathematical model associated with this analysis is as follows:

$$Prob(DV_{it}) = \Omega(\alpha_1 + \beta_i X) = \frac{e^{(\alpha_1 + \beta_i X)}}{1 + e^{(\alpha_1 + \beta_i X)}}$$

where $Prob(DV_{it})$ is the predicted variable; Ω is the logistic cumulative distribution function; α_1 denotes the constant; β_i denotes a vector of coefficients of the predictors; X denotes a vector of the predictors; and e denotes the natural logarithm base. The regression coefficient estimates represent the effects of the predictors on the probability of the existence of violations. However, as the data used in this research are in the form of panel data, it is of crucial importance to choose the appropriate effect (random or fixed) for the logistic regression. The Hausman test² results suggest that the random effect is favored over the fixed effect, with a chi-square value of 16.54 and P-value of 0.87.

4. Results

4.1. Descriptive analysis

Table 3 summarizes the descriptive statistics of all the variables and the correlations between them. Apart from Audit and Comp, the predetermined variable (DV) is statistically correlated with all the predictors, suggesting that they are entirely consistent with the proposed model of disclosure quality. The correlation coefficient matrix of the independent variables suggests little collinearity. This shows that all correlations are low, with the highest coefficients being those between Fees and ROA, with a value of (0.3730), AuditS and Age (0.3358), and ROA and Leverage, with a value of (−0.3052). The condition of non-multicollinearity has been verified, and the correlation coefficient matrix has presented no evidence of this problem between predictors.

Table 2. Tests for normality of the regression residuals ^c

Shapiro-Wilk test ^a		Shapiro-Francia test ^b	
Statistic	Sig. (Prob>z)	Statistic	Sig. (Prob>z)
0.91153	0.0000	0.91290	0.0000

^aThe null hypothesis for the Shapiro-Wilk test is that the residuals are normally distributed (Royston, 1982).

^bThe null hypothesis for the Shapiro-Francia test is that the residuals are normally distributed (Royston, 1982).

^cStatistical figures were retrieved via Stata 13.

Table 3. Descriptive statistics and correlations ^A

Variable	MEAN	S.D.	DV	Fees	AuditS	AuditR	ROA	Leverage	Age	Comp
DV	0.35	0.48	1.000							
Fees	-7.63	1.03	0.0847**	1.000						
AuditS	0.36	0.48	0.0452	-0.2080***	1.000					
AuditR	0.87	0.34	-0.2191***	-0.0135	0.0469	1.000				
ROA	0.81	8.47	-0.1750***	-0.3730***	0.0812*	0.2848***	1.000			
Leverage	0.34	0.25	0.1896***	-0.1791***	0.0654**	-0.2405***	-0.3052**	1.000		
Age	17.20	10.99	0.1433***	-0.0778*	0.3358***	0.1059***	0.0132	0.1650***	1.000	
Comp	0.11	0.13	0.0528	0.1866***	-0.0226	0.1148***	-0.0556*	0.0129	0.1472***	1.000

***denotes that the p-values are lower than 1%;

**denotes that the p-values are lower than 5%; * denotes that the p-values are lower than 10%.

*Statistical figures were retrieved via Stata 13.

4.2. Hypothesis testing

The logistic regression estimates of the tested factors that affect the quality of disclosures are reported in Table 4. The figures in the second column represent the estimated coefficients of the predictors, while those in the third and fourth columns are the standard errors and P-values.

The figures indicate that the signs of the explanatory variables are consistent with the predicted ones, as in the research hypotheses, apart from audit size (**AuditS**). With regard to audit fees (**Fees**), the results suggest that these have a positive, statistically significant effect on the probability of violation, which means that the higher the fee/size ratio, the higher the possibility of violation. In other words, fees that are higher than normal can result in a deterioration of quality. The results corroborate the notion that higher fees can result in economic bonding between auditor and auditee.

Auditors receiving abnormal fees are more likely to have their independence impaired; Kinney and Libby (2002, p. 109) claim that “Unexpected audit and non-audit fees may more accurately be likened by attempted bribes”. Knowing that only a limited number of Jordanian companies disclose the amount of non-audit service fees in their annual reports, abnormal fees related to non-audit services are more likely to make auditors financially dependent on their clients.

Accordingly, financial statements are less likely to be reliable if the audit fee is large relative to the size of the client. This is consistent with previous research, for example, Hoitash et al. (2007), Choi & Kim, et al., (2010a), Asthana et al. (2009) and Krauß et al. (2015). However, Ashbaugh et al. (2003) report that audit fees are insignificantly associated with their measures of auditing quality.

The coefficient of audit size (**AuditS**), on the other hand, has a positive sign, but statistically has no significant effect. This indicates that in fact the size of the audit firm plays no role in the Jordanian context. This result should not be surprising, since Jordan is characterized by weak investor protection; it is reported that audit and earnings quality is better in countries with stronger investor protection and legal enforcement (Abid et al., 2018). Accordingly, there is no difference if the auditor is a Big Four firm or not in such a context. This result is supported by those in the work of Tsipouridou and Spathis (2014) and Abid et al. (2018).

In line with expectations, audit report (**AuditR**) has a statistically negative relation with the probability of violations in financial reports. Production of a clean report means that the company

Table 4. Logistic regression estimates of the probability of disclosure violation ^b

Variable	Odd Ratio	S.E.	P-value
Fees	0.242	(0.111) ^a	0.031
AuditS	0.069	(0.212)	0.745
AuditR	-1.107	(0.280)	0.000
ROA	-0.008	(0.012)	0.500
Leverage	1.392	(0.447)	0.002
Age	0.024	(0.010)	0.016
Comp	0.955	(0.813)	0.240
Year Dummy	Yes		
Constant	1.408	(0.882)	0.101
No. of Firms	115		
No. of Obs	919		
Chi2(14)	54.09		0.000

^aStandard errors are reported in parentheses.

^bStatistical figures were retrieved via Stata 13.

has no disclosure violations, which gives an optimistic indication of the quality of the audit reports, and assurance that financial statements are free from disclosure violations. Sengupta and Shen (2007) obtained a similar result, that the possibility of issuing a going-concern audit opinion is higher when the quality of accruals is low. Additionally, Alhadab (2016), Bartov et al. (2000), and Francis and Krishnan (1999) found that firms are more likely to receive a modified opinion when they engage in earnings management practices.

Moving to the model control variables, the results obtained also suggest that the financial measures, namely **Leverage**, **Comp** and **Age**, have positive signs, while **ROA** has a negative sign, as predicted. However, the effect is found to be significant for **Leverage** and **Age**, but not for **ROA** or **Comp**, suggesting that the higher the debt level, the higher the probability of violation. This indication is in line with the research of Abid et al. (2018) and Rajgopal et al. (2015), who reported that leverage is negatively associated with audit quality (as measured by meet or beat analysis). This also indicates that younger firms have less probability of disclosure violations.

5. Conclusion

The main objective of this study was to determine whether audit fees, audit opinion and audit firm size are associated with reported violations with regard to a sample of listed Jordanian firms over the period 2009 to 2016. It is concluded that audit fees and audit opinion are significantly associated with the existence of violations, while fees are positively related, and audit opinion shows a negative association. Contrary to expectations, auditor size was found to be insignificant.

Our results imply that audit fees are an important factor in determining auditor independence due to economic bonding with the client, which in turn affects the quality of audit and financial reporting. It is recommended that regulators in Jordan should monitor the audit pricing process to mitigate abnormal fees that may impair auditors' independence. As the research focuses on one of the corporate governance variables, future research could shed light on other variables of corporate governance that determine the quality of financial reporting and the possibility of violation, such as ownership concentration and the characteristics of the board. In addition, future research may consider state-dependence covariate analysis to capture the dynamic data generation in this field of investigation.

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Notes

1. The Security Exchange Commission reports all types of violations. However, this paper only considers the disclosure type.
2. The null hypothesis for the Hausman test assumes no correlation between unobserved effects of individuals and predictors (Hausman, 1978).

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