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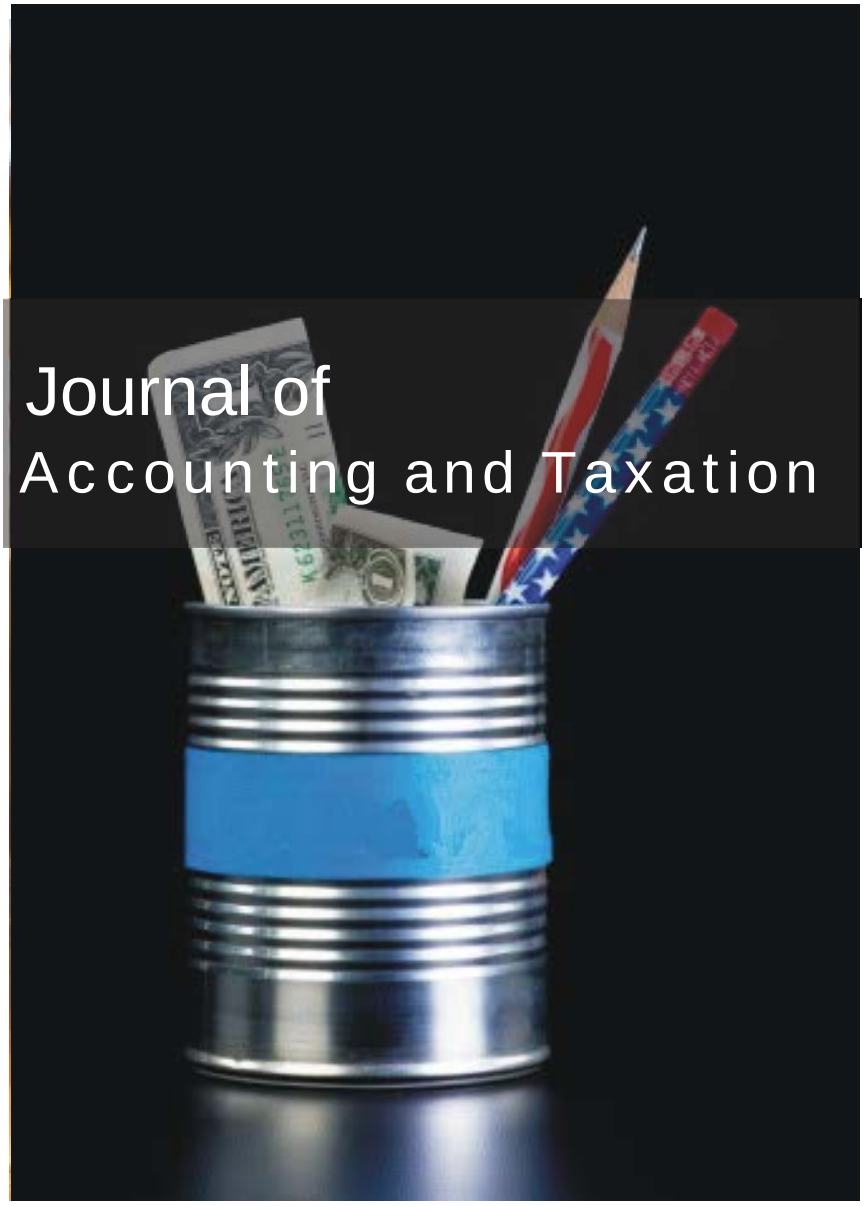

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Full Length Research Paper

Independence factors influencing audit expectation gap in listed deposit money Banks in Nigeria

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This study examines the effect of independence factors on audit expectation gap in listed deposit money banks in Nigeria. The population of the study comprises of the investors/shareholders, lenders and other creditors and a sample of 385 respondents was selected using Cohran sample size formula. The period under study is from January, 2012 to December, 2019. The study used a questionnaire drawn on a five point likert scale to collect data. The questionnaire has been pilot tested for reliability and validity, using the Cronbach alpha and Kendall's coefficient of concordance. The data was analyzed using descriptive statistics and multiple-regression analysis. The study concludes that auditor depends on client economically. Competing for audit market, carrying out non-audit market service, receiving gifts from management and prospects for reappointment are strong determinants of audit expectation gap in deposit money banks in Nigeria. The study opines that the independence factors have significant positive impact on audit expectation gap in listed deposit money banks in Nigeria. This finding is in line with that of Salehi et al., Amaechi and Chinedu as well as Kamau et al. but is not consistent with findings of Ogweno and Kamau. The study recommends that regulatory authority and professional accounting associations should ensure that auditors avoid economic dependence on the client, carrying out services which are not audit related, and collecting gifts from management and that the regulatory authority has to emphasize on auditors tenures and appointment of auditor shall be through a centrally organized body and not allow audit firms to be competing among themselves.

Key words: Audit, expectation gap, independence factors, Banks, Nigeria.

INTRODUCTION

The need and demand for auditing arose from the desire for an independent person to monitor the contractual arrangements between principal and agent. If an auditor lacks independence, the parties to the contract place little or no value on the service provided, especially statutory audit. External auditors play a critical role in validating company's finances. Creditors and investor rely heavily on auditor's report since credibility has been added to such reports (Madison, 2018). The statutory audit and assurance play an important role of ensuring confidence by the users / stakeholders (Chandler et al., 1993), and thus the society expects auditors to exercise professional judgment as well as maintain professional skepticism in their function. Auditors must exercise professional

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judgment and skepticism in their work, while the preparation of financial statement is the sole responsibility of management. Moreover, users and the public have different expectations regarding the assurance level and often assume absolute assurance (Enofe et al, 2013).

Auditing emerges to provide an independent check on the affairs of an organization. This is made possible because ownership has been separated from control, which succinctly supports agency role. Public trust is vital to every profession, accounting profession in particular and the profession suffers societal skepticism and depletion where trust has been eroded which affects users value relevance especially, that Financial Statements form the basis for a sound decision making. That is to say expectations and belief by the public fundamentally, breed a series of dissatisfaction with performance of auditors, which consequently affect end users trust, which affects the public confidence users had in the financial statements so examined by the auditor.

In Nigeria however, the major corporate financial irregularity and related fraud which occurred leading to sudden collapse of corporate institutions such as the Cadbury, Intercontinental Bank, Oceanic Bank and Spring Bank and on, has further brought the expectations gap to limelight. This is because the users had a strong belief that since Auditors are independent, then the Auditors are responsible for detection and reporting of all forms of irregularities and frauds, hence the collapse of these organizations came as a surprise to the shareholders and users. This perception was further upheld because users view fraud detection as the main function of auditing, hence the audit Expectation gap becomes more pronounced as a result of these corporate crisis in Nigeria and the misperception by users.

Audit Expectation Gap is worth researching because its continuous existence would lead the Society not to appreciate or recognize auditors' contribution to the society, which will subsequently weaken the significance of audit purpose. Therefore, it is against the backdrop that this study assesses the impact of independent factors on audit expectation gap in listed Deposit Money Banks in Nigeria. To achieve this objective the hypothesis below was formulated and tested.

Ho1: Auditors the impact of independent factors on audit expectation gap in listed Deposit Mone Nigerian Deposit Money Banks.

Theoretical framework

Credibility theory

This theory re-emphasize the role auditing can play in enhancing reliance on financial statements that is addition of credibility. This is because, agents stewardship function can be enhanced such that the principal will have more faith in the agent, and this will consequently reduce information asymmetry.

Quasi-judicial theory

Quasi-judicial theory has it that auditor is seen as a judge in the financial distribution process (Hayes et al., 1999). However, Porter (1990) opines that the quasi-judicial theory can be perceived from three perspectives: (a) that an auditors independence differs greatly from that of a judge, because of different reward systems involved; (b) that an auditors decision and decision process are not publicly available; and (c) that what was regarded as the doctrine of precedence and consistency is not guaranteed in auditing.

Therefore, to perceive auditor as judge is out of place, hence this theory should not have much weight.

Agency theory

Agency theory is rooted in the existence of relationships between agent (management) and owners (investors/ principal) (Jensen and Meckling, 1976). Both credibility, quasi-judicial and agency theories, has been anchored for the purpose of this study.

REVIEW OF EMPIRICAL STUDIES

Salehi et al. (2019) evaluate the auditor' auditor n, and Adibianty, quasi-judicial a relationship among users of information in listed companies on Teheran Stock Exchange (TSE) market. A sample of 78 listed companies on the TSE from 2012-2016 using integrated data technique of the multiple regression models. The study finds that the independence of the director boards and audit committee members fulfill the expectation gap of individual users (among others). The independence factors have an impact on audit expectation gap. Although, there are several works in this area both quantitative and qualitative; however, the authors claimed that their work is the first quantitative work, this is not true. Hence, they failed to agree or contest any work in the literature.

Sabuj et al. (2019) aims at finding the impact of audit expectation gap among the auditors, investors, general users of audit report and the academia with regards to an independent auditor in Bangladesh. The study used questionnaire to collect data, after it has been tested for validity and reliability with NOVA as statistical analysis technique. The study finds that users and independent auditors are alike in their perception about the audit independent factors.

Onulaka et al. (2019) in their works investigates the extent to which the provision of Non-audit service (an independence factor) by external auditors to clients

affects auditors of Non-audit service (an independence factor) by external auditors to clients affects auditors' independence and consequently audit expectation in Nigeria. The study used 30 semi-structured face to face interviews to obtain data from the respondents after the questionnaire has been tested for reliability. This was followed by a thematic data analysis of the respondents. The study finds that the provision of non-audit service by audit firms to their audit client is regarded by auditor as a matter of economic necessity. Nevertheless, it is also perceived as impending auditors independence and increasing the gap between the auditor and public expectations. However, the study fails to show the clients perceived economic pressure on auditors to undertake non-audit service.

Ogweno (2018) investigates the factors affecting expectation gap in listed companies in Nairobi Stock Exchange (NSE) that is auditorted companies in auditorit competence and userpe knowledge of auditordg role. The study used a descriptive research design. A population of 62 listed companies at NSE was selected. A questionnaire was administered to a purposely selected respondent from a sample of 58. The data was analyzed using multiple regression and correlation analysis to test the relationships. The study finds that auditorn and correlation sely selected respondcreasing the gaudit expectation gap. It has been recommended that the independence of the auditor should be strengthening by drafting legal laws promoting the independence of the auditors in Kenya.

Toumeh et al. (2018) identify the factors that affect the expectation gap in Jordan. The population of the study is 327 audit firms in Jordan. A sample of 158 firms was randomly selected out of which 109 was used and the questionnaire was drawn on a five point scale to test the reliability of the questionnaire and correlation between questions using arbitrators and Chronbach alpha. The statistical tool used to analyze the data includes the t-test and the descriptive statistics. The results showed among others that uncertainty in the auditor's independence has less impact on increasing the expectation gap in the audit process in Jordan. It is recommended that strengthening auditor's independence by neutralizing the controls of the disputing parties and also reducing auditor and client personal relationships. Hence, the study failed to test for the reliability of the instrument.

Amaechi and Chinedu (2017) examined if independence factors pose as challenge to internal auditors of public sectors entities. The population of the study is 80 respondents, drawn from the accountants and auditors in the Accountant General and Auditor General offices of Anambra state; however, a sample of 57 respondents was actually used. The study adopts survey design approach, with questionnaire drawn on a five point likerts scale. The data was analyzed using the descriptive statistics and Mann-Whitney U-test. The study finds that independence factors affect internal auditors of public sector entities independence, thereby increasing expectation gap. However, the study has some mixed up in the population actually used and the ones mentioned. It has been recommended that independence of auditor should be enthroned to reduce expectation gap.

Kamau et al. (2014) examine internal auditor independence motives in Kenya. A four point likert scale has been used to analyze the 21 questionnaires, Cronbach alpha was used to test the reliability of the instrument. Regression analysis techniques were used for the hypothesis testing. The study finds that the level of involvement by internal auditors in the management activities significantly affects their professional independence. Audit committees effectiveness plays a significant role in enhancing auditor independence and that causal relationship existed between internal auditors skills and auditors independence. However, the study fails to look at undertaking of non-audit service, and accepting gifts from the company's management.

Kamau (2013) investigates the determinants of audit expectation gap in Kenya. One of the objectives of the study is to determine whether independence contribute to expectation gap in Kenya. The target populations are the audit firms in Kenya and a Sample of 110 firms are selected. The variables used in the study are auditor's efforts, skills, structure, independence, public knowledge, audit scope and users' needs. The study employed a mixed research design comprising descriptive statistics, survey design and the data collected. The study found that an independence factor does not significantly contribute to audit expectation gap in Kenya. The study however, fails to examine reliability factors and responsibility factors.

Population of the study

The population of the study consists of primary users of financial statement numbering 5,369,064 out which a sample of 385 respondents was chosen using Cochran (1977) sample size formula (Table 1).The sample size of the study which is 385 respondents was chosen in Table 2 using Cohran Sample Size fomular (1977). A confidence level of 95% was chosen, a margin of error of 5% that is 0.05. The 95% is chosen because it is most commonly used Confidence level (Taylor, 2014). Therefore, a sample size of 385 has been selected, while the sampling frame was chosen using sampling and elevation factors. Copies of Questionnaire were distributed to each category of primary users, existing investors/shareholders, lenders and other creditors. The questionnaire used was adopted from Porter (1990) and Schelluch (1996), however with slight modification to suit the objectives of the study (Table 3).The Study used the descriptive statistics and Multiple Regression for the analysis and the following model was used:

$$\text{AEG}=\boldsymbol{\beta 0} + \boldsymbol{\beta 1}\, \boldsymbol{EIO} + \boldsymbol{\beta 2}\, \boldsymbol{ANI} + \cdots + \boldsymbol{\beta 11 PR} + \boldsymbol{\varepsilon}$$

Table 1. Population frame of the study.

S/N	Banks	Existing investors/ shareholders	Lenders	Other creditors
1	Access	811,382	16	115
2	Diamond	115,808	16	115
3	Ecobank	87,256	16	115
4	FBN	1,215,563	16	115
5	FCMB	519,699	16	115
6	Fidelity	402,949	16	115
7	GTB	328,383	16	115
8	Sterling	87405	16	115
9	UBA	271,849	16	115
10	Union	459,540	16	115
11	Unity	85,438	16	115
12	WEMA	245,160	16	115
13	Sternbinc/IBTC	94,343	16	115
14	Zenith	642,455	16	115
15	Total	5,367,230	224	1,610

Source: Field work (2019).

Table 2. Sample size frame of the study

Users/stakeholders	Ratio	Proportion of respondents to be selected (%)	Number of sample selected
Existing investors/shareholders	4.6	61	235
Lenders	1	13	50
Other creditors	2	26	100
Total			385

Source: Field work (2019).

Table 3. Independence factors variables definitions.

Variable	Description
AEG	Audit expectation gap (the dependent variable)
$\beta 0$	Regression constant
ε	is the random error component
$\beta 1\ EIO$	Expressing an independent opinion
β2 ANI	Auditors are not independent in the Nigerian Business Environment,
β3ED	Economic dependence of the auditor on the client
β4AMC	Audit market competition
β5 RP	Receiving payment for non – audit services
β6TRF	The regulatory framework
β7TCG	The corporate governance system
β8TGU	The greater use of audit committees
β9PEG	Professional ethics guidance
β10RG	Receiving gifts and presentations from management
β11PR	Prospects of reappointment

Source-Author's estimation (2019).

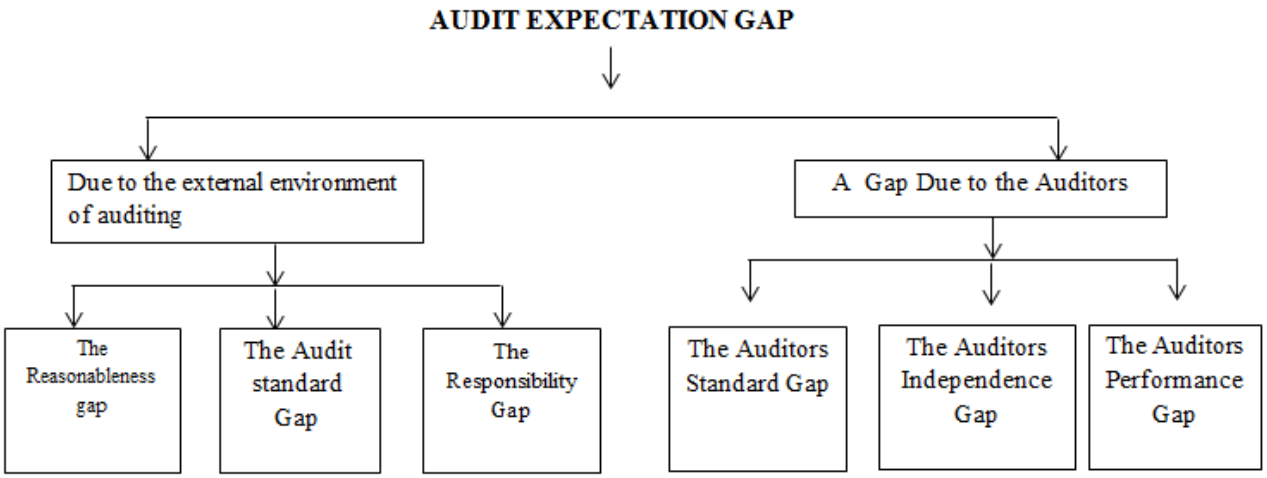

Figure 1. Components of the audit expectations gap.
Source: Albertz (1999).

MATERIALS AND METHODS

The study reviews relevant materials such as literature related to the topic, conceptual issues and theories.

The **audit expectation gap concept**

Au Audit Expectation Gap refers to "the difference between the Levels of expected performance by an independent auditor and the users of financial statement (Liggio, 1974). Expectation gap was used to draw a corollary and describe a situation between group which relies upon certain expertise and those who provide such expertise, which resulted in variance between what the society expects from the independent Auditor and what the accounting profession entails. Porter (1993), Ruhnke and Schmidt (2014) and Toumeh et al. (2018) concur with this definitions.

The expectation gap concept was introduced initially by Liggio (1974) and it was agreed that the concept originated from America. The study by Humphrey et al. (1993) concurs with these assertions. To investigate reasons for audit expectation gap, Cohen Commission was set up in 1978. Other commissions set up in the United States of America include; the 1976 Mtcalf Committee, and 1978 Treadway Commission. In the United Kingdom Commission like the Cross Committee (1977) and the 1978 Greenside Commission; while in Canada similar commissions were set up which include the Adams (1977) and Macdoald (1988).

Individual researchers carried a lot of work on Audit Expectation Gap for example, Van Liempd et al. (2019), Mansur and Tangl (2018), Porter (1993), Dixon et al. (2006), Fadzly and Ahmed (2001) the three groups examine the roles and responsibilities of an auditor, while the meanings and Nature of audit reports was examined by Monroe and Woodliff (1994) and Gay et al. (1978); whereas Alleyne et al. (2006), Lin and Chen (2004) and Sweeney (1997) each assesses audit independence.

Audit Expectation Gap problems was examined using a metaphorical style by Tweedie (1987); thus, a burglar alarm system, a radar station, a safety net, an independent auditor coherent communications that is protection against fraud, early warning of future insolvency, general reassurance of financial wellbeing, safeguards for auditor independence and understanding of audit reports respectively. It was opines that given these concerns shows clear mis-understanding of audit, more so, that no auditor can provide these yearnings hundred percent. He concluded that as we cannot have hundred percent auditor independence in practice, likewise not all users/stakeholders can have a clear understanding of audit reports, hence audit expectations gap shall widen up

Audit expectation gap components

Diversity in definitions of audit expectation Gap gave rise to emergence of different components of audit expectation gap, which includes the reasonableness, deficient performance and gaps. The reasonableness gap is the difference between society's expectations and auditor actual accomplishment. The deficient Standard gap covers gaps existing between duties reasonably expected of auditors and duties provided by law; while the deficient performance gap is difference between expected standard of performance or existing duties and performance (Füredi-Fülöp, 2017; Masoud, 2017; Macdoald Commission, 1988). However, Albaz (1999) opines that in auditing, the expectation gap can be observed more clearly from the perspectives of components and alternatively the sub- gaps which can be divided into two groups: the first group are those due to the auditing external environment; whereas the second are those expectation gap due to the auditors themselves (Figure 1).

Reasons for audit expectation gap

Salehi (2011) examines major reasons for expectation gap to include services which are Non-audit undertaken by auditors, self-interesting auditors, economic relationships with clients, auditors who are not qualified and auditors dependent on the client, other reasons are as shown in Table 4.

Independence factors

The concept of independence in literature provides that there can be independence in fact and independence in appearance, which can amplify the idea of threat to independence. Independence of the mind is an attitude of the mind, its evaluation is difficult to observe. However, literatures are for perceived independence, since perceptions are fundamental to public confidence in financial

Table 4. Reasons for audit expectation gap.

Performance gap	Standard gap	Reasonableness gap
Non-audit service practicing by auditors	Lack of sufficient standard	Users misunderstanding
Self-interest and economic benefits of auditors	Existing insufficient standards regarding auditor responsibility for detection of fraud and illegal acts	Over expectation of users to auditor performance
Unqualified auditor		Users Misinterpretation
Dependent auditor		Users unawareness of audit responsibilities and limitations.
Miscommunication auditor		User's over expectation of standards

Source: Adapted from Salehi (2007).

reporting (Carmichael, 2004). However, some definitions were proffered by several authorities for instance, Knapp (1985) viewed independence as the ability to resist client pressure. This definition raises further questions; for example to resist clients pressure in which way, how, where and when. However, a more acceptable definition of independence was provided as follows: "Freedom from those pressures and other factors that compromise, or can reasonably be expected to compromise, an auditor's ability to make unbiased audit decisions" (ISB, 2000). Although, this definition is better than the one provided by Knapp (1985), however it fails to capture certain areas of independence like carrying out non-audit services. Nevertheless, these definitions show how important objectivity and integrity are major fundamental aspect for assessing auditor's independence.

There are quite a number of factors that affects independence factors, these include; closeness to the client either through marriage or blood relationship, to depend on client economic wellbeing , influenced by a desire of social economic success, acceptance of gifts from clients directly or indirectly, audit market competition and prospects for re-appointments (Sucher and Maclullich, 2004).

Other issues that impinge on independence include cases where auditor may have to defend on Management, rely solely on external Debtors confirmation received from circularization of Debtors, Creditors and or Bank accounts or requires the management for assets verification/valuation purposes. Re-appointment of auditors technically is the duty of the shareholders at Annual General Meeting (AGM); however, this function was compromised by management who influence the nomination thereby injuring auditors' independence factors.

Beattie et al. (1999) listed four factors militating against independence constraints to independence, and they include Instances where auditor depends on client for economic wellbeing, competing for Audit market; the regulatory guidelines and the provision of services unrelated to auditing duties (NAS).

Gill and Cosserat (1999) are of the opinion that independence is key to auditing. Where there is no independence, one cannot rely on auditor's opinion. Also, third parties believe that where there is no independence then external audit is unnecessary. Third parties' acceptance of an auditor's role is likened to independence as corporate accountability instrument. For an auditor to maintain independence despite pressures of practice, he has to be conscious of any negative influences on his planning.

Investigation and reporting independence

Perceptions by users of what is audit independence are important because real perception depends on society's perception of what could impair real independence. The external auditors must ensure that quality and performance of auditor should not be compromised. The issue of Auditor independence is an area of concern in audit expectation gap (Humphrey et al., 1993; Moizer, 1997; Sweeney, 1997; Alleyne et al., 2006). According to the Independence Standards Board of the American Institute of Certified Public Accountants (2000, cited in Alleyne et al., 2006), auditor's ability to be unbiased and free from pressures and any factor that can make him compromise his positions is necessary. The general public and audit profession benefits greatly when auditor is independent. Lack of it puts ordinary people's investment at risk (Gettler et al., 2002); while the audit profession enjoy professional status and public stewardship (Kleinman and Palmon, 2001) and as Gill et al. (2001) stated: 'independence is the livewire of the auditing profession and where it is lacking then auditors opinion is suspect, and where public suspect auditor opinion this further generates expectation gap. The view of Kleinman and Palmon (2001) and Gill et al. (2001) are in tune with the view of the audit profession. Since the Public Oversight Board's Panel on Audit Effectiveness (POB, 2000) observed as follows that: an auditor must be independent both in fact and in appearance. Independence in fact means auditor's state of mind, to make his decisions objective that is unbiased (Dykxhoorn and Sinning, 1982); whereas, independence in appearance is the perception that auditor has no direct or indirect relationship with client, which can lead to conflict of interest (Pierce, 2006). Pierce (2006) grouped independence factors into three categories as follows:

(i) Programming independence: this occurs when audit techniques and procedures are selected without external parties influence whether direct or indirect.
(ii) Investigative independence: it is attain where auditor is able to access and examine all the necessary audit evidences in all areas without restrictions.
(iii) Reporting independence: is achieved where auditor is able to communicate his audit opinions freely devoid of external interference.

RESULTS AND DISCUSSION

The following section discusses the descriptive, results of diagnostic tests, Regression analysis hypothesis testing and findings.

Descriptive statistics

The standard deviations across all variables are relatively

Table 5. Descriptive statistics results.

Items	N	Mean	SD	Skewness	Kurtosis	Remark
Auditors are responsible for expressing an independent opinion on financial statements based on their audit.	374	4.13	0.951	-1.229	1.298	Agree
Auditors are not independent in the Nigerian business Environment	374	3.62	1.147	-0.683	-0.352	Agree
Economic dependence of the auditor on the client	374	3.80	1.150	-0.638	-0.560	Agree
Audit market competition	374	3.65	1.092	-0.524	-0.486	Agree
Receiving payment for non – audit services	374	3.57	1.268	-0.401	-1.006	Agree
The regulatory framework	374	3.72	1.048	-0.676	-0.028	Agree
The corporate governance system	374	3.90	1.106	-0.872	-0.031	Agree
The greater use of audit committees	374	3.89	1.012	-0.766	-0.019	Agree
Professional ethics guidance	374	4.05	1.000	-0.868	0.095	Agree
Receiving gifts and presentations from management	374	3.47	1.227	-0.530	-0.723	Undecided
Prospects of reappointment	374	3.87	1.199	-0.887	-0.181	Agree

Source: SPSS Output (2019).

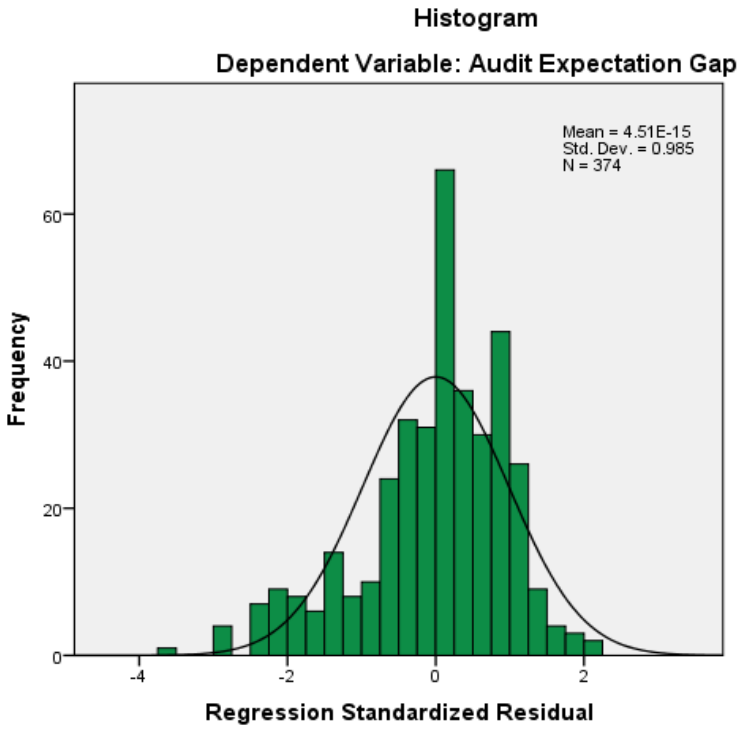

Figure 2. Normality histogram plot.The observed normal histogram shows that the data is approximately normally distributed.

very small; the mean values can adequately be used to represent each construct variable, which signify that the data is approximately normally distributed (Table 5). Moreover, the respondents agreed, on the average, in each case, with the entire independence factors for audit expectations gap in Nigeria. Also the coefficients of skewness which ranges from -1 to +1 signifies moderate skewness and kurtosis are relatively small compared to their corresponding mean, which signify that the values are mostly clustered about the mean, thus the data is approximately normally distributed (Figure 2). On the average, the respondents agreed, with a mean value of 3.62, that in the Nigerian business environment the auditors are not independent. Similarly, the respondents agreed, with a mean value of 3.57, that the auditors are receiving payment for non-audit services rendered. These are potential independence factors for audit expectations gap in Nigeria.

Table 6. Coefficient of determination and results of autocorrelation test.

R	R2	Adjusted R2	SE of the estimate	Durbin-Watson
0.434a	0.188	0.163	0.88705	1.570

Table 7. Homoscedasticity and collinearity diagnostics results.

Model	Collinearity Statistics	
	Tolerance	VIF
Expressing an independent opinion	0.702	1.424
Auditors are not independent in Nigerian business system	0.820	1.220
Economic dependence of the auditor on the client	0.510	1.959
Audit market competition	0.672	1.488
Receiving payment for non – audit services	0.552	1.810
The regulatory framework	0.683	1.464
The corporate governance system	0.505	1.979
The greater use of audit committees	0.667	1.498
Professional ethics guidance	0.663	1.509
Receiving gifts and presentations from management	0.712	1.405
Prospects of reappointment	0.742	1.347

Source: SPSS Output (2019).

Table 8. Collinearity diagnostics results.

Collinearity			Variance proportions		
Dimension	Eigenvalue	Condition Index	Expressing an independent opinion	Economic dependence of the auditor on the client	Professional ethics guidance
1	11.37	1	0	0	0
2	0.12	9.93	0.02	0	0.02
3	0.1	10.63	0	0.02	0.01

a. Predictors: (Constant), Prospects of reappointment, expressing an independent opinion, In Nigerian Business Environment Auditors Lacks independence. The regulatory framework, Receiving gifts and presentations from management, Audit market competition , Professional ethics guidance, The greater use of audit committees, Receiving payment for non – audit services, auditor's Economic dependence on his client, The corporate governance system.
Source: SPSS Output (2019).

Diagnostic tests for independence factors

The following diagnostic tests have been carried out to examine the significance of the independence factors of audit expectation gap. The R-Square of 0.188 indicate that Prospects of reappointment, expressing an independent opinion, auditors are not independent in Nigeria t, the regulatory framework, receiving gifts and presentations from client, audit market competition, professional ethics guidance, the use of audit committees, receiving payment for services not auditing related, auditor's economic dependence on the client, the corporate governance system as components of independence factors collectively have moderate positive impact on audit expectations gap in Nigeria. Also to check the independence of observations, Durbin Watson was used. The Durbin-Watson statistic of 1.570 implies that there is no autocorrelation in the model, since the value of 1.570 is near 2 clearly implies that there is no autocorrelation in the model. Hence, the regression model is good (Table 6).

The error variances are homoscedastic and not hetrodastic, since none of the VIF is up to 10 throughout the model. The Collinearity diagnostics shows the variance inflation factor (VIF) tolerance of 0.663, 0.510 and 0.702 respectively, which signifies absence of serious multicollinearity in the data, because the independent variables do not interfere with each other. Hence, we conclude that the model is sufficient in terms of exploring linear relation as well as for prediction and control (Table 7). Another way for carrying out collinearity diagnostics test is by use of eigen value and condition

Table 9. Regression results (coefficients of the model).

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	SE	Beta		
(Constant)	1.637	0.277		5.910	0.000
Expressing an independent opinion	0.160	0.054	0.168	2.968	0.003
Auditors are not independent in the nigerian business environment	0.032	0.043	0.039	0.740	0.460
Economic dependence of the auditor on the client	0.109	0.055	0.131	1.973	0.049
Audit market competition	-0.057	0.052	-0.063	-1.093	0.275
Receiving payment for non - audit services	0.019	0.048	0.026	0.401	0.689
The regulatory framework	0.074	0.053	0.080	1.393	0.164
The corporate governance system	0.031	0.057	0.037	0.550	0.583
The greater use of audit committees	0.087	0.057	0.089	1.529	0.127
Professional ethics guidance	0.128	0.053	0.141	2.421	0.016
Receiving gifts and presentations from management	-0.024	0.045	-0.030	-0.526	0.599
Prospects of reappointment	-0.039	0.043	-0.049	-0.896	0.371
Dependent variable: Audit Expectation Gap					

b. Dependent Variable: Audit expectation gap.
Source: SPSS Output (2019).

Table 10. ANOVA results.

Model	Sum of square	df	Mean square	F	Sig.
Regression	349.736	8	43.717	15099.106	0.000b
Residual	1.057	365	0.003		
Total	350.793	373			

Source: SPSS Output (2019).

index. The results shows that all the condition index values are less than 30, while the eigenvalues are small; this shows that there is no serious multicollinearity problem (Table 8 and Figure 3).

Regression analysis

The following regression analyses were used to build linear models that explore predictability and relations among independence factors of audit expectation gap. The result of the regression equation provide a constant of 1.673 and the value of the regression coefficient which ranges from 0.031 to 0.16 this shows that independence factor accounted for between .031 percent and 16 percent of audit expectation gap problem. The entire standardized beta coefficient shows significant positive results (Table 9).

Tests of hypothesis

The hypothesis tested is;

$H0_1$: Auditors independence factors do not significantly impact on the audit expectation gap in deposit money banks in Nigeria. ANOVA Table 10 was used to test the research hypothesis at the 5% level of significance. The aim is to examine the significance of the factors of audit expectation.

Decision criteria

At the 5% level of significance, in each case for the regression coefficients, the null hypothesis can be rejected if the $p<0.05$, otherwise accept the null hypothesis. The computations using the SPSS are as follows. Table 10 shows that the independent factors are statistically significant ($p<0.05$). In other words, the model is good in terms of exploring linear relationship among independent factors of audit expectations gap in Nigeria as well as for prediction and control. Hence, the components of independence factors collectively have positive impact on audit expectations gap in Nigeria. Using the t-test, the model coefficients are also statistically significant ($p<0.05$) for expressing an

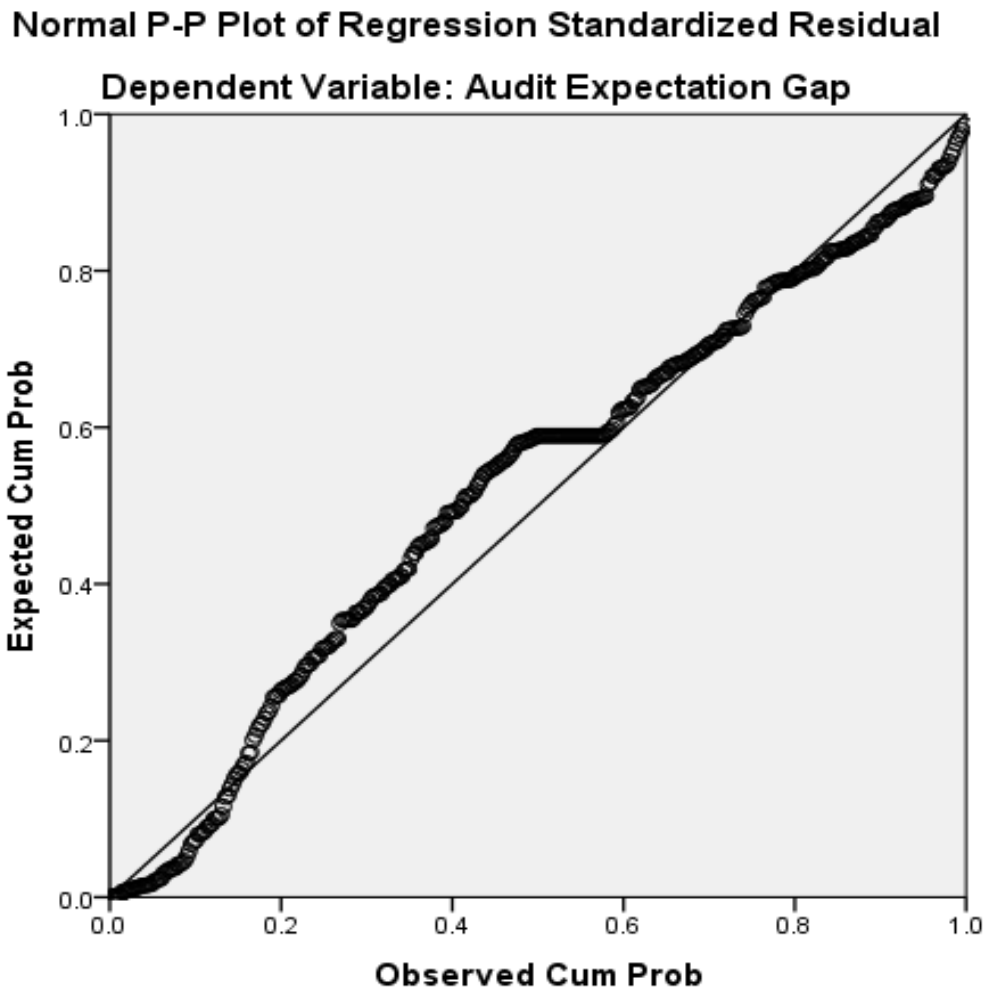

Figure 3. Observed cumulative probability.
The observed cumulative probability plots above shows the goodness of fit of the model. The plots show an approximate linear relationship. Therefore, components of the independence factors have significant positive impact on audit expectations gap in Nigeria.

independent opinion, auditor's economic dependence and professional ethics guidance.

The result of various diagnostics tests carried out shows that; 82.4% of the respondents agreed that auditors are responsible for expressing an independent opinion on financial statements based on their audit is an independence factor for audit expectations gap in Nigeria. Also, 63.6% of the respondents agreed that auditors are not independent in the Nigeria. Again, 63.6% of the respondents agreed that the auditor's economic dependence on client is an independence factor for expectations gap in Nigeria. Also, 60.4% of the respondents agreed that audit market competition is an independence factor for audit expectations gap in Nigeria. Again, 54.8% agreed that auditors receive payment for non-audit services is an independence factor for expectations gap in Nigeria.

Furthermore, 63.9% of those who participated agreed that the regulatory framework is an independence factor for audit expectations gap in Nigeria. Again, 70.9% of the respondents agreed that the corporate governance system in Nigeria is an independence factor for audit expectations gap. Also, 71.1% of those questioned agreed that the greater use of audit committees is an independence factor for audit expectations gap in Nigeria. Again, 73.0% of the target population agreed that the professional ethics guidance is an independence factor for audit expectations gap in Nigeria. Also, 58.0% of those who filled the questionnaire agreed that receiving gifts and presentations from management is an independent factor for audit expectations gaps in Nigeria. Again, 69.0% of the respondents agreed that a prospect of reappointment is an independence factor for audit expectations gaps in Nigeria. In general, the respondents agreed with the independence factors.

The components of independence factors like

expressing an independent opinion, auditor's economic dependence on the client, market competition for audit, receiving payment for non-audit duties, greater use of audit committee, regulatory framework, receiving gifts from management and prospects of reappointments collectively have positive impact on audit expectations gap in Nigeria. That is to say the independence factors are determinants of audit expectation gap in listed deposit money banks in Nigeria. This is in line with the findings of Salehi et al. (2019), Onulaka et al. (2019) and Amaechi and Chinedu (2017) but contradicts the findings of Kamau (2013).

Conclusion

The result of the hypothesis tested showed that independence factors have significant impact on audit expectation gap in listed deposit money banks in Nigeria. The study thus found out that independent factors such as expression of an independent opinion, auditor's economic dependence on the client, audit market competition, receiving payment for non-audit services, receiving gifts and presentations from management, prospects of reappointment have positive impact on audit expectation gap. This shows that independence factors are determinants of audit expectation gap in listed deposit money banks in Nigeria. The study recommends that auditors should avoid dependence on the client for economic survival, engaging in non-audit services, avoid collecting gifts from management and that the regulatory authority of the Central Bank of Nigeria (CBN) has to emphasize on auditors tenure and that appointment of auditors shall be through a centrally controlled organize body; thus checking individual audit firms from competing among themselves.

A study can be carried out on behavioral component of audit expectation gap determinants such as auditors efforts, auditors skills etc. The study considers primary users of financial statements as target population comprising of existing investors/shareholders, lenders and other creditors.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Albaz MA (1999). The use of Causal Theory in predicting the Expectation Gap between Auditors and users of Financial Statements: An Empirical Study on Canal Governorates in Arab Republic of Egypt. The Arab Journal of Accounting 3(01):10-24.

Alleyne PA, Devonish D, Alleyne P (2006). Perceptions of auditor independence in Barbados. Managerial Auditing Journal 21(6):621-635.

Amaechi EP, Chinedu EF (2017). An Empirical Examination of Challenges faced by internal Auditors in Public Sector Audit in South Eastern Nigeria. Asian Journal of Economics Business and Accounting 3(2):1-13.

Beattie V, Brandt R, Fearnley S (1999). Perceptions of auditor independence: UK evidence. Journal of International Accounting, Auditing and Taxation 8(1):67-107.

Carmichael DR (2004). The PCAOB and the social responsibility of the independent auditor. Accounting Horizons 18(2):127.

Chandle R, Edwards J, Anderson M (1993). Changing perceptions of the role of the company auditor. Auditing Business Research Journal 23:443-459.

Cochran WG (1977). Sampling techniques (3rd ed.). New York: John Wiley.

Cohen Commission (1978). The report of the Commission on Auditors on responsibilities: Reports, Conclusion and Recommendations. American Institute of Certified Public Accountants.

Cross Committee (1977). Report of the Committee under the Chairmanship R1.Hon the Lord of Chelsea, Accountancy 160:80-86.

Dixon R, Wood head AD, Sohliman M (2006). An investigation of the expectation gap in Egypt. Management Audit Journal 21(3):293-302.

Dykxhoorn HJ, Sinning KE (1982). Perceptions of auditor independence: Its perceived effect on loan and investment decisions of German financial statements users. Accounting, Organizations and Society 7(4):337-347.

Enofe AO, Mgbame C, Aderin A, Ehi-Oshio OU (2013). Determinants of audit quality in the Nigerian business environment. Research journal of finance and Accounting 4(4):36-43.

Fadzly MN, Ahmed Z (2001). Audit expectation gap: The case of Malaysia. Managerial Auditing Journal 17(7):897-915.

Füredi-Fülöp J (2017). Factors leading to audit expectation gap: An empirical study in a Hungarian context. Theory Methodology Practice: Club of Economics in Miskolc 13(02):13-23.

Gay G, Schelluch P, Reid I (1997). Users' Perceptions of the Auditing Responsibilities for the Prevention, Detection and Reporting of Fraud, Other Illegal Acts and Error. Austraian Accounting Review 7(13):51-61.

Gettler G, Gordon J, Ravlic T (2002). Corporate shake up hits Accountants. The Australian Financial Review. pp. 1-8.

Gill GS, Cosserat G (1999). Modern Auditing in Australia. John Wiley & Sons Ltd, Chichester, United Kingdom, 1999. Available at: https://www.abebooks.com/Modern-Auditing-Australia-Gill-Guadarshan-Cosserat/927992535/bd

Gill GS, Cosserat G, Leung P, Coram P (2001). Modern Auditing and Assurance Services, 6th edition, Queensland: Wiley.

Hayes RS, Schilder A, Dassen R, Wallage P (1999). Principles of Auditing: An International Perspective. McGraw-Hill Publishing Company, London.

Humphrey C, Moizer P, Turley S (1993). The audit expectations gap in Britain: An empirical investigation. Accounting and Business Research 23(1):395-411.

Independence Standards Board (ISB) (2000). Statement of independence concepts: A conceptual framework for auditor independence. Exposure draft, Independence Standards Board. Available at: https://www.icjce.es/images/pdfs/TECNICA/C03%20-%20AICPA/C309%20-%20Otras%20entidades/ISB%20-%20ED002%20-%20Conceptual%20framework%20auditor%20independence%20-%20Nov%202000.PDF

Jensen MC, Meckling W (1976). Theory of the Firm: Managerial Behavior, Agency Costs an Ownership Structure. Journal of Finance and Economics 3(4):305-360.

Kamau CG (2013). Determinants of Audit Expectation gap: Evidence from Limited Companies in Kenya. International Journal of Science and Research 2(1):480-491.

Kamau GC, Kariuki SN, Mutiso AN (2014). Exploring internal auditor independence motivators: Kenyan perspective. Available at: http://repository.embuni.ac.ke/handle/123456789/601

Kleinman G, Palmon D (2001). Understanding Auditor Client Relationship: A Multifaceted Analysis, Princeton: Markus Wiener Publishers.

Knapp MC (1985). Audit conflict: An empirical study of the perceived ability of auditors to resist management pressure. Accounting Review 60(2):202-211.

Liggio CD (1974). Expectation gap-accountants legal Waterloo. Journal of contemporary business 3(3):27-44.
Lin ZJ, Chen F (2004). An empirical study of audit expectation gap in the people's republic of China. International Journal of Auditing 8(2):93-115.
Macdoald Commission (1988). Report on the Commission to Study the Publicicetedrom Limited Companies in Kenya. ed Mattersrsort on the Commission to Stud.
Madison M (2018). Financial Statements Town of Madison, Maine June 30, 2018. Available at: https://core.ac.uk/download/pdf/217151962.pdf
Masoud N (2017). An empirical study of audit expectation-performance gap: The case of Libya. Research in International Business and Finance 41:1-15.
Moizer P (1997). Independence. Current issues in auditing 3 p.
Monroe G, Woodlif D (1994). An Empirical Investigation of the Audit Expectation Gap: Australian Evidence. Accounting and Finance Journal 34(1):47-74.
Ogweno JA (2018). Factors affecting Audit Expectation Gap in listed Companies in Nairobi Security Exchange. KCA Academic commons, official KCAU Institutional Repository.
Onulaka P, Shubita M, Combs A (2019). Non-Audit fees and Auditor Independence: Nigeria Evidence. Managerial Auditing Journal 34(8):1029-1049.
Pierce A (2006). Ethics and the professional accounting firm: A literature review, Institute of Chartered Accountants in England and Wales.
Porter B (1993). An Empirical Study of the Audit Expectation Gap-Performance Gap. Accounting and Business Research. Journal of Finance and Accounting 24(93):49-68.
Porter BA (1990). The Audit Expectation-Performance Gap and the Role of External Auditors in Society, PhD Unpublished Thesis, Massey University, New Zealand.
Public Oversight Board (POB) (2000). The panel on audit effectiveness report and recommendations August 31, 2000. Available at: https://www.iasplus.com/en/binary/resource/pobaudit.pdf
Ruhnke K, Schmidt M (2014). The audit expectation gap: existence, causes, and the impact of changes. Accounting and Business Research 44(5):572-601.
Sabuj S, Arif A, Momotaz B (2019). Audit Expectation Gap: Empirical Evidence from Bangladesh, SSRG. International Journal of Economics and Management Studies 6(5):32-36.
Salehi M (2007). Reasonableness of Audit Expectation Gap: Possible Approach to Reducing. Journal of Audit Practice 4(3):50-59.
Salehi M (2011). Audit Expectation Gap: concept, Nature and trace. African Journal of Business Management 5(21):8376-8392.
Salehi M, Jahanban F, Adibian MS (2019). The relationship between audit Components and audit expectation gap in listed Companies on the Teheran Stock Exchange. Journal of Financial Reporting and Accounting 18(1):199-222.
Schelluch P (1996). Long-form audit report messages: further implications for the audit expectation gap. Accounting Research Journal 9(1):48-55.
Sucher P, Kosmala-MacLullich K (2004). A construction of auditor independence in the Czech Republic: Local insights. Accounting, Auditing and Accountability Journal 17(2):276-305.
Sweeney B (1997). Bridging the expectation gap – on shaky foundations, Accountancy Ireland 2(2):18-20.
Taylor C (2014). How to calculate the Margin of Error. Available at: www.statistics.about.com
Toumeh AA, Yahya S, Siam WZ (2018). Expectations gap between auditors and user of financial statements in the audit process: an auditors' perspective. Asia-Pacific Management Accounting Journal 13(3):79-107.
Tweedie D (1987). Challenges Facing the Auditors: Professional Fouls and the Expectation Gap, The Deloitt, Haskins and sells Lecture, University College, Cardiff.

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The nexus between bank size and financial performance: Does internal control adequacy matter?

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The economic development of any nation is largely dependent on the stability of the nation's banking industry, because the industry promotes the savings culture of the public, aids capital funding, implements the monetary policy of a country and promotes the facilitation of international trade. Therefore this study examined the effect of bank size on the financial performance of listed Deposit Money Banks in Nigeria (DMBN). Also, the study examined the moderating effect of internal control adequacy on the relationship between bank size and financial performance. The study adopted an ex-post facto research design because secondary data were extracted from published annual reports of 10 DMB in Nigeria, for a period of 12 years from 2006 to 2017. The data were analyzed using descriptive and inferential statistics (multiple regression analysis). Results from the analysis showed that the proxies of bank size (total assets, number of employees and customers' deposit) had a cumulative effect on return on asset for financial performance. Also, internal control adequacy as a moderating variable enhanced the effect of bank size on financial performance. Hence, the study concluded that, total asset, number of employees ad customer's deposit as proxies for bank size had a combined effect on financial performance.

Key words: Bank size, financial performance, Deposit Money Banks in Nigeria (DMBN), internal control.

INTRODUCTION

The economic growth of any nation is largely dependent on the stability of the nation's banking industry, because the industry promotes the savings culture of the public, aids capital funding, implements the monetary policy of a country and promotes the facilitation of international trade (Selznick, 1952). Hence, the financial performance of the banking sector is considered as one of the catalysts driving the economic development of a nation. Thus, financial performance can be referred to as a measure of a firm's general financial status, using key financial metrics like return on asset, return on equity and other financial ratios criterion, primarily derived from the statement of financial position, statement of comprehensive income and the cash-flow statement (Adam, 2014). Some studies posit that the size of a bank is a major determinant of its financial stability (Salim, 2012; Muhindi and Ngaba, 2018). And the size of the bank has been depicted by various studies using total assets, customers' deposit, number of branches and number of employees (Varotto and Zhao, 2018; Kasman

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and Kasman, 2016).

Furthermore, it is important to note that the banking industry is one of the most regulated industries in the economy of any country. Despite the fact the banking industry is one of the most regulated industries in Nigeria and all over the world, there are still recorded cases of bank distress, money laundering and mismanagement and the persistent bank failures over the past decades has heightened questions on the adequacy of the auditing practices and corporate governance practices; for instance, the financial sector scandals account for over 50% of the recorded fraud cases in Nigeria and these fraud cases have similar contextual issue of concealing huge non-performing loans (Akintoye, 2019).

In particular, the case of Oceanic Bank of Nigeria where it was discovered that the managing director approved a huge sum of N747 billion loans to family members (Okaro, 2015). The most recent bank fraud case in Nigeria is that of Skye Bank where the chairman of the bank owed the bank a huge sum of N102 billion for many years (Akintoye, 2019; Okaro et al., 2013).

As a result of the aforementioned challenges in the banking industry, regulators and other stakeholders of the industry are questioning the financial stability of the industry and prior studies (Abubakar et al,, 2018) on the banking industry attempted to investigate the reasons banks are facing challenges, ranging from examining the determinants of financial performance of banks to studying the effect of bank characteristics, corporate governance on the financial performance of banks. Thus, based on the above submission, this study examined the relationship between bank size and financial performance. Similarly, the study also examined moderating effect of internal control adequacy on the relationship between bank size and financial performance.

Finally, the major contribution of this study to the body of literature is the ascertainment of the moderating effect of internal control adequacy on the relationship between bank size and financial performance. It is considered for this study because internal control is the medium through which an organization's assets, valuables, properties are utilized, controlled, documented and quantified and it performs an essential role in the detection, prevention and protection of the organizations' resources physically and financially (Rezaee, 2005). Hence the financial performance of the bank is largely dependent on the strength of the internal control system, regardless of the size of the bank.

LITERATURE REVIEW

Resource based theory

According to the resource based theory, organizations that have strategic resources have a competitive advantage over other organizations (Barney, 1991). Hence, strategic resources are characterized by certain attributes which include the possession of key or important resources that could improve an organization's effectiveness, while repelling threats to the growth of the organization. It also includes resources that cannot be imitated by their competitors which are referred to as non-substitutable resources or limited resources.

One major criticism of this theory is that, it only lays emphasis on the competitive advantage of an organization rather than the going concern of the organization (Kachumbo, 2020). However, this theory underpins this study because bank characteristics are resources used by banks to achieve their financial and non-financial objectives. For instance, a bank with the largest customer base will have a competitive advantage over its contemporaries.

Empirical framework

Bank size and financial performance

Prior studies on financial performance of banks indicate that there are numerous determinants of financial performance, ranging from banks' specific variables to macro-economic variables. Thus, this study only focused on bank specific attributes like size and also reviewed extant literatures in that regard.

Most studies on the impact of size on the financial performance of banks operationalized bank size using metrics like total assets, number of employees, number of customers, number of branches, customers' deposit and capital base (Nyabaga and Wepukhulu, 2020; Kachumbo, 2020). But this study only considered total assets, number of employees and customers' deposit as a measure of bank size. Also, prior studies (Aladwann, 2015; Jaouad and Lahsen, 2018) operationalized financial performance using proxies like ROA, ROE. This study only used ROA as a proxy for financial performance. Thus, the literature review is based on bank size and financial performance of banks.

Mwangi, Makau and Kosimbei (2014) ascertained the effect of bank size (total asset) on the financial performance of commercial banks in Kenya using the panel data of 43 banks from 2007 to 2016. The results from the study showed that total assets had a positive effect on ROA and ROE. The study also found out that, the bigger the size of the bank, the higher is its financial performance.

Similarly, Raza et al. (2019) examined the relationship between bank specific attributes (asset size, customers' deposit, loan to customers, capital adequacy) and the profitability of banks. The results from the analysis of data indicate that asset size had an inverse relationship with profitability, while customers' deposit does not have any significant influence on profitability of banks in Pakistan.

On the other hand, Al-Homaidi et al. (2018) examined the impact of bank specific factors on the profitability of

60 Indian banks using the panel data analysis approach. The findings reveal that bank size represented by asset size and customers' deposit had a positive impact on profitability measured by ROA and ROE.

Additionally, Kachumbo (2020) examined the determinants of financial performance of commercial Fintech banks in Kenya using capital adequacy ratio, customer size and size of loan advance given to customers as proxies of the independent variable and return on equity as proxy for the dependent variable, using panel data analysis. The result from the analysis indicates that capital adequacy and customer size have a negative and significant relationship with financial performance.

Furthermore, Nyabaga and Wepukhulu (2020) examined the influence of firms' characteristics on the financial performance of quoted banks in Kenya. The result from the study using regression analysis indicates that capital adequacy and bank size have a positive significant effect on return on equity and return on asset. While, asset adequacy has negative effect on return on equity and return on asset.

Also, Alfadhli and AlAli (2021) examined the influence of bank size on the financial performance of banks in Kuwait. The analysis from the study reveals that, number of employees, number of branches owned by the bank and customer's deposit have an inverse relationship with financial performance, while, shareholder's equity had a positive relationship with financial performance.

Internal control as a moderating variable

Another main objective of this study was to examine the moderating effect of internal control on the relationship between bank size and financial performance. Although, a lot of studies considered internal control as an independent variable; for instance, Asiligwa and Rennox (2017) ascertained the impact of internal control on the financial performance of banks in Kenya, using regression analysis to analyze the primary data collected for this study. The findings from the study reveal that internal control had a great impact on the banking industry.

Also, Rapani and Malim (2020) examined the correlation between internal control coefficients and the financial performance of banks in Iraq using a literature review approach. The study compared and summarized papers in reputable journals from year 2013 to 2019. The analysis of the papers reveals that the internal control systems of banks in Iraq are weak when compared with banks in developing countries. The study also found out that, there is a significant association between internal control and the financial performance of banks based on the results of extant studies.

Umar and Dikko (2018) studied the effect of internal control on performance of commercial banks in Nigeria by administering 382 questionnaires to staffs working in these banks. The result from the survey indicates that there is a positive and significant relationship between internal control and financial performance of banks.

MATERIALS AND METHODS

The research design for this study is Ex-post facto research design which lays emphasis on the use of historical data to predict current behavior of the variables considered for this study. The population of this study is listed Deposit Money Banks in Nigeria, which are 17 in total. However, 10 Deposit Money Banks were purposively used for this study due to the availability of data and they are, Zenith bank, Access bank, first bank, FCMB, Fidelity bank, Guaranty trust bank, sterling bank, Unity bank, union bank and Wema bank. The data was analyzed using multiple regression analysis.

Model specification

There are two model specifications for this study; model 1 shows the basic relationship between bank size and financial performance. While, model 2 indicates the following (Table 1).

$$\mathbf{ROA} = \beta_0 + \boldsymbol{\beta_2 TA_{i,t}} + \boldsymbol{\beta_2 CD_{i,t}} + \boldsymbol{\beta_2}\mathbf{NE}_{i,t} + \boldsymbol{\varepsilon} \quad (1)$$

$$\mathbf{ROA} = \beta_0 + \beta_1[\mathbf{TA}_{i,t} * \mathbf{IC}] + \boldsymbol{\beta_2}[\boldsymbol{CD_{i,t}} * \mathbf{IC}] + \boldsymbol{\beta_3}[\boldsymbol{NE_{i,t}} * \mathbf{IC}] + \boldsymbol{\varepsilon} \quad (2)$$

DATA ANALYSIS AND INTERPRETATION

In examining the moderating effect of internal control on the relationship between bank size and financial performance, this study employs multiple regression analysis to test the annual data from 10 commercial banks in Nigeria, and the results are presented in this section. The method adopted also explores the relationship between variables of financial performance and bank size. Furthermore, the moderating effect was analyzed with moderated regression analysis. The independent variables are total asset, customers' deposits, and the number of employees while internal control is the moderating variable and the dependent variable is ROA. To describe the characteristics of each variable, descriptive statistic was used and the multicollinearity of the model was checked using VIF while the heteroskedasticity was examined using the Breusch-Pagan and Cook-Weisberg test. The results are presented and discussed in this section.

Descriptive statistics

The Skewness, Kurtosis, Minimum, Maximum, Mean, and Standard deviation of all the variables (Return on Asset-ROA, Total Asset-TA, Customers' Deposit-CD, Number of Employees-NE, and Internal control-IC) of this study were examined. The measures of central tendency, measures of variances, and measures of the normality of the model were illustrated by the descriptive statistics in carrying out the study (Table 2). The standard deviation

Table 1. Variable description and measurement.

Variable	Type of variable	Measurement	Notation
Return on asset	Dependent	Net income/total average asset	ROA
Total asset	Independent	Natural log of total assets	TA
Customer's deposit	Independent	Natural log of customers' deposit	CD
Number of employees	Independent	Total number of employees	NE
Internal control	Moderating	Internal control index	IC

Source: Researcher, 2021.

Table 2. Descriptive of the relationship between bank size and financial performance.

Variable	Obs	Mean	Std. dev.	Min	Max	Skewness	Kurtosis
ROA	10	102978.1	235715	0.1350063	709677.8	0.0014	0.0082
TA	10	887854.2	674171.6	193858.9	2094240	0.2053	0.8436
CD	10	478292.7	505915.5	2026.882	1418495	0.1096	0.8811
NE	10	168706.9	379902.2	1330.071	1150539	0.0013	0.0073

Source: *Stata Output, 2021*.

of return on asset is 235715. It shows the dispersion of ROA for each bank from the sample average. This might be because this study compressed the 12 years' data of each bank to one by finding the average of each variable. Also, the minimum ROA for the 10 banks is 0.1350063 while the maximum is 709677.8. ROA has a mean value of 102978.1.

In addition, kurtosis in finance is used as a tool to measure financial risk. For investment, high risk is associated with a large kurtosis because it shows high probabilities of extremely small and extremely large returns. A small kurtosis, on the other hand, signals a level of risk that is moderate because there is a relatively low probability of extreme returns. 0.0082 is the value of the kurtosis which is a reflection of the peak of ROA. This indicates that return on asset is platykurtic. This also shows that the mean value of return on asset is greater than the ROA of most of the banks. Thus, it reveals the small outliers in a distribution which means it has a lower tail.

Additionally, the coefficient of Skewness is 0.0014 which indicates that ROA is positively skewed, near zero, and has long right tails. The average value of the total asset is 887854.2 with a deviation of 674171.6 from both sides of the mean. These indicate that from the mean, there is a wide dispersion of the data since the standard deviation is higher than the mean value. Total asset ranges from 193858.9 (minimum) and 2094240 (maximum); the value of the kurtosis is 0.8436. This indicates the peak of total asset and implies the total asset satisfied the assumption of normal distribution. This further suggests that most of the values of the total asset are bigger than the mean value. The coefficient of Skewness is 0.2053 indicating that the total asset is near zero and positively skewed.

The standard deviation of customers' deposit is 505915.5; it is very large and shows the dispersion of customers' deposits for each bank from the sample average. Also, the minimum of customers' deposit for the 10 banks is 2026.882 while the maximum is 1418495. Similarly, customers' deposit has a mean value of 47829 and 2.7 0.8811 is the value of the kurtosis which is a reflection of the peak of customers' deposit. This indicates that customers' deposit is platykurtic. This also indicates that the mean value of customers' deposit is greater than the customers' deposit of most of the banks. Thus, it reveals the small outliers in a distribution which means it has a lower tail. The coefficient of Skewness is 0.1096 which indicates that customers' deposit is positively skewed, near zero, and has long right tails.

The average value of the number of employees is 168706.9 with a deviation of 379902.2 from both sides of the mean. These indicate that from the mean, there is a wide dispersion of the data since the standard deviation is higher than the mean value. The number of employees ranges from 1330.071 (minimum) and 1150539 (maximum); the value of the kurtosis is 0.0073. This indicates the peak of the number of employees and it implies the number of employees conform to platykurtic distribution. Thus, this further suggests that most of the values of number of employees are bigger than the mean value. The coefficient of Skewness is 0.0013 indicating that the number of employees is near zero and positively skewed.

Correlation matrix

Table 3 presents the relationship between bank size and financial performance variables. The values were

Table 3. Pearson correlation matrix.

Variable	ROA	TA	CD	NE
ROA	1.0000			
TA	0.0457	1.0000		
CD	-0.4570	0.8659	1.0000	
NE	0.8659	0.0520	0.0520	1.0000

Source: Stata Output, 2021.

Table 4. Multicollinearity test and homoscedasticity test.

Variable	Multicollinearity test		Homoscedasticity test
	Return on asset		Hottest, Breusch-Pagan
	Variable inflation factors	Tolerance	Return on asset
Log of total asset	17.39	0.057518	chi2(1) = 12.11
Log of customers' deposit	57.11	0.017511	
Log of number of employees	59.25	0.016877	Prob > chi2 = 0.0005
Mean VIF	44.58		

Source: *Stata Output, 2021*. *The p-value for return on asset is significant. This shows homoscedastic in the variance of these residuals.

extracted from the Pearson correlation of two-tailed significance carried out with Stata.

The extent of association between bank size and financial performance is presented in Table 3. The financial performance is represented by return on asset and bank size is represented by total asset, customers' deposit, and the number of employees. The results show that the relationship between return on asset and total asset is positive although weak as indicated in Table 3. This implies that when the total asset increases, the return on asset increases. The relationship between return on asset and customers' deposit is negative and strong. This shows that as the customers' deposit increases the return on asset decreases, and the relationship between return on asset and number of employees is positive and very strong as indicated in Table 3. This implies that, as the number of employees increases, the return on asset increases.

Multiple regression analysis

The econometric analysis is employed to carry out this study. According to the objectives of this research, two equations were used for this study; one equation shows the relationship between bank size and financial performance, and the second equation shows the moderating effect of internal control on the relationship between bank size and financial performance. +Ordinary Least Squares (OLS) were used to estimate the two main estimations. To perform the OLS, the multicollinearity and homoscedasticity were examined using Variable Inflation Factors and Hottest, Breusch-Pagan. The results are presented in Table 4.

The result of tolerance and variable inflation factors values were more than 0.10 and less than 10 respectively as presented in Table 4. It can be inferred that there is a problem of multicollinearity among independent variables. To test the homoscedasticity (equal variance of the dependent variable), CookWeisberg or Breusch-Pagan test was used (Breusch and Pagan, 1979) as presented in Table 4. The results show that there is a problem of Heteroscedasticity of the independent variable. Before ordinary least squares regression is used to regress the model, the model was corrected, and the problem of heteroskedasticity was resolved with the use of robust standard estimates (Hoechle, 2007). The multicollinearity problem might be aggravated by the low sample size and corrected by producing orthogonal (uncorrelated) independent variables.

The relationship between bank size and financial performance

The regression analysis of the impact of bank size and financial performance shows that the coefficient of determination (R-squared) is 0.9160. This reveals that 91.60 percent of the systematic variation of the return on asset of Nigerian banks is accounted for by the number of employees, customers' deposit, and total asset. The F-tabulated of 4.75706266 is less than F-statistic (7.29). This indicates that the study's model is well fitted, and affirms the cumulative effect of bank size on financial performance. The 0.0200 P-value is smaller than 0.05 and this further establishes that the relationship between

Table 5. Summary of Regression Analysis.

ROA	Coef.	Robust std. error	T	P>|t|
LTA	537126.8	272188.1	1.97	0.096
LNE	-184031.2	153322.3	-1.20	0.275
LCD	402231.5	155329.2	2.59	0.041
cons	-2226+01.9	276133	-0.81	0.451
F(3, 6)	7.29	R-squared	0.9160	
Prob > F	0.0200	Root MSE	83659	

Source: Stata Output, 2021.

bank size (Total Asset, Customers' Deposit, and Number of Employees) and financial performance (Return on Asset) of the banks understudied is significant.

The t-value for total asset measured by the natural log of total asset is 1.97, with a P-value of 0.096 and coefficient value of 537126.8. Comparing the t-value (1.97) with the t-tabulated (2.22813885), it shows that total asset has a positive relationship with return on asset but not statistically significant in this study as presented in Table 5. The study result aligns with the results of Mwangi et al. (2018) and Al-Homaidi et al. (2018), who found a positive relationship between total assets and financial performance. On the contrary, Raza et al. (2019) found a negative relationship between total assets and financial performance.

The t-value of the number of employees is -1.20, with a P-value of 0.275 and a coefficient value of -184031.2 while the t-tabulated is 2.22813885. This implies that the number of employees has an insignificant and negative effect on the return on asset of the 10 Nigerian banks used in this study. The result of this study in this regard conforms to the result of AlFadhli and AlAli (2021), which indicates that there is an inverse relationship between non-audit services and financial performance.

In estimating the individual impact of each variable on return on asset, the t-value for customers' deposit measured by the natural log of customers' deposit is -2.59 with a P-value of 0.041 and coefficient value of 402231.5. Comparing the t-value (0.041) with the t-tabulated (2.22813885) shows that customers' deposit has a positive and significant effect on the return on asset of the 10 Nigerian banks used in this study. On the contrary, AlFadhli and AlAli (2021) found a negative relationship between customer's deposit and financial performance. Thus, based on the result of this study and other extant studies result (Al-Hoamidi et al., 2018), there is a positive and significant relationship between customers' deposit and financial performance.

The moderating effect of internal control on the relationship between bank size and financial performance

Establishing the impact of internal control on the relationship between bank size and financial performance is the main objective of this study. Internal control was used to moderate each of the independent variables to give a composite (interaction term). Table 6 presents the results of the regression model after moderation.

The coefficient of determination (R-squared) of internal control on the relationship between bank size and financial performance after moderation remains 0.9160. This indicates that internal control does not influence the financial performance of Nigerian banks.

However, the overall P-value is 0.0200 which is less than 0.05. This implies that the relationship between bank size and financial performance is significant. This finding is supported by the F-statistic value of 7.29 which is greater than the F-tabulated of 4.75706266.

Also, the interaction results of the regression of total asset and internal control on return on asset show that the moderating effect of internal control on total asset is insignificant and positive as the regression results show that t-value is 1.99 less than the t-tabulated which is 2.22813885. This is further supported by the P-value (0.094). The coefficient value is 531947.1. This shows a slight effect of internal control on the total asset of the 10 Nigerian banks used in this study as presented in Table 6.

The t-value for the interaction between the number of employees and internal control is -1.21 with a P-value of 0.272 and a coefficient value of -185784.5. Comparing the t-value (-1.21) with the t-tabulated (2.22813885) shows that the interaction between the number of employees and internal control is not statistically significant to return on asset of the 10 Nigerian banks understudied in this study. These results show a slight effect of internal control on the number of employees of the 10 Nigerian banks. And in estimating the moderating effect of internal control on the individual independent variable, the t-value for the interaction between customers' deposit and internal control as measured by the natural log of the interaction between customers' deposit and internal control is -2.65 with a P-value of 0.038 and coefficient value of --393171.4. Comparing the t-value (-2.65) with the t-tabulated (2.22813885) shows that the interaction between customers' deposit and internal control has a negative and significant effect on

Table 6. Summary of regression analysis.

ROA	Coef.	Robust std. error	T	P>|t|
LTAIC	531947.1	267737.7	1.99	0.094
LNEIC	-185784.5	153783.5	-1.21	0.272
LCDIC	-393171.4	148524.8	-2.65	0.038
cons	-198502.7	281803.3	-0.70	0.508
F(3, 6)	7.29	R-squared	0.9160	
Prob > F	0.0200	Root MSE	83653	

Source: *Stata Output, 2021*.

return on asset of the 10 Nigerian banks used in this study. This implies that internal control has a moderating effect on customers' deposits.

Finally, most studies did not consider the moderating effect of internal control on the relationship between bank size and financial performance. The findings of this study attest that internal control has the capacity of enhancing the relationship between bank size (Total assets, number of employees and customers' deposit) Other researchers whose topics are partly close to this subject matter affirm that a sound internal control mechanism is able to influence the impact of internal control on the financial performance of Deposit Money Banks (Asiligwa and Rennox, 2017; Rapani and Malim, 2020; Umar and Dikko, 2018). Hence, internal control mechanisms can strengthen the relationship between bank size and financial performance.

CONCLUSIONS AND RECOMMENDATIONS

From the above analysis, it is glaring that customers' deposit drives the financial performance of Deposit Money Banks in Nigeria, since there is a positive relationship between customers' deposit and return on asset. Also, the analysis revealed the importance of the moderating variable, especially its enhancing effect on the individual proxy of bank size. Thus, it is recommended that banks should offer products that will encourage savings and financial inclusion as this will increase the capacity of banks to give out loans to investors, thereby increasing their financial performance.

Lastly, it is pertinent for the banking sector to strengthen the internal control system of the industry, because the "too big to fail" notion might not hold if the internal control system is grossly weak.

Limitations and recommendations for future research

This study used the data of 10 Deposit Money Banks in Nigeria with national and international authorization, but future studies can consider all the listed Deposit money banks in Nigeria including those with regional authorization.

Also, the study used one measure of financial performance to capture the dependent variable which is Return on Asset (ROA). Other future studies can include financial performance metrics like return on equity, total asset turnover and debt to equity ratio.

In conclusion, this study used only one moderating variable which is internal control adequacy and the result showed that the moderating variable had a cumulative effect and not individual effect on the relationship between bank size and financial performance. Hence, other future studies can consider corporate governance as a moderating variable, just to determine if it has the capability of enhancing the relationship between bank size and financial performance.

CONFLICT OF INTERESTS

The author has not declared any conflict of interest.

REFERENCES

Abubakar A, Sulaiman I, Haruna U (2018). Effect of firms characteristics on financial performance of listed insurance companies in Nigeria. African Journal of History and Archaeology 3(1):1-9.

Adam MHM (2014). Evaluating the Financial Performance of Banks using financial ratios-A case study of Erbil Bank for Investment and Finance. European Journal of Accounting Auditing and Finance Research 2(6):162-177.

Akintoye IR (2019). Accounting: A Mismanaged Concept Requiring Urgent Re-definition. Babcock University Press.

Aladwann MS (2015). The impact of bank size on profitability" an empirical study on listed Jordanian commercial banks". European Scientific Journal 11(34):217-236.

AlFadhli MS, AlAli MS (2021). The Effect of Bank Size on Financial Performance: A Case Study on Kuwaiti Banks. Journal of Insurance and Financial Management 4(3):11-15.

Al-Homaidi EA, Tabash MI, Farhan NH, Almaqtari FA (2018). Bank-specific and macro-economic determinants of profitability of Indian commercial banks: A panel data approach. Cogent Economics and Finance 6(1):1548072.

Breusch TS, Pagan AR (1979). A simple test for heteroscedasticity and random coefficient variation. Econometrica: Journal of the Econometric Society 47(5):1287-1294.

Asiligwa M, Rennox G (2017). The Effect of internal controls on the

financial performance of commercial banks in Kenya. Journal of Economics and Finance 8(3):92-105.
Barney JB (1991). Firm resources and sustained competitive advantage. Journal of Management 17(1):99-120.
Jaouad E, Lahsen O (2018). Factors affecting bank performance: empirical evidence from Morocco. European Scientific Journal 14(34):255-267.
Kasman A, Kasman S (2016). Bank size, competition and risk in the Turkish banking industry. Empirica 43(3):607-631.
Muhindi KA, Ngaba D (2018). Effect of firm size on financial performance on banks: Case of commercial banks in Kenya. International Academic Journal of Economics and Finance 3(1):175-190.
Kachumbo E (2020). Determinants of financial performance of commercial bank Fintechs in Kenya (Doctoral dissertation, Strathmore University).
Mwangi LW, Makau MS, Kosimbei G (2014). Relationship between capital structure and performance of non-financial companies listed in the Nairobi Securities Exchange, Kenya. Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics 1(2):72-90.
Nyabaga RMI, Wepukhulu JM (2020). Effect of Firm Characteristics on Financial Performance of Listed Commercial Banks in Kenya. International Journal of Economics and Financial Issues 10(3):255-262.
Okaro SC, Okafor GO, Ofoegbu G (2013). Corporate fraud in Nigeria-A two case study. International Journal of Research in Management 6(1):9-17.
.
Okaro CSO (2016). Financial Inclusion and Nigerian Economy (1990-2015). Journal of Policy and Development Studies 10(4):1-10.
Rezaee Z (2005). Causes, consequences, and deterence of financial statement fraud. Critical Perspectives on Accounting 16(3):277-298
Rapani NHA, Malim T (2020). The correlation between internal control components and the financial performance of iraqi banks a literature review. Jour of Advance Research in Dynamical and Control Systems 12(4):957-966.
Raza H, Saeed A, Hena S (2019). Determinants of profitability in banking sector: An evidence from Pakistan. European Scientific Journal 15(7):35-48.
Salim SB (2012). The relationship between size and financial performance of commercial banks in Kenya (Doctoral dissertation, University of Nairobi). Available at: http://erepository.uonbi.ac.ke/handle/11295/13235
Selznick (1952). The organizational weapon, New York, Nyi McGraw-Hill 8:350.
Umar H, Dikko MU (2018). The effect of internal control on performance of commercial banks in Nigeria. International Journal of Management Research 8(6):13-32.
Varotto S, Zhao L (2018). Systemic risk and bank size. Journal of International Money and Finance 82(1):45-70.

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An empirical study of the impact of VAT on the buying behavior of households in the United Arab Emirates

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Value added tax (VAT) discouraged consumption, encouraged savings, and generated higher economic growth. Evidence on the actual effectiveness of consumption taxes in changing the consumption patterns and stimulating savings is limited. This study used an ex-post facto research design to assess the impact of VAT on goods and services on the buying behavior of consumers in UAE. It analyzed the changes that consumers in UAE have made in their buying behavior after the imposition of VAT. Data used for the analysis was obtained using a survey questionnaire which examined the consumption patterns of the respondents. The study selected a random sample of 240 respondents from UAE. Segments of the UAE population have absorbed the additional costs of VAT without changing their spending habits but would likely change them in the future if the VAT rate increased, while lower-income households and those with greater than or equal to 5 were more impacted by VAT. The study is expected to shed light on the impact of VAT on the consumption behavior of households in the UAE and can give some insight to other Gul Cooperation Council countries who have implemented or are about to implement VAT.

Key words: Value-added taxation; consumption taxation; household consumption expenditures; savings; economic growth; empirical investigation, Gul Cooperation Council.

INTRODUCTION

Implementing VAT is a daunting task for any economy and has for long given a hard time to tax experts and economists in trying to determine its impact on a country's economy. Carroll (2010) has identified VAT as crucial enough to impact the overall economic situation of a country. The Gulf Cooperation Council countries started imposing taxes to reduce the budget deficit, which has become particularly noticeable since 2015 due to a drop in oil prices from $115 per barrel to less than $30 per barrel in early 2016 (Augestine, 2016). Saudi Arabia and the UAE were the first two GCC countries which introduced VAT in January 2018. Bahrain started applying VAT on the 1st of January 2019. Qatar was expected to be the fourth Arab Gulf state to introduce a 5% VAT in January 2020, while Oman declared that it will not apply VAT until at least 2021. Therefore,

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understanding the effects that VAT has on the buying behavior of consumers in the UAE and how they have reacted to VAT is important (Saadi, 2018).

Challenges in the implementation of VAT have remained a debatable issue in the last few decades as more and more countries try to implement it on a wide range of products (Kadir et al., 2016). VAT was first introduced in France 1954, and after that VAT was adopted in Western Europe and Latin America during the 1960s and 1970s. The rise of the VAT in Western Europe was accelerated by a series of European Economic Community directives requiring member states to adopt VAT once they become part of the European Union. Then VAT was adopted from the late 1980s in other industrialized countries such as Australia, Canada, Japan, and Switzerland. This phase also witnessed the massive expansion of VAT in transitional and developing economies, most notably in Africa and Asia. The IMF and the World Bank were linked with the rapid adoption of VAT among these countries (James, 2011). However, in the GCC countries, namely in the UAE, companies started paying VAT for the first time in 2018, and thus all the lessons learned from the UAE VAT experience need to be explored and shared with the rest of the GCC countries and the world.

The main research question was addressed by dividing it into three research questions:

Q1. What is the influence of VAT on consumers' lifestyle in the UAE?
Q2. What is the impact of VAT on the consumers' purchasing power in the UAE?
Q3. What is the impact of VAT on the changes in consumers' buying behavior in the UAE?
Q4. What are the predictors of all the previously mentioned impacts?

LITERATURE REVIEW

The Kingdom of Saudi Arabia and the United Arab Emirates were the first two countries in the Gulf Cooperation Council to introduce taxes. VAT was introduced in the UAE in January 2018. Prior to the introduction of VAT, the excise tax was implemented in 2017 and the tourism tax in 2014 in addition to fees on governmental services plus a few other types of taxes that existed before such as the corporate tax on oil companies and foreign banks (D'Cuhna, 2019). However, the UAE does not levy income tax on individuals, and it has for a long time been known as a tax haven for individuals and most businesses because they didn't have to pay taxes; the only taxes that were imposed before the VAT have been the corporate tax on oil companies and foreign banks. Today, and despite the introduction of taxes in the UAE, it is still believed that the UAE is more tax efficient than other tax-driven countries which charge big amounts of taxes. A 5% VAT rate is still significantly less than the average VAT rate of 20% in some counties (D'Cuhna, 2019).

It was the recommendation of IMF that oil-exporting countries in the Gulf introduce VAT to raise non-oil revenue. In the GCC, the UAE and Saudi Arabia were the first two countries to launch VAT from January 1, 2018, while other countries are believed to follow suit in the coming years. According to IMF officials, and based on experiences from around the world, the imposition of VAT is not expected to have a big effect on inflation or GDP growth (D'Cuhna, 2019). On the other hand, Akber Naqvi, executive director and head of asset management at Al Masah Capital, said that VAT has proved to contribute significantly to the generation of revenues in many advanced and developing economies and thus help in accelerating economic growth. He believes that the implementation of VAT in the UAE has been timely and is expected to help the UAE's "GDP growth to retract from the adverse impact it had suffered in the last three years due to low oil prices."

With the introduction of VAT, there was a need to create and implement a federal VAT Law. Sheikh Hamdan Bin Rashid Al Maktoum, Deputy Ruler of Dubai, UAE Minister of Finance and Chairman of the Federal Tax Authority said:

"The Federal Decree-Law issued by HH Shaikh Khalifa Bin Zayed is the bedrock of the UAE's planned tax system, which was designed to meet the most stringent of standards and best practices." VAT, also known as goods and services tax in some countries, is defined as a consumption tax. It is imposed on a product at each stage of production, before the final sale, and it is calculated as a percentage of the selling price. VAT is normally applied as a percentage of the value of the goods or services that have been purchased or used. The VAT taxes the value added by businesses at each point in the production chain. It can be applied to both manufactured goods and services. It is a form of indirect tax and the purpose of VAT is to provide revenue for a government. Since the implementation of VAT in the UAE in January 2018, a constant rate of 5% has been applied to calculate VAT (Al-Mulla, 2017).

Given the implication of VAT on the prices of goods and services, it is important to find out how VAT would influence the behavioral pattern of consumers. Thus the price effect of VAT on consumption behavior is of relevance to the Gulf countries which have recently adopted VAT. The cost of living in the UAE is expected to rise about 1.5% in 2018.

However, analysts believe that VAT will not have a big impact on the cost of living in the UAE as the rate is one of the lowest in the world (D'Cuhna, 2019). Analysts said that the lower-income class is already aware of its income

and expenses, so they know what and where to spend. However, the bigger impact could be on middle-income residents whose monthly income is around AED 20,000 as their grocery, fuel, kids' school costs and others will increase marginally. Meanwhile, the high-earning class will not feel the impact considering their high incomes and low inflation (Abbas, 2018). A study which investigated the effects of a consumption tax on effective demand under stagnation found that a consumption tax does not influence effective demand in the case of a homogeneous household under stagnation.

Several studies have examined the various issues involved when implementing a VAT in developing and developed countries (Erbill, 2001). Nellor as cited by Erbil (2001) showed that VAT has an important effect on tax-GDP ratio.

In a previous study of the relationship between VAT and savings, consumption, or economic growth, Freebairn (1991) found that the short run effects of VAT on aggregate savings in Australia are small but positive. Regarding especially its impact on saving, Metcalf (1995) emphasizes that there is no clear cut answer on whether implementing the VAT would increase savings rate. (Andrikopoulos et al., 1993) assessed the short run effects of VAT on consumption in Greece and found that VAT affected individual commodity prices, the consumer price index, and the allocation patterns of consumption expenditures among different groups of products.

In some cases, experts have gone to another extreme in their analysis by saying that VAT could lead to some items being altered or withdrawn from the market to substitute the products for similar but untaxed products. This has been supported by a study by Matsuzaki (2003) in Nairobi, which showed that most consumers had to buy fewer supplies on a regular basis as a result of the imposition of VAT on goods and services. They also have had to compromise on the quality of supplies they buy regularly in order to manage their budget. Another study showed that price increases make consumers replace the products with similar but cheaper ones (Masoom et al., 2015).

Some studies have focused on the contribution of VAT to economic growth and development with little empirical evidence about its effect on consumption behavior. Alm and El-Ganainy (2013) investigated the impact of VAT on the aggregate consumption of fifteen European Union countries over the period of 1961 to 2005 and found that a one percentage point increase in the VAT rate leads approximately to a one percent reduction in the level of aggregate consumption. In the short run and to a somewhat larger reduction in the long run Alm and El-Ganainy, 2013; Ebiringa and Yadirichukwu, 2012).

In a study about the effect of VAT on the consumption behavior of households in Nigeria, it was found that households' consumption expenditure on durable and non-durable goods decreases as the VAT rate increases (Obiakor et al., 2015).

In yet another study on the impact of-VAT increase on consumers' reactions in the UK; it was found that VAT increase has a significant impact on consumers' consumption habits (Masoom et al., 2015). To ensure a successful

Implementation of VAT, there has to be other measures taken to make up for the consumers so as not to negatively affect their consumption behavior, especially where income tax is another concern for consumers (Terfa and Ereso, 2017).

Scope of taxes in UAE

In UAE, as per the regulations, there are taxable supplies that are subject to the 5% rate of VAT, and these are referred to as the standard-rated supplies. This includes food and beverages, clothes, utility bills, gasoline, private transport services, hotel services, entertainment, electronics, school uniforms, commercial rents, cars and jewelry, among others.

There are zero-rated taxable supplies as well, and these are subject to a 0% VAT rate. This includes exports of goods and services from the UAE, transport of goods and passengers provided outside the UAE, supply of metal as an investment, new residential, converted, and charity buildings, and education and healthcare. Additionally, there are categories that have been totally exempted from VAT such as financial services, medicines, tuition fee, local transport, residential rents, surgery and certain government services. Finally, there are items that are outside the scope of VAT such as intra-group transactions and the sale of a business as a going concern (Daou, 2017).

Consumer behavior

The theory that drove this research work is that consumer behavior is explained by

a) Absolute Income hypothesis
b) Life cycle hypothesis
c) Permanent income hypothesis

In his Absolute Income Hypothesis (AIH), Keynes explains that consumption will rise as income rises, but not necessarily at the same rate (Alimi, 2013). Keynes' hypothesis focuses more on the short run rather than the long run behavior of consumers. The implication of the theory is that an increase in aggregate after tax income will yield an increase in consumption, given that nothing else is affecting consumption expenditure. In Duisenberg's theory known as the Relative Income Theory (RIH), an individual's attitude to consumption and to saving as well is seen as being controlled by the individual's income in relation to the income of other people with similar

conditions rather than just by the general standard of living. He further hypothesizes that the present consumption is not influenced merely by present levels of absolute and relative income, but also by levels of consumption attained in the past; hence, it is difficult for a household to reduce their level of consumption once they have reached and got used to a certain one. Thus, the theory emphasizes long run rather than short run consumption behavior.

The Life Cycle Hypothesis (LCH), which was proposed by Italian economist Franco Modigliani and his student Richard Brumberg in 1957, suggests that individuals even out their consumption in the best possible manner over their life cycles (Deaton, 2005). The hypothesis assumes that young people usually have several productive years ahead of them because they have higher chances for employment, so they tend to borrow money to fund their education and consumption needs; however, people who are older tend to be more conservative about their borrowing and spending habits because they expect fewer chances for employment in the future. Thus, the LCH concludes that the average propensity to consume is greater in both early and late stages since they are borrowing against future income or using up savings. During the middle stage, the individuals have greater propensity to save and lower propensity to consume, enhanced by a typically higher income. Thus, the LCH also emphasizes long run rather than short consumption behavior.

According to the Permanent Income Hypothesis (PIH) formulated by Friedman in 1957 people base consumption on what they consider their regular and somehow long-term permanent income (Mohabbat and Wood, 1972). In doing this, they attempt to maintain a fairly constant standard of living even though their incomes may vary considerably from one period to another. As a result, temporary increases and decreases in income have little effect on their spending. The idea behind the permanent-income hypothesis is that consumption depends on what people expect to earn over a considerable period of time. As in the life-cycle hypothesis, people smooth out fluctuations in income so that they save during periods of unusually high income and spend from their savings during periods of unusually low income. The hypothesis implies that changes in consumption behavior are not predictable because they are based on individual expectations. A person should have a higher level of consumption than another person if both have the same current income but the first one looks ahead to a much higher future income, and consumes accordingly. Another implication is that economic policies such as increasing or decreasing VAT rate, might not affect consumer spending until individuals reform expectations about their future incomes. Thus, the PIH also emphasizes long run rather than short term consumption behavior.

METHODOLOGY

The population of the UAE is approximately 9.7 million (World Bank, 2018) employing a 95% confidence interval with a margin of error of 6.5%. The margin of error is relatively high due to the variations in the population sampled. This would result in an approximate sample size of 227. The actual sample size was 240 which was the number at the deadline date for the survey.

As discussed, beforehand, this study analyzed the impact of VAT on the buying behavior of households in the UAE. A random sample of employees working in seven different private and governmental companies throughout the UAE in different sectors was utilized. Questionnaires were sent to them via emails. The pre-approval to conduct the survey was taken from those companies. The email addresses of all the employees in the random sample were taken based on a predefined sample size calculation. An email was sent to them with a link to the survey and a reminder was also sent to the employees one week after the first email. The sample size of the sample was done based on a calculation random sample based on sample size calculated, which was 227 for this study. This is calculated with a 95% confidence interval with a margin of error of 6%. The population of the UAE is approximately 8,000,000.

The first part of the questionnaire consisted of questions about demographics such as gender, age, level of education, income, and household members. It also consisted of a set of questions intended to be used to assess the consumption behavior of the respondents. The questionnaire was based on a revised version of the original questionnaire that was developed by Matsuzaki (2003) in his research with minor modifications in the wording to suit the UAE environment and the requirements of the study. The questionnaire consisted of 23 questions including certain basic demographic information. This information was collected for examining whether those demographic factors, such as gender and age and GPA, reflect on respondents' answers to the questions related to the consumption behavior in the rest of the survey.

Following the development of the questionnaire, a pilot study was conducted to test its validity as well as its reliability. A convenient sample of 10 participants responded and completed the questionnaire twice to test the clarity of the questions. The questionnaire was sent to experts in the fields of taxes and surveys and changes were made based on their comments about the clarity of the questions.

After the descriptive analysis, all the data were coded and analyzed using SPSS version 26. Descriptive statistics are reported as frequency with percentages for categorical variables. Chi square was run to see the differences of socio-demographic characteristics on consumption and buying capacity after VAT. Logistic regression was used and odds ratio (OR) with 95% CIs is reported, Variables having p-value 0.25 and less at univariate level and other variables which are shown to be associated with VAT in literature were considered at multivariable level. Predictors are reported with adjusted OR and CIs.

RESULTS

Data were collected from 240 participants, of whom 140(58.3%) were female, 118(49.2%) were married, 134 (55.8%) were aged 34 or below, 123(51.2%) had a Bachelor's degree, and 107(44.6%) reported that from 3 to 5 people were living together in their houses. More than one third of the respondents were living and working in Dubai (37.2% and 41.1% respectively), and more than

half of those who participated in the survey were Emirati (locals) (n=131, 54.6%) (Table 1).

Of the total number of participants, 219(91.3%) reported that they knew about VAT. When asked about the items they usually buy, 201(83.8%) reported that they bought groceries, whereas 151(62.9%) reported clothes, 101(42.1%) reported shoes, 87(36.3%) reported electronics, and around 10% reported furniture (26; 10.8%) and cigarettes (n=30; 12.5%), while 27.1% reported buying miscellaneous objects. Regarding the use of certain services, the majority of the participants reported using communication services and banking services—82.5% and 56.3% respectively. Less than half of the participants (96; 40%) believed that their consumption had decreased due to VAT. Nearly half reported that VAT had affected their consumption (118; 49.2%) while the other half believed that VAT had no impact on it (n=122; 50.8%). More than half reported that VAT has not affected their buying habits (n=134; 55.8%). When asked about about the effect of increased VAT on future buying, 203 of the respondents (84.6%) replied affirmatively (Table 2).

Of the total number of respondents, 77.1% agree and strongly agree that VAT has greatly increased the costs of goods and services, 48.3% agree and strongly agree that they are buying less because of VAT, while only 25% disagree with this. However, 62.5% agree and strongly agree that it is because of VAT that they are buying goods from suppliers who offer lower prices while 17.1% disagree with this. Out of the total number of respondents, 38.3% agree and strongly agree that they are buying goods from suppliers that allow payment in instalments, while 31.3% disagree with this. 41.3% of the total number of respondents believed that despite having to pay VAT, they are not buying used items; while 36.3% agree and strongly agree that they are buying used items because of VAT. Additionally, around half of the respondents (50.8%) agree and strongly agree that they are compromising the quality of goods in order to manage their budgets that have been affected by VAT (Table 3).

There was no difference in consumption and buying behaviour with respect to gender, age and marital status. However, a significant difference was seen with respect to income. For those individuals with income </=20,000AED, VAT had a significant effect on their consumption (p value 0.003), and they were buying significantly less than those who were earning more (p value 0.001). Moreover, participants with 5 or fewer people living in the same house reported that VAT had a significant impact on consumption (p value 0.025). Likewise, those who reported themselves as residents have reported that VAT had a major impact on their buying ability and they were significantly buying less compared to the locals (p value 0.025) (Table 4).

Univariate and multivariate analyses were done, and it was found that the consumption and buying patterns of those earning an income are more than or equal to 20000 AED were more affected by VAT than the consumption of those who were earning less. Moreover, only households with more than 5 members had their consumption significantly affected by VAT (1.08 95%CI: 1.05-3.07) (Table 5).

DISCUSSION

The results showed that most participants were aware of VAT. Less than half of the respondents believed that their consumption decreased due to VAT, and only half of them believed that it had any effect at all. On the other hand, majority did believe that it increased the costs of goods and services and the majority believes they are purchasing goods from suppliers who offer lower prices as a result of the implementation of VAT. While less than half of the participants agreed they were buying used items because of VAT, the majority contended that they were compromising the quality of the items they were buying in order to decrease the price that had risen because of VAT. The main factor causing a difference in consumption as a result of VAT was annual income, with those with lower incomes significantly buying less than those with higher incomes. However, age, gender and marital status did not seem to affect buying habits significantly.

The main limitation of this study was the lack of response from some of the respondents. The possibility of nonresponse bias might have affected the randomness of the sample. Another limitation of this study is that it is hard to generalize the results to all GCC countries because data were collected from UAE. Moreover, a lower response rate was obtained from the online survey as compared to what was expected probably because respondents had other engagements at the time of the study. The time element was another limitation. However, the study did have a number of strengths as well. One main strong point of this study is that it is the first piece of research in the UAE to assess the impact of VAT on Emirati households. It also includes a multitude of variables to strengthen the results. Furthermore, because it was conducted in 2019, participants had ample time to properly understand VAT and its implications.

The results of this study defy the expectations by D'Cuhna (2019), which predicted that VAT would not have a significant effect on Emirati living costs as the UAE has one of the lowest rates in the world, but this study shows that it, in fact, did affect Emirati' consumption though this effect was more in some groups as compared to others. Further, it differed with Obiakor et al. (2015) that VAT significantly affected spending habits since only half of the participants believed their consumption had changed. However, this supports the

Table 1. Baseline characteristics of study participants (n=240).

Characteristic	Frequency	Percent
Gender		
Male	100	41.7
Female	140	58.3
Marital Status*		
Married	118	49.4
Single	106	44.4
Divorced	13	5.4
Widow	2	0.8
Age		
18-24	55	22.9
25-34	79	32.9
35-44	47	19.6
45-45	44	18.3
55-64	15	6.3
Education		
High School	23	9.6
Bachelor's degree	123	51.2
Master's degree	60	25.0
Doctoral degree	21	8.8
Other (Diploma/Certificate)	13	5.5
Income		
< AED 10,000	42	17.5
AED 10,000-20,000	53	22.1
AED 21,000-40,000	79	32.9
>AED 40,000	66	27.5
People living together		
0-2	28	11.7
3-5	107	44.6
6-8	73	30.4
>9	32	13.3
Emirates-Lives in*		
Dubai	89	37.2
Ajman	22	9.2
Sharjah	82	34.3
Abu Dhabi	34	14.2
Other(Umm Al Quwain, Ras Al Khaimah, Ajman)	12	5.0
Emirates-Work*		
Dubai	95	41.1
Sharjah	85	38.8
Abu Dhabi	40	17.3
Other(Ajman, Ras Al Khaimah, Umm Al Quwain)	11	4.7
Residency *		
Local	131	55.3
Resident	106	44.7

*indicates few missing data.

Table 2. Impact of VAT on consumption and purchasing capacity (n=240).

VAT	Frequency	Percent
Heard about VAT		
Yes	219	91.3
No	21	8.8
Decrease consumption		
Yes	96	40
No	144	60
VAT affected the consumption		
Yes	118	49.2
No	122	50.8
Buying less due to VAT		
Yes	106	44.2
No	134	55.8
Increased VAT will affect you in future		
Yes	203	84.6
No	16	6.7
Don't know	21	8.8

Table 3. Attitude and perception of study participants on the impact of VAT (n=240).

Impact of VAT	Strongly agree	Agree	Disagree*	Neutral
Goods and services cost much more	85(35.4)	100(41.7)	11(4.6)	44(18.3)
Buying less goods	56(23.3)	60(25.0)	60(25.0)	64(26.7)
Buying in lower prices	62(25.8)	88(36.7)	41(17.1)	49(20.4)
Paying in instalments	29(12.1)	63(26.3)	75(31.3)	73(30.4)
Similar but used goods	25(10.4)	62(25.8)	99(41.3)	54(22.5)
Compromise on the quality	31(12.9)	91(37.9)	65(27.1)	53(22.1)

*disagree and strongly disagree (merged because of small cell count).

Permanent Income Hypothesis, which implies that VAT would not have an impact on consumer spending in the short-term (Friedman, 1957). In addition, these results do fall in line with the prediction that it would not significantly affect higher income families (Abbas, 2018). The results also align with a study previously conducted in Nairobi, which showed that VAT led to consumers buying fewer items and compromising the quality of their goods (Matsuzaki, 2003). Moreover, the results of this study, in which participants have stated that they have resorted to buying used items and a UK study which stated that consumers would buy similar, cheaper items instead of the ones they regularly buy agreed with those of Masoom et al. (2015).

The findings of this study have several implications. For instance, the study shows that since there was no significant effect on consumption overall, the VAT was implemented smoothly. However, it implies that certain salaries should be increased as low-income respondents and ones with larger families were disproportionately affected by the VAT. They also show that the majority of households would be greatly affected if there were to be a future increase in VAT.

Conclusion

This study showed that only half of people living in UAE believed that VAT had an effect on their consumption, showing its effect was not significant for the time being, but would have a greater impact if increased in the future. It also provided evidence that lower-income household, as well as those with five individuals or more, faced greater difficulties in regards to the implementation of

Table 4. Impact of VAT on consumption and buying of goods with respect to baseline characteristics (n=240).

Impact of VAT	Decrease in consumption			Effect on consumption			Buying less		
	Yes	No	P value	Yes	No	P value	Yes	No	P value
Gender									
Male	41(41.0)	59(59.0)	0.789	49(49.0)	51(51.0)	0.965	41(41.0)	59(59.0)	0.40
Female	55(39.3)	85(60.7)		69(49.3)	71(50.7)		65(46.6)	75(53.6)	
Age									
</=34	52(38.8)	82(61.2)	0.671	63(47.0)	71(53.0)	0.453	53(39.6)	81(60.4)	0.106
>34	44(41.5)	62(58.5)		55(51.9)	51(48.1)		53(50.0)	53(50.0)	
Income									
</=AED 20,000	46(48.4)	49(51.6)	0.310	58(61.1)	37(38.9)	0.003	54(56.8)	41(43.2)	0.001
>/=AED 21,000	50(34.5)	95(65.5)		60(41.4)	85(58.6)		52(35.9)	93(64.1)	
People in house									
</=5	56(41.5)	79(58.5)	0.590	75(55.6)	60(44.4)	**0.025**	60(44.4)	75(55.6)	0.922
>5	40(38.1)	65(61.9)		43(41.0)	62(59.0)		46(43.8)	59(56.2)	
Residency									
Local	50(38.2)	81(61.8)	0.707	61(46.6)	70(53.4)	0.502	49(37.4)	82(62.6)	0.025
Resident	43(40.6)	63(59.4)		54(50.9)	52(49.1)		55(51.9)	51(48.1)	
Marital status									
Married	44(37.3)	74(62.7)	0.443	60(50.8)	58(49.2)	0.563	57(48.3)	61(51.7)	0.179
Single and others	51(42.1)	70(57.9)		57(47.1)	64(52.9)		48(39.7)	73(60.3)	

Table 5. Predictors of the impact of VAT on consumption and buying of goods (n=240).

Impact of VAT	Decrease in consumption			Effect on consumption			Buying less		
	OR	P value	AOR (Cis)	OR	P value	AOR (Cis)	OR	P value	AOR (Cis)
Gender									
Female	1.07	0.789		0.98	0.965		0.80	0.404	
Male (Ref)									
Age									
</=34	1.11	0.671		0.82	0.454		0.65	0.106	
>34 (Ref)									
Income									
>/=AED 20,000	1.78	0.032	1.71(1.005-2.94)[a]	2.22	0.003	2.09(1.22-3.58)[b]	2.35	0.002	2.57(1.45-4.57)[c]
</=AED 21,000 (ref)									
People in house									
>5	1.15	0.595		1.80	0.025	1.80(1.05-3.07)[b]	1.02	0.922	
</=5 Ref)									
Residency									
Local	1.10	0.707		1.19	0.503		1.80	0.026	
Resident(Ref)									
Marital Status									
Married	1.22	0.443		0.86	0.563		0.70	0.179	
Single and others (Ref)									

[a]Adjusted for members within a household and residential status; [b]Adjusted for residency; [c]Adjusted for age, members within a household and residential status.

VAT. A suggested area for further research can be the difference in the effects of VAT on the spending of consumers living in the different Emirates as well as between different income groups. Additionally, further research should assess whether savings were impacted by VAT in the UAE.

CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

REFERENCES

Abbas W (2018). Broadening tax horizons. Khaleej Times. Available at: https://www.khaleejtimes.com/business/broadening-tax-horizons

Alimi RS (2013). Keynes' Absolute Income Hypothesis and Kuznets Paradox.

Alm J, El-Ganainy A (2013). Value-added taxation and consumption. International Tax and Public Finance 20(1):105-128.

Al-Mulla A (2017). UAE VAT Laws. VATUAE.

Andrikopoulos AA, Brox JA, Georgakopoulos TA (1993). A short-run assessment of the effects of VAT on consumption patterns: the Greek experience. Applied Economics 25(5):617-626.

Augestine BD (2016). GCC oil revenues are projected to be lower by $400 billion in 2016. Khaleej Times. Available at: https://gulfnews.com/business/gcc-oil-revenues-are-projected-to-be-lower-by-400-billion-in-2016-1.1914963

Daou J (2017). An introduction to Value Added Tax in the GCC. PWC.

D'Cuhna SD (2019). UAE and Saudi Arabia End Tax-Free Living, Roll Out 5% VAT as Oil Revenue Slump. Forbes.

Deaton A (2005). Measuring poverty in a growing world (or measuring growth in a poor world). Review of Economics and Statistics 87(1):1-19.

Erbill LP (2001). The Modern VAT. Washington D.C: International Monetary Fund.

Freebairn J (1991). Some effects of a consumption tax on the level and composition of Australian saving and investment. Australian Economic Review 24(4):13-29.

Friedman M (1957). The permanent income hypothesis. NBER Chapters. pp. 20-37.

James K (2011). Exploring the origins and global rise of VAT. The VAT Reader (Tax Analysts) pp. 15-22.

Kadir JB, Yusof ZB, Hassan MA (2016). Goods and services tax (GST) in Malaysia: Behind successful experiences. International Journal of Economic Perspectives 10(4):126-138.

Mohabbat KA, Wood J (1972). Permanent Income Hypothesis and the Demand for Durable Goods. Swiss Journal of Economics and Statistics 108(II):169-175.

Masoom A, Fazluz Z, Samaduzzaman M (2015). VAT Increase and Impact on Consumers' Consumption Habit. Asian Journal of Finance and Accounting 7(1):105-115.

Matsuzaki D (2003). The effects of a consumption tax on effective demand under stagnation. The Japanese Economic Review 54(1):101-118.

Metcalf GE (1995). Value-added taxation: A tax whose time has come?. Journal of Economic Perspectives 9(1):121-140.

Obiakor R, Kwarbai J, Okwu A (2015). Value Added Tax and Consumption Expenditure Behaviour of Households in Nigeria: An Empirical Investigation. International Review of Social Research 3(6):1-13.

Carroll RC (2010). The Macroeconomic Effects of an Add-on Value-Added Tax. Ernst and Young.

Saadi D (2018). Four GCC states need more time on VAT. Available at: https://www.thenationalnews.com/business/economy/four-gcc-states-need-more-time-on-vat-imf-official-says-1.705369

Terfa A, Ereso T (2017). Assessment of the effect of value added tax on consumption behavior: The case of Nekemte town, Wollega. *EcoForum*.

Ebiringa OT, Yadirichukwu E (2012). Analysis of tax formation and impact on economic growth in Nigeria. International Journal of Accounting and Financial Reporting 2(2):367.

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Effectiveness of fraud prevention and detection methods in the public sector in Tanzania

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Fraud prevention and detection methods in the public sector are vital for improved performance and service delivery in the public. However, in Tanzania, there is a paucity of knowledge on the effectiveness of these methods. The main objective of this study was to examine the effectiveness of fraud prevention and detection methods in the public sector, a case of Tanzania Rural and Urban Roads Agency (TARURA) Morogoro region. A purposeful sampling technique was used in selecting a sample size of 77 respondents comprising accountants and auditors. Major results showed that process control involving internal control review and improvement, cash reviews, inventory observation and inspection and bank reconciliation ranked first in effectiveness; followed by communication towards staff; integrated fraud control; organizational policy; continuous monitoring; inspection tools and methods; and protection software/application. Based on the conclusion, the study recommends that the government should improve by revisiting the performance of methods such as integrated fraud control; organizational policy, continuous monitoring, inspection tools and methods as well as protection software/application as they ranked low in their effectiveness.

Key words: Fraud, detection, public, control, TARURA.

INTRODUCTION

Every year there are huge losses of trillions of dollars in the world due to fraudulent activities (Denman, 2019; Olweny and Kimani, 2011). When considering developing countries, such fraud losses could be higher than in developed countries (Denman, 2019). Globally, the occurrences of fraud scandals in public entities have resulted in erosion of investors and other stakeholders. Therefore, it has recently gained particular attention by researchers (PWC, 2018; Othman et al., 2015). This has raised attention regarding fraud prevention and detection in the private and public sectors (Bierstaker et al., 2006). Association of Certified Fraud Examiners (ACFE, 2018) reported that 88% of fraud cases perpetrated against government entities have resulted in misappropriation of assets. These cases caused a median loss of USD 100,000, while financial statement fraud schemes accounted for 6% of government cases with a median loss of USD 315,000. Moreover, corruption

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schemes occurred in 47% of cases and led to a median loss of USD 400,000. The greatest number of government cases in this report occurred in the United States, Sub-Saharan Africa, and the Asia Pacific region. In the case region-wise, Latin America and the Caribbean had the highest government fraud scandals with a median loss of USD 862,000, followed by the Sub-Saharan Africa region which had a median loss of USD250,000 (ACFE, 2018).

In Tanzania, some of the fraud scandals include but are not limited to DECI, TPA losses, Tegeta Escrow, EPA, and BAE radar fraud (Zuberi and Mzenzi, 2019). Other prominent fraud scandal in the Tanzanian Local Government Authorities (LGAs) was evidenced at Kishapu District Council in 2012. As per the special audit conducted in the stated LGAs, missing payment vouchers amounted to TZS 1.17 billion at minimum, forged bank statements and cheques amounted to TZS 235 million and TZS 502 million respectively. In addition, there was inadequate segregation of duties, poor internal controls systems, and non-functioning of the internal audit unit (Audit Report, 2012). This implies the existence of weak internal controls in Tanzanian organizations.

While studies on fraud prevention and detection mechanism are vital for enhanced policy formulation with regard to fraud prevention to both public and private sectors, a number of studies (Bierstaker et al., 2006; Smith, 2012; Apostolou and Crumbley, 2008; Alleyne and Horward, 2005; Rahman and Anwar, 2014) have mainly focussed on private sectors, neglecting the public sectors where massive of frauds are taking place resulting in retardation of development initiatives. On the other hand, in Tanzania, there are controls on the issue of fraud; however, there is a paucity of information with regard to its effectiveness as fraud cases are still prevailing. This study therefore aimed at investigating the effectiveness of the fraud prevention and detection methods in selected Tanzanian public sector entities, especially in the TARURA-Morogoro region. The findings of the study will help in strengthening of fraud prevention organs as well as formulation of proper and working policies geared at controlling of fraud in the country.

MATERIALS AND RESEARCH METHODS

Description of the study area

The study was conducted at TARURA in the Morogoro region. This region consists of six districts. For the aim of achieving study objectives, the study covered regional and district offices of TARURA namely Morogoro municipality, Mvomero, Ulanga, Gairo, Kilosa, and Morogoro rural. In other words, the area of the study was at the TARURA regional and district offices. The researcher considered financial restriction, limitation of time, and accessibility as the factors for selecting the Morogoro region. Geographically, the Morogoro region is surrounded to the north by the Tanga Region, to the east by the Pwani and Lindi Regions, to the south by the Ruvuma Region, and to the west by the Iringa and Dodoma Regions.

Research design

Since the main objective was to examine the effectiveness of fraud prevention and detection methods in the Tanzanian public sector, a descriptive cross-sectional research design was used. Descriptive research design is defined as the design which describes an accurate portrayal of or accounts of the characteristics like behavior, opinions, beliefs, opinions, and knowledge of a particular individual and the situation of the group (Maxwell, 2012).

Study population and unit of analysis

Since the study aimed at collecting enough data from the six district offices of TARURA in the Morogoro region, the study population comprised of all internal auditors and accountants which amounted to 90 in total in the six districts of study.

Sampling design and sample size

The non-probability sampling technique method was used to select the sample from the population. The researcher applied convenience and purposive sampling techniques as the number of the internal auditors and accountants are limited. According to Shausi et al. (2019), to avoid bias and making the study more representative convenience, sampling techniques are suggested in finding answers to the problems whose answers are to be collected from the respondents depending on the awareness and availability of the information and people. To obtain data from the field, the study purposively selected all the population of the study as their number was limited (90), all from TARURA Morogoro region.

Data collection

The researcher employed both sources of data collection in conducting this research. Therefore, primary and secondary sources of data collection were used to answer the research questions.

Primary data

A structured questionnaire was used as the primary method of data collection for the aim of obtaining answers to the research questions. This was attributed to the fact that a structured questionnaire is the most excellent and systematic way to obtain information for variables that are difficult to monitor and inexpensive access in the diverse population (Kothari, 2004). It is also considered as an appropriate way of investigating and meeting the large and diverse population of the research, to get the relevant answers to the research questions (Spira and Page, 2003; Mwonge and Naho, 2021).

Secondary data

A secondary data collection method was applied using reviewing previous and relevant documentation related to the effectiveness of fraud prevention and detection methods in the public sector. This method contains already existing information such as journals, books, newspapers, and the previous statements of financial information. It also consists of other unpublished documents such as unpublished bibliography. Data related to the fraud triangle and discussions of the findings of all specific objectives were obtained through online papers, international standards of auditing and other related documentation like books and periodicals. In addition, the review of the CAG reports also amounts to secondary data collection methods.

Data collection tools

To examine the effectiveness of fraud prevention and detection in the selected study area, the researcher develops a study questionnaire. Such a questionnaire was used to collect data from the respondents to obtain primary data for the stated research questions and objectives.

Data analysis

It should be noted that the major aim of this study was to examine the effectiveness of fraud prevention and detection methods in the Tanzanian public sector, particularly in the TARURA Morogoro region. To find answers to the research questions a Likert scale was employed and the fraud detection and prevention methods in public sectors were ranked in order of their effectiveness.

RESULTS AND DISCUSSION

Respondents' demographic information

Demographic information of respondents involved the study on gender, age, marital status, academic level, and working experience. The study results are summarized in Table 1.

Gender

As presented in Table 1, two categories of gender were examined and the results indicated that 68.8% equivalents to 53 respondents were male while 31.2% representing 24 respondents were female. This suggests that most of the respondents were male, although the difference is not significant.

Age

Three categories of age groups were used to examine the age of the respondents. From Table 1, under the age category of 18-35 years, there were 46 respondents' equivalents to 59.7%; while under the category of 36 -50 years, 22 respondents were standing for 28.6%. Under the last category, 50 years and above there were 9 respondents' equivalents to 11.7%. Generally, most of the respondents were under the age category of 18-35 years, which has 46 respondents representing 59.7%.

Marital status

This was examined by considering three categories namely single, married, and divorced. As shown in Table 1, single respondents were 30 (39%), while married respondents were 42 (54.5%), while divorced respondents were 5 (6.5%). This means that more than half of the respondents were married.

Academic qualification

Results in Table 1 shows that, most of the respondents about 61 respondents (79.2%) had bachelor's degrees, followed by 12 (15.6%) who had a Master's degrees, while only 4 respondents equivalents to 5.2% had a certificate/diploma. The results imply that most of the accountants and auditors had an education at degree level. This level of education can enable them to have rational judgments with regard to their duties.

Working experience

As presented in Table 1, two categories of working experience were used. Respondents with working experience below five years were 15 (19.5%), while those with working experience five years and above were 62 respondents (80.5%). For this case, most of the respondents are well experienced in performing their jobs.

Effectiveness of fraud detection and prevention methods in the public institutions

To examine the perceived effectiveness of fraud prevention and detection methods in public institutions, particularly the methods used in preventing and detecting fraud, the researcher grouped the methods of fraud prevention and detection into seven groups. These are inspection tools and methods, continuous monitoring, integrated fraud control, protection software/application, process control, organizational policy, and communication towards staff. Such grouping followed past studies on fraud prevention and detection (Bierstaker et al., 2006; Rahman and Anwar, 2014; Othman et al., 2015; Siregar and Tenoyo, 2015). The study results are presented in Table 2.

In general Table 2 shows that process control was the most effective method in fraud prevention and detection with a mean score of 4.553. This means that process control including specific methods of fraud prevention and detection such as internal control review and improvement, cash reviews, inventory observation, and inspection as well as bank reconciliation is the highly used and very effective method in preventing and detecting fraud in the public institution. Individually, under process control, bank reconciliation scored the highest mean of 4.621, followed by inventory observation and inspection (Mean=4.545). Internal control review and improvement scored a similar mean of 4.524 and Cash reviews (Mean = 4.524). For the aim of preventing and detecting fraud in public institutions, our findings show that, individually under this category, bank reconciliations are the most effective method of infighting against fraud in an organization. This is consistent with previous studies like Rahman and Anwar (2014) and Bierstaker

Table 1. Demographic Profile (n=77).

Variable	Categories	Frequency	Percent
Gender	Male	53	68.8
	Female	24	31.2
	Total	77	100.0
Age (years)	18 - 35	46	59.7
	36 - 50	22	28.6
	≥50	9	11.7
	Total	77	100.0
Marital status	Single	30	39.0
	Married	42	54.5
	Divorced	5	6.5
	Total	77	100.0
Academic qualification	Certificate/Diploma	4	5.2
	Bachelor Degree	61	79.2
	Master Degree	12	15.6
	Total	77	100.0
Working experience	Below 5 years	15	19.5
	5 years and above	62	80.5
	Total	77	100.0

Source: Researcher (2021).

et al. (2006).

Apart from process control, the second effective method was communication towards staff with a mean score of 4.414. This means that to prevent and detect fraud in an organization, communication towards staff should be highly used since it is very effective in preventing and detecting fraud. As shown in the analysis under Table 2, under this category, individually training on fraud prevention and detection as well as ethics training collectively were ranked as the most effective method of preventing and detecting fraud (Mean = 4.566). This is followed by employees counseling programs (Mean = 4.524) and ethics officers (Mean = 4.000). Being the second most effective method of preventing and detecting fraud, communication towards staff should be highly practiced by any organization. This suggests that conducting fraud awareness creates strong immune against fraud scandals in an organization. In addition, the provision of employees counseling programs accompanied by the presence of an ethics officer adds value to preventing and detecting fraud. A review of past studies indicates that employees are imparted with good faith in their organization when they are frequently trained on fraud prevention and detection (Rahman and Anwar, 2014). On the other hand, such practices encourage creating a culture of honesty and self-awareness against fraud scandals in an entity (Bierstaker et al., 2006). This is also consistent with Shanmugam et al. (2012) and Bierstaker et al. (2006) who collectively recommended that various training workshops on moral values, anti-fraud awareness, and ethical conduct keeps on reminding employees in preventing and detecting fraud in an entity. Specifically, Bierstaker et al. (2006) insisted that frequently trained auditors on fraud prevention and detection have more ability to identify and detect red flags compared with the others, who don't have training on the same.

The third and fourth effective method was integrated fraud control and organizational policy with a mean score of 3.812 and 3.811 respectively. As indicated in their mean scores, these two methods had a slight difference in their mean, meaning that their effectiveness in preventing and detecting fraud is the same. As shown in Table 2, integrated fraud control involved five methods and the most effective one was whistle-blowing policy (Mean = 4.476), followed by the use of surveillance equipment like CCTV Camera (Mean = 4.352), and fraud auditing (Mean = 4.159). Also, fraud vulnerability review with a mean value of 3.145 and fraud hotline with a mean score of 2.931 was ranked as the least methods in preventing and detecting fraud in the selected public institution in Tanzania. Our findings imply that the presence of a whistleblowing policy and the application of surveillance equipment like CCTV cameras are highly

Table 2. Perceived effectiveness of fraud Prevention and detection methods.

S/N	Variables (methods of fraud prevention and detection)	Mean (Individual)	Mean (group)	Ranking
1	**Inspection Tools and Methods**			
	Discovery Sampling	2.531		
	Data mining	2.641		
	Digital analysis	2.655		
	Continuous auditing	4.566		
	Use of Forensic Accountants/Auditors	1.793	2.847	6
	Surveillance of electronic correspondences (emails, mobile phones, and mobile phone-money transfers)	2.193		
	Financial ratios	2.007		
	Security department/unit	4.386		
2	**Continuous Monitoring**			
	Increased attention of senior management	4.386		
	Staff rotation policy	4.441		
	Code of sanctions against suppliers and contractors	2.207	3.228	5
	Reference checks on employees	2.628		
	The increased role of the Audit Committee	2.517		
	Anonymous Reporting	3.186		
3	**Integrated Fraud Control**			
	Fraud auditing	4.159		
	Fraud vulnerability reviews	3.145		
	Fraud hotline	2.931	3.812	3
	Surveillance equipment like CCTV Camera	4.352		
	Whistleblowing policy	4.476		
4	**Protection software/application**			
	Password	4.193		
	Firewalls	2.848	2.528	7
	Filtering software	3.069		
5	**Process Control**			
	Internal control review and improvement	4.524		
	Cash reviews	4.524	4.553	1
	Inventory observation and inspection	4.545		
	Bank reconciliation	4.621		
6	**Organizational Policy**			
	Anti-fraud policy	3.476		
	Ethical Policy	4.531	3.811	4
	Corporate Code of Conduct	3.428		
7	**Communication Towards Staff**			
	Fraud Prevention and Detection Training	4.566		
	Ethics Training	4.566	4.414	2
	Employees Counseling Programmes	4.524		
	Ethics Officer	4.000		

Source: Researcher (2021).

effective in preventing and detecting fraud in the selected public institution. The whistle-blowing policy enables employees and non-employees to provide information related to fraud intentions or fraud scandals hence

enabling an organization to prevent or detect fraud in an early environment. Also, the employment of CCTV cameras and other similar equipment works collectively in preventing and detecting fraud in an organization.

For the case of organizational policy like anti-fraud policy, ethical policy, and corporate code of conduct, it is shown that ethical policy is the most effective method in preventing and detecting fraud (Mean = 4.531) followed by anti-fraud policy (Mean = 3.476) and corporate code of conduct (Mean = 3.428). Therefore, as per our results, the application of fraud policies like anti-fraud policy, ethical policy, and corporate code of conduct play a significant role in preventing and detecting fraud in public institutions. In the view of reducing fraudulent activities, management should emphasize and place more efforts on professional ethics starting from top to bottom levels (Shanmugam et al., 2012).

Continuous monitoring was also ranked as the fifth method with a mean score of 3.228. This involved increased attention of senior management (Mean = 4.386), staff rotation policy (Mean = 4.441), anonymous reporting (Mean = 3.186), code of sanctions against suppliers and contractors (Mean = 2.207), and reference checks on employees (Mean = 2.628), as well as the increased role of the audit committee (Mean = 2.517). Other methods which were perceived not to be effective in fraud prevention and detection were inspection tools and methods as well as protection software/application. These methods scored a mean of 2.847 and 2.528 respectively. As per ranking in Table 2, inspection tools and methods as well as protection software/application were ranked as the sixth and seventh method respectively, indicating that they are not effectively used methods in fraud prevention and detection methods in the public institutions in Tanzania. Our findings show that inspection tools such as discovery sampling, data mining, digital analysis, use of forensic accountants/auditors, and surveillance of electronic correspondences (emails, mobile phones, and mobile phone-money transfers) are not frequently used in preventing and detecting fraud in the public institutions. According to Shanmugam et al. (2012), forensic accountant focuses on investigation, discovering fraud, recovering assets fraudulently taken by fraudsters as well as tracking of assets. This makes a note that, public institutions have not invested much in the application of the stated inspection tools in preventing and detecting fraud. For example, using a forensic accountant is highly beneficial in large organizations like a small one, due to budget challenges. This is in agreement with Rahman and Anwar (2014) and Othman et al. (2015). On the other hand, our results show that the use of financial ratios, continuous auditing, and security department/unit have much impact on fraud prevention and detection. Previous studies recommend that continuous auditing and application of digital analysis as well as data mining should be highly encouraged and organizations should invest much in the use of forensic accountants and auditors (Bierstaker et al., 2006).

CONCLUSION AND RECOMMENDATIONS

The aim of this study was to assess the perceived effectiveness of fraud prevention and detection methods in the public sector in Tanzania. General results showed that Process Control involving Internal control review and improvement, cash reviews, inventory observation and inspection and bank reconciliation ranked the first in its effectiveness; followed by communication towards staff; integrated fraud control; organizational policy; continuous monitoring; inspection tools and methods; and protection software/application, respectively.

Based on the conclusion, the study recommends that the government should improve by revisiting the performance of methods such as integrated fraud control; organizational policy, continuous monitoring, inspection tools and methods as well as protection software/ application as they were ranked low in their effectiveness.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interest.

REFERENCES

Alleyne VGP, Howard M (2005). An exploratory study of auditors' responsibility for fraud detection in Barbados. Managerial Auditing Journal 1(4):1-16.

Apostolou N, Crumbley DL (2008). Auditors' Responsibilities concerning Fraud: A Possible Shift? The CPA Journal 78(2):23-44.

Association of Certified Fraud Examiners (ACFE) (2018). Report to the Nations Global Study on Occupational Fraud and Abuse Government. New York: Association of Certified Fraud Examiners.

Audit Report (2012). Annual General Report of the Controller and Auditor General: On the Audit of the Financial Statements of Donor Funded Projects for the year ended 30th June, 2012.

Bierstaker JL, Brody RG, Pacini C (2006). Accountants' perceptions regarding fraud detection and prevention methods. Managerial Auditing Journal 1:1-14.

Denman DS (2019). Machiavelli and the Fortress City. Political Theory 47(2):203-229.

Kothari CR (2004). Research Methodology Methods and Techniques. 2nd Edition, New Age International Publishers, New Delhi.

Maxwell A (2012). The development practioners Handbook, London, Pluto Publishing Press.

Mwonge LA, Naho A (2021). Determinants of credit demand by smallholder farmers in Morogoro, Tanzania. African Journal of Agricultural Research 17(8):1068-1080.

Olweny TO, Kimani D (2011). Stock market performance and economic growth empirical evidence from Kenya using causality test approach. Advances in Management and Applied Economics 1(3):153-196.

Othman R, Aris NA, Mardziyah A, Zainan N, Amin NM (2015). Fraud detection and prevention methods in the Malaysian public sector: Accountants' and internal auditors' perceptions. Procedia Economics and Finance 28:59-67.

PWC (2018). Pulling fraud out of the shadows Global Economic Crime and Fraud Survey. UK: PWC.

Rahman RA, Anwar ISK (2014). Types of Fraud among Islamic Banks in Malaysia. International Journal of Trade Economics and Finance 5(2):176-179.

Shanmugam JK, Che Haat MH, Ali A (2012). An Exploratory Study of Internal Control and Fraud Prevention Measures in SMEs. International Journal of Business Research and Management 3(2):90-99.

Shausi GL, Ahmad AK, Abdallah JM (2019). Factors Determining Crop Farmers' Willingness to Pay for Agricultural Extension Services in Tanzania: A Case of Mpwapwa and Mvomero Districts. Journal of Agricultural Extension and Rural Development 11(12):239-247.
Siregar SVNP, Tenoyo B (2015). Fraud awareness survey of private sector in Indonesia. Journal of Financial Crime 22(3):329-346.
Smith GS (2012). Can an auditor ever be a first responder to financial frauds? Journal of Financial Crime 1(4):14-34.
Spira LF, Page M (2003). Risk management: The reinvention of internal control and the changing role of internal audit, Accounting, Auditing and Accountability Journal 16(4):640-661.
Zuberi O, Mzenzi SI (2019). Analysis of employee and management fraud in Tanzania. Journal of Financial Crime 4(3):92-111.

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The composition of board of directors and performance: Impact of the political experience after the Tunisian revolution

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This paper investigates the impact of directors' political experience, acquired on the financial performance of listed companies, after the Tunisian revolution of 2011. We also emphasize the directors' strategic experience, and the board of directors' demographic and structural characteristics. Our data are based on a sample of 22 Tunisian companies listed on the Tunisian stock exchange during the period 2012 to 2018. This period is characterized by a high corruption. We use two different regression models to examine the impact of the directors' political experience on the firm's performance. Especially, two measures of the financial performance, namely the ROE and the Tobin's Q are considered. The results show that political experience is insignificant when considering the ROE while it has a negative impact on performance when it is measured by the Tobin's Q. Nevertheless, strategic experience, the presence of women and the frequency of meetings moderate this negative impact and increase performance.

Key words: Political experience, performance, Tunisian revolution, board of directors, corruption.

INTRODUCTION

Ho (2005) defines corporate governance as the structure and processes involving the board of directors, shareholders, top management and other stakeholders; it also involves the roles of the stewardship process, exercising strategic leadership, and the objectives of assuring accountability and improving performance. Relevant corporate governance studies consider the board of directors as a decision-making group that improve the effectiveness of shareholders' control (Van den Berghe and Levrau, 2004). Thus, the board of directors is one of internal governance mechanisms that are intended to ensure a good decision making. The good functioning of the board relies on many classical characteristics related specially to its size, the separation of its function, the independence of its directors and the meeting frequency (Fernandez et al., 2014).

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Several papers present evidence suggesting that effective governance and firms' performance increase with board experience and improve strategic decision-making (Roberts et al., 2005). More recently, board diversity is thus perceived as a stimulus for a company's value (Carter et al., 2003; Carter et al., 2010). Indeed, the impact of board diversity on performance is a salient subject that has a great academic interest (Kramarz and Thesmar, 2006; Ruigrock et al., 2006; Lee, 2018; Giannetti et al., 2015; Conyon and He, 2016; Green and Homroy, 2018). Another related literature on governance precisely cognitive theories sheds light on directors' role experience on firms' performance (Lambert and Ghaya, 2016; Hope et al., 2017). Directors' political experience improves firms' reputation by the development of professional relational network and lobbying (Charreaux, 2003; Nam et al., 2018). In this case, many researchers highlight a close link between the passage in ministries and the access to high responsibility positions on the board of directors. Bencheikh and Boulila (2017) conducted a study on the effect of political connexion in a democratic environment on firms' performance after the 2011 revolution. Their results show that political connections increase performance and political relations provide access to privileges regardless of the political atmosphere. Since the revolution, Tunisia has not stopped improving its democratic way and its fight against corruption. Finally, other researchers reveal that the introduction of strategically experienced administrators makes it possible to offset managerial imperfections of entrepreneurs (Lynall et al., 2003; Dou et al., 2015)

A question, therefore, arises as to whether the political and the strategic experience of directors acquired after the 2011 revolution affects the listed companies' performance. Our paper contributes to the existing literature in two ways. First, we deal with this issue in an innovative context, namely the Tunisia context. Tunisia underwent a deep change in the political and constitutional environment since the revolution of 2011. Still, the political landscape changed and several directors became able to exercise their right of political belonging. Hence, there was a huge lobbying emergence and a great flexibility of access to Tunisian ministerial cabinets. Second, we analyze the impact of the board of directors' diversity on the relationship between performance-politic experience.

Still, in order to choose the appropriate regression method, specific tests were done. A questionnaire was used to collect data relative to the political and strategic experience. Following the methodology of Muller (2014) and Arora and Sharma (2016), first the impact of the directors' experience on listed Tunisian companies' performance measures was highlighted. Second, the structural and demographic characteristics of the board of directors were introduced in order to assess the interaction between these factors and the couple directors' experience-performance. The board's size, the duality and the company's size as control variables commonly used were added (Terjesen et al., 2015). Using a sample of 22 Tunisian companies listed on the Tunisian stock exchange during the period 2012-2016, we find that the political experience has a negative impact on performance measured by the Tobin's Q, in a Tunisian context characterized by high corruption.

Nevertheless, strategic experience, the presence of women and the frequency of meetings moderate this negative impact and increase performance.

LITERATURE OVERVIEW

An effective board of directors must have members with different skills and knowledge (Charreaux, 2000). This capital called experience presents a source of creativity, learning, innovation, adaptation and performanceIn this study, political experience (Goldman et al., 2009) and strategic experience (Lambert and Ghaya, 2016) are situated in the core of the theoretical construction. Since the board of directors has been considered as the centre of social links, it includes the resources mobilized by the directors to ensure the good functioning of the company in terms of efficiency and performance (Rouby, 2008).

Political experience

The political experience is a determining factor in the choice of directors as much as it increases the chance of access to top management within large firms (Figueiredo and Silverman, 2006 ; Mian et al., 2010). Directors' political experience improves the firm's reputation by the development of professional relational network and lobbying (Charreaux, 2003; Nam et al., 2018).

In this case, many researchers highlight a close link between the passage in ministries and the access to high responsibility positions on the board of directors. Li and Zhang (2007) show that political networking and experience can be beneficial to new firms in a transition economy and confirm the positive relationship between political experience and performance is moderated by the type of ownership of the firms and the level of competition in their environments. Actually, politically connected firms grant loans with preferential rates benefit from lower taxes and dominate the local market. Therefore, political affiliation affects positively the firm value in the post-election period owing to economic favor allowed to some firms (Faccio, 2006).

Otherwise, other researches have shown that the doubtful interaction between the political systems and performance exceeds countries with a high level of corruption and became remarkable even in the United States after the 2008 crisis (Goldman and al. 2009). Despite the strong US legal system, the political connections of boards have a positive and significant

impact on the allocation of government resources and the award of government contracts (Goldman et al., 2017). Also Sharma et al. (2020) explore the differences in the impact of political connections on the performance of Chinese exporter and non-exporter firms and find significant positive effects of political connections on Chinese firms' decisions to enter export markets and their subsequent performance.

In another research area, the negative impact of directors' political experience on performance can be seen in countries with a weak legal system and a high level of corruption (Faccio and Parsley, 2006; Hope et al., 2017). In this way, Indonesian companies whose directors have family ties with the president meet a stock market price tumble in their shares following the announcements of the deteriorating of the president's health (Fisman, 2001). Similarly, China, which banned civil servants from holding a director position in an anti-corruption company in 2013 has seen an improvement in the quality of accounting figures and the level of financial performance (Lambert and Ghaya, 2016; Hope et al., 2017).

Likewise, Dou et al. (2015) show that firms with government-owned managers have a significantly lower return on assets ROA than those with no political linkage, particularly in non-regulated industries (Leong et al., 2015). This negative political affiliation's impact is explained by the diversion of resources and their inefficient use since they have been attained from corruption and favoritism. This situation leads to a decrease in performance given that managers conspire with politicians to protect themselves from the threat of takeover. On the other hand, another line of research denies any relationship between political experience and firms' performance. Hillman (2005), by using the accounting measures of performance in his empirical study, did not find any impact. Similarly, Choi et al. (2007) and Ding et al. (2013) have shown a negative, but no significant impact of the political experience on performance in the Korean and Singaporean context. Tunisia is also considered as a country in which corruption is high. Moreover, during the post-electoral period, we remark a strong interaction between politics and business. Thus the following hypothesis:

H1. The political experience of directors has a negative impact on firms' performance.

Strategic experience

The cognitive theory of governance shows that the board's effectiveness depends on its members' skills and knowledge (Godard and Schatt, 2000). Thus, the directors ' experience is a source of creativity, innovation, adaptation, and performance. For this, some researchers advocate the existence of a significant positive relationship between the presence of experienced directors in the strategic field and the performance of the company (Lambert and Ghaya, 2016). Consequently, the strong involvement of these directors and the taking of adequate strategic decisions is a source of value creation. In this sense, Godard (2006) shows that the role of directors in creating value is achieved through their affiliation in strategic committees that contribute to the innovation process by creating investment opportunities. Recently, Wen et al. (2020) show a significantly negative association between directors with foreign strategic experience and tax avoidance. This suggests that these directors can help constrain their firms' tax aggressiveness and impact their performance.

In addition, the introduction of strategically experienced administrators makes it possible to offset managerial imperfections of entrepreneurs (Lynall et al., 2003; Dou et al., 2015) and their expertise enriches financial transparency and positively influences the firm value (Davidson et al., 2004; Agrawal and Chadha, 2005; Defond et al., 2005; Kaplan et al., 2012; Benmelech and Frydman, 2015; Bernile et al., 2017). Al-Matari et al., (2019) confirms the positive relationships between the strategic experience of top executive management and the board of Omani listed firm and corporate performance.

Other researchers reveal that experienced directors do not abandon the company during periods of crisis, which explains the increase in the proportion of experienced administrators when the ROA is low (Dou et al., 2015). Thus, experienced directors make a valuable contribution to the firm's corporate governance (Marlin and Geiger, 2011). In light of what was exposed in literature, we propose the following hypothesis:

H2. The directors' strategic experience has a positive impact on firms' performance.

The second part of this paper consists in introducing board characteristics in order to detect their influence on the existing relationship between directors' experience and firms' performance. Thus, board diversity can improve the decision making of the board and leads to better firms' performance (Iren, 2016).

Impact of board diversity

The board heterogeneity and the diversity in the composition of its members constitute an element favoring its effectiveness and a stimulant of performance (Carter et al., 2010; Hafsi and Turgut, 2012). In order to identify this impact, we subdivide characteristics in demographics relative to gender and percentage of foreign, structural relative to independence and frequency of meetings (Lee, 2018; Giannetti et al., 2015). We suppose then:

H3. The characteristics of the board of directors

moderate the relationship between political experience and firms' performance.

Concerning the strategic experience, we maintain its positive impact on the relation between political experience and performance. Therefore, we formulate the following hypothesis:

H3.1. The strategic experience of directors positively affects the relationship between political experience and firms' performance.

In addition, the board feminization (St-Onge and Magnan, 2013) is a widely debated question by the literature. Some suggest that women engage less in non-ethical behaviors (Croson and Gneezy, 2009), favoring a horizontal structure and a participative management mode based on power-sharing and decreasing agency costs (Adam and Ferreira, 2009; Rhode and Packel, 2014). Thereby, the announcement of women introduction within the board of directors is often the origin of the stock market return's improvement (Kang et al., 2007) and firms' reputation.

In this way, the presence of women within the board of directors of Australian (Nguyen and Faff, 2007), American (Conyon and He, 2016) Chinese (Liu et al., 2014) and English (Muravyev, 2016) firms positively affects their performance (Lückerath-Rovers, 2013) and value (Carter et al., 2003). Nevertheless, some researchers predict that the feminization of the board can reduce performance by complicating the decision-making process (Gulet et al., 2011) and by accentuating men/women conflicts (Adams and Ferreir, 2009, Randoy et al., 2006). Others do not raise any effects of the gender diversity of the board on performance advice (Rose, 2007; Bohren and Strom, 2010; Carter et al., 2010).

Adams and Ferreir (2009) explain these mixed results by differences in performance measures, used methodologies, contextual problems and the complexity of human capital theory. For this, Carter et al. (2010) suggest that only gender and ethnic diversity can have an effect on performance measures. We have, thus, adopted the position of the majority of studies and we assume that:

H.3.2. Women's presence within the board of directors positively affects the relationship between political experience and performance.

Moreover, the literature has shown that the presence of foreigners on the board of directors has a significant impact on companies' performance (Van Veen and Marsman, 2008; Agrawal et al., 2011). Yagli and Lu (2016) explain the positive association by the fact that foreign directors generally come from a country with better legal institutions, more efficient governance standards, and therefore have better international expertise and skills (Miletkova et al., 2017). Colpan (2011) add that the performance of independent directors depends on the degree of foreign ownership. When this property is high, the directors will have more incentives to protect the interests of the shareholders (Kimura and Kiyota, 2007; Firth et al., 2007; Martins and Schilpzand, 2011). For other researchers, this international diversity has a negative impact on performance since the lack of coordination and involvement of foreign members does not make it possible to improve the functioning of the board of directors and intragroup cohesion (Madani and Khlif, 2010; Masulis et al., 2012). Hahn and Lasfer (2016) even report an underperformance due to the excessive remuneration of foreign directors within English companies.

In this sense, Giannetti et al. (2015) add that directors with foreign experience do not pay close attention to the value of firms in the long-term or the evolution of corporate social responsibility. In the light of what has been– preceded, we assume that:

H.3.3. A high proportion of foreign directors positively affects the relation between political experience and performance.

Like foreign directors, the presence of external directors, which is considered among the best corporate governance mechanisms, has a significant impact on performance measures. Thus, the independence of directors has made it possible to mitigate the problem of interests, conflicts between managers and shareholders (Alexandre and Paquerot, 2000), to improve the quality of the disclosed information (Chen and Jaggi, 2000; Lefort and Urzúa, 2008), and also to increase the firm value (Lee, 2018) and the effectiveness of its control (Dahya et al., 2008).

On the other hand, independent directors are able to put pressure on auditors to obtain more detailed reports, which reduces the risk of misconduct. Thus, this positive relationship can be explained by the fact that independent directors detect more easily early signs of risk, but leave the company before the deterioration of performance (Kutum, 2015). Supporting the literature, the following hypothesis is proposed:

H.3.4. A high proportion of independent directors positively affects the relation between political experience and performance.

Consequently, the frequency of board meetings leads to better communication between managers and directors. Studies confirm a positive relationship between the number of board meetings and the financial performance of companies. (Kang and al. 2011; Gavrea and Stegerean, 2012; Chou et al., 2013; Xu and Jiraporn, 2013; Al-Matari et al., 2014; Masulis et al., 2017). Ntim and Osei (2011) add that boards that meet more frequently have an increased ability to effectively advise,

monitor and discipline, which can improve the companies' financial performance.

However, several researchers confirm that the high number of board meetings negatively affects the effectiveness of its role of control and decision. Thus, Garcia-Sanchez (2010) has shown that the board with a high meeting frequency can be a signal of the decline in share prices of the company. Because of time and budget restrictions, the market perceives badly boards that do not meet frequently. For this, the following hypothesis is adopted:

H.3.5. The meeting frequency of the board of directors positively affects the relation between political experience and performance.

Data

In order to proceed with the empirical validation, we used a sample of 22 Tunisian companies listed on the Tunisian stock exchange during the period 2012-2018. The financial data are collected from official bulletins available in the financial market council (CMF) while the information concerning directors is collected from a questionnaire addressed to the boards of directors.

METHODOLOGY

This section describes the methodology which involves three steps. First, the dependent and independent variables were described. Initially four performance measures were adopted. They are categorized into accounting metrics which are ROA and ROE, and financial metrics which are Tobin's Q and BPA. However, the regression model was only significant with the two variables finally retained which are the ROE and the Tobin'S Q. Our final choice was limited to these two variables. We supported our choice by referring to the literature. Indeed, some researches such as Elsayed and Paton (2005), Rassier and Earnhart (2010) and Perez Calderon (2012) reached a consensus on the determination of the most used indicators in studying the relationship between environmental and financial performance. These indicators would be: Tobin's Q, price-to-book ratio-PBR, Return on capital employed-ROCE, Return on own-funds -ROE and ROI. Relevant measures were used for the politic experience (Leong et al., 2015), strategic experience (Lambert and Ghaya, 2016), demographic variables (Muller, 2014), structural variables (Arora and Sharma, 2016) and control variables (Terjesen et al., 2015). The study variables were chosen from previous studies by characterizing them in terms of availability and measurement. Second, descriptive statistical tests and specification tests were carried out. Third, two different regression models were used to examine the impact of the directors' political experience on firms' performance.

The first model shows the impact of political and strategic experience on the firm performance while taking the board's size, duality and company's size as variables of control. In the second model, demographic variables and structural variables were also considered. The hypotheses were tested on panel data processed by the STATA 13 software. This one is proved to be a reference software for specific data management such as financial and accounting data in panel. The specificity tests did not follow the normal distribution in our Tunisian context. These tests are the Fisher's homogeneity test used to justify the use of panel data, the Hausman test used to distinguish the individual effects, and the Breush-Pagan test used to test for heteroscedasticity.

Variables description

Dependent variables: Measuring performance

Several researchers use the Tobin's Q as a performance measure (Beiner et al., 2006; Bhagat et al., 2008; Campbell and Minguez-Vera, 2008; Adams and Ferreira, 2009; Zouari and Taktak, 2014; Martín and Herrero, 2018; Song et al., 2020). Also, Wang et al. (2014), Liu et al. (2015) and Salah (2020) use the ROE as a performance measure. Also Ghosh (2006), Borlea et al. (2017) and Nouri et al. (2018) use ROE and Tobin's Q to measure performance.

Tobin's Q: measure of firm's growth opportunities. It is defined as the ratio:

$$Tobin^{'}s\ Q = \frac{(\text{Market capitalization of equity} + \text{Long term debt})}{\text{Total asset}}$$

ROE: is defined as:

$$ROE = \frac{\text{Net profit}}{\text{Equity}}$$

Independent variables

Political and strategic experience

Political experience: Defined as the percentage of directors with political experience (Faccio, 2006; Leong et al., 2015).

Strategic experience: Defined as the percentage of directors with strategic experience (Godard, 2006; Lambert and Ghaya, 2016).

Demographic variables

Presence of women: Defined as the percentage of women within the board (Kang et al., 2007; Conyon and He, 2016; Green and Homroy, 2018).

Presence of foreigners: Defined as the percentage of foreign directors (Schilpzand and Martins, 2010; Miletkov et al., 2017).

Structural variables

Independence of directors: Defined as the percentage of independent directors (Godard and Schatt, 2004; Aggarwal et al., 2011).

Directors meetings: Measure number of the board's meetings (Fuller and Jensen, 2002; Kutum, 2015).

Control variables

Duality: Measured 1 if there is a cumulative function, 0 if not (Kang and Chun, 2009).

Board size: Measures the number of directors (Adams and

Mehran, 2003; Masulis et al., 2012).

Firm size: Defined as log (total assets) (Baker, 2016).

Statistics tests

In this part, descriptive statistics was first presented. Then correlation coefficients was performed to verify multicollinearity. Finally, the necessary specification tests were done in a particular Tunisian context in which the variables' normality were not guaranteed. The interpretation of results of exploratory research depends on the contextual data which, despite their instability, can be available later for a "normative" purpose. These tests include the Fisher's homogeneity used to justify the use of panel data, the Hausman test used to distinguish the individual effects, and the Breush-Pagan test used for heteroscedasticity.

Multivariate analyses

Two different regression models were used to examine the directors' political experience impact on the firm's performance. We use multivariate regression defined as a method used in statistical modeling to perform prediction analysis on a group of independent variables towards a dependent variable. We regress in a first model the firm's performance on the political experience and the directors' strategic experience, while taking the board's size, duality and the company's size as variables of control. In the second model, demographic variables and structural variables were considered. The study models are based on several models taken from the literature. We arrive at this combination taking into account the availability of variables (Table 1).

Model 1: $PERF_{it}= \alpha+ \beta_1 EXP\_POLI_{it} + \beta_2\ EXP\_\ STRA_{it} + \beta_3 DUAL_{it}+ \beta_4\ TAI\ CA_{it}+ \beta_5 TA+ \varepsilon_{it}(1)$

We regress performance on politic experience, strategic experience and control variables.

Model 2: $PERF_{it}=\alpha+\beta_1 EXP\_POLI_{it}+\beta_2\ EXP\_\ STRA_{it}+\beta 3 FEMM_{it}+ \beta_4 ETRAN_{it} +\beta_5 INDEP_{it} +\beta_6 MOTIV_{it} +\beta_7 DUAL_{it} +\beta_8 TAICA_{it} +\beta_9 TA_{it} +\varepsilon_{it}(2)$

We regress performance on politic experience, strategic experience, demographic variables, structural variables and control variables. Taking into consideration that $PERF_{it}$ is the financial performance of firm i in the year t which has two measures, namely, ROE and Tobin's Q. EXP_POLI_{it}, $EXP\_\ STRA_{it}$, $FEMM_{it}$, AGE_{it}, $ETRAN_{it}$, $INDEP_{it}$, $MOTIV_{it}$, $DUAL_{it}$, $TA_{it}CA_{it}$, are explanatory variables, β (β_1……. β_9) is the vector of parameters to estimate, ε_{it} is the error term.

Empirical results

The results of the descriptive statistics and multi-varied analyses are presented here. According to Fortin et al. (2020), any prevision must be adjusted using past observations. The statistical régression is a stochastic model. So Statistical linear régression is only applicable for long term prevision since it requires independent and identically distributed observations. It is a simple method of prevision, and its hypothèses can be validated a posteriori if sufficient data are available.

Descriptive statistics

Results in Table 2 show that the ROE and Tobin's Q of Tunisian listed firms present respectively an average of 7.14 and 9.4845%. On average, 0.909% of directors have political experience and 56. 67% have a strategic experience. In addition, foreigners are present at an average of 13.24%, which proves that the boards of Tunisian companies contain a small percentage of foreigners. In the same way, women have only a weak presence, on average a percentage of 0.454%. Results also show that the percentage of independent directors is on average around 25.3177% and that the boards of directors meet on average 2.9 times.

Multicolinearity tests

Table 3 reports the Pearson correlation coefficient. The results of the Pearson test show that the majority of the correlation coefficients are not high and do not exceed 0.8 (Kennedy, 1992) and 0.9 (Bohrstedt and Knoke, 1994). It is concluded that there is no multicollinearity problem. Table 4 displays the VIF test results. The purpose is to detect the presence or not of a linear relations between two continuous quantitative variables. A strong positive linear relationship between x and y value is 1.55 and the average VIF is 1.30. Moreover, all VIF values are less than 5 in line with Dimitrova (2005)'s recommendations. It is, therefore, concluded that there is no multicollinearity problem.

Specification tests

Tables 5 and 6 report the realization of Fisher's homogeneity test, and Hausman and Breush-Pagan test. As a global measure of the significance of the model, the Fisher test is used, under the hypothesis 0 which stipulates that the regression coefficients are zero and therefore the non-significance of the explanatory variables. The results of the regression reveal that The Fisher test has a significant value at the level of 1. Thus, it can be concluded that there is the existence of a specific effect. Subsequently, the Hausman test revealed that the probability of the null hypothesis' acceptance is greater than 5% for the two panels' models. It is deduced that the random effect model is the most appropriate and that the Least Generalized Squares estimator is recommended.

In addition, the Breush- Pagan test revealed a problem of Heteroscedasticity. As a result, this problem was corrected with Feasible Generalized Least Square for the random effect model.

REGRESSIONS RESULTS AND DISCUSSION

Model 1

Table 7 shows the results of the performance's regression on the political and strategic experience, the board size, duality, and firm size. Panel A of Table 7 presents results when performance is measured by ROE. It shows that the coefficient associated with political experience is positive, but statistically insignificant. This proves that the directors' political experience has no impact on Tunisian listed companies' performance.

This result contradicts the first hypothesis which stipulates that directors' political experience has a negative impact on firms' performance. This result also confirms the studies of Hillman (2005) who concluded that there is no relationship when performance is estimated by accounting measures. Still, Choi et al. (2007) and Ang

Table 1. Variables identifications and measures.

Variable	Symbol	Measure
Dependent variable		
Return On Equity	ROE	(market value +financial debts)/total of assets
The Tobin' Q	QTB	Net profit/ Equity
Variables relative to political and strategic experience		
Political experience	EXP-POLI	Percentage of directors with political experience
Strategic experience	EXP-STRAT	Percentage of directors with strategic experience[1]
Demographic variable		
Presence of woman	WOM	Percentage of women within the board
Presence of foreigners	FORG	Percentage of foreign directors
Structural variable		
Independence of directors	INDEP	Percentage of independent directors
Directors' meetings	MOTIV	Number of meetings of the board
Control variable		
Duality	DUAL	1 : if there is a cumulative functions; 0 if not
Board size	BRDSZE	Number of directors
Firm size	FRMSZE	Log total assets

This table presents statistics for the firm's performance measured by ROE (market value +financial debts/total of assets) and the Tobin'Q (Net profit/ Equity). Political and strategic experience is calculated by directors' percentage with political or strategic experience. The presence of women is measured by the percentage of women within the board. Presence of foreigners is measured by the percentage of foreign directors. Also Independence of directors is calculated as percentage of independent directors. Director's meetings are measured by the number of meetings of the board. Duality is measured 1 if there is a cumulative function, 0 if not. Board size measure number of directors and Firm size defined as its log (total assets).

Table 2. Descriptive statistics.

	Dependent variable			
Variable	**Mean**	**Standard deviation**	**Minimum**	**Maximum**
ROE	0.07140	0.18034	-0,7	0.56
Tobin's Q	0.094845	0.100165	0	0.404
Independent variable				
EXP-POL	0.00909	0.017637	0	0.061
EXP-STRAT	0.566737	0,412048	0	1
WOM	0.004545	0.020925	0	0.1
FORG	0.13244	0.21307	0	1
INDEP	0.25317736	0.21285719	0	0.69915321
MOTIV	2.9	1.042228	1	6
Control variable				
BRDSZE	8.581818	2,06047	3[2]	12
FRMSZE	11.5558	4.9929	5.96842	19.2969

This table shows summary descriptive statistics. We present for all the variables the Mean, Standard Deviation, Minimum and Maximum. As we have Return On Equity= ROE; Tobin's Q; Political experience =EXP-POL; strategic experience= EXP-STRAT; Presence of woman= WOM; Presence of foreigners= FORG; Independence of directors= INDEP; Directors' meeting =MOTIV; Duality= DUAL; Board size= BRDSZE; Firm size= FRMSZE.

[1]Were considered as experienced directors in the strategy, those who serve as CEO of another company or executive in the strategic function, those who know the company well, and directors familiar with the company's sectors (Godard, 2006)

[2] The legal minimum provided by article 189 of the code of commercial companies

Table 3. Pearson correlation test.

Variable	EXP STRAT	EXP –POL	DUAL	BRDSZE	WOM	FORG	INDEP	MOTIV	FRMSZE
EXP-STRAT	1.0000								
EXP-POL	-0.0314	1.0000							
DUAL	-0.0077	0.2175	1.0000						
BRDSZE	0.2150	0.0551	-0.0089	1.0000					
WOM	-0.3015	0.3842	0.2182	0.1509	1.0000				
FORG	0.0832	-0.0273	-0.0931	-0.1368	-0.0334	1.0000			
INDEP	-0.2250	0.0790	0.1450	0.3923	-0.2193	-0.1186	1.0000		
MOTIV	-0.1419	-0.0898	0.0350	0.0239	0.0841	-0.0693	-0.1272	1.0000	
FRMSZE	-0.2761	0.0347	0.0404	0.0450	0.0123	0.0553	0.0904	0.1704	1.0000

This table reports the Pearson correlation coefficient. Its purpose is to detect the presence or not of a linear relation between two continuous quantitative variables and is between -1 and 1. The meaning of the relation is indicated by the sign of r whereas the intensity of the relation (ability to predict the values of one variable relative to the other) is given by the absolute value of r. As we have : Political experience =EXP-POL; strategic experience= EXP-STRAT; Presence of woman= WOM; Presence of foreigners= FORG; Independence of directors= INDEP; Directors' meeting =MOTIV; Duality= DUAL; Board size= BRDSZE; Firm size= FRMSZE.

Table 4. VIF index.

Variable	VIF	1/VIF
EXP-STRAT	1.55	0.646130
EXP-POL	1.24	0.807515
DUAL	1.13	0.885496
BRDSZE	1.48	0.673401
WOM	1.46	0.686456
FORG	1.07	0.938502
INDEP	1.46	0.685721
MOTIV	1.13	0.886877
The average VIF	**1.30**	

The VIF tests have as object to detect the presence or not of a linear relation between two continuous quantitative variables between -1 and 1. Like Pearson correlation coefficient, the test shows the absence of the multicollinearity problem..As we have: Political experience =EXP-POL; strategic experience= EXP-STRAT; Presence of woman= WOM; Presence of foreigners= FORG; Independence of directors= INDEP; Directors' meeting =MOTIV; Duality= DUAL; Board size= BRDSZE; Firm size= FRMSZE.

Table 5. Specification tests.

	Fischer test		Hausman test			Breushpagan test	
	P-value	Nature of effects	Khi-square	Probabilities	Effects	Khi-square	P-Value
Panel A							
ROE	0.0000	Specific effect	0.68	0.9540	Random effect	44.21	0.0000
Panel B							
Tobin's Q	0.0000	Specific effect[3]	1.08	0.8978	Random effect	72.01	0.0000

Tables 5 and 6 show the realisation of Fisher's homogeneity test, the Hausman and the Breush-Pagan test.
Fisher tests the homogeneity of the variances in the case where the variances of the sample are calculated on different numbers of individuals. In a panel-based linear regression model, the Hausman test tests the difference between the fixed effects model and the random effects model. Whereas, the Breusch-Pagan test makes it possible to test the hypothesis of homoscedasticity of the error term of a linear regression model.

Table 6. Specification tests

	Fischer test		Hausman test			Breushpagan test	
	P-value	**Nature of effects**	**Khi-square**	**Probabilities**	**Effects**	**Khi-square**	**P-Value**
Panel A							
ROE	0.0000	Specific effect	2.65	0.9158	Random effect	37.91	0.0000
Panel B							
QTB	0.0000	Specific effect	9.82	0.1990	Random effect	61.25	0.0000

Table 7. Results of the Multi-varied analyses

$PERF_{it}= \alpha+ \beta_1 EXP\_POLI_{it} + \beta_2 EXP\_ STRA_{it} + \beta_3 DUAL_{it}+ \beta_4 TAI\ CA_{it}+ \beta_5 TA+ \varepsilon_{it}$ (1)

Panel A

ROE_{it}= $\alpha+ \beta_1 EXP\_POLI_{it} + \beta_2 EXP\_ STRA_{it} + \beta_3 DUAL_{it}+ \beta_4 TAI\ CA_{it}+ \beta_5 TA+ \varepsilon_{it}$

	Coefficient	**Z**	**Significance**
EXP_POLI	0.9682887	1.45	0.146
EXP_ STRA	0.003007	1.26	0.206
DUAL	-0.038043	-2.68	0.007
BRDSZE	-0.0052849	-1.78	0.076
FRMSZE	0.0024713	1.78	0.074
Constant	0.090623	3.26	0.001
R^2= 11.58			Fisher= 0.0410

Panel B

Tobin's Q_{it} = $\alpha+ \beta_1 EXP\_POLI_{it} + \beta_2 EXP\_ STRA_{it} + \beta_3 DUAL_{it}+ \beta_4 TAI\ CA_{it}+ \beta_5 TA+ \varepsilon_{it}$

	Coefficient	**Z**	**Significance**
EXP_POLI	-1.435399	-4.10	0.000
EXP_ STRA	0.0095497	5.20	0.0000
DUAL	0.0363944	2.62	0.009
BRDSZE	0.0035737	0.95	0.342
FRMSZE	-0.0004216	-0.36	0.720
Constant	0.0058183	0.17	0.867
$R^{2=}$ 48.7			Fisher=0.000

Table 7 report the results of multivariate analysis by applying multiple linear regression, of the performance on the political and strategic experience. The sample includes 22 Tunisian companies listed on the Tunisian stock exchange during the period 2012-2016. Dependent variable is Performance which calculated in the Panel A by ROE and Panel B byTobin's Q. Independent variables are about measures for the politic experience (Leong, et al., 2015), for strategic experience (Lambert and Ghaya, 2016), for demographic variables (Muller, 2014), for structural variables (Arora and Sharma, 2016) and control variables (Terjesen et al., 2015). As we have: Political experience =EXP-POL; strategic experience= EXP-STRAT;Duality= DUAL; Board size= BRDSZE; Firm size= FRMSZE.

et al. (2013) find that in South Korea and Singapore, political experience has no impact on firms' value.

Panel A of Table 7 shows the strategic experience. We find a positive, but not significant coefficient. This result contradicts the second hypothesis which stipulates that strategic experience of directors has a positive impact on firms' performance. The result also confirms the studies of Ferris et al. (2003). These results can be explained by the limited size of the sample and the nature of the ROE measure that does not have a high reactivity.

Duality has a significant negative coefficient at the level of 1%, which implies that the combination of two functions by the CEO has a negative effect on the firms' performance (Iren, 2016; Kalsie and Shrivastay, 2016). Similarly, board size proves to be significantly negative at the level of 10% which is consistent with the studies of Carter et al. (2003), Hermalin and Weisbach (2003), and Rizwan et al. (2016). In turn, the firm size has a positive coefficient and it is significant at a level of 10%. This implies that large companies can achieve high levels of

performance (Iren, 2016).

The empirical results of Panel A of Table 7 estimated by the accountant measure show that neither political nor strategic experience has any impact on the performance of Tunisian companies.

Large boards have a negative impact on performance due to the existence of agency problems and the board's inability to play a supervisory and advisory role, especially in the presence of the dual functions by the CEO.

Panel B of Table 7 presents results when performance is measured by Tobin's Q. It shows that the political experience has a negative and significant impact at a level of 1% on financial performance. This confirms the hypothesis which stipulates that the directors' political experience has a negative impact on firms' performance. This result is shown in the literature by Faccio (2006), and Dou et al. (2015). Thus, in the Tunisian context which is characterized by a strong corruption and a lack of transparency, the political connection is misused by directors to divert resources and harm the company's interests by undertaking investments at the expense of the firm value.

The strategic experience has a positive and significant effect at the level of 1%. This confirms the second hypothesis which stipulates experience has a positive impact on firms' performance. It is also consistent with the results of Pérez-González (2006), Bennedsen et al. (2007), Kaplan et al. (2012), Benmelech and Frydman (2015), and Bernile et al. (2017). The percentage of directors with strategic experience, as defined by Godard (2006) has a positive impact on performance. The result moderates the negative impact of the political experience. The significance of the political experience and strategic experience is due to the high reactivity of the Tobin's Q performance measure compared to the ROE measure.

Panel B of Table 7 shows the negative impact of the directors' political experience. Taking into account a context in which corruption prevails. The administrators' strategic experience and duality are two factors that moderate the negative impact of the directors' political experience on the performance of Tunisian companies.

Model 2

Table 8 shows the results of the performance's regression on political and strategic experience, presence of women and foreigners, independence of directors, number of meetings, board size, duality and firm size. Table 8 Panel A presents the result of regression when performance is measured by ROE. It shows that the political experience has no impact on performance. In addition, strategic experience has a positive impact on the existing relationship between political experience and performance. This confirms the hypothesis which stipulates that directors' strategic experience positively affects the relationship between political experience and firm performance.

The demographic characteristics relating to the presence of women and foreigners have a positive impact (significant at the level of 1 and 5%) on the relationship between political experience and performance. These results confirm the hypotheses which stipulate that presence of women and a high proportion of foreign directors within the board of directors positively affect the relationship between the political experience and performance. These results are shown in literature by Erhardt et al. (2003), Carter et al. (2003), Conyon and He (2016); Green and Homroy (2018); Adams and Ferreira, (2009), Anderson et al. (2011) and Miletkova et al. (2017).

In addition, for structural characteristics, only the independence of directors has a positive and significant coefficient at the level of 10%. This confirms the hypothesis which stipulates that a high proportion of independent directors positively affects the relation between political experience and performance. This is consistent with the results of Dahya et al. (2008), Aggarwal et al. (2011) and Bruno and Claessens (2010).

Nevertheless, the number of meetings of the board is not statistically significant which does not affirm the hypothesis which stipulates that the board of administration's meetings frequency positively affects the relation between political experience and performance. It aligns with the results of Kutum (2015). With the accountant measure in Panel A of T able 8, we can conclude that even in the presence of foreign and female directors, the political experience of the directors does not affect the performance while the strategic experience improves this performance. In fact, the presence of foreign directors reinforces the independence of the board of directors, neutralizes the role of directors' meetings and helps companies to adopt good governance practices, especially if their countries of origin have good governance practices. These foreign directors will protect the interests of shareholders by increasing the firm value. In the same way, the presence of female directors increases the diversity of opinions and allows making good financial decisions and so increasing the firm performance. On the other hand, if the CEO combines the dual functions on a large board of directors, the financial performance of the company becomes damaged.

Table 8 Panel B presents the result of regression when performance is measured by Tobin's Q. It proves that political experience has a significant negative impact on performance (Faccio, 2006; Fan et al., 2007; Dou et al., 2015). The strategic experience has a positive coefficient and it is statistically significant at a level of 1%, which confirms the hypothesis which stipulates that directors' strategic experience positively affects the relationship between political experience and firms' performance.

Regarding demographic characteristics, the presence

Table 8. Results of the Multi-varied analyses.

$PERF_{it}=\alpha+\beta_1 EXP\_POLI_{it}+\beta_2\ EXP\_\ STRA_{it}+\beta 3FEMM_{it}+\beta_4 ETRAN_{it}+\beta_5 INDEP_{it}+\beta_6 MOTIV_{it}+\beta_7 DUAL_{it}+\beta_8 TAICA_{it}+\beta_9 TA_{it}+\varepsilon_{it}$(2)

Panel A:

$ROE_{it=}$ $\alpha+\beta_1 EXP\_POLI_{it}+\beta_2\ EXP\_\ STRA_{it}+\beta 3FEMM_{it}+\beta_4 ETRAN_{it}+\beta_5 INDEP_{it}+\beta_6 MOTIV_{it}+\beta_7 DUAL_{it}+\beta_8 TAICA_{it}+\beta_9 TA_{it}+\varepsilon_{it}$

	Coefficient	**Z**	**Significance**
EXP_POLI	-0.0967891	-0.11	0.915
EXP_ STRA	0.0078754	3.01	0.003
WOM	1.745969	3.62	0.000
FORG	0.0883756	2.24	0.025
INDEP	0.00955228	1.67	0.095
MOTIV	0.0134824	1.47	0.142
DUAL	-0.043976	-2.48	0.013
BRDSZE	-0.0097246	-2.25	0.024
FRMSZE	0.0033631	2.32	0.021
Constant	0.0457803	1.17	0.241
R			63.66
Fisher			0.0000

Panel B:

$Tobin'sQ_{it}=\alpha+\beta_1 EXP\_POLI_{it}+\beta_2\ EXP\_\ STRA_{it}+\beta 3FEMM_{it}+\beta_4 ETRAN_{it}+\beta_5 INDEP_{it}+\beta_6 MOTIV_{it}+\beta_7 DUAL_{it}+\beta_8 TAICA_{it}+\beta_9 TA_{it}+\varepsilon_{it}$

	Coefficient	**Z**	**Significance**
EXP_POLI	-1.22804	-4.48	0.000
EXP_ STRA	0.0137198	6.83	0.000
WOM	1.536297	7.12	0.000
FORG	-0.0747452	-1.71	0.087
INDEP	0.0013081	0.39	0.694
MOTIV	0.0157599	2.57	0.010
DUAL	0.0181009	1.43	0.153
BRDSZE	0.000669	0.17	0.864
FRMSZE	-0.0002996	-0.32	0.751
Constant	-0.0221147	-0.67	0.500
R			130.69
Fisher			0.000

In the table 8, we rely on two different regression models to examine the relation between the directors' political and strategic experience and the firm performance. In addition we introduce demographic variables relative to gender, percentage of foreign administrators, structural variables like independence and meetings frequency. The purpose of this regression is to test the impact of the moderating variables. As we have Political experience =EXP-POL; strategic experience= EXP-STRAT; Presence of woman= WOM; Presence of foreigners= FORG; Independence of directors= INDEP; Directors' meeting =MOTIV; Duality= DUAL; Board size= BRDSZE; Firm size= FRMSZE.

of women has a significantly positive coefficient of around 1%, thus confirming the hypothesis which stipulates that women's presence within the board of directors positively affect the relationship between the political experience and performance. This is proved in the literature by Carter et al. (2003), Conyon and He (2016) and Green and Homroy (2018).

On the other hand, foreigners have a negative coefficient and it is statistically significant at a level of 10%. This invalidates hypothesis which stipulates that foreigners within the board of directors positively affect the relationship between the political experience and performance. This result aligns with those of Madani and Khlif (2010), Masulis et al. (2012); Hahn and Lasfer (2016).

In addition, for structural variables, only the number of meetings of the board has a positive coefficient and it is statistically significant at a level of 5%; thus confirming the hypothesis which stipulates that the meeting frequency of the board of directors positively affects the relation between political experience and performance. This is in line with the studies of Kang and Kim (2011), Gavrea and Stegerean (2012), Xu and Jiraporn (2013), Al-Matari et al. (2014) and Masulis et al. (2017).

The result aligns with the results of Nouri et al. (2018) who have shown conflicting results by adopting an accounting performance measure such as ROE and a financial measure such as Tobin's Q. These contradictory

results show how political experience interacts with board diversity and affects the company's performance. This interaction depends on the business environment and the companies' characteristics. So, the Tobin's Q integrates environmental specificities and provides an unbiased estimate of firm value while accounting- based measures are ex post approaches over the sample periods which require the adjustment for risks and may not address unexpected changes appropriately (Ju et al., 2020).

We can conclude that in a context with a high level of corruption, the political experience has a negative impact on performance. The presence of foreign directors proves to be costly since they cannot get to be involved, and to require a good coordination between all directors especially in the presence of those with political experience. Consequently, they fail to preserve the firm value, which leads to a deterioration in financial performance. On the other hand, the directors' strategic experience, the presence of women on the board of directors and the frequency of board meetings moderate this decrease and boost the company's performance.

Conclusion

In this paper, we analyze the impact of the political experience of directors on the Tunisian firms' performance. We also emphasize the impact of board diversity on the relationship between performance and political experience. This diversity was appreciated through the strategic experience, the demographic diversity represented by gender and the presence of foreigners and the structural diversity represented by the independence of the directors and the frequency of meetings.

As part of our empirical approach, we used multivariate analysis by applying multiple linear regressions. Results show that the political experience has no impact on the financial performance when the latter is measured by ROE. However, strategic experience, the presence of women, foreigners and independents boost performance. Still, we find that in a context of corruption, the political experience has a negative impact on performance as measured by Tobin's Q. Nevertheless, the strategic experience, women's presence and the meeting's frequency moderate this negative impact and boost performance.

The newly established democracy in Tunisia has failed to decrease corruption (Faccio and Parsley, 2006; Hope et al., 2017). So, the imposition of rapid neoliberal economic reforms in a state like Tunisia, where democratic institutions are new and weakly institutionalized, will likely result in expanded rather than reduced opportunities for economics captured by Tunisian elite networks (Murphy, 2013). Therefore, we can judge that the non-introduction of a variable that measures corruption may limit this study. A second study is recommended in which we will take this measurement into account. Corruption has damaged the Tunisian economy. Researchers are trying to determine the factors that can decrease this level for political experience to become a strong suit for Tunisian firms' performance.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Adam R, Mehran H (2003). Is Corporate Governance Different for Bank Holding Companies. Economic Policy Review 9(1):123-141.

Adams RB, Ferreira D (2009). Women in the board room and their impact on governance and performance. Journal of Financial Economics 94(2):291-309.

Aggarwal R, Erel I, Ferreira, M, Matos P (2011). Does governance travel around the world? Evidence from institutional investors. Journal of Financial Economics 100(1):154-181.

Agrawal A, Chadha S (2005). Corporate Governance and Accounting Scandals. Journal of Law and Economics 48(2):371-406.

Agrawal R, Erel I, Ferreira M, Matos P (2011). Does governance travel around the world? Evidence from institutional investors. Journal of Financial Economics 100(1):154-181.

Alexandre H, Paquerot M (2000). Efficacité des structures de contrôle et enracinement des dirigeants. Finance Contrôle Stratégie 3(2):5-29.

Al-Matari EM, Al-Swidi AK, Fadzil FH (2014). The Moderating Effect of Board Diversity on the Relationship between Executive Committee Characteristics and Firm Performance in Oman: Empirical Study. Asian Social Science 10(12):1911-2025.

Al-Matari EM, Al-Swidi AK, Hanim F, AL-Matari Y (2019). The Impact of board characteristics on Firm Performance: Evidence from Nonfinancial Listed Companies in Kuwaiti Stock Exchange. International Journal of Accounting and Financial Reporting 2(2):310-332.

Anderson RC, Reeb DM, Upadhyay A, Zhao W (2011). The economics of director heterogeneity. Financial Management 40(1):5-38.

Arora A, Sharma C (2016). Corporate governance and firm performance in developing countries: evidence from India. Corporate Governance 16(2):420-436.

Baker JD (2016). The Purpose, Process, and Methods of Writing a Literature Review. AORN Journal 103(3):265-269.

Beiner S, Drobetz W, Schmid MM, Zimmermann H (2006). An integrated framework of corporate governance and firm valuation. European Financial Management 12(2):249-283.

Bencheikh F, Boulila Taktak N (2017). Effect of Political Connections on the Firm Performance in a Newly Democratised Country Mediterranean Journal of Social Sciences 8(4):40-46.

Benmelech E, Frydman C (2015). Military CEOs. Journal of Financial Economics 117(1):43-59.

Bennedsen M, Nielsen KM, Perez Gonzalez F, Wolfenzon D (2007). Inside the Family Firm: The Role of Families in Succession Decisions and Performance. The Quarterly Journal of Economics 122(2):647-691.

Bernile G, Bhagwat V, Raghavendra P (2017). What Doesn't Kill You Will Only Make You More Risk-Loving: Early-Life Disasters and CEO Behavior. The Journal of American Finance Association 72(1):167-206.

Bhagat S, Bolton B, Romano R (2008). The promise and peril of corporate governance indices. Columbia Law Review 108:1803.

Bohren O, Strom RO (2010). Governance and politics: Regulating independence and diversity in the board room. Journal of Business Finance and Accounting 37(9-10):1281-1308.

Bohrstedt G, Knoke D (1994). Statistics for Social Data Analysis. PeacockPublishers.

Borlea SN, Achim MV, Mare C (2017). Board characteristics and firm performances in emerging economies. Lessons from Romania Economic Research 30(1):55-75.

Bruno V, Claessens S (2010). Corporate governance and regulation: Can there be too much of a good thing? Journal of Financial Intermediation 19:461-482.
Campbell K, Mínguez-Vera A (2008). Gender diversity in the boardroom and firm financial performance. Journal of Business Ethics 83(3):435-451.
Carter BJ, Simkins W, Simpson G (2003). Corporate Governance, Board Diversity, and Firm Value. The Financial Review 38(1):33-53.
Carter D, D'Souza F, Simkins B, Simpson W (2010). The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance. Corporate Governance. An International Review 18(5):396-414.
Charreaux G (2000). Le conseil d'administration dans les théories de la gouvernance. Revue du financier 127:6-17.
Charreaux G (2003). Le gouvernement d'entreprise. Encyclopédie des Ressources Humaines, Vuibert, Paris pp. 628-640.
Chen CJ, Jaggi B (2000). Association between independent non-executive directors, family control and financial disclosures in Hong Kong. Journal of Accounting and Public Policy 19(4):285-310.
Choi JJ, Park SE, Yoo SS (2007). The outside directors in Korea: evidence from corporate governance reform in Korea. Journal of Financial and Quantitative Analysis 42(4):941-962.
Chou H, Chung, H, Yin X (2013). Attendance of board meetings and company performance: Evidence from Taiwan. Journal of Banking and Finance 37(11):4157-4171.
Colpan AM (2011). Shareholder Heterogeneity and Conflicting Goals: Strategic Investments in the Japanese Electronics Industry. Journal of Management Studies 48(3):591-618.
Conyon MJ, He L (2016). Firm performance and boardroom gender diversity: A quantile regression approach. Journal of Business Research 79:198-211.
Croson R, Gneezy U. (2009). Gender Differences in Preferences.Journal of Economic Literature 47(2):1-27.
Dahya J, Dimitrov O, McConnel OJ (2008). Dominant shareholders, corporate boards, and corporate value: A cross-country analysis. Journal of Financial Economics 87(1):73-100.
Davidson WN, Jiraporn P, Kim YS, Nemec C (2004). Earnings management following duality-creating successions: Ethnostatistics, impression management and agency theory. Academy of management journal 47(2):267-275.
Defond ML, Hann RN, Hu X (2005). Does the market value financial expertise on audit committees of boards of directors. Journal of Accounting Research 43(2):153-193.
Dimitrova D (2005). The Relationship between Exchange Rates and Stock Prices: Studied in a Multivariate Model. Issues in Political Economy14 p.
Ding CG, Wu CH, Chang PL (2013). The influence of government intervention on the trajectory of bank performance during the global financial crisis: A comparative study among Asian economies. Journal of Financial Stability 9(4):556-564.
Dou Y, Sahga S, Zhang EJ (2015). Should Independent Directors Have Term Limits? The Role of Experience in Corporate Governance. Financial Management 44(3):583-621.
Elsayed K, Paton D (2005). The impact of environmental performance on firm performance: static and dynamic panel data evidence. Structural Change and Economic Dynamics 16(3):395-412.
Erhardt NL, Werbel JD, Shrader CB (2003). Board of director diversity and firm financial performance. Corporate governance: An International Review 11(2):102-111.
Faccio M (2006). Politically Connected Firms.American Economic Review 96(1):369-386.
Faccio M, Parsley DC (2006). Sudden Deaths: Taking Stock of Geographic Ties. Journal of Financial and Quantitative Analysis 44(3):683-718.
Fan PH, Wong TJ, Zhang T (2007). Politically connected CEOs, corporate governance, and Post-IPO performance of China's newly partially privatized firms. Journal of Financial Economics 84(2):330-357.
Fernandez M, Alonso S, Rodriguez J (2014). Board characteristics and firm performance in Spain. Corporate Governance 14(4):485-503.
Ferris S, Jagannathan M, Pritchard AC (2003). Too Busy to Mind the Business? Monitoring by Directors with Multiple Board Appointments. Journal of Finance 58(3):1087-1112.
Figueiredo JM, Silverman B (2006). Academic earmarks and the returns to lobbying. Journal of Law and Economics 49(2):597-625.
Firth M, Fung PM, Riu M (2007). How Ownership and Corporate Governance Influence Chief Executive Pay in China's Listed Firms. Journal of Business Research 60(7):776-785.
Fisman R (2001). Estimating the Value of Political Connections. American Economic Review 91(4):1095-1102.
Fortin V, Ouarda TBMJ, Rasmussen PF, Bobée B (2020). A review of streamflow forecasting methods. Revue des sciences de l'eau / Journal of Water Science 10(4):461-487.
Fuller J, Jensen M (2002). Just say No to Wall street: Putting a stop to the earning game. Journal of Applied Corporate Finance 14(4):41-46.
Garcia-Sanchez IM (2010). The effectiveness of corporate governance: Board structure and business technical efficiency in Spain. Central European Journal of Operations Research 18(3):311-339.
Gavrea C, Stegerean R (2012). Business strategy structure and organizational performance. Pakistan Economic and Social Review 54(1):97-122.
Giannetti C, Ransing MR, Ransing RS, Bould DC, Gethin DT, Sienz J (2015). Organisational knowledge management for defect reduction and sustainable development in foundries. International Journal of Knowledge and Systems Science 6(3):18-37.
Godard L (2006). Les spécificités des comités stratégiques et de leurs membres: Le cas de la France. Recherches et Publications en Management 23(3):165-188.
Godard L, Schatt A (2000). Faut-il limiter le cumul des fonctions dans les conseils d'administration ? La Revue du Financier 127:36-47.
Godard L, Schatt A (2004). The Determinants of" Quality" of the French Board of Directors. Working Paper FARGO, University of Burgundy.
Goldman E, Rocholl J, So J (2009). Do politically connected boards affect firm value? Review of Financial Studies 22(6):2331-2360.
Goldman E, Rocholl J, So J (2017). Politically Connected Boards of Directors and The Allocation of Procurement Contracts. Review of Finance 17(5):1617-1648.
Green C, Homroy S (2018). Female directors, board committees and firm performance. European Economic Review 102(C):19-38.
Hafsi T, Turgut G (2012). Boardroom Diversity and its Effect on Social Performance: Conceptualization and Empirical Evidence. Journal of Business Ethics 112(3):463-479.
Hahn P, Lasfer M (2016). Impact of foreign directors on board meeting frequency. International Review of Financial Analysis 46:295-308.
Hermalin B, Weisbach M (2003). Boards of directors as an endogenously determined institution: a survey of the economic literature. Economic Policy Review pp. 7-26.
Hillman RA (2005). On-Line Consumer Standard-Form Contracting Practices: A Survey and Discussion of Legal Implications. Cornell Legal Studies Research pp. 5-12.
Ho CK (2005). Corporate Governance and Corporate Competitiveness: an international analysis. Corporate Governance an international Review 13(2):211-253.
Hope OK, Heng Y, Zhong Q (2017). Do Politically Connected Directors Affect Accounting Quality? Evidence from China's Anti-Corruption Campaign (Rule 18). Rotman School of Management Working Paper No. 2899403, 5.
Iren P (2016). Gender Diversity of Boardrooms and Firm Financial Performance. Risk Governance and Control: Financial Markets and Institutions. Special issue Risk Management and Corporate Governance in Arab Countries 6(3).
Ju X, Ferreira FA, Wang M (2020). Innovation, agile project management and firm performance in a public sector-dominated economy: Empirical evidence from high-tech small and medium-sized enterprises in China. Socio-Economic Planning Sciences 72:100779.
Kalsie A, Shrivastay SM (2016). Analysis of Board Size and Firm Performance: Evidence from NSE Companies Using Panel Data Approach. Indian Journal of corporate governance 9(2):148-172.
Kang H, Cheng M, Gray SJ (2007). Corporate governance and board composition: Diversity and independence of Australian boards. Corporate Governance: An International Review 15(2):194-207.
Kang SA, Chun SB (2009). Has The informativeness of accounting numbers improved after accounting regulations in Korea?. International Business and Economics Research Journal 8(7):29-44.

Kang SA, Kim YS (2011). Effect of Corporate Governance on Real Activity-Based Earnings Management: Evidence from Korea. Journal of Business Economics and Management 13(1):29-52.
Kaplan SN, Klebanov MM, Sorensen M (2012). Which CEO Characteristics and Abilities Matter? Journal of The American Finance Association 67(3):973-1007.
Kennedy P (1992). A guide to Econometrics. Cambridge MA, The MIT Press.
Kimura F, Kiyota K (2007). Foreign-owned versus Domestically-owned Firms: Economic Performance in Japan. Review of Development Economics 11(1):31-48.
Kramarz F, Thesmar D (2006). Social Networks in the Boardroom. Journal of the European Economic Association 11(4):780-807.
Kutum I (2015). Board characteristics and firm performance: Evidence from Palestine. European Journal of Accounting Auditing and Finance Research 3(3):32-47.
Lambert G, Ghaya H (2016). L'implication du conseil d'administration dans le processus stratégique des entreprises : le particularisme français. Revue de Management International 20 (4) :176-187.
Lee S (2018). Employee turnover and organizational performance in US federal agencies. The American Review of Public Administration 48(6):522-534.
Lefort F, Urzúa FI (2008). Board Independence, Firm Performance and Ownership Concentration: Evidence from Chile. Journal of Business Research 61(6):615-622.
Leong SW, Paramasivam A, Sundarasen S, Rajagopalan U (2015). Board Composition and Companies' Performance: Does Political Affiliation Moderate the Relationship?International Journal of Business and Management 10(10):216-232.
Li H, Zhang Y (2007). The Role of Managers' Political Networking and Functional Experience in New Venture Performance: Evidence from China's Transition Economy. Strategic Management Journal 28(8):791-804.
Liu Y, Miletkov MK, Wei Z, Yang T (2015). Board independence and firm performance in China. Journal of Corporate Finance 30:223-244.
Lückerath-Rovers M (2013). Women on Board and Firm Performance. Journal of Management and Governance 17(2):491-509.
Lynall MD, Golden BR, Hillman AJ (2003). Board Composition From Adolescence To Maturity: A Multi-theoritic View. Academy of Management Review 28: 416-431.
Madani W, Khlif W (2010). Effets de la structure de propriété sur la performance des entreprises tunisiennes. La Revue des Sciences de Gestion 243-244:192.
Marlin D, Geiger S (2011). The Composition Of Corporate Boards Of Directors: Pre- And Post-Sarbanes-Oxley. Journal of Business and Economics Research 9(2):73-77.
Martín C, Herrero B (2018). Boards of directors: composition and effects on the performance of the firm. Economic Research-Ekonomska Istraživanja 31(1):1015-1041.
Martins LL, Schilpzand MC (2011). Global virtual teams: Key developments, research gaps, and future directions. In Research in personnel and human resources management. Emerald Group Publishing Limited.
Masulis RW, Wang C, Xie F (2017). Corporate Governance and Acquirer Returns. Journal of American Finance Association 62(4):1851-1889.
Masulis RW, Wang C, Xie. (2012) Globalizing the boardroom: The effects of foreign directors on corporate governance and firm performance. Journal of Accounting and Economics 53(3):527-554.
Mian A, Sufi A, Trebbi F (2010). The Political Economy of the US Mortgage Default Crisis. American Economic Review 100(5):1967-1998.
Miletkov M, Poulsen A, Wintoki B (2017). Foreign independent directors and the quality of legal institutions. Journal of International Business Studies 48(2):267-292.
Muller-Kahler MI (2014). Board structure: an empirical study of firms in Anglo-American governance environments. Managerial Finance 40(7):681-699.
Muravyev D (2016). Order Flow and Expected Option Returns. The Journal of American Finance Association 71(2):673-708.
Murphy EC (2013). The Tunisian Elections of October 2011: A Democratic Consensus. The Journal of North African Studies 18(2):231-247.
Nam J, Liu X, Lioliou E, Jeong M (2018). Do board directors affect the export propensity and export performance of Korean firms? A resource dependence perspective. International Business Review 27(1):269-280.
Nguyen H, Faff R (2007). Impact of board size and board diversity on firm value: Australian evidence. Corporate Ownership and Control 4(2):24-32.
Nouri FA, Nikabadi MS, Olfat L (2018). Developing the framework of sustainable service supply chain balanced scorecard (SSSC BSC). International Journal of Productivity and Performance Management 68(1):148-170.
Ntim CG, Osei KA (2011). The Impact of Corporate Board Meetings on Corporate Performance in South Africa. African Review of Economics and Finance 2(2):83-103.
Pérez-González F (2006). Inherited Control and Firm Performance. American Economic Review 96(5):1559-1588.
Randoy T, Thomsen S, Oxelheim L (2006). A Nordic perspective on corporate board diversity Age. Nordic Innovation Centre 390:5428.
Rassier DG, Earnhart D (2010). Does the porter hypothesis explain expected future financial performance? The effect of clean water regulation on chemical manufacturing firms. Environmental and Resource Economics 45(3):353-377.
Rhode D, Packel A (2014). Diversity on Corporate Boards: How Much Difference Does Difference Make? Delaware Journal of Corporate Law 39(2): 377-426.
Rizwan M, Asrar H, Siddiqui NA, Usmani WU (2016). The Impact of Corporate Governance on Financial Performance: An Empirical. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2850312
Roberts J, McNulty T, Stiles P (2005). Beyond agency conceptions of the work of the non-executive director: Creating accountability in the boardroom. British Journal of Management 16(1):5-26.
Rose C (2007). Does female board representation influence firm performance? The Danish evidence. Corporate Governance in International Review 15(2): 404-413.
Rouby E (2008). Le lien composition/rôle du conseil d'administration : une analyse en termes de capital social. *Finance Contrôle Stratégie* 11(2):29-50.
Ruigrock W, Peck S, Greve P, Tacheva S (2006). The Determinants and Effects of Board Nomination Committees. Journal of Management and Governance 10(2):119-148.
Salah W (2020). The international financial reporting standards and firm performance: A systematic review. Applied Finance and Accounting 6(2):1-10.
Schilpzand MC, Martins LL (2010). Cognitive Diversity and Team Performance: The Roles of Team Mental Models and Information Processing. Academy of Management Annual Meeting Proceedings (1):1-6.
Sharma P, Cheng LTW, Leug TY (2020). Impact of political connections on Chinese export firms' performance - Lessons for other emerging markets. Journal of Business Research 106:24-34.
Song HJ, Yoon YN, Kang KH (2020). The relationship between board diversity and firm performance in the lodging industry: The moderating role of internationalization. International Journal of Hospitality Management 86:102461.
St-Onge S, Magnan M (2013). Les femmes au sein des conseils d'administration:bilan des connaissances et voies de recherche futures. Revue Finance Contrôle Stratégie 16(1):25-47.
Terjesen S, Couto EB, Maurais P (2015). Does the presence of independent and female directors impact firm performance? A multi-country study of board diversity. Journal of Management and Governance 20 (3):447-483.
Van den Berghe L, Levrau A (2004) Evaluating Boards of Directors: What Constitutes a Good Corporate Board? Corporate Governance: An International Review 12(4):461-478.
Van Veen K, Marsman VL (2008). How international are executive boards of European MNCs? Nationality diversity in 15 European countries. European Management Journal 26(3):88-198.
Wang D, Sun D, Yu X, Zhang Y (2014). The impact of CEO duality and ownership on the relationship between organisational slack and firm

performance in China. Systems Research and Behavioral Science, 31(1):94-101.
Wen W, Cui H, Yun K (2020). Directors with foreign experience and corporate tax avoidance. Journal of Corporate Finance 62(C):101624.
Xu QLP, Jiraporn P (2013). Board characteristics and Chinese bank performance. Journal of Banking and Finance 37(8):2953-2968.
Yagli I, Unlu U (2016). Corporate Governance and Brand Value. European Journal of Business and Management 8(15):65-73.
Zouari SBS, Taktak NB (2014). Ownership structure and financial performance in Islamic banks: Does bank ownership matter?. International Journal of Islamic and Middle Eastern Finance and Management 7(2):146-160.

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The impact of audit quality on earnings management: Evidence from France

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This research investigates the relationship between financial reporting quality and audit quality within the context of French listed companies. The auditor brand name (Big4) is used as a proxy for audit quality and earnings management is ascertained through real and accruals earnings management estimation. Discretionary accruals are estimated using the Jones Model and the Modified Jones Model while real earnings management is estimated through the use of models proposed by Roychowdhury (2006). The results indicate that clients of Big4 audit firms record higher levels of accruals and real earnings management. This assertion could be attributed to the low level of auditor litigation risk in France. This study contributes to the literature by investigating the case for both discretionary accruals and real earnings management in a French environment that has peculiar auditing characteristics.

Key words: Audit quality, financial reporting quality, earnings management, discretionary accruals, real earnings management.

INTRODUCTION

The quality of financial statements produced by the management of companies is of utmost importance to current and potential investors, as they rely on these statements to make investment decisions. Managers as agents of shareholders are mandated to act in the best interest of shareholders and provide accurate financial information. However, as a result of information asymmetry, the managers of some companies try to manipulate profit figures in cases where these profits fall below the expected benchmarks and thereof influence investor decisions (Thomas, 1989). This act lowers the quality of financial reporting and accounting information (Chi and Pevzner, 2011). It has been observed that managers may take opportunistic advantage of the level of discretion available to them to massage earnings or to draw a wrong picture of the organization's future (Christie and Zimmerman, 1994). The various ways through which managers achieve this is what is known as earnings management. This study focuses on both accruals earnings management (AEM) and real earnings management (REM) as proxies for measuring earnings management. After the occurrences of major scandals such as Xerox (2000), Enron (2001) and WorldCom (2002), the role played by the quality of external auditing in an attempt to curb these misfortunes has been a major topic of discussion (Sarwoko and Agoes, 2014). The occurrences of such scandals led to the passage of laws such as the Sarbanes Oxley 2002 (SOX). Similarly in the

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enforcement of the UK Corporate Governance Code (2018) where procedures and systems that can reduce the occurrence of accounting scandals are discussed. In the case of France, there are auditing laws that safeguard the independence of auditors. The joint audit system and the mandatory six-year rotation of auditors ensure that familiarity between auditors and clients, and manager intimidation is reduced to the barest minimum. One aim of this research is to ascertain the relationship that may exist between the quality of financial reporting - using earnings management as a proxy- and Audit quality. As stated by Alzoubi (2018), audit quality can be considered as a control mechanism that would hinder managers from manipulating the earnings of a company. Also stated by Defond and Zhang (2014), high audit quality can be equated to the assurance of high quality of financial reporting.

Various motivating factors urge managers to manipulate earnings. Capital market expectation and valuation, contractual remunerations that are dependent on accounting figures and government regulations may all be considered as part of these motivating factors (Healy and Wahlen, 1999). The tendencies of the occurrence of activities of earnings management are part of the reasons why investors should have a keen interest in the quality of external auditing.

The appointment of external auditors is a result of the classical agency problem in which case the external auditors act as an independent source of assurance that the managers of companies (the agents) provide financial statements that are prepared per the accounting standards (Habib and Bhuiyan, 2011). There are various complexities involved in measuring the quality of audits because of the unobservable nature of the concept. Most studies in the literature have simplified these complexities and have simply adopted the use of brand name (BigX) as a proxy for audit quality (Craswell et al., 1995; Becker et al., 1998; Jordan et al., 2010; Yaşar, 2013; Miko and Kamardin, 2015). Some scholars have also used audits fees to reflect the quality of audit provided by an external auditor (Hoitash et al., 2007), while others make use of auditor industry specialization as a proxy for audit quality which is a more sophisticated measure (Balsam et al., 2003; Kimberly and Brian, 2004; Ishak et al., 2013; Sarwoko and Agoes, 2014; Yuan et al., 2016).

In this study, the literature on earnings management and audit quality is extended to include the French context. The results of this study could prove interesting because of the special environmental characteristics that pertain to France as compared to other countries in Europe and the Americas. The obligatory joint audit system where firms are required to be audited by two audit companies may affect the use of Big4 as a proxy for audit quality. Also, the low auditor litigation risk in France as compared to other Anglo-Saxon regions may affect the performance of Big4 audit firms and other audit firms in general. Indeed, the relationship between earnings management and audit quality in the French context has been studied by Piot and Janin (2007). However, in their work, the focus was on AEM but in this work, the focus is on both AEM and REM. They concluded that as a result of the low litigation risk, audit quality as proxied by Big4 has no significant effect on the degree of discretionary accruals that occurs. This research finds contradictory results and adds to this by testing the case for REM as well. The results of the study may be of interest to shareholders and regulators to pay more attention to the factors that motivate external auditors to provide good quality audits.

LITERATURE REVIEW

Audit quality

The most popular proxy for audit quality has been the use of auditor brand, normally referred to as *BigX* where *X* represents the number of top tier audit firms within the period under study (Jeong and Rho, 2004). Throughout history, the number of these top tier audit firms has varied, with some audit firms losing their place to others. For example, a while before the period of 2002, there was the Big5, which was made up of Ernst and Young, PWC, KPMG, Deloitte and Arthur Andersen LLP (AA). However, because of the Enron scandal and the role AA played, they had a massive dip in reputation and thereby lost their place as a top tier audit firm. It remains Big4 for the periods under study in this research. Big4 auditing firms are said to produce higher audit quality because they try to isolate themselves from other auditing firms by investing more into their brand. (Craswell et al., 1995; Khurana and Raman, 2004; Krishnan, 2003; Lee and Lee, 2013). These researchers expound more on this by stating that Big4 audit firms spend more resources on staff recruitment and training, audit planning and keeping up to date with the state of the art technology needed for audits.

There are two main pillars upon which the quality of an audit rests; the ability of an auditor to detect material errors and misstatements and also having the independence to acquire the right attitude towards reporting such errors and misstatements (DeAngelo, 1981). The identification of these two pillars is further classified into input-based and output-based approaches. The size of Big4 firms is used as a measure for both competence and independence is an input-based approach. The large sizes of Big4 audit firms afford them the ability to invest more into what it takes to provide good quality audits. This is an input-based approach to ascertaining competence because the stated points are key indicators that disclose that Big4 audit firms are capable of providing audits of good quality (Defond and Zhang, 2014). As stated by Fulop et al. (2018), stakeholders have unreasonable expectations of all

auditors. By virtue of the resources available to the Big4, they come closest to meeting these expectations as they provide audits with the best qualities. In the same vein, as a result of their large size and reputation, Big4 audit firms are more motivated to provide good audits (Krishnan, 2003). High litigation risk encourages them to be as independent as possible in the delivery of audit services and they are less likely to be intimidated by big clients (Defond and Zhang, 2014). A recent factor that has been discovered to influence the independence of auditors is the announcement of earnings by companies before the audit procedures are completed. As unearthed by Bronson et al. (2021), there is a higher likelihood of misstatements in the parts of audits that are done in the latter stages when earnings are announced before audit completion. The Big4 audit firms may be in the best place to withstand this threat to their independence. Following this logic, the Big4 proxy for audit quality is an input-based measure that covers both competence and independence.

Earnings management

The role of external auditors is to give an assurance that financial statements published by managers are of reasonable quality (Chen et al., 2011). Despite this, earnings management is a common practice in every company and is only known by external parties in the event of a scandal (Gakhar, 2013).

Managers undertake earnings management in two major forms established in the literature. First, managers may make use of judgment in the preparation of financial statements to decide on accounting estimates and also interpret accounting standards to align with their interests (Ewert and Wagenhofer, 2005). This is known as accrual earnings management (AEM). Secondly, managers can make operational decisions to cause firms to deviate from their regular patterns to have the desired effect on the earnings of the firms at the end of the period (Roychowdhury, 2006). This is termed real earnings management (REM)

There are various models for estimating both AEM and REM, which range from very simple models to highly complex ones. Discretionary accruals have been the most popular proxy used by scholars to estimate levels of earnings management that occur through financial accounting measures (Dechow et al., 1995; Jones, 1991; Kothari et al., 2005). Total accruals are split into two; discretionary accruals which are influenced by the discretion of managers and the non-discretionary accruals, which arise as a result of the nature of the company (Mangala, 2017). These models are able to make this distinction. On the other hand, REM proxies have been developed and used by Roychowdhury (2006) and Cohen et al. (2008).

This study makes use of the Jones model (1991) and the Modified Jones model (1995) to estimate AEM. To estimate REM, the model proposed by Roychowdhury (2006) is used.

Audit quality and earnings management

Varieties of research works have studied the relationship between audit quality and earnings management. As observed by Jordan et al. (2010), there is a positive relationship between audit quality and quality of financial reporting in the context of US firms. In their work, the results show that Big4 audit firms can restrict the attempts made by managers to manage earnings. They estimated earnings management as the propensity of managers to round up accounting figures to achieve the desired earnings. They observed that these activities are highly reduced through better efforts from auditors with big brands. Similarly, negative results were reported by Reynolds and Francis (2000) also in the context of US firms where audit firms with big brand names mitigate more aggressively the discretionary accruals of companies. This is motivated by the need to protect the brands they have built for themselves.

Despite Graham et al. (2005) finding out that most managers prefer to use REM over AEM, very few have investigated the relationship between audit quality and REM. However, some studies conducted indicate that auditors with big brands are capable of mitigating the levels of REM. Kim and Park (2014) provided evidence to show that auditors with big brands are more likely to drop clients when they observe high levels of REM. Most of these notable works have been conducted in the US with very little conducted in other regions, France to be specific.

Alhadab and Clacher (2018) argue that high-quality audit is not a sufficient factor to reduce all forms of earnings management in the context of IPOs. In their case, high audit quality does indeed reduce discretionary accruals but most of these firms that have high-quality audits switch to REM. This result is consistent with that of Chi and Pevzner (2011) who stipulate that audit quality reduces the occurrence of AEM but firms resort to REM if they have no opportunity to undertake AEM. In the context of Vietnamese firms, Hoang and Vinh (2018) find no significant impact of audit quality on REM. In the peculiar case of French companies, Piot and Janin (2007) find no significant impact of audit quality on discretionary accruals. They concluded that there is no difference between audit firms with big brands and those with small brands when it comes to regulating the discretionary accruals of clients. They attributed their results to the different corporate governance and auditing characteristics present in France. This is consistent with the results provided by the study of Yaşar (2013).

In other studies as well, there has been a mix of results. In trying to ascertain the relationship between levels of discretionary accruals and Audit quality, there have been other proxies for measuring audit quality.

Table 1. Sector distribution

Factset level 1 sector	Frequency	Percent
Commercial services	88	5.74
Consumer durables	116	7.57
Consumer non-durables	183	11.95
Consumer services	145	9.46
Electronic technology	199	12.99
Health technology	197	12.86
Industrial services	32	2.09
Non-energy minerals	20	1.31
Process industries	104	6.79
Producer manufacturing	223	14.56
Retail trade	31	2.02
Technology services	194	12.66
Total	1,532	100.00

This table presents information on the sector distribution of the sample. The FactSet level 1 sector code is used in the classification.

Balsam et al. (2003) found a positive association when they made use of the auditor industry specialization as a proxy for audit quality and assessed its impact on the quality of financial reporting. Many other studies have made use of the auditor industry specialization as a proxy to measure audit quality and have found a negative relationship between this proxy and discretionary accrual levels (Krishnan, 2003; Chen et al., 2005; Habbash and Alghamdi, 2016; Yuan et al., 2016).

HYPOTHESES DEVELOPMENT

Studies have argued that audit quality measured by the use of *brand name* has a negative relationship with levels of discretionary accruals (Reynolds and Francis, 2000; Jordan et al., 2010). This is the case rationally because Big4 audit firms are seen to invest more into all that is needed for quality audit processes. Also in a bid to protect the big brand name they have built for themselves, they are more motivated to provide high-quality audits.

In view of this,

H1: Firms audited by Big4 engage in less discretionary accruals

Even though Big4 audit firms are noted to be capable of reducing discretionary accruals, studies have suggested that firms make use of AEM and REM as substitutes (Alhadab and Clacher, 2018; Chi and Pevzner, 2011; Graham et al., 2005). Cohen and Zarowin (2010) indicate that due to the ability of auditors with big brands to identify and restricts AEM tactics firms are likely to make use of REM to avoid being caught. This is because REM activities are much more difficult to trace. In light of these arguments that suggest that Big4 audit firms control AEM, firms are expected to make the switch to REM and therefore,

H2: In the presence of Big4, firms are likely to have higher levels of REM

METHODOLOGY

Sample

The sample comprises French listed firms and data collected from the *Factset* Database covering a period of 2009 to 2016 and using the non-probability sampling technique which is slightly biased. Biased in the sense that firms in the finance sector are eliminated due to the special regulations that moderate their activities. Also, companies with 0 or negative sales values are eliminated. After these exclusions, the sample is reduced to 1532 firm-year observations (1204 for REM estimations) (Table 1).

Variable measurement

Audit quality

The Big4 auditing firms have been noted across the literature to produce high levels of quality audits (Reynolds and Francis, 2000; Jordan et al., 2010). For this reason, companies audited by the Big4 are identified as companies with the best audits. Attention is paid to the joint audit system in France which could complicate the coding of this variable. A dummy variable is used where companies who have at least one of their auditors being a member of the Big4 is denoted by 1 and 0 denotes companies not audited by Big4.

Discretionary accruals earnings management

To estimate AEM, two prominent models within the literature are used. AEM reflects the measure of earnings management through accounting choices and accounting standard interpretations. AEM is measured using the Jones model (1991) *(Abs_J)* and the Modified Jones-Evans model (1995) *(Abs_MJ).* The models are respectively defined as follows:

$$\frac{\mathrm{TAC_{it}}}{\mathrm{A_{it-1}}} = \alpha_1 \frac{1}{\mathrm{A_{it-1}}} + \alpha_2 \frac{\Delta \mathrm{REV_{it}}}{\mathrm{A_{it-1}}} + \alpha_3 \frac{\mathrm{PPE_{it}}}{\mathrm{A_{it-1}}} + \varepsilon_{\mathrm{it}} \quad (1)$$

Where *TAC* is the total accruals, *ΔREV* is a change in revenue from time *t-1* to *t*, *PPE* is the gross property plant and equipment, *A* is the total assets, *ε* is the residual, and the subscripts *i* and *t* denote firm and year respectively.

($TAC = {NIBI_{it} - OCF_{it}}/{A_{t-1}}$ where $NIBI_{it}$ is net income before extraordinary items for firm *i* in the year *t*, OCF_{it} is operating cash flow for firm *i* in the year *t*. (Hribar and Collins, 2002))

$$\frac{TAC_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta REV_{it} - \Delta AR_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \quad (2)$$

Where *AR* is the change in Accounts Receivable from time *t-1* to *t* for company *i* at time *t*. The regression is run cross-sectionally by industry and by year.

The residuals of *Eq1* and *Eq2* represent the discretionary accruals of companies through the Jones model and the Modified jones model respectively.

Real earnings management

To estimate REM, the model of Roychowdhury (2006) is used. In his work, he suggests that REM can take place through three operational activities and decisions. Sales, discretionary expenditure and production costs are the means through which REM can be undertaken. These are estimated in *Eq3, Eq4* and *Eq5* respectively. By offering more discounts and lenient credit terms, managers can considerably increase the volume of their credit sales. This affects cash flows by lowering the cash flow from operations for the current year. There could also be a reduction in the discretionary expenditures of a firm. Research and development expenses (R&D), advertising expenses, selling general and administrative expenses make up the discretionary expenditure that managers could manipulate. A reduction in these expenses would affect the earnings reported by firms. Overproduction is also a means of REM. By taking advantage of the concept of economies of scale, managers can manage earnings upwards. Overproduction will decrease the fixed overheads per unit and therefore decrease the cost of goods sold reported in the income statement. The three models are defined in the following equations;

$$\frac{CFO_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{SALES_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{A_{it-1}} + \varepsilon_{it} \quad (3)$$

$$\frac{DISEXP_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{SALES_{it-1}}{A_{it-1}} + \varepsilon_{it} \quad (4)$$

$$\frac{PROD_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{SALES_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{A_{it-1}} + \alpha_4 \frac{\Delta SALES_{it-1}}{A_{it-1}} + \varepsilon_{it} \quad (5)$$

Where *t* stands for year and *i* stands for firm, *CFO* = Cash flow from operations, *DISEXP* = Discretionary expenses estimated as the sum of R&D expenses, advertising, selling, general and administrative expenses.*PROD* = the production cost estimated as the sum of the cost of goods sold and change in inventories. *SALES* = Sales; *A* = Total Assets. *ΔSALES* = The change in sales from time *t-1* to *t* ε represents the residuals which is an estimation of the abnormal cash flow from operations (*Abn_CFO*), the abnormal discretionary expense (*Abn_DISEXP*) and the abnormal cost of production (*Abn_PROD*)

The regressions are run cross-sectionally for each sector and each year. Absolute values are used, in line with the study conducted by Maurice et al. (2020). The absolute values give an estimation of the degree of earnings management whether income increasing or decreasing.

Control variables

Following the prevalent literature, certain control variables are included. To control for certain firm-specific characteristics that would affect earnings management, the effect of the size of companies is controlled by using the log of total assets. Also included as control variables are the cash flow from operations and the debt to asset ratio (Balsam et al., 2003). Also to control for financial performance, a loss dummy is included. Firms that incur losses are known to have more incentives to manage earnings (Francis et al., 2004). In line with Aubert and Grudnitski (2012), the number of analysts following firms is included as a control variable because this also can influence the earnings management level of firms. The final control variable is the debt to asset ratio. The regressions are all run with a year and sector fixed effect so those can also be considered as a control.

Multivariate model

In the multivariate analysis, the absolute values of the AEM and REM estimations are regressed against audit quality proxied by the auditor brand. A fixed-effect panel regression with sector and year fixed effects is run in each case.

$$Abs\_J_{it} = \alpha_0 + \alpha_1 * Big4_{it} + \alpha_2 * Size_{it} + \alpha_3 * CFO_{it} + \alpha_4 * \frac{Debt_{it}}{Asset_{it}} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \varepsilon_{it} \quad (6)$$

$$Abs\_MJ_{it} = \alpha_0 + \alpha_1 * Big4_{it} + \alpha_2 * Size_{it} + \alpha_3 * CFO_{it} + \alpha_4 * \frac{Debt_{it}}{Asset_{it}} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \varepsilon_{it} \quad (7)$$

$$Abs\_CFO_{it} = \alpha_0 + \alpha_1 * Big4_{it} + \alpha_2 * Size_{it} + \alpha_3 * CFO_{it} + \alpha_4 * \frac{Debt_{it}}{Asset_{it}} + \alpha_5 * LOSS_{D_{it}} + \alpha_6 * ANALYST_{it} + \varepsilon_{it} \quad (8)$$

$$Abs\_DISEXP_{it} = \alpha_0 + \alpha_1 * Big4_{it} + \alpha_2 * Size_{it} + \alpha_3 * CFO_{it} + \alpha_4 * \frac{Debt_{it}}{Asset_{it}} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \varepsilon_{it} \quad (9)$$

$$Abs\_PROD_{it} = \alpha_0 + \alpha_1 * Big4_{it} + \alpha_2 * Size_{it} + \alpha_3 * CFO_{it} + \alpha_4 * \frac{Debt_{it}}{Asset_{it}} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \varepsilon_{it} \quad (10)$$

Where equations 6 to 10 test the hypotheses. The dependent variables in Equations 6 to 10 are the absolute value of discretionary accrual from the Jones model, the absolute value of discretionary accrual from the Modified Jones model, absolute value of abnormal cash flow from operations, absolute value of abnormal discretionary expense and the absolute value of abnormal production costs respectively. The independent variables are the proxy for audit quality through audit brand (*Big4*), the log of total assets (*Size*), cash flow from operations scaled by the lagged total assets (*CFO*), the debt to asset ratio (*Debt/Asset*), the loss dummy variable (*LOSS_D*) and the number of financial analysts following a firm (*ANALYST)*.

RESULTS AND DISCUSSION

Descriptive statistics and correlation matrix

The descriptive statistics of all variables used in the models are reported in Table 2. Due to missing data needed for the estimation of various earnings management proxies, there is a disparity in the firm-year observations for the REM proxies and other variables. For the selected firms in the sample, it is observed that the mean of absolute values of the earnings management proxies is close to zero which is an indication of good estimation. Given that the measure of audit quality is the Big4 against the non-Big4, 67.4% of firms in the sample are audited by the Big4 audit firms.

Table 3 essentially breaks down the sample into two subsamples using the measure of audit quality as the base for classification. The first group is made up of firms

Table 2. Descriptive statistics.

Variable	Mean	Std Dev.	Percentile			N
			25th	50th	75th	
Abs_J	0.043	0.451	0.013	0.292	0.056	1532
Abs_MJ	0.043	0.450	0.013	0.281	0.058	1532
Abs_CFO	0.052	0.048	0.016	0.038	0.072	1204
Abs_DISEXP	0.0139	0.119	0.051	0.104	0.190	1204
Abs_PROD	0.119	0.941	0.042	0.094	0.173	1204
Big4	0.674	0.469	0.000	1.000	1.000	1532
SIze	6.363	2.255	4.783	6.301	8.129	1532
CFO	0.049	0.121	0.027	0.067	0.107	1532
DEBT/ASSET	20.341	14.779	8.578	18.375	29.221	1532
LOSS_D	0.252	0.434	0.000	0.000	1.000	1532
ANALYST	5.640	6.776	1.000	2.000	8.000	1532

To eliminate the effect of outliers, relevant data are winsorized at 1 to 99%.

Table 3. Mean of subsamples (Big4=1 and Big4=0).

Variable	Mean		
	Big4 = 1	Big4 = 0	t test
Abs_J	0.043	0.042	-0.418
n	1032	500	
Abs_MJ	0.043	0.042	-0.334
n	1032	500	
Abs_CFO	0.053	0.051	-0.711
n	806	398	
Abs_DISEXP	0.142	0.128	-1.812
n	806	398	*
Abs_PROD	0.117	0.119	0.255
n	806	398	
Size	6.677	5.522	-13.138
n	1032	500	***
CFO	0.044	0.058	2.006
n	1032	500	**
DEBT/ASSET	20.836	19.322	-3.429
n	1032	500	***
LOSS_D	0.278	0.198	-3.651
n	1032	500	***
ANALYST	6.828	3.188	-14.72
n	1032	500	***

***,**,* indicates significance at 1, 5 and 10% levels respectively, two-tailed.

that are audited by the Big4 and the second group is made up of firms that are audited by the non-Big4. Univariate analysis of these subsamples is conducted by comparing the mean values of each variable. Looking at both measures of AEM, the mean values for firms audited by the Big4 is higher than that of companies audited by the non-Big4. However, the mean t-test proves insignificant. This is inconsistent with the H1 of the study. The REM proxies mostly produce insignificant results too. Only *Abs_DISEXP* yields a significant result ($p<0.1$) where the mean value is higher for firms audited by Big4 audit firms. This is consistent with the H2 of the study.

Table 4 presents the correlation between the variables. A positive and insignificant correlation coefficient is observed between the absolute values of AEM and audit quality which is inconsistent with the H1. Also with regards to REM, *Abs_CFO* and *Abs_PROD* both produce insignificant correlation coefficients with audit quality. *Abs_DISEXP* on the other hand records a positive coefficient with audit quality and is significant at $p<0.1$. This is in line with the H2 of the study. The variance inflation factors (VIF) amongst variables in present in the same model are estimated. The highest VIF recorded is 2.88 which is a good indication that multicollinearity is not likely to be an issue.

Multivariate analyses

Table 5 reports the multivariate results after regressing the various measures of earnings management as dependent variables against audit quality which is the independent variable. Columns A and B record the results of the regression dealing with AEM estimations. *Abs_J* and *Abs_MJ* produce positive coefficients of 0.0048 and 0.0047 respectively, with both being significant at $p<0.1$. This indicates that there is a positive relationship between the Big4 measure of audit quality and earnings management. This is contrary to the H1 and also the result obtained by Piot and Janin (2007) who found no significant relationship between audit quality and discretionary accruals amongst French companies. The results of this indicate that clients of the Big4 audit firms record higher levels of discretionary accruals. This might be due to the low auditor litigation risk in France as mentioned in the work of Piot and Janinot (2007). The H1 of this study that states that firms audited by Big4 engage in less discretionary accruals is therefore rejected. This result contradicts the US studies of Jordan et al. (2010) and that of Reynolds and Francis (2000). This can also be attributable to the difference in auditor litigation risk in the countries.

Columns C to E of Table 5 report the case of REM proxies and audit quality. Both *Abs_CFO* and *Abs_PROD* yield insignificant results with audit quality, indicating that audit quality has no significant impact on managers' REM activities through the channels of abnormal cash flow manipulation and overproduction. However, a positive coefficient of 0.022 for audit quality in the case of *Abs_DISEXP* which is significant at $p<0.01$ is attained. This is an indication that firms that are audited by Big4 manage earnings more by manipulating their discretionary expenditures. Even though the other two proxies generate insignificant results, the H2 of the study which states that in the face of Big4 firms utilize REM is validated. This is because the result suggests that they do so through the usage of abnormal discretionary expenses. This result is in line with those obtained by Alhadab and Clacher (2018) and Chi and Pevzner (2011). The reason for this is explained by Cohen and Zarowin (2010) where they state that firms make use of REM because they are more difficult to trace by regulators. This indicates that even in high litigation risk environments, firms will make use of REM because of the higher likelihood of getting away with it.

Additional tests and robustness check

Additional tests are conducted to further examine the relationship between earnings management and audit quality in France. Singed values of the various proxies of earnings management estimated are used. The signed values represent the direction of earnings management and this could be income increasing or income decreasing (Balsam et al., 2003; Maurice et al., 2020). For AEM, positive values indicate income increasing discretionary accruals while negative values indicate income decreasing discretionary accruals. This is not as straightforward for the proxies REM. According to Roychowdhury (2006), more negative values for abnormal cash flow from operations and abnormal discretionary expenses indicate that firms have tried to increase earnings through these two channels and positive values for abnormal production costs indicate that firms have tried to increase earnings through overproduction.

Tables 6 and Table 7 report the results of regressions that make use of the signed values of earnings management as the dependent variables. In Table 6 of the positive values of each earnings management proxy are used while in Table 7 the negative values of each earnings management proxy are used. All the regressions are run with sector and year fixed effects.

As Columns A and B indicate in Table 6 insignificant results are obtained to explain the relationship between audit quality and income increasing accruals. This is to mean that Big4 audit firms do not have any significant impact on the level of income increasing discretionary accruals of their clients. However, Columns A and B of Table 7 report negative and significant ($p<0.05$) Big4 coefficients for income decreasing discretionary accruals. This implies that the more audit quality increases the more firms engage in income decreasing discretionary

Table 4. Correlation matrix.

Correlation probability	*Abs_J*	*Abs_MJ*	*Abs_CFO*	*Abs_DISEXP*	*Abs_PROD*	*Big4*	*Size*	*CFO*	*DEBT/ASSET*	*LOSS_D*	*ANALYST*
Abs_J	1.000										
Abs_MJ	0.952***	1.000									
Abs_CFO	0.377***	0.371***	1.000								
Abs_DISEXP	0.149***	0.135***	0.221***	1.000							
Abs_PROD	0.054*	0.037	0.017	0.466***	1.000						
Big4	0.0002	0.0002	0.020	0.052*	-0.007	1.000					
Size	-0.264***	-0.255***	-0.252***	-0.227***	-0.074***	0.243***	1.000				
CFO	-0.120***	-0.091***	-0.283***	-0.190912***	0.063**	-0.081***	0.347***	1.000			
DEBT/ASSET	0.042	0.036	-0.102***	-0.146***	-0.089***	0.018	0.207***	-0.034	1.000		
LOSS_D	0.291***	0.277***	0.256***	0.127***	-0.086***	0.078***	-0.340***	-0.554***	0.106***	1.000	
ANALYST	-0.198***	-0.198***	-0.109***	-0.164***	-0.090***	0.248***	0.738***	0.192***	0.032	-0.231***	1.000

***,**,* indicates significance at 1%, 5%, and 10% levels respectively, two tailed.

Table 5. Regression of Big4 and all earnings management proxies.

Variable	Expected sign	*A* *Abs_J*	*B* *Abs_MJ*	*C* *Abs_CFO*	*D* *Abs_DISEXP*	*E* *Abs_PROD*
CONSTANT		0.059***	0.060***	0.076***	0.177***	0.159***
Big4	-/+	0.0048*	0.0047*	0.0008	0.022***	0.007
Size	?	-0.004***	-0.004***	-0.004***	-0.006**	-0.002
CFO	-	0.036***	0.045***	-0.043***	-0.109***	0.010
DEBT/ASSET	?	0.002***	0.0002***	-0.0001	-0.001***	-0.001***
LOSS_D	+	0.026***	0.026***	0.010***	0.011	-0.015*
ANALYST	-	0.000	0.000	0.001***	-0.001	-0.001**
F VALUE		14.17	13.99	6.28	5.95	2.60
R^2		0.124	0.122	0.138	0.090	0.032
n		1532	1532	1204	1204	1204

***,**,* indicates significance at 1, 5 and 10% levels respectively, two-tailed.

accruals. By virtue of the negative values of discretionary accruals, increasing its occurrence would mean a further reduction in negative values. In the face of Big4, firms make use of more income decreasing AEM and this accounts for the positive and significant results attained in the main model.

Columns C to E of Tables 6 and 7 report the results of regression using the positive and negative values of REM proxies as dependent variables respectively. The positive values of abnormal cash flow from operations yield

Table 6. Regression of Big4 and positive earnings management proxies.

Variable	Expected Sign	A P_Abs_J	B P_Abs_MJ	C P_Abs_CFO	D P_Abs_DISEXP	E P_Abs_PROD
CONSTANT		0.765***	0.717***	0.043***	0.193***	0.140***
Big4	-/+	-0.0004	-0.001	0.002	0.033***	0.016*
Size	?	-0.003***	0.002**	-0.006***	-0.004	-0.002
CFO	-	0.165***	-0.155***	0.284***	-0.237***	0.040
DEBT/ASSET	?	0.000	-0.00004***	-0.0002	-0.002***	-0.0002
LOSS_D	+	-0.024***	0.025***	0.027***	0.009	-0.007
ANALYST	-	0.0001	0.0001	0.002***	-0.002*	-0.001
F VALUE		13.26	11.40	14.27	8.88	1.07
R^2		0.216	0.190	0.194	0.132	0.022
n		674	677	616	535	588

P_Abs_J, P_Abs_MJ, P_Abs_CFO, P_Abs_DISEXP and P_Abs_PROD represent the positive values of Jones discretionary accrual, Modified Jones discretionary accruals, abnormal cash flow from operations, abnormal discretionary expenses and abnormal production cost. These are the dependent variables of each equation. ***,**,* indicates significance at 1, 5 and 10% levels respectively, two-tailed.

Table 7. Regression of Big4 and negative earnings management proxies.

Variable	Expected sign	A N_Abs_J	B N_Abs_MJ	C N_Abs_CFO	D N_Abs_DISEXP	E N_Abs_PROD
CONSTANT		-0.040***	0.045***	-0.052***	-0.154***	-0.182***
Big4	-/+	-0.009**	-0.007**	0.006*	-0.013	-0.002
Size	?	-0.004***	0.004***	-0.003**	0.007**	0.002
CFO	-	0.131***	-0.151***	0.308***	-0.036	-0.178
DEBT/ASSET	?	0.0005***	-0.0004***	0.0001	-0.000	0.001***
LOSS_D	-	-0.048***	-0.049***	-0.001	-0.010	0.033***
ANALYST	-	0.0003	0.0002	0.001**	0.000	0.002**
F VALUE		18.94	20.58	27.43	1.42	4.02
R^2		0.228	0.245	0.474	0.051	0.071
n		858	855	588	669	616

N_Abs_J, N_Abs_MJ, N_Abs_CFO, N_Abs_DISEXP and N_Abs_PROD represent the negative values of Jones discretionary accrual, Modified Jones discretionary accruals, abnormal cash flow from operations, abnormal discretionary expenses and abnormal production cost. ***,**,* indicates significance at 1, 5 and 10% levels respectively, two-tailed.

insignificant results while negative values yield a positive coefficient (significant at a p<0.1). This implies that in the presence of Big4 audit firms, managers make use of irregular sales operations to decrease earnings. However, this relationship is not strong enough to outmatch the insignificant results obtained for the case of positive values. This gives reason for the insignificant result obtained in the main analyses.

For the case of the relationship between abnormal discretionary expense and audit quality, a positive coefficient (significant p<0.01) is reported for positive values and a negative coefficient (significant at p<0.05) for negative values. This translates as firms audited by Big4 making use of abnormal discretionary expenditure as a means to both increase or decrease earnings.

With regard to the impact of audit quality on the abnormal cost of production, a positive and significant coefficient for the positive values (p<0.1) is obtained and an insignificant coefficient for negative values. This indicates that firms audited by Big4 do make use of overproduction to increase earnings but this is overshadowed by the insignificant results obtained for the negative abnormal production cost, hence the results of the main model.

Aggregation of REM proxies

To perform further tests on the REM an aggregation of the various proxies as done in some studies is used (Alhadab and Clacher, 2018; Bozzolan et al., 2015; Tulcanaza-Prieto et al., 2020; Zang, 2012). To estimate the aggregate of REM the following equation is used;

$$Ag\_REM_{it} = Abn\_PROD_{it} + (-1 * Abn\_DISEXP_{it}) + (-1 * Abn\_CFO_{it}) \quad Eq \quad (11)$$

Table 8. Regression of Big4 and aggregate REM.

Variable	Expected sign	*A Ag_REM*
CONSTANT		0.345***
Big4	+	0.033***
Size	-	-0.008**
CFO	-	-0.013
DEBT/ASSET	+	-0.018***
LOSS_D	+	-0.008
ANALYST	-	-0.002
F VALUE		3.95
R^2		0.044
n		1204

***,**,* indicates significance at 1, 5 and 10% levels respectively, two-tailed.

Where *Ag_REM* represents the aggregate of REM proxies. Other variables are already defined.

Table 8 reports the results of the regression making use of the absolute value of *Ag_REM* as the dependent variable. The positive and significant coefficient ($p<0.01$) obtained for the Big4 variable indicates that firms audited by the Big4 make use of more activities of REM and is consistent with the H2. The abnormal discretionary expenditure may be the sole reason for this result obtained as it is the only measure of REM that yields a significant result independently.

Conclusion

This study is dependent on the fundamental agency problem that occurs between managers and shareholders. The presence of information asymmetry allows managers to manipulate earnings to meet short term earnings targets. The services of external auditors are engaged as an agency cost to reduce the information asymmetry. This study investigates the possibility of audit quality improving the quality of financial reporting. The study makes use of the auditor brand as a tool to measure the quality of the audit provided. The quality of financial reporting is also measured through the use of accruals earnings management and real earnings management. This research is conducted in the context of French listed companies where there is peculiar auditing and litigation risk environment.

The results provide evidence that shows that Big4 auditors do not limit the levels of AEM that their clients engage in. This is an indication that within the context of France, clients of the Big4 auditors are more likely to have higher levels of AEM in which case the H1 of the study is rejected. This result is contradictory to those obtained in other regions. A reason for this may be as a result of the low audit litigation risk in France as compared to other regions like the USA (Piot and Janin, 2007). The tests provide a mix of results concerning REM. Ultimately, it can be concluded that clients of Big4 engage in more activities of REM which validates the H2 of the study. However, some insignificant results are obtained for the individual proxies of REM. The results indicate that clients of Big4 mainly make use of abnormal discretionary expenses as their means of managing earnings through REM.

In effect, this study concludes that audit quality has a negative impact on the quality of financial reporting in France. This study recommends that there should be the enforcements of some government policies to give external auditors the extra motivation to mitigate the occurrence of both AEM and REM. The low auditor litigation risk in France may imply that auditors can be relaxed about their duties without the fear of lawsuits in case of negligence. Also, the use of abnormal discretionary expenses to manipulate earnings should be a caution to shareholders to empower audit committees to keep an eye on such activities. REM activities are detrimental to shareholder value in the long run. Theoretically, some studies have concluded that audit quality limits managers ability to manipulate earnings through discretionary accrual and specifically in France it has been observed that audit quality has no relationship with discretionary accruals. However, it is found in this study that audit quality has a negative impact on AEM. Very few studies have been conducted to study the relationship between audit quality and REM. This is investigated and it can be concluded that in the context of French companies, audit quality also has a negative impact on REM, especially through the use of abnormal discretionary expenses.

Similar to other studies, the results of this study should be interpreted with some thoughtfulness. The findings and conclusions of this study are derived from auditor brand and earnings management which are academic proxies for audit quality and quality of financial reporting. These two concepts are not directly observable and hence the reliance on proxies which may not be accurate in reality.

There are some limitations to the study that must be noted. The usage of only one proxy as a measure for audit quality and as noted by Rajgopal et al. (2021), the Big4 proxy lack nuance because it is not an engagement specific measure. Future studies can incorporate multiple proxies like audit fees and auditor industry specialization to examine the joint effect of these proxies. Also in the context of France where there is the mandatory joint audit rule, there could be a study to investigate the case where both auditors of a company are part of the Big4.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

REFERENCES

Alhadab M, Clacher I (2018). The impact of audit quality on real and accrual earnings management around IPOs. British Accounting Review 50(4):442-461.

Alzoubi ESS (2018). Audit quality, debt financing, and earnings management: Evidence from Jordan. Journal of International Accounting, Auditing and Taxation 30:69-84.

Aubert F, Grudnitski G (2012). Analysts' estimates; What they could be telling us about the impact of IFRS on earnings manipulation in Europe. Review of Accounting and Finance 11(1):53-72.

Balsam S, Krishnan, Yang J (2003). Auditor Industry Specialisation And Earnings Quality. Auditing: A Journal of Practice and Theory 22(2):71-97.

Becker CL, Defond M, Jiambalvo J, Subramanyam KR (1998). The effect of audit quality on earnings management. Contemporary Accounting Research 15(1):1-24.

Bozzolan S, Fabrizi M, Mallin CA, Michelon G (2015). Corporate Social Responsibility and Earnings Quality: International Evidence. International Journal of Accounting 50(4):361-396.

Bronson SN, Masli A, Schroeder JH (2021). Releasing earnings when the audit is less complete: Implications for audit quality and the auditor/client relationship. Accounting Horizons 35(2):27-55.

Chen HW, Chen JZ, Lobo GJ, Wang YY (2011). Effects of Audit Quality on Earnings Management and Cost of Equity Capital: Evidence from China. Contemporary Accounting Research 28(3):892-925.

Chen KY, Lin KL, Zhou J, Chen KY, Lin K (2005). Audit quality and earnings management for Taiwan IPO firms. Managerial Auditing Journal 20(1):86-104.

Chi W, Pevzner M (2011). Is Enhanced Audit Quality Associated with Greater Real Earnings Management? Accounting Horizons 25(2):315-335.

Christie A, Zimmerman JL (1994). Efficient and Opportunistic Choices of Accounting Procedures: Corporate Control Contests. Accounting Review 69(4):539-566.

Cohen DA, Dey A, Lys TZ (2008). Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. The Accounting Review 83(3):757-787.

Cohen D, Zarowin P (2010). Accrual-based and real earnings management activities around seasoned equity offerings. Journal of accounting and Economics 50(1):2-19.

Craswell AT, Francis JR, Taylor S L (1995). Auditor brand name reputations and industry specializations. Journal of Accounting and Economics 20(3):297-322.

DeAngelo LE (1981). Auditor size and audit quality. Journal of Accounting and Economics 3(3):183-199.

Dechow PM, Sloan RG, Sweeney AP (1995). Detecting Earnings Management. The Accounting Review 70(2):193-225.

Defond M, Zhang J (2014). A review of archival auditing research. Journal of Accounting and Economics 58:275-326.

Ewert R, Wagenhofer A (2005). Economic effects of tightening accounting standards to restrict earnings management. The Accounting Review 80(4):1101-1124.

Francis J, Lafond R, Olsson PM, Schipper K, Lafond R, Schipper K (2004). Costs of Equity and Earnings Attributes. The Accounting Review 79(4):967-1010.

Fulop MT, Tiron-Tudor A, Cordos GS (2018). Audit education role in decreasing the expectation gap. Journal of Education for Business 94(5):306-313.

Gakhar DV (2013). Earnings management practices in India: a study of auditor's perception. Journal of Financial Crime 21(1):100-110.

Graham JR, Harvey CR, Rajgopal S (2005). The economic implications of corporate financial reporting. Journal of Accounting and Economics 40(1-3):3-73.

Habbash M, Alghamdi S (2016). Audit quality and earnings management in less developed economies: the case of Saudi Arabia. Journal of Management and Governance 21(2):351-373.

Habib A, Bhuiyan MBU (2011). Audit firm industry specialization and the audit report lag. Journal of International Accounting, Auditing and Taxation 20(1):32-44.

Healy PM, Wahlen JM (1999). A Review of the Earnings Management Literature and Its Implications for Standard Setting. Accounting Horizons 13(4):365-383.

Hoang K, Vinh KN (2018). Audit Quality, Firm Characteristics and Real Earnings Management: The Case of Listed Vietnamese Firms. International Journal of Economics and Financial Issues 8(4):243-249.

Hoitash R, Markelevich A, Barragato CA (2007). Auditor fees and audit quality. Managerial Auditing Journal 22(8):761-786.

Hribar P, Collins DW (2002). Errors in Estimating Accruals: Implications for Empirical Research. Journal of Accounting Research 40(1):105-134.

Ishak AM, Mansor N, Maruhun ENS (2013). Audit Market Concentration and Auditor's Industry Specialization. Procedia - Social and Behavioral Sciences 91:48-56.

Jeong SW, Rho J (2004). Big Six auditors and audit quality: The Korean evidence. The International Journal of Accounting 39:175-196.

Jones JJ (1991). Earnings Management During Import Relief Investigation. Journal of Accounting Research 29(2):193-228.

Jones-Evans D (1995). A typology of technology-based entrepreneurs: A model based on previous occupational background. International Journal of Entrepreneurial Behavior and Research 1(1):26-47.

Jordan CE, Clark SJ, Hames CC (2010). The impact of audit quality on earnings management to achieve user reference point in EPS. The Journal of Applied Business Research 26(1):19-30.

Khurana IK, Raman KK (2004). Litigation Risk and the Financial Reporting Credibility of Big 4. The Accounting Review 79(2):473-495.

Kim Y, Park MS (2014). Real activities manipulation and auditors' client-retention decisions. The Accounting Review 89(1):367-401.

Kimberly AD, Brian WM (2004). Audit Firm Industry Specialization and Client Disclosure Quality. Review of Accounting Studies 9(1):35-58.

Kothari SP, Leone AJ, Wasley CE (2005). Performance matched discretionary accrual measures. Journal of Accounting and Economics 39(1):163-197.

Krishnan GV (2003). Does big 6 auditor industry expertise constrain earnings management? Accounting Horizons 17:1-16.

Lee H, Lee H (2013). Do Big 4 audit firms improve the value relevance of earnings and equity? Managerial Auditing Journal 28(7):628-646.

Mangala D (2017). A brief mapping of earnings management's drivers and restraints. Journal of Commerce and Accounting Research 6(3):19-28.

Maurice Y, Mard Y, Severin É (2020). The Effect of Earnings Management on Debt Maturity: an International Study. Accounting Control Audit 26:125-156.

Miko NU, Kamardin H (2015). Impact of audit committee and audit quality on preventing earnings management in the pre-and post-Nigerian corporate governance code 2011. Procedia-Social and Behavioral Sciences 172:651-657.

Piot C, Janin R (2007). External Auditors, Audit Committees and Earnings Management in France. European Accounting Review 16(2):37-41.

Rajgopal S, Srinivasan S, Zheng X (2021). Measuring audit quality. Review of Accounting Studies 26(2):559-619.

Reynolds JK, Francis JR (2000). Does size matter? The influence of large clients on office-level auditor reporting decisions. Journal of Accounting and Economics 30(3):375-400.
Roychowdhury S (2006). Earnings management through real activities manipulation. Journal of Accounting and Economics 42(3):335-370.
Sarwoko I, Agoes S (2014). An Empirical Analysis of Auditor's Industry Specialization, Auditor's Independence and Audit Procedures on Audit Quality: Evidence from Indonesia. Procedia - Social and Behavioral Sciences 164:271-281.
Thomas JK (1989). Unusual Patterns in Reported Earnings. The Accounting Review 64(4):773-787.
Tulcanaza-Prieto AB, Lee Y, Koo JH (2020). Effect of leverage on real earnings management: Evidence from Korea. Sustainability 12(6):2232.
Yaşar A (2013). Big four auditors' audit quality and earnings management: Evidence from Turkish stock market. International Journal of Business and Social Science 4(17):154-163.
Yuan R, Cheng Y, Ye K (2016). Auditor Industry Specialization and Discretionary Accruals: The Role of Client Strategy. International Journal of Accounting 51(2):217-239.
Zang AY (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. The Accounting Review 87(2):675-703.

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Non-conforming tax aggressiveness and earnings management: Evidence from Greek public companies

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The present paper examines the tax and financial reporting behaviour of Greek public companies after the adoption of International Financial Reporting Standards. Corporate tax aggressiveness is measured on the basis of tax audit data whereas the extent of financial earnings manipulation is captured by total and discretionary accruals. The findings suggest that earnings quality has deteriorated as firms engage in non-conforming earnings management by concurrently manipulating both their tax and accounting earnings. The results are robust for the alternative specifications of earnings management. These non-conforming reporting strategies are depicted in a high level of book-tax differences that has been considered a red flag for corporate misreporting. The research focuses on public firms in an emerging market and a code law country. The findings contradict previous studies in code law countries and highlight the need to analyse the different institutional characteristics among jurisdictions when investigating corporate reporting behaviour. Furthermore, the research reveals extensive earnings manipulation in an accounting environment with strict tax and accounting audit enforcement. The constraints imposed by the clientelistic political system in Greece and the lack of a strong accounting and auditing oversight board are considered to limit the enforceability of tax and accounting regulations.

Key words: Earnings management, tax evasion, book-tax conformity, accrual models, International Financial Reporting Standards (IFRS).

INTRODUCTION

According to the deductive method of reasoning in accounting, different accounting standards may be necessary in order to meet different reporting needs and satisfy different objectives. Hence, the rules for determining the taxable income may be different in many aspects from the generally accepted principles for the determination of financial income (Hendriksen, 1970). Firms prepare their financial statements in accordance with financial standards (e.g. U.S.). Generally accepted accounting principles or international financial reporting standards) in order to provide useful information to investors and creditors (Lyon et al., 2021).

At the same time they report taxable income and tax paid on their tax returns according to domestic laws and regulations. The discretion provided in both systems enables the managers to affect the reporting under each system (Mills, 2019). Firms have two distinct inceptives: to report higher book income for financial reporting purposes and to report lower taxable income for tax reporting purposes (Lee, 2016). Reporting strategies that

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reduce taxable income but not book income or inflate book income but not taxable income constitute non-conforming earnings management (Hanlon and Heitzman, 2010; Badertscher et al., 2019). Likewise, reporting strategies that reduce both taxable and book income (that is, tax reporting aggressiveness) or inflate both book and taxable income (that is, financial reporting aggressiveness) constitute conforming earnings management (Hanlon and Heitzman, 2010).

The mandatory adoption of International Financial Reporting Standards (IFRS) in numerous countries worldwide has been one of the most noteworthy regulatory changes in recent years (Mao and Wu, 2019). The application of IFRS has increased the gap between book income and taxable income in most of these countries and has directly affected reporting aggressiveness (Dokas et al., 2021). The trade-off between taxes and financial earnings management has motivated a number of research papers (Mills, 2019). The present study builds on extant literature by examining the tax and financial reporting behaviour of Greek public companies after the adoption of International Financial Reporting Standards which reduced the level of book-tax conformity and disconnected the financial and tax earnings. For the purposes of the present paper, tax reporting aggressiveness is measured on the basis of tax audit data whereas financial reporting aggressiveness is estimated both by total and discretionary accruals. The results indicate that firms take advantage of the opportunity provided by the dual reporting system and simultaneously manipulate both accounting and taxable earnings.

The research makes the following contributions to the literature. First, it answers to calls for further examination of the connection between aggressive financial and tax reporting (Lennox et al., 2013). The findings complement prior research by Karampinis and Hevas (2013) who document that the adoption of IFRS in Greece attenuated tax-induced incentives of public firms and released financial reporting aggressiveness. The findings also support previous studies reporting a positive relation between financial and tax reporting aggressiveness (Frank et al., 2009; Wilson, 2009; Lisowsky, 2010; Amidu et al, 2016; Chan et al., 2021). Secondly, corporate tax aggressiveness is examined by relying on tax audit data. Relevant research is limited as the outcomes of the tax audits are confidential in most countries.

Thirdly, the relative performance of alternative discretionary accruals models and their association with tax aggressiveness are evaluated, contributing in this line of research. Consistent with Jones et al. (2008), total accruals are found to be a low cost alternative to many commonly used measures of discretionary accruals in examining aggressive reporting behaviour. Furthermore, the paper extends previous research on the usefulness of book-tax differences (BTDs) as a proxy for tax aggressiveness. Similar to Wilson (2009) and Cappellesso and Rodrigues (2019), the results indicate that firms that are actively engaged in tax aggressiveness also exhibit larger ex post book-tax differences.

Fourthly, the present study contributes to the growing literature examining the impact of tax enforcement on corporate reporting behaviour. Atwood et al. (2012) and Hoopes et al. (2012) provide evidence that firms undertake less aggressive tax positions when tax enforcement is stricter while Hanlon et al. (2014) report that higher tax enforcement by the tax authority is closely linked to enhanced financial reporting quality. The results of the present research contradict previous findings as Greek public firms appear to undertake aggressive tax and financial positions despite the compulsory nature of tax audits. A possible explanation is provided by Slemrod et al. (2001) who posit that high-income taxpayers evade more taxes when they are certain that they will be audited by the IRS in order to ensure that their after-audit tax liability remains stable. In a similar vein, Hoopes et al. (2012) parallel the tax reporting behaviour of firms to that of wealthy individuals, undertaking more aggressive tax positions when a tax audit is likely to occur so as to provide some negotiating room. Another possible explanation is provided by Lin et al. (2018), who argue that tax enforcement is less effective when corporations have strong political connections to the government. Caramanis et al. (2015) provide a thorough analysis of the constraints imposed by the clientelistic political system in Greece on establishing a strong accounting and auditing oversight board.

LITERATURE REVIEW

The book-tax conformity debate has been examined in the literature under different perspectives, with the majority of the studies focusing on the manipulation of financial earnings upwards whereas a smaller number of studies examine tax aggressiveness. Since the level of book-tax conformity cannot be measured directly, researchers either employ an indicator variable to measure conformity or exploit a regulation framework. A wide range of proxies has also been developed in order to estimate financial reporting aggressiveness or corporate tax avoidance. However, as Hanlon and Heitzman (2010) note, not all measures are appropriate for all research questions. Earnings management proxies are not substitutes and researchers should evaluate the appropriateness of certain measures when examining the quality of a firm's earnings (Dechow et al., 2010). On the other hand, many proxies may actually capture the same thing and researchers should be aware which measures should yield the same results and which shouldn't and why (Hanlon and Heitzman, 2010).

The extent of book-tax differences (BTDs) in the entity level has served as a useful proxy both for earnings management and for tax reporting aggressiveness.

Hanlon (2005) provides evidence that large book-tax differences are associated with aggressive financial reporting. Cappellesso and Rodrigues (2019) analysed the G-20 group and reported a positive association between book-tax differences and tax avoidance for all member countries. On the other hand, Desai and Dharmapala (2009) and Wilson (2009) associate BTDs with tax sheltering. Frank et al. (2009) develop a measure of tax aggressiveness by estimating the discretionary part of the permanent BTDs and provide evidence of a strong, positive relation between aggressive tax and financial reporting.

A large body of research has also sought to detect earnings management by using various accrual measures as proxies for managerial discretion. Starting from Healy (1985), the mean of total accruals (TA) scaled by lagged total assets is used as the measure of nondiscretionary accruals. Similar to Healy, DeAngelo (1986) uses last period's total accruals scaled by lagged total assets as the estimate of nondiscretionary accruals. Contrary to Healy and DeAngelo models, who assume that nondiscretionary accruals are constant, Jones (1991) attempts to control for the effect of the changing economic circumstances on accounting accruals by regressing total accruals on the change in revenues and gross property, plant and equipment. Dechow et al. (1995) propose a modification to the Jones model, by adjusting it for the change in receivables, in order to capture manipulation in the reported sales. Larcker and Richardson (2004) add two additional independent variables (the book-to-market ratio and operating cash flows) to the modified Jones model (Dechow et al., 1995) in order to mitigate measurement error associated with the discretionary accruals. Kothari et al. (2005) argue that accruals are correlated with a firm's contemporaneous and past performance and propose the inclusion of a performance variable, such as the return on assets (ROA), in the Jones model.

While aggressive financial reporting has been thoroughly explored in the literature, aggressive tax reporting has been examined to a lesser extent as it is subject to inherent limitations. Tax audit data is considered to be the most reliable source of information but the outcome of the tax audits is confidential in most countries. Consequently, researchers have developed and employed a wide variety of proxies for measuring tax avoidance based on publicly available financial statement data. The most common of these proxies are the effective tax rates and the extent of a firm's book-tax differences (Hanlon et al., 2007).

Karampinis and Hevas (2013) argue that prior to the implementation of IFRS firms had powerful incentives to restrict upward accounting earnings management due to direct tax implications, which dissipate under the IFRS regime. They find that tax pressure, as captured by effective tax rate, exhibits a significant negative relationship with discretional accruals in the pre-IFRS period but not in the post-IFRS period. Kourdoumpalou (2017) provides corroborative evidence that tax incentives prevail over financial reporting incentives in a highly-aligned book-tax system. By relying on tax-audit data, she finds that tax evasion was widespread among Greek public firms before the application of IFRS, constituting downward earnings management. Kapoutsou et al. (2015) document a significant positive correlation between the level of discretionary accruals and the level of taxation for the Greek listed companies after the implementation of IFRS. On the other hand, Dimitropoulos et al. (2013) find that the introduction of IFRS contributed to less earnings management. Ferentinou and Anagnostopoulou (2016) provide evidence that Greek companies turned from accrual earnings management to real earnings management after the adoption of IFRS.

Materials and Methods

Research design and sample selection

Estimation of corporate tax aggressiveness

The potential benefits and costs associated with book-tax conformity have been extensively examined and debated in the literature (Sundvik, 2017). However, the vast majority of the studies refer to Anglo-Saxon countries (USA and UK) whereas other countries and jurisdictions have been rather neglected (Chytis, 2019). Mills (2019) calls for greater research on noisy point estimates that can be sensitive to specification, regulatory regime, time period or variable measurement. Greece provides an institutional context for examining how decreased book-tax conformity, as the result of the mandatory adoption of IFRS, influences a firm's tax and financial reporting behaviour in an emerging market and a code law country. The results of this research may be generalized to other countries with similar regulatory and institutional characteristics.

Public companies in Greece have been using IFRS since January 2005. Prior to the mandatory adoption of IFRS, the accounting environment was characterized by a high level of book-tax conformity as Greek GAAP applied both for financial and tax reporting purposes. The adoption of IFRS reduced book-tax conformity as public companies prepare their financial statements under IFRS but apply Greek GAAP to accommodate the calculation of taxable income and prepare the tax statement. Greek listed companies have to prepare up to three accounting statements: the tax statement, the parent-only financial statement and the consolidated financial statement (in case of subsidiaries). Each company of the consolidated group (either the parent company or a subsidiary) is treated as a single entity for tax purposes and prepares a separate tax report.

Up to 2010 the Greek pubic companies were obligated, in compliance with Athens Stock Exchange Regulation, to be frequently audited by the Internal Revenue Service and to disclose the outcome of the tax audit on the Official List of Announcements of the Athens Stock Exchange. These announcements, which are under the scrutiny of the Hellenic Capital Market Commission, constitute the source of information for estimating the extent of tax evasion. In line with previous literature (Chan et al. 2010; Hanlon et al. 2007), tax noncompliance is estimated in the present study as the magnitude of the tax audit adjustments (that is, additional tax assessments) required by the tax authorities.

Following Circular 1159/22.07.2011 of the Greek Ministry of Finance, all public companies in Greece were obliged to have their tax returns attested by the statutory auditors for all fiscal years ending on or after 30/6/2011. After the completion of the tax audit, the certified auditors issue a "Tax Certificate" regarding the firm's compliance with the tax legislation. A firm could be further audited by the tax authorities either on a sample basis or under certain conditions, such as the revelation of fictitious tax records or transactions with non-existent companies. The present study examines corporate tax compliance for the years prior to the mandatory certification of tax statements by audit firms, serving as a benchmark for evaluating alternative tax auditing procedures.

Estimation of earnings management

For the purposes of the present study, both total accruals and discretionary accruals are examined in order to capture the extent of earnings management. Total accruals are calculated using the cash flow approach proposed by Hribar and Collins (2002), defined as operating income minus operating cash flows. Discretionary accruals are estimated by applying five competing discretionary-accruals models frequently used in the literature. Specifically, these are the DeAngelo model (DeAngelo, 1986); the Jones model (Jones, 1991); the modified Jones model (Dechow et al., 1995); the modified Jones model with book-to-market ratio and cash flows as additional independent variables (Larcker and Richardson, 2004) and the modified Jones Model with return on assets included as an additional independent variable (Kothari et al., 2005). The cross-sectional approach of the models is chosen over their time-series counterparts as the adoption of IFRS in 2005 places serious restrictions on the length of the estimation period. The models are described below.

The DeAngelo model

The De Angelo (1986) model measures the extent of non-discretionary accruals as follows:

$$NDA_t = TA_{t-1} / A_{t-}2 \quad (1)$$

Where NDA stands for non-discretionary accruals; TA is total accruals; A is total assets and t is a year subscript indicating the event year. The discretionary portion of accruals is then estimated as the difference between total accruals in the event year t scaled by A_{t-1} and NDA_t.

The Jones model

Jones (1991) proposes the following expectation model for total accruals:

$$TA_\tau / A_{\tau-1} = a_1(1 / A_{\tau-1}) + b_1 (\Delta REV_\tau / A_{\tau-1}) + b_2 (PPE_\tau / A_{\tau-1}) + e_\tau \quad (2)$$

Where TA is total accruals; A is assets; ΔREV is revenues in year τ less revenues in year τ-1; PPE is gross property, plant and equipment; τ is a year subscript and e is the residual.

The model controls for the changes in non-discretionary accruals that are caused by the economic performance of the firm by including the change in revenues and the amount of gross property, plant and equipment in the expectation model. Ordinary least squares regression analysis is applied in order to obtain the firm-specific estimates α_1, β_1 and β_2 of a_1, b_1 and b_2 respectively. The non-discretionary accruals are estimated in the event year t as:

$$NDA_t / A_{t-1} = \alpha_1(1 / A_{t-1}) + \beta_1 (\Delta REV_t / A_{t-1}) + \beta_2 (PPE_t / A_{t-1}) \quad (3)$$

The modified Jones model

In the modified Jones model (Dechow et al. 1995), the non-discretionary accruals are estimated as follows:

$$NDA_t / A_{t-1} = \alpha_1(1 / A_{t-1}) + \beta_1 (\Delta REV_t / A_{t-1} - \Delta REC_t / A_{t-1}) + \beta_2 (PPE_t / A_{t-1}) \quad (4)$$

Where REC is net receivables in year t less net receivables in year t-1. The firm-specific parameters α_1, β_1, β_2 are those obtained from the original Jones model and not from the revised one. All other variables are as reported in equation (2). The only amendment to the original model is that the change in revenues in the event period is adjusted for the change in receivables.

The modified Jones model with book-to-market ratio and cash flows

Larcker and Richardson (2004) added two additional independent variables (the book-to-market ratio and operating cash flows) to the modified Jones model (Dechow et al. 1995) so as to mitigate measurement error associated with the discretionary accruals. In model form, it is expressed as follows:

$$TA_\tau / A_\tau = b_0 (1 / A_\tau) + b_1 (\Delta REV_\tau - \Delta REC_\tau)/ A_\tau + b_2 (PPE_\tau / A_\tau) + b_3 BM + b_4 CFO/A_\tau + e_\tau \quad (5)$$

Where BM stands for book-to-market ratio and CFO stands for operating cash flows. All other variables are as previously defined. The coefficient estimates from equation (5) are then used to estimate the firm-specific non-discretionary accruals:

$$NDA_t / A_t = \beta_0 (1 / A_t) + \beta_1 (\Delta REV_t - \Delta REC_t)/ A_t + \beta_2 (PPE_t / A_t) + \beta_3 BM + \beta_4 CFO / A_t \quad (6)$$

The modified Jones model with ROA

Kothari et al. (2005) modify the Jones model by including return on assets (ROA) as a proxy for firm performance. The model is developed as follows:

$$TA_\tau / A_{\tau-1} = b_0 + b_1(1 / A_{\tau-1}) + b_2 (\Delta REV_\tau / A_{t-1}) + b_3(PPE_\tau / A_{\tau-1}) + b_4(ROA_\tau) + e_\tau \quad (7)$$

All variables are as previously defined. The coefficient estimates from equation (7) are then used to estimate the firm-specific non-discretionary accruals:

$$NDA_t / A_{t-1} = \beta_0 + \beta_1(1 / A_{t-1}) + \beta_2 (\Delta REV_t / A_{t-1}) + \beta_3(PPE_\tau / A_{t-1}) + \beta_4(ROA_t) \quad (8)$$

Sample selection

The sample comprises of the listed companies on the Athens Stock Exchange (ASE) from 2005 to 2010[1]. The total number of firms amounts to 237. Firms that were eventually delisted are included to avoid any survivorship bias in the results (Karampinis and Hevas, 2013). Following previous literature, firms from the banking, insurance, real estate and financial services sector are excluded since their financial structure is not comparable to those of other industries. Firms from the shipping industry are also excluded as they are subject to a special tax based on the total gross tonnage of their ships. The reduced sample comprises 199 listed companies.

Tax audit data were hand-collected from the Athens Stock Exchange Official List of Announcements. This procedure yielded results for a total of 141 companies. However, a number of firms

announced only the aggregate amount of the tax audit without disclosing the additional taxes that were imposed separately on each of the audited years. These observations are excluded from the analysis. Loss firms are also excluded from the analysis since the outcome of the tax audit revealed underreporting of income without levying additional taxes. This procedure resulted in a final sample of 78 firms and 204 firm-years.

Model development

The relation between tax and financial reporting aggressiveness is examined by estimating the following ordinary least squares regression for the pooled sample:

$$\text{Tax Aggressiveness} = \beta_o + \beta_1 \text{ Earnings Management} + \Sigma\beta_2 \text{ Control} + e \quad (9)$$

The model is specified as follows:

$$\text{Log (Tax\_Evasion)} = b_0 + b_1 \text{ Log (Accruals)} + b_2 \text{ Log (Size)} + b_3 \text{ Liquidity} + b_4 \text{ Leverage} + b_5 \text{ ROA} + b_6 \text{ CFO} + b_7 \text{ Log (BTD)} + b_8 \text{ NOL} + b_9 \text{ Audit} + e \quad (10)$$

The variables are defined as follows:

Log (Tax_Evasion) = the log of the additional tax assessments
Log (Accruals) = the log of the earnings management proxy employed in the model
Log (DA_DeAngelo) = the log of the absolute value of discretionary accruals derived from the DeAngelo model
Log (DA_Jones) = the log of the absolute value of discretionary accruals derived from the Jones model
Log (DA_Modified_Jones) = the log of the absolute value of discretionary accruals derived from the Modified Jones model
Log (DA_CFO) = the log of the absolute value of discretionary accruals derived from the Modified Jones model with book-to-market ratio and cash flows
Log (DA_ROA) = the log of the absolute value of discretionary accruals derived from the Modified Jones model with ROA
Log (Total_Accruals) = the log of total accruals
Log (Size) = the log of total sales
Liquidity = current assets divided by current liabilities
Leverage = total liabilities divided by total assets
ROA = return on assets
CFO = cash flow from operations divided by total assets
Log (BTD) = the log of the absolute value of book-tax differences
NOL = a dummy variable coded 1 if firm has net operating loss carry forward and 0 otherwise
Audit = a dummy variable coded 1 if firm is audited by the largest Greek audit firm, SOL SA and 0 otherwise

The scope of the present study is to examine corporate reporting aggressiveness in the absence of book-tax conformity. The variable *Tax_Evasion* serves as the proxy for tax aggressiveness and is estimated as the magnitude of the tax audit adjustments (that is, tax deficiencies) required by the tax authorities (Hanlon et al., 2007; Chan et al, 2010).

Six (6) proxies for earnings management are used and subsequently six (6) different regression models are run. The amount of total accruals serves as one of the proxies whereas the other five (5) proxies derive from the discretionary accrual models previously presented. Consistent with prior research (Hanlon et al., 2014) the overall propensity to earnings management is measured by estimating discretionary accruals in absolute value as accruals can be used opportunistically either to inflate or reduce earnings.

Based on extant literature, eight (8) control variables are included in the model. The variable *Log (Size)*, the natural logarithm of sales revenue, controls for firm size (Hanlon et al., 2007; Perols and Lougee, 2011; Hoopes et al., 2012).

The variable *Liquidity*, defined as current assets scaled by current total liabilities, is included because a positive relationship has been reported both between liquidity and abnormal accruals and between liquidity and tax evasion (Butler et al., 2004; Caramanis and Lennox, 2008). Following previous studies (Hanlon et al., 2012; Karampinis and Hevas, 2013; Sundvik, 2017), *Leverage* is estimated as the sum of liabilities to total assets. Return on Assets (*ROA*) is included to control for the underlying economic activity of the firm (Frank et al., 2009; Wilson, 2009; Lisowsky, 2010; Perols and Lougee, 2011; Armstrong et al., 2012; Hoopes et al., 2012; Sundvik, 2017).

The variable *CFO* is the cash flow from operations scaled by total assets and is included to control for the potential correlation between tax planning and cash flows (Larcker and Richardson, 2004; Armstrong et al., 2012) as well as between accruals and cash flows (Tsipouridou and Spathis, 2012; Karampinis and Hevas, 2013). For the purpose of the study, the unsigned book-tax differences, denoted as *Log (BTD)*, is regarded as a more appropriate measure of manipulation than their signed values since a firm with positive BTDs does not necessarily imply that its extent of manipulation is larger than that of a firm with negative BTDs (Tang and Firth, 2012). previous literature has documented that the book-tax gap, defined as the difference between book income and taxable income, is consistent with manipulation of earnings reported to capital markets (Hanlon, 2005), tax aggressiveness (Lisowsky, 2010) or some combination of these two activities (Frank et al., 2009).

The existence of a net operating loss carry forward (*NOL*) is included in the model and has been found to be associated with earnings quality (Frank et al., 2009; Hoopes et al., 2012). Lastly, the quality of the external audit, commonly proxied by auditor size or reputation, is believed to be related to the quality of earnings (Perols and Lougee, 2011). First, audit quality is examined by analyzing whether a firm has been audited by the largest Greek auditing firm, the company of Certified Public Accountants Auditors (S.O.L. S.A. – Synergazomenoi Orkotoi Logistes A.E.). In supplemental analysis, it is examined whether the big-4 auditing firms, which are believed to provide higher quality audits, are able to prevent opportunistic accounting practices.

RESULTS

Univariate analysis

Table 1 presents descriptive statistics on corporate tax evasion, discretionary and total accruals and on the financial characteristics of sample firms. On average, the extent of tax evasion is estimated at €335,035 whereas the average absolute discretionary accruals range from €7,742,272 (Modified Jones model with book-to-market ratio and cash flows) to €16,925,412 (the Modified Jones model with ROA). The mean (median) absolute value of total accruals and book-tax differences reaches €12.3 million (€3.8 million) and €4.7 million (€1.7 million) respectively. The average firm has sales of €230 million (size) and is profitable with a mean (median) ROA of 6.7% (4.5%). The mean current ratio is equal to 1.73 (liquidity) and the mean cash flow to assets ratio is 4.42 (CFO) signalling that the average firm does not encounter liquidity problems. The mean value of total debt to assets is estimated at 48%, showing that no more than half of the average company's assets are financed by debt. One fifth of the sample (45 out of 204) reports a net operating

Table 1. Descriptive statistics.

Variable	Mean	Median	Std Dev.	Min.	Max.
Measure of tax aggressiveness					
Tax_Evasion	335,035	115,324	626,048	5,000	4,279,409
Measures of financial reporting aggressiveness					
DA_DeAngelo	10,428,869	4,528,493	15,629,628	14,706	101,086,323
DA_Jones	8,678,427	2,583,852	14,823,064	6,640	88,306,731
DA_Modified_Jones	8,996,549	2,780,746	15,129,375	8,743	88,386,840
DA_CFO	7,742,272	2,263,494	18,789,271	43,372	196,644,615
DA_ROA	16,925,412	4,438,775	38,569,632	14,173	378,383,747
Total_Accruals	12,318,777	3,896,575	27,128,583	39,000	246,536,000
Control variables					
Size	230,847,012	53,953,464	805,181,412	694,415	7,681,580,000
Liquidity	1.73	1.28	2.22	0.11	22.07
Leverage	0.48	0.49	0.18	0.012	0.94
ROA	0.067	0.045	0.103	-0.1659	0.7633
CFO	4.42	3.14	10.40	-26.54	49.15
BTD	4,783,221	1,708,269	8,134,353	7,113	52,309,125
NOL	0.22	0	0.416	0	1
Audit	0.35	0	0.479	0	1

Variable definitions: Tax_Evasion = the amount of additional tax assessments imposed by the tax audit; DA_DeAngelo = absolute value of discretionary accruals derived from the DeAngelo model; DA_Jones = absolute value of discretionary accruals derived from the Jones model; DA_Modified Jones = absolute value of discretionary accruals derived from the Modified Jones model; DA_CFO = absolute value of discretionary accruals derived from the Modified Jones model with book-to-market ratio and cash flows; DA_ROA = absolute value of discretionary accruals derived from the Modified Jones model with ROA; Total_Accruals = total accruals of firm; Size = total sales; Liquidity = current assets divided by current liabilities; Leverage = total liabilities divided by total assets, ROA = return on assets, CFO = cash flow from operations divided by total assets; BTD = absolute value of book-tax differences; NOL = a dummy variable coded 1 if firm has net operating losses carryforward and 0 otherwise, Audit = a dummy variable coded 1 if firm is audited by the largest Greek audit firm, SOL S.A., and 0 otherwise.

loss carry forward (NOL). Over one-third of the sample is audited by SOL SA (72 out of 204 firm-year observations) whereas one fifth is audited by a Big-4 audit firm (49 out of 204).

Table 2 presents the pairwise Pearson (Spearman) correlation coefficients above (below) the diagonal for the (logged) variables that are included in the regression analysis. The results reveal a positive and significant correlation between tax evasion and earnings management. Specifically, the pearson correlation between Log(Tax_evasion) and the five (5) alternative models of discretionary accruals, namely Log(DA_DeAngelo), Log(DA_Jones), Log(DA_Modified_Jones), Log (DA_CFO) and Log (DA_ROA), is 0.426, 0.460, 0.419, 0.495, 0.499 and 0.541 respectively, significant at the 0.01 level. Tax evasion is also positively and significantly correlated with total accruals. Contrary to Hanlon et al. (2014), all the discretionary accruals measures as well as total accruals are significantly correlated, suggesting that the measures are not different from each other and they probably capture same attributes of reporting quality.

Table 2. Correlation matrix.

S/N	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Log(Tax_Evasion)	1	0.426**	0.460**	0.419**	0.495**	0.499**	0.541**	0.627**	-0.161*	0.067	0.299**	0.291**	0.498**	-0.183**	-0.259**
2	Log(DA_DeAngelo)	0.442**	1	0.460**	0.498**	0.459**	0.498**	0.546**	0.549**	-0.049	0.105	0.185**	0.068	0.416**	-0.003	-0.166*
3	Log(DA_Jones)	0.472**	0.565**	1	0.837**	0.645**	0.606**	0.670**	0.523**	-0.172*	0.014	0.242**	0.298**	0.343**	-0.090	-0.143*
4	Log(DA_*Modified_Jones)*	0.441**	0.581**	0.893**	1	0.604**	0.513**	0.687**	0.512**	-0.182**	0.131	0.202**	0.217**	0.373**	-0.033	-0.112
5	Log(DA_CFO)	0.491**	0.526**	0.672**	0.626**	1	0.552**	0.548**	0.645**	-0.123	0.026	0.364**	0.324**	0.478**	-0.110	-0.209**
6	Log(DA_ROA)	0.546**	0.579**	0.668**	0.599**	0.606**	1	0.593**	0.602**	-0.106	0.124	0.246**	0.290**	0.367**	-0.158*	-0.206**
7	Log(Total_Accruals)	0.534**	0.629**	0.738**	0.754**	0.589**	0.650**	1	0.619**	-0.224**	0.217**	0.250**	0.185**	0.421**	-0.048	-0.119
8	Size	0.616**	0.599**	0.603**	0.568**	0.668**	0.660**	0.644**	1	-0.281**	0.374**	0.351**	0.319**	0.576**	-0.136	-0.212**
9	Liquidity	-0.087	-0.080	-0.178*	-0.176*	-0.125	-0.264**	-0.254**	-0.259**	1	-0.367**	-0.027	-0.055	-0.078	-0.075	-0.079
10	Leverage	0.074	0.143*	0.088	0.156*	0.060	0.161*	0.218**	0.353**	-0.515**	1	-0.121	-0.002	0.157*	0.254**	0.080
11	ROA	0.178*	0.059	0.199**	0.162*	0.244**	0.207**	0.100	0.213**	0.125	-0.196**	1	0.418**	0.174*	-0.193**	-0.109
12	CFO	0.196**	0.018	0.145*	0.081	0.192**	0.227**	-0.013	0.246**	-0.035	-0.103	0.321**	1	0.108	-0.104	-0.102
13	BTD	0.514**	0.468**	0.450**	0.459**	0.511**	0.431**	0.471**	0.620**	-0.116	0.181**	0.145*	0.052	1	0.057	-0.272**
14	NOL	-0.166*	0.011	-0.047	-0.017	0.094	-0.151*	-0.027	-0.143*	-0.090	0.237**	-0.277**	-0.104	0.051	1	0.071
15	Audit	-0.261**	-0.201**	-0.192**	-0.146*	-0.218**	-0.202**	-0.148*	-0.223**	0.024	0.068	-0.055	-0.060	-0.267**	0.071	1

Pearson above the diagonal, Spearman below the diagonal, **Correlation is significant at the 0.01 level (2-tailed), *Correlation is significant at the 0.05 level (2-tailed).
Variable definitions: Log(Tax_Evasion) = the log of additional tax assessments imposed by the tax audit; Log(DA_DeAngelo) = the log of the absolute value of discretionary accruals derived from the DeAngelo model; Log(DA_Jones) = the log of the absolute value of discretionary accruals derived from the Jones model; Log(DA_Modified Jones) = the log of the absolute value of discretionary accruals derived from the Modified Jones model; Log(DA_CFO) = the log of the absolute value of discretionary accruals derived from the Modified Jones model with book-to-market ratio and cash flows; Log(DA_ROA) = the log of the absolute value of discretionary accruals derived from the Modified Jones model with ROA; Log(Total_Accruals) = the log of total accruals; Size = the log of total sales; Liquidity = current assets divided by current liabilities; Leverage = total liabilities divided by total assets, ROA = return on assets, CFO = cash flow from operations divided by total assets; BTD = the log of the absolute value of book-tax differences; NOL = a dummy variable coded 1 if firm has net operating losses carryforward and 0 otherwise, Audit = a dummy variable coded 1 if firm is audited by the largest Greek audit firm, SOL S.A., and 0 otherwise.

Audit firm is significantly negatively correlated with tax evasion, discretionary accruals proxies, total accruals and book-tax differences, implying that SOL SA, the largest Greek audit company, provides higher quality audits that prevent earnings management.

Table 3 reports univariate tests on tax evasion, discretionary accruals and total accruals after having partitioned the sample according to the type of the external auditor. The results indicate that corporate tax evasion and financial reporting aggressiveness, in absolute values, are significantly lower for companies audited by SOL SA. Specifically, the mean differences between the two groups of firms are statistically significant at the 0.05 levels or better for Tax_Evasion, DA_DeAngelo, DA_Jones, DA_Modified_Jones, DA_CFO, DA_ROA and Total_Accruals. If the sample is split into firms that have used a Big-4 auditor or not, it is found that both tax and financial aggressiveness is significantly larger for the firms with a Big-4 audit firms. These results are contrary to the widely held belief that the brand name audit networks are more conservative in their opinions and are more likely to constain opportunistic accounting practices.

Multivariate tests

The results for the six (6) estimations of Equation (10)[2] are presented in Table 4. In all estimations, the dependent variable is Tax_Evasion whereas the measure of financial reporting aggressiveness alternates between DA_DeAngelo, DA_Jones, DA_Modified_Jones, DA_CFO, DA_ROA and Total_Accruals[3]. The coefficient on accruals is positive and significant in 5 out of the 6 regressions ($p<0.01$ for Total_Accruals, $p<0.05$ for DA_Jones, DA_Modified_Jones and DA_ROA, and $p<0.10$ for DA_DeAngelo), demonstrating

Table 3. Univariate tests according to the external audit firm.

Variable	The external auditor is SOL SA (the largest Greek audit firm)			The external auditor is a Big-4 accounting firm		
	Yes *(N=72)*	No *(N=132)*	t-Stat.	Yes *(N=49)*	No *(N=155)*	t-Stat.
Tax_Evasion	167,581	426,373	-2.871***	602,758	250,400	3.530***
DA_DeAngelo	6,292,471	12,685,086	-2.840***	20,375,062	7,284,588	5.461***
DA_Jones	4,953,312	10,315,834	-2.527**	12,418,751	7,160,063	2.207**
DA_Modified_Jones	5,881,700	10,545,660	-2.150**	13,185,059	7,544,785	2.329**
DA_CFO	3,513,818	9,520,820	-2.246**	9,640,321	6,692,692	0.975
DA_ROA	9,491,996	20,980,002	-2.049**	35,438,750	11,072,808	3.994***
Total_Accruals	6,789,355	15,334,826	-2.170**	16,747,466	10,918,740	1.313

Reported are the mean values for measures of tax and financial reporting aggressiveness and Student t-statistics for the comparison of "Yes-No" subsamples.
Non-parametric Mann-Whitney U-tests (untabulated) provide similar results ** and *** denote significance at p<0.05 and 0.01 respectively (two-tailed),
All variables are as previously defined.

a positive relation between tax and financial reporting aggressiveness. Comparing across regressions, the adjusted R square is higher (0.505) in model six (6), which examines the total accruals, than in the regressions with other measures of financial reporting aggressiveness. Nonetheless, all specifications are associated with a relatively good explanatory power. Consistent with Jones et al. (2008), the results suggest that total accruals could be a low cost alternative to many commonly used measures of discretionary accruals in examining tax aggressiveness.

Regarding the control variables, tax aggressiveness appears to be positively and significantly related to the size of the firm and the magnitude of book-tax differences (BTD) and negatively related to leverage, the presence of net operating losses carry forward (NOL) and the audit firm (Audit). A significant negative coefficient estimate is found for liquidity in 2 models (DA_DeAngelo and DA_Jones) whereas the variables ROA and CFO do not appear to be significant in any of the models. The negative association between the leverage ratio and tax aggressiveness is consistent with the notion that the greater the firm's tax shield of debt, the lower the need for incremental tax planning (Armstrong et al., 2012). The negative association between auditor type and tax aggressiveness indicates that auditor type mitigates corporate misreporting. This is consistent with the results reported in Table 3, showing that the firms audited by SOL SA, the largest Greek audit firm, exhibit significantly less earnings management. In additional analysis, the impact of a Big 4 audit firm (instead of SOL SA) on earnings management is investigated. However, no significant association has been found (untabulated results).

The positive association between book-tax differences and tax evasion suggests that Greek public firms are engaged in non-conforming tax avoidance. Furthermore, this positive association is reported after controlling for accruals in all the models examined. In additional analysis, the effect of temporary and permanent book tax differences is examined separately as each measure suggests a different underlying reason of what is driving the association between tax aggressiveness and book-tax differences (Hanlon et al., 2012). Temporary differences are calculated as the deferred tax expense grossed up by the applicable tax rate whereas permanent BTDs are calculated by subtracting the temporary component of BTDs from the total BTD measure. In Table 5, the results of estimating Equation (10) are presented, but rather than the absolute value of total book-tax differences the absolute value either of temporary book-tax differences (TEMP_BTD) or permanent book-tax differences (PERM_BTD) is included. The results are reported for the six (6) estimations of Equation (10) with the measure of financial reporting aggressiveness alternating between DA_DeAngelo, DA_Jones, DA_Modified_Jones, DA_CFO, DA_ROA and Total_Accruals. In agreement with previous studies (Wilson, 2009), it is found that both components of the BTD measure are positively and significantly associated with tax evasion. The signs and significance of the rest of the control variables remain mostly the same.

DISCUSSION

The findings of the present study suggest that the decreased book-tax conformity, as the result of the IFRS adoption, has deteriorated earnings quality in Greece. Public companies exploit the different accounting regimes for tax and financial accounting purposes and manipulate

Table 4. Regression results of earnings management proxies and firm characteristics on tax aggressiveness.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
	Log(DA_DeAngelo)	Log(DA_Jones)	Log(DA_Modified_Jones)	Log(DA_CFO)	Log(DA_ROA)	Log(Total_Accruals)
Intercept	0.907**(1.982)	0.472(0.926)	0.796*(1.714)	0.613(1.175)	0.855*(1.873)	0.726(1.630)
Log(Accruals)	0.088*(1.678)	0.108**(2.244)	0.097**(1.967)	0.059(0.936)	0.109**(2.223)	0.207***(3.948)
Size	0.375***(4.631)	0.431***(5.099)	0.389***(5.091)	0.457***(5.086)	0.362***(4.536)	0.317***(4.128)
Liquidity	-0.010*(-1.667)	-0.006(-1.037)	-0.008**(-1.383)	-0.007(-1.218)	-0.010(-1.596)	-0.007(-1.247)
Leverage	-0.507**(-2.357)	-0.476**(-2.221)	-0.539(-2.526)	-0.502**(-2.298)	-0.524**(-2.459)	-0.583***(-2.815)
ROA	0.106(0.315)	0.074(0.220)	0.134(0.402)	-0.001(-0.003)	0.130(0.392)	0.062(0.191)
CFO	0.416(1.269)	0.120(0.362)	0.270(0.830)	0.218(0.646)	0.265(0.818)	0.336(1.070)
BTD	0.168(3.077)***	0.147(2.699)***	0.164(3.010)***	0.146(2.567)**	0.170(3.152)***	0.151(2.847)***
NOL	-0.160(-2.058)**	-0.149(-1.943)**	-0.152(-1.975)**	-0.147(-1.890)*	-0.129(-1.671)*	-0.148(-1.985)**
Audit	-0.135(-2.081)**	-0.102(-1.535)	-0.141(-2.175)**	-0.098(-1.452)	-0.121(-1.863)*	-0.141(-2.244)**
N	204	204	204	204	204	204
Adjusted R-square	0.472	0.471	0.474	0.473	0.477	0.505

*, ** and *** denote significance at p<0.10, 0.05 and 0.01 respectively. Reported items are regression coefficients and t-statistic between parentheses. Firm and year-fixed effects are included. All variables are as previously defined.

both their tax and accounting earnings. The results contradict previous studies (Dayanandan et al., 2016; Cappellesso and Rodrigues, 2019), that report a reduction in earnings management in code law countries after the introduction of IFRS. However, according to Dimitropoulos et al. (2013), Greece presents a unique economic environment which differs significantly from other code-law countries. Its accounting framework is characterized by a long history of historical-accounting principles (Dimitropoulos et al., 2013), the Greek accounting setting is heavily based on state regulation (Tsalavoutas and Evans, 2010) and the majority of public firms is characterized by concentrated ownership (Kapoutsou et al., 2015).

The results indicate that larger firms (measured by revenue) manipulate their tax earnings to a greater extent in order to reduce their tax obligations. This finding is consistent with previous studies showing that larger, more complex firms have more opportunities or higher incentives for tax noncompliance (Hanlon et al., 2007; Dyreng et al., 2008) or are engaging in tax shelter activities (Frank et al., 2009; Wilson, 2009; Lisowsky, 2010).

Previous literature has noticed a widening gap between accounting and taxable income as an increasing number of countries has adopted IFRS (Mao and Wu, 2019). The present study reports a positive association between book-tax differences and tax evasion suggesting that Greek public firms are engaged in non-conforming tax avoidance.

Furthermore, this positive association is reported after controlling the accruals in all the models examined. Taking into account that book-tax differences are regarded as an alternative or incremental proxy for accruals (Hanlon et al., 2012), the positive and significant coefficients on both BTDs and (discretionary or total) accruals suggest that the book-tax difference variable is incrementally useful beyond discretionary (and total) accruals in predicting tax evasion. Similarly, discretionary (and total) accruals are incrementally useful to book-tax differences (Badertscher et al., 2009). The fact that the Greek public firms are engaged in non-conforming tax avoidance while concurrently exhibiting significant abnormal accruals indicates that the book-tax gap captures both tax avoidance activities and financial reporting manipulation.

The findings are consistent with previous studies. Wilson (2009) finds that firms actively engaged in tax sheltering exhibit larger ex post book-tax differences and more aggressive financial reporting. Frank et al. (2009) find that total book-tax differences are significant in explaining tax shelter activity whereas they also find a strong, positive relation between aggressive tax and financial reporting. Lisowsky (2010) finds

Table 5. Regression results of earnings management proxies and firm characteristics on tax aggressiveness when either temporary book-tax differences or permanent book-tax differences are examined instead of total book-tax differences.

	Model (1) Log(DA_DeAngelo)		Model (2) Log(DA_Jones)		Model (3) Log(DA_Modified_Jones)		Model (4) Log(DA_CFO)		Model (5) Log(DA_ROA)		Model (6) Log(Total_Accruals)	
	TEMP_BTD	PERM_BTD	TEMP_BTD	PERM_BTD	TEMP_BTD	PERM_BTD	TEMP_BTD	PERM_BTD	TEMP_BTD	PERM_BTD	TEMP_BTD	PERM_BTD
Intercept	0.967(2.102)**	0.999(2.176)**	0.531(1.039)	0.508(0.994)	0.827(1.776)*	0.859(1.849)*	0.670(1.279)	0.665(1.272)	0.908(1.980)**	0.938(2.051)**	0.762(1.706)*	0.804(1.796)*
Log (accruals)	0.085(1.602)	0.069(1.265)	0.122(2.541)**	0.107(2.198)**	0.107(2.167)**	0.100(2.019)**	0.079(1.259)	0.050(0.769)	0.112(2.258)**	0.101(2.037)**	0.215(4.106)***	0.200(3.739)***
Size	0.404(5.063)***	0.418(5.397)***	0.430(5.001)***	0.456(5.615)***	0.403(5.317)***	0.409(5.525)***	0.458(5.004)***	0.486(5.597)***	0.383(4.862)***	0.394(5.141)***	0.328(4.308)***	0.352(4.748)***
Liquidity	-0.011(-1.814)*	-0.012(-1.963)*	-0.008(-1.224)	-0.008(-1.345)	-0.009(-1.550)	-0.011(-1.744)*	-0.009(-1.385)	-0.010(-1.514)	-0.011(-1.767)*	-0.012(-1.936)*	-0.008(-1.415)	-0.009(-1.523)
Leverage	-0.414(-1.865)*	-0.508(-2.344)**	-0.377(-1.711)*	-0.4642(-.158)**	-0.437(-1.985)**	-0.526(-2.456)**	-0.411(-1.835)*	-0.492(-2.243)**	-0.423(-1.921)*	-0.515(-2.405)**	-0.490(-2.292)**	-0.577(-2.759)***
ROA	0.239(0.699)	0.165(0.488)	0.219(0.640)	0.118(0.350)	0.272(0.804)	0.192(0.574)	0.146(0.405)	0.065(0.182)	0.269(0.795)	0.187(0.558)	0.187(0.569)	0.111(0.339)
CFO	0.285(0.865)	0.353(1.075)	-0.006(-0.018)	0.081(0.246)	0.137(0.422)	0.228(0.704)	0.087(0.258)	0.180(0.534)	0.133(0.410)	0.226(0.697)	0.219(0.700)	0.293(0.929)
Adjusted_BTD	0.125(2.606)***	0.124(2.701)***	0.123(2.556)**	0.114(2.569)**	0.129(2.735)***	0.128(2.890)***	0.113(2.277)**	0.113(2.429)**	0.131(2.768)***	0.127(2.863)***	.121(2.629)***	0.105(2.377)**
NOL	-0.171(-2.154)**	-0.144(-1.862)**	-0.163(-2.097)**	-0.140(-1.837)*	-0.167(-2.129)**	-0.142(-1.856)*	-0.158(-1.992)**	-0138(-1.781)*	-0.142(-1.800)*	-0.118(-1.535)	-0.163(-2.135)**	-0.136(-1.816)*
Audit	-0.137(-2.084)**	-0.153(-2.361)**	-0.101(-1.522)	-0.115(-1.742)*	-0.141(-2.160)**	-0.157(-2.439)**	-0.098(-1.453)	-0.111(-1.657)*	-0.122(-1.851)*	-0.140(-2.155)**	-0.141(-2.220)**	-0.158(-2.506)**
N	204	204	204	204	204	204	204	204	204	204	204	204
Adjusted R-square	0.464	0.466	0.469	0.469	0.470	0.473	0.443	0.445	0.471	0.473	0.502	0.498

*, ** and *** denote significance at p<0.10, 0.05 and 0.01 respectively. Reported items are regression coefficients and t-statistic between parentheses. Firm and year-fixed effects are included. Adjusted_BTD is the proxy of book-tax differences that is examined, TEMP_BTD is the log of the absolute value of temporary book-tax differences, PERM_BTD is the log of the absolute value of permanent book-tax differences. All other variables are as previously defined.

that book-tax differences alone are an informative measure for corporate tax sheltering. Tang and Firth (2011) demonstrate that book-tax differences may be used to capture both financial accounting and tax manipulations. Cappellesso and Rodrigues (2019), examined G-20 countries and provide evidence that the greater the discretion between book and taxable income, the higher the extent of tax avoidance. Mao and Wu (2019) have found using panel data of 137 countries, that the mandatory IFRS adoption has resulted in increased tax avoidance.

The research provides corroborative evidence to previous studies reporting a significant negative association between tax sheltering and leverage (Frank et al., 2009; Wilson, 2009; Lisowsky, 2010; Amidu et al., 2019). A possible explanation, supported in the literature, is that leverage and tax shelter activity are serving as substitutes and thus companies that are tax-avoiders are not highly leveraged. The presence of NOL carryforwards appears to be negatively related to tax aggressiveness. It must be noted that all firms in the sample are in a taxable position after controlling for net operating loss carryforwards. The loss firms had been initially excluded from the analysis. As expected, the NOL carryforwards reduce the taxable income and thus weaken managerial incentives for avoiding more taxes.

The public companies that have been audited by SOL SA, the largest Greek audit firm, appear to be engaged in less earnings manipulation. The results are consistent with previous studies examining the impact of SOL SA on the tax reporting aggressiveness of Greek public companies prior to the introduction of IFRS (Kourdoumpalou and Karagiorgos, 2012). Tsipouridou and Spathis (2012), Karampinis and Hevas (2013) and Ferentinou and Anagnostopoulou (2016) examine the relation between the audit firm and the extent of earnings management (that is, level of discretionary accruals) of Greek companies. No significant association was found in either study. In the international context, the results are contradicting. Jones et al. (2008) find that the use of a Big 4 auditor mitigates accounting fraud and Badertscher et al. (2009) show that misstatement firms are less likely to use a big 4/5/6 auditor. On the other hand, Lisowsky (2010) finds that the use of a Big 5 audit firm is positively related to tax shelter activities. Kanagaretnam et al. (2016) find strong evidence that auditor quality is negatively associated with the likelihood of tax aggressiveness. However, there results are more pronounced in countries where investor protection is stronger, auditor litigation risk is higher and

capital market pressure is higher.

Conclusions

The purpose of this study is to investigate the corporate reporting behaviour of Greek public companies after the mandatory introduction of International Financial Reporting Standards. Using unique tax audit data, the research provides evidence that firms exploit the different accounting regimes that apply for tax and financial accounting purposes and simultaneously manipulate their tax earnings downwards and their accounting earnings upwards (that is non-conforming earnings management). These non-conforming reporting strategies result in a high level of book-tax differences that has been considered a red flag for corporate misreporting (Mills, 2019).

The study contributes to the debate on the costs and benefits of the dual reporting system. First, it examines tax aggressiveness by relying on tax audit data. Relevant research is limited as data from tax returns and audits are not widely available and researchers resort to the development of corporate tax avoidance measures by using financial statement data (Hanlon and Heitzman, 2010; Mills, 2019). Second, whereas there is extensive research either on financial reporting aggressiveness or tax reporting aggressiveness, studies that examine if there is a trade-off between these manipulations or if they are performed simultaneously are rather scarce (Cappellesso and Rodrigues, 2019). The present paper contributes to this line of research.

Third, the sample consists of public firms in an emerging market and a code law country. The findings contradict previous studies in code law countries and highlight the need to analyse the different institutional characteristics among jurisdictions when investigating corporate reporting behaviour. In this context, the paper also empirically answers to calls for greater research on noisy point estimates that can be sensitive to regulatory regime and time period (Mills, 2019). Fourth, the study reveals extensive earnings manipulation in an accounting environment with strict tax (that is, compulsory tax audits) and accounting (that is, audited financial statement) audit enforcement. The constraints imposed by the clientelistic political system in Greece and the lack of a strong accounting and auditing oversight board (Caramanis et al., 2015) may limit the enforceability of tax and accounting regulations.

The results of this study are subject to certain limitations. First, the focus of this study is only accrual-based earnings management. Real earnings management, which is another opportunity for earnings manipulation, is not considered in the analysis. Second, in contrast to the harmonized accounting standards that allow for cross-country comparison, the corporate tax legislation varies greatly from country to country. As a result, the findings may not be generalized to other jurisdictions and further research is warranted.

Future research could incorporate real earnings management in the analysis in order to provide more insight into the tax planning strategies employed by the corporations. Moreover, to further deepen the analysis, future research could focus on private firms that are less subject to the capital market pressures and thus are more likely to adopt book-tax conforming tax strategies (Badertscher et al., 2019). The information regarding tax reporting aggressiveness both of private and public companies in different countries may enhance the policymakers in their attempts to introduce a Common Consolidated Corporate Tax Base in the European Union.

CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

REFERENCES

Amidu M, Coffie W, Acwuash PH (2019). Transfer prising, earnings management and tax avoidance of firms in Ghana. Journal of Financial Crime 26(1):235-259.

Amidu M, Kwakye TO, Harvey S, Yorke SM (2016). Do firms manage earnings and avoid tax for corporate social responsibility? Journal of Accounting and Taxation 8(2):11-27.

Armstrong CHS, Blouin JL, Larcker DF (2012). The incentives for tax planning. Journal of Accounting and Economics 53(1-2):391-411.

Atwood TJ, Drake MS, Myers JN, Myers LA (2012). Home country tax system characteristics and corporate tax avoidance: international evidence. The Accounting Review 87(6):1831-1860.

Badertscher BA, Katz SHP, Rego SO, Wilson RJ (2019). Conforming tax avoidance and capital market pressure. The Accounting Review 94(6):1-30.

Badertscher BA, Phillips JD, Pincus M, Rego SO (2009). Earnings management strategies and the trade-off between tax benefits and detection risk: to conform or not to conform? The Accounting Review 84(1):63-97.

Butler M, Leone A, Willenborg M (2004). An empirical analysis of auditor reporting and its association with abnormal accruals. Journal of Accounting and Economics 37(2):139-165.

Cappellesso G, Rodrigues JM (2019). Book-tax Differences as an Indicator of Earnings Management and Tax Avoidance: An Analysis in the G-20 Countries. Contabilidade Gestão e Governança 22(3):352-367.

Caramanis C, Dedoulis E, Leventis ST (2015). Transplanting Anglo-American accounting oversight boards to a diverse institutional context. Accounting, Organizations and Society 42:12-31.

Caramanis C, Lennox C (2008). Audit effort and earnings management. Journal of Accounting and Economics 45(1):116-138.

Chan KH, Lin KZ, Mo PLL (2010). Will a departure from tax-based accounting encourage tax noncompliance? Archival evidence from a transition economy. Journal of Accounting and Economics 50(1):58-73.

Chan KH, Lin KZ, Mo PLL, Wong PW (2021). Does IFRS convergence improve earnings informativeness? An analysis from the book-tax tradeoff perspective. Accounting and Business Research 2021:1-27.

Chytis E (2019). The informative value of taxes: The case of temporal differences in tax accounting. Journal of Accounting and Taxation 11(8):130-138.

Dayanandan A, Donker H, Ivanof M, Karahan G (2016). IFRS and accounting quality: legal origin, regional, and disclosure impacts.

International Journal of Accounting and Information Management 24(3):296-316.
DeAngelo LE (1986). Accounting numbers as market valuation substitutes: a study of management buyouts of public stockholders. The Accounting Review 61(3):400-420.
Dechow P, Ge W, Schrand C (2010). Understanding earnings quality: a review of the proxies, their determinants and their consequences. Journal of Accounting and Economics 50(2-3):344-401.
Dechow P, Sloan R, Sweeney A (1995). Detecting earnings management. The Accounting Review 70(2):193-225.
Desai MA, Dharmapala DH (2009). Earnings management, corporate tax shelters and book-tax alignment. National Tax Journal 62(1):169-186.
Dimitropoulos E, Asteriou D, Kousenidis D, Leventis ST (2013). The impact of IFRS on accounting quality: Evidence from Greece. Advances in Accounting 29(1):108-123.
Dokas I, Leontidis CH, Eriotis N, Hazakis K (2021). Earnings management. An overview of the relative literature. Bulletin of Applied Economics 8(2):25-55.
Dyreng SD, Hanlon M, Maydew EL (2008). Long-run corporate tax avoidance. The Accounting Review 83(1):61-82.
Ferentinou AC, Anagnostopoulou SC (2016). Accrual-based and real earnings management before and after IFRS adoption: The case of Greece. Journal of Applied Accounting Research 17(1):2-23.
Frank MM, Lynch LJ, Rego SO (2009). Tax reporting aggressiveness and its relation to aggressive financial reporting. The Accounting Review 84(2):467-496.
Hanlon M (2005). The persistence and pricing of earnings, accruals and cash flows when firms have large book-tax differences. The Accounting Review 80(1):137-166.
Hanlon M, Heitzman S (2010). A review of tax research. Journal of Accounting and Economics 50(2-3):127-178.
Hanlon M, Hoopes JL, Shroff N (2014). The effect of tax authority monitoring and enforcement on financial reporting quality. The Journal of the American Taxation Association 36(2):137-170.
Hanlon M, Krishnan GV, Mills LF (2012). Audit fees and book-tax differences. The Journal of the American Taxation Association 34(1):55-86.
Hanlon M, Mills L, Slemrod J (2007). An empirical examination of corporate tax noncompliance. In: Auerbach A, Hines J, Slemrod J (eds.). Taxing Corporate Income in the 21st Century. New York: Cambridge University Press pp. 171-210.
Healy PM (1985). The effect of bonus schemes on accounting decision. Journal of Accounting and Economics 7(1-3):85-107.
Hendriksen ES (1970). Accounting theory. Richard D. Irwin INC, Illinois.
Hoopes JL, Mescall D, Pittman JA (2012). Do IRS audits deter corporate tax avoidance? The Accounting Review 87(5):1603-1639.
Hribar P, Collins DW (2002). Errors in estimating accruals: implications for empirical research. Journal of Accounting Research 40(1):105-134.
Jones J (1991). Earnings management during import relief investigations. Journal of Accounting Research 29(2):193-228.
Jones KL, Krishnan GV, Melendrez KD (2008). Do models of discretionary accruals detect actual cases of fraudulent and restated earnings? An empirical analysis. Contemporary Accounting Research 25(2):499-531.
Kanagaretnam K, Lee J, Lim CHY, Lobo GJ (2016). Relation between auditor quality and tax aggressiveness: Implications of cross-country institutional differences. Auditing, a Journal of Practice and Theory 35(4):105-135.
Kapoutsou E, Tzovas CH, Chalevas C (2015). Earnings management and income tax evidence from Greece. Corporate Ownership and Control 12(2-5):511-529.
Karampinis N, Hevas D (2013). Effects of IFRS adoption on tax-induced incentives for financial earnings management: evidence from Greece. The International Journal of Accounting 48(2):218-247.
Kothari SP, Leone AJ, Wasley CE (2005). Performance matched discretionary accrual measures. Journal of Accounting and Economics 39(1):163-197.
Kourdoumpalou ST (2017). Detecting tax evasion when tax and accounting earnings match. Corporate Ownership and Control 14(2):279-288.
Kourdoumpalou ST, Karagiorgos TH (2012). Extent of corporate tax evasion when taxable earnings and accounting earnings coincide. Managerial Auditing Journal 27(3):228-250.
Larcker DF, Richardson SA (2004). Fees paid to audit firms, accrual choices and corporate governance. Journal of Accounting Research 42(3):625-658.
Lee HA (2016). The usefulness of the tax avoidance proxy: evidence from Korea. Journal of Applied Business Research 32(2):607-620.
Lennox Cl, Lisowsky P, Pittman J (2013). Tax aggressiveness and accounting fraud. Journal of Accounting Research 51(4):739-778.
Lin KZ, Mills L, Zhanf F, Li Y (2018), Do political connections weaken tax enforcement effectiveness? Contemporary Accounting Research 35(4):1941-1972.
Lisowsky P (2010). Seeking shelter: empirically modelling tax shelters using financial statement information. The Accounting Review 85(5):1693-1720.
Lyon SC, Kelley T, Margheim L (2021). Does the importance of relevance and faithful representation differ between GAAP and tax reporting? A discussion of the trade-offs between cash-basis, accrual-basis, and fair value accounting methods. Journal of Accounting and Taxation 13(3):144-152.
Mao CHW, Wu WCH (2019). Does the government-mandated adoption of international financial reporting standards reduce income tax revenue? International Tax and Public Finance 26(1):145-166.
Mills LF (2019). Pursuing relevant (tax) research. The Accounting Review 94(4):437-446.
Perols JL, Lougee BA (2011). The relation between earnings management and financial statement fraud. Advances in Accounting 27(1):39-53.
Slemrod J, Blumenthal M, Christian CH (2001). Taxpayer response to an increased probability of audit: evidence from a controlled experiment in Minnesota. Journal of Public Economics 79(3):455-483.
Sundvik D (2017). Book-tax conformity and earnings management in response to tax rate cuts. Journal of International Accounting, Auditing and Taxation 28:31-42.
Tang T, Firth M (2011). Can book-tax differences capture earnings management and tax management? Empirical evidence from China. The International Journal of Accounting 46(2):175-204.
Tang T, Firth M. (2012). Earnings persistence and stock market reactions to the different information in book-tax differences: Evidence from China. The International Journal of Accounting 47(3):369-397.
Tsalavoutas I, Evans L (2010). Transition to IFRS in Greece: Financial statement effects and auditor size. Managerial Auditing Journal 25(8):814-842.
Tsipouridou M, Spathis CH (2012). Earnings management and the role of auditors in an unusual IFRS context: The case of Greece. Journal of International Accounting, Auditing and Taxation 21(1):62-78.
Wilson RJ (2009). An examination of corporate tax shelter participants. The Accounting Review 84(3):969-999.

[1] Years prior to 2005 are not comparable as IFRS were not effective and Greek GAAP applied both for financial and tax reporting purposes. Years after 2010 are also not comparable as the Greek public companies were obliged to have their tax returns attested by the statutory auditors instead of the Internal Revenue Service (IRS).

[2] Unreported tests for normality, heteroskedasticity and multicollinearity have been carried out, all of which satisfy the basic OLS assumptions. In untabulated tests of multicollinearity, the highest variance inflation factor is 2.89 for Size.

[3] The statutory tax rate in Greece during the sample period was 32% in 2005, it decreased to 29% in 2006 and then it was reduced to 25% in 2007. It remained constant in 2008 and 2009 and it was further reduced to 24% in 2010.

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Corporate governance of IPO enterprises with financial accounting fraud in China's growth enterprise market-A case study of ABC Group

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This study focuses on analysing financial ratios to identify the company's (ABC Group) problems and the means by which financial fraud was committed. It proposes recommendations and solutions for the corporate governance of IPO enterprises in China's Growth Enterprise Market. This study finds that imperfect corporate governance led to financial fraud being committed by ABC Group. Many other IPO enterprises in the Growth Enterprise Market suffer from the same corporate governance flaws as ABC Group, including an over-concentrated ownership structure, ineffective board of directors and supervisors, lack of management morality and other internal governance issues, external governance issues such as imperfect capital market system, insufficient supervision, and lack of independence of intermediary agencies. Results indicate that enterprises should optimize their equity structure, improve the relevant mechanisms of the board of directors and supervisors, and increase the moral constraints on management.

Key words: Corporate governance, financial fraud, auditor independence, accounting.

INTRODUCTION

China's rapid economic development has provided significant entrepreneurial opportunities. Many enterprises hope to achieve effective financing through listing so as to broaden development channels, expand development scale, win social reputation and establish brand image. The Growth Enterprise Market (GEM), also known as the Second Board Market, was established in 2009 and plays an important role in China's securities market. It provides financing opportunities for small and medium-sized enterprises that are not listed on the main board. Review is easier and market entry barriers are lower in the GEM than in the main board. Therefore, more and more enterprises with financing needs choose to enter the GEM. Till date, China's GEM has more than 700 enterprises that have successfully completed an initial public offering (IPO).

Research problem and motivations of this study

Sound corporate governance ensures the normal and efficient operation of enterprises. This study selects a

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specific case to address some principal questions What are the methods of financial fraud used by enterprises seeking IPO in the GEM? How can the occurrence of financial fraud be reduced by improving the corporate governance structure? This research article uses a case study to examine the real situation faced by a large company in China.

Although the number of listed companies and financings has increased significantly in China, IPO financial fraud is an increasingly serious problem. In recent years, the China Securities Regulatory Commission (CSRC) has issued 381 penalties, 48 of which relate to financial fraud in the GEM. The extent of financial fraud in the GEM indicates that the inadequate corporate governance system has had an adverse impact on firms' performance and economic development. Public media have also reported a string of corporate governance scandals in the GEM, and there has been frequent criticism of its high proportion of state-owned shares and low transparency of governance. This reflects the seriousness of corporate governance issues and the need to solve these problems in order to avoid financial fraud.

Aim of this study

ABC Group was the first listed company in the GEM to be suspended as an administrative punishment, and it was also the first listed company in China's securities market to be delisted as a result of fraudulent issuance. The case has attracted wide attention and discussion in relation to fraudulent issuance, illegal disclosure of information and, especially, poor corporate governance. The company's illegal behavior has had an adverse influence on the market, has undermined the order of the domestic capital market, and has damaged the legitimate rights and interests of investors. Therefore, we examined ABC Group in this study to help analyze the financial fraud and make recommendations to improve the situations. The Chinese government can also use the recommendations in this study to regulate markets and govern enterprises to promote healthier economic development.

Contribution of this study

This study contributes to improving the corporate governance mechanism of listed companies and to reducing the risk of financial fraud in the IPO enterprises on the GEM board. It does not analyze the causes of financial fraud or how to identify and prevent it; instead, it analyzes financial fraud from the perspective of corporate governance. On the basis of the ABC group case, it discusses how to optimize corporate governance. Furthermore, by investigating defects in corporate governance, it provides a theoretical basis and research ideas for future governance of financial fraud and improvement of internal controls. By rectifying and improving defects in corporate governance, it is possible to optimize the allocation of market resources, improve investor confidence and standardize the securities market. In addition, rectification and reform of the corporate governance system can help to detect and prevent financial fraud in a timely way, while also improving the quality of the financial reports of listed companies.

Background and corporate governance of ABC group

Prior to 2016, the CSRC had only used public warnings and fines to punish listed companies. In 2016, however, faced with the extremely serious fraudulent issuance event of ABC group, the CSRC used the measure of forced delisting for the first time.

Founded in March 1993, ABC group has 560 employees, a registered capital of 70 million yuan, and assets worth nearly 200 million yuan. The company's main business is the production of transformers and grid performance optimization equipment. It has many international suppliers and customers, including in India and Kazakhstan. The company mainly provides electrical equipment and solutions for the power grid system. The goal is to produce high-efficiency, low-energy, safe and environmentally friendly energy-saving substation equipment, reactive power compensation equipment and other emerging equipment. ABC Group's main customers are highly cyclical industries closely related to the economic development situation. Therefore, cyclical fluctuations have a great impact on the company's operating income. For example, from 2013 to 2015, the transformer industry was in a downturn, and the decrease in customer demand led to a decrease in ABC Group's operating income.

LITERATURE REVIEW

Scholars from various countries have conducted research on the impact of corporate governance on financial fraud focusing on three main areas: board structure, ownership structure and incentive mechanisms.

Research on board structure: Independent directors

Kong et al. (2019) found that independent directors with local backgrounds significantly reduce the likelihood of a firm's committing fraud. An empirical study by Beasley (1996) found that companies with financial fraud have a lower proportion of independent directors in their board structure than companies without fraud. This indicates that the proportion of independent directors on the board correlates negatively with the possibility of financial fraud. Forker (1992) also found that the establishment of independent directors can reduce the occurrence of

corporate fraud. The larger the proportion of independent directors, the easier it is to supervise the enterprise and the lower the possibility of financial fraud. In a study on China, Li (2012) showed that independent directors have a significant influence on the quality of accounting information and can reduce financial fraud. The higher the proportion of independent directors, the lower the possibility of financial fraud and the higher the quality of accounting information.

Tian (2014) concluded that a listed company with a larger board of directors is more likely to have financial fraud. Huang (2015) also found that equity concentration is significantly positively correlated with the risk of material misstatement; that is, excessive equity concentration makes financial fraud more likely. Yuan et al. (2014) analyzed the influence of management incentives on calculated actual earnings management behaviors in the context of Chinese listed enterprises. Their results show that the proportions of managerial ownership and total compensation are significantly negatively correlated with real earnings management, and significantly positively correlated with accrued earnings management.

METHODOLOGY

This research adopts a case study approach to examine the real situation that happened in China. A case study approach can show the factual situations occurred in a fraudulent case .Taking ABC Group as an example, it uses financial ratio analysis to identify factors in and methods of the company's financial fraud. Finally, solutions, measures and recommendations are proposed for listed companies to improve their corporate governance and avoid financial fraud.

RESULTS

Analytical model of corporate governance

The corporate governance analytical model is based on the seven essential functions of corporate governance which is used to analyze ABC Group. A well-balanced performance of these interrelated functions results in responsible corporate governance, reliable financial reports and credible audit services. The managerial function is assumed by management, the oversight function is delegated to the board of directors, the compliance function comprises a set of laws and regulations, the monitory function is performed by shareholders, the advisory function provides legal and financial advice, and the auditing function is exercised by auditors. This model is effective both for analyzing the internal and external aspects of corporate governance and for identifying defects in corporate governance.

Financial ratio analysis

As Table 1 shows, this study collected and calculated several crucial financial ratios to measure four capacities of the company: operation capacities, profitability, debt paying ability and development capacity. Data were collected from the China Stock Market and Accounting Research database (CSMAR WIND). The data spanned the period from 2011 to the present, covering the three stages of pre-IPO, post-IPO and post-delisting to the present. Analysis of the financial data of ABC Group allows its financial problems to be identified accurately and effectively; this, in turn, enables analysis of how the financial fraud occurred.

Financial ratio analysis of ABC group

Companies use a variety of sophisticated methods to make financial data look convincing. However, no matter what steps are taken to conceal it, financial fraud will be reflected in the company's financial data, as financial statements and changes in financial ratios will appear abnormal. This section analyzes ABC Group's debt paying ability, operating ability, profitability and development capacity through financial indicators in order to identify signs of financial fraud and determine the nature of the company's problems.

Debt paying ability

The main indicators in Table 2 for evaluating the debt paying ability of the enterprise are current ratio, quick ratio, debt- to-assets ratio and cash ratio.

Generally, the current ratio of an enterprise is greater than 2, and its quick ratio greater than 1. As a consequence, the short-term debt repayment ability of enterprises is better. As can be seen from Table 2, from 2011 to 2017 the average current ratio of ABC Group was approximately 1.75, and the average quick ratio was approximately 1.6. This indicates that the amount of current assets and liquid assets was much higher than the amount of current liabilities, and that short-term solvency was relatively good during this period. However, it is worth noting that although from 2011 to 2014 the current rate and quick ratio were on an upward trend, after 2015 they declined continuously, which raises doubts about the company's financial status. If there is no major incident, there will be no sudden decrease or increase in the solvency of a company. However, in this case the current ratio and quick ratio declined sharply after 2018. The average current ratio was 0.26, and the average quick ratio was 0.15. Thus, the short-term solvency decreased significantly, indicating that the risk of short-term debt default was extremely high in these two years. The main reason is that ABC Group was exposed for fraudulent issuance and financial fraud, and the company entered the bankruptcy reorganization process in 2018. Income underwent great changes, and the amount of debt increased sharply in that year. Thus, there was a serious decline in short-term solvency.

Table 1. Capacities and financial ratios.

Capacity	Financial ratio
Operating ability	Inventory turnover
	Accounts receivable turnover
	Current asset turnover
	Total asset turnover
Profitability	Net profit margin
	Return on assets
	Return on equity
	Return on total asset ratio
	Price earnings ratio
	Earnings per share
Debt paying ability	Current ratio
	Quick ratio
	Cash ratio
	Debt-to-assets ratio
Development capability	Main business income growth rate
	Net profit growth rate
	Net assets growth rate
	Total assets growth rate

Table 2. Debt paying ability ratio (2011–2019).

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current ratio	1.50	1.74	1.77	1.91	1.78	1.92	1.77	0.30	0.23
Quick ratio	1.21	1.53	1.57	1.75	1.56	1.73	1.63	0.19	0.12
Debt-to-assets ratio (%)	62.94	59.83	52.14	45.00	46.25	41.24	43.99	202.40	229.81
Cash ratio	0.52	0.57	0.22	0.57	0.41	0.13	0.06	0.03	0.02

Debt-to-assets ratio

The debt-to-assets ratio of the enterprise from 2011 to 2017 was acceptable. The ratio declined gradually, and the company's long-term solvency increased gradually. However, after the bankruptcy reorganization in 2018, the asset–liability ratio soared to 202.40% and the debt increased sharply. The undisclosed debts and contingent liabilities of previous years increased sharply, which made the debt repayment risk extremely high. From a long-term point of view, this greater debt-to-asset ratio indicated that the company's debt burden would become heavier in future (Figure 1).

Cash ratio

The cash ratio of the company also declined year on year from 2011 to 2019, from 0.52 in 2011 to 0.02 in 2019, a reduction of more than 90%. Only 2% of the cash balance in 2019 could be used to repay short-term liabilities, and the risk of short-term debt was extremely high. Moreover, in 2013 the company's cash ratio plummeted to 0.22. This sudden increase of debt repayment risk caused investors to question whether the management of ABC Group had committed any illegal behaviors in that year (Figure 2).

Comprehensive debt paying ability

Before 2017, the performance of ABC Group's short-term debt repayment index was generally acceptable. However, the debt risk already existed during these years, even if it was not yet reflected in the enterprise's financial data. For example, the trend of debt repayment indicators changed significantly around 2015, indicating the existence of relevant solvency risks, although the data indicators were still normal. After the initiation of bankruptcy proceedings in 2018, the previously accumulated debt was released all at once, the corporate solvency index declined sharply, and the debt risk increased significantly. Hence, the company's debt paying ability did not provide grounds for optimism about

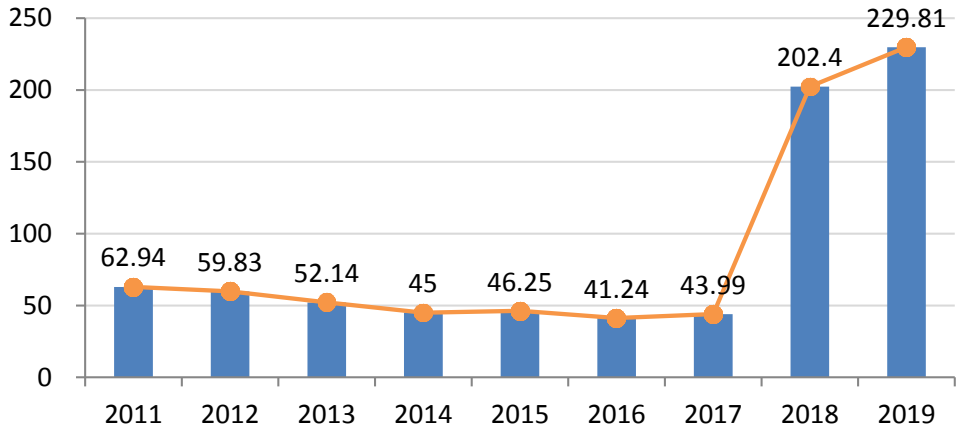

Figure 1. Debt-to-assets ratio (2011–2019).

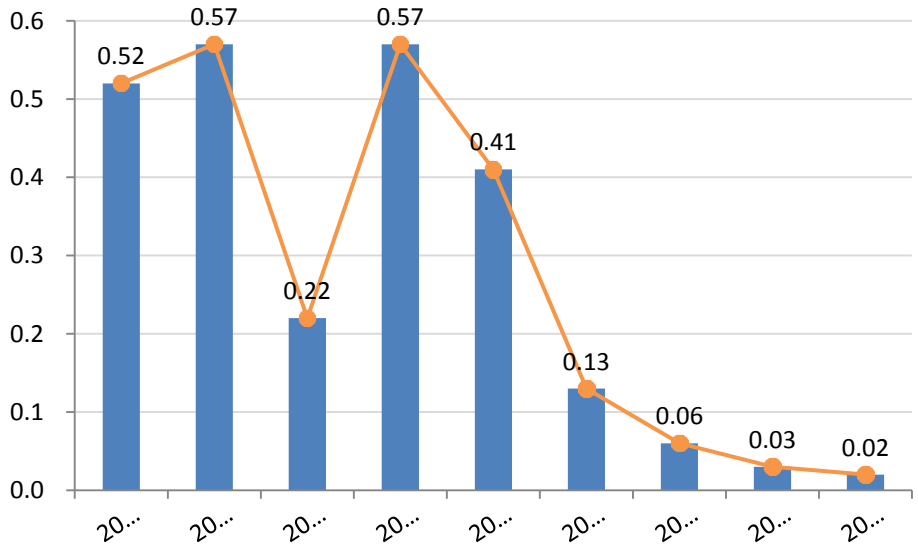

Figure 2. Cash ratio (2011–2019).

the future (Figure 3).

Operating ability

The main indicators in Table 3 are inventory turnover, accounts receivable turnover, total asset turnover and current asset turnover. The purpose is to evaluate the operating ability of enterprises

The inventory turnover rate shows a gradual downward trend from 2011 to 2019, from 3.52 in 2011 to 0.21 in 2019, a decrease of approximately 94%. However, from 2011 to 2013, the company's inventory turnover rate increased. The inventory turnover of this period was acceptable, which means the operating ability of the company was good. However, after the company went public in 2014, the ratio declined, indicating that the inventory backlog was increasingly serious after IPO. The inventory balance increased sharply, and the inventory turnover rate declined sharply. The decline in inventory turnover rate showed that ABC Group's operating capacity was far from ideal. For example, the average inventory turnover in 2019 was 1,738 days, the turnover rate was very slow, and the capital cost occupied by inventory was very high.

The turnover of accounts receivable also declined gradually, from 2.49 in 2011 to 0.29 in 2019, a decrease of nearly 90%. The average turnover of accounts receivable in 2019 was 1,258 days, and the average recovery time for accounts receivable was more than 3 years. Recovery of accounts receivable is extremely difficult, and the rate of bad debts was extremely high.

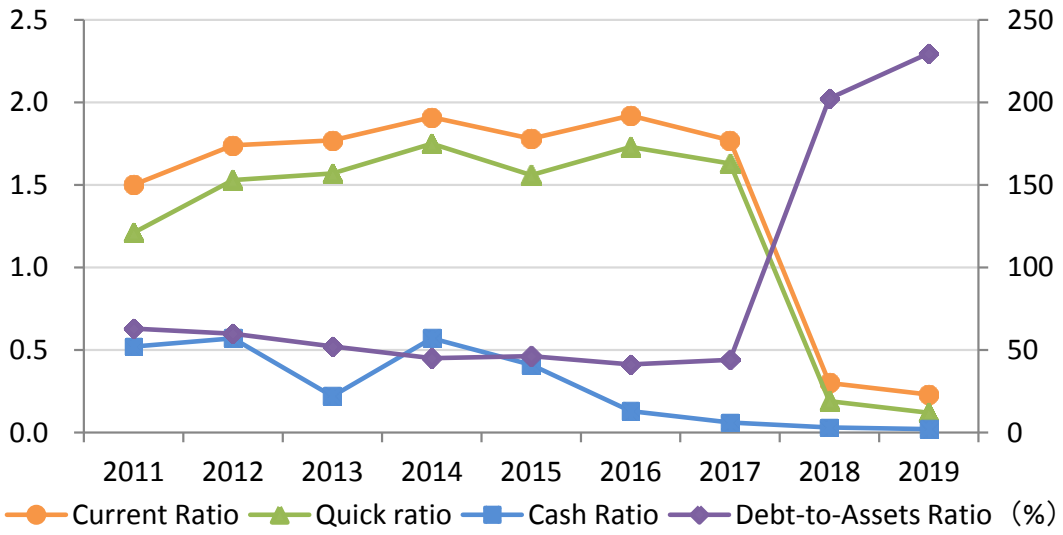

Figure 3. Debt paying ability (2011–2019).

Table 3. Operating ability.

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019
Inventory turnover	3.52	3.64	4.63	3.87	2.74	1.28	0.85	0.37	0.21
Accounts receivable turnover	2.49	1.83	1.47	1.04	0.80	0.32	0.12	0.11	0.29
Total asset turnover	0.67	0.59	0.58	0.43	0.32	0.13	0.05	0.04	0.03
Current asset turnover	0.93	0.76	0.75	0.53	0.39	0.17	0.07	0.06	0.12

Even by the time the company went public, the turnover time had increased nearly threefold through recycling the company's large number of fictitious accounts receivable. It can be concluded from this that the turnover of enterprise assets was poor. In addition, although the operating income was increasing steadily, the inventory turnover rate was declining, which is obviously contradictory. Thus, there were issues with the enterprise's financial statements and a serious problem with its operational capacity.

The total asset turnover rate showed a downward trend year on year from 2011 to 2019, from 0.67 in 2011 to 0.03 in 2019, a decrease of more than 95%. The total asset turnover rate in 2019 was only 0.03, and the turnover period was 12,166 days. This ratio indicates that the total assets generated almost no income. With the exposure of the company's financial fraud in 2015, its total asset turnover rate plummeted, reflecting investors' loss of confidence in the company. Current asset turnover showed a downward trend year on year, from 0.93 in 2011 to 0.12 in 2019, a decrease of nearly 90%. The average turnover period for current assets in 2019 was 2,958 days, with a turnover period of more than 8 years. As with the change in total asset turnover, the current asset ratio dropped sharply after 2015, reflecting the existence of problems in the company's operational capabilities and generating doubt about the authenticity of its previous liquid asset turnover rate.

In conclusion, from 2011 to 2019 the operating indicators of ABC group declined sharply. Analysis of various indicators clarifies concerns about the company's overall operating capabilities. Poor operating ability led to an extremely long turnover period, and the operating efficiency of assets was extremely low. Moreover, signs of corporate financial fraud were evident from the trend of the data. After the corporation was exposed for fraudulent issuance, its financial data indicators fell sharply.

Profitability

The main indicators in Table 4 for evaluating the profitability of enterprises are return on assets, return on equity, net profit margin, return on total assets, earnings per share and price earnings ratios.

The rates of return on assets and return on equity declined year by year from 2011 to 2019. However, before the revelation of financial fraud in 2015, the company's indicators were good. In 2011, in particular, the rate of return on equity was 20.16%, meaning that for

Table 4. Profitability ratios (2011-2019).

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019
Return on assets (%)	10.48	9.99	9.08	5.95	1.44	-8.36	-11.41	-87.38	-14.01
Return on equity (%)	20.16	18.41	14.65	8.08	0.93	-18.58	-20.31	-544.79	—
Net profit margin (%)	12.15	12.10	11.06	9.79	1.53	-79.63	-237.17	-2,534.12	-405.12
Return on total assets (%)	8.20	7.12	6.44	4.21	0.48	-10.67	-11.80	-90.08	-13.97
Earnings per share	0.80	0.89	0.90	0.51	0.03	-0.63	-0.57	-2.66	-0.18
Price earnings ratio	-	-	-	56.57	548.7	-4.82	-2.62	-0.56	-8.03

Table 5. Development ratio (2011-2019).

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019
Net assets growth rate (%)	22.42	20.27	11.83	55.62	-0.25	-15.91	-19.61	-231.83	-11.89
Total assets growth rate (%)	52.32	10.96	15.20	52.96	4.00	-23.47	-15.83	-60.84	-11.23
Main business income growth rate (%)	17.30	11.12	2.58	-11.50	-11.15	-62.05	-70.36	-56.75	-55.18
Net profit growth rate (%)	-14.52	10.67	-15.54	-34.82	-86.16	-2,081.17	11.70	-225.91	92.83

each yuan invested by shareholders the company generated 0.20 yuan of income for them, which indicates relatively good profitability. However, the rate was negative for the four years from 2016. Going public exposed ABC Group's real profitability, showing that its business activities had not brought positive benefits to the enterprise. In particular, in 2018, because of the bankruptcy and reorganization, assets were sold on a large scale to repay debts. At that point, the return on assets and return on equity fell to -87.38% and -544.79%, respectively, indicating that there was basically no profitability in the enterprise's production.

The rate of net profit margin and the rate of return on total assets showed the same trend as the rate of return on assets and return on equity, which were also negative from 2016. These findings reflect ABC group's real poor profitability, as enterprises cannot effectively use assets to generate benefits. According to the financial data for 2018, the return on equity was -544.79%, the net profit margin was -2,534.12%, and the return on total assets was -90.08%, all of which were the lowest over the ten years. The bankruptcy and reorganization of the company resulted in asset impairment losses of 117 million yuan and non-operating expenses of 272 million yuan in that year. Thus, the profitability of the company declined substantially.

ABC Group's earnings per share decreased gradually from 2011 to 2019, from 0.80 yuan per share in 2011 to -0.18 yuan per share in 2019, falling as low as -2.66 yuan per share in 2018. As the corporate financial fraud surfaced, corporate valuations fell sharply, with the price earnings ratio falling from 56.57 in 2014 to -8.03 in 2019. Financial fraud was discovered in the enterprise in 2015, and the performance of various profit indicators of before 2015 was fair. As shown, the earnings per share of the enterprise were 0.80 yuan, and the profit performance was good. However, the indicators of the enterprise began to decline sharply as the preliminary signs of corporate fraud emerged.

In conclusion, most of ABC group's financial indicators, reflect its year-on-year decline in profitability. Analysis of the changes in the different indicators shows that the major profitability indicators, such as net profit margin, all experienced a significant decline after 2014, the year when the company joined the GEM. Since then, its profitability index decreased significantly every year. It can also be seen that after the company achieved its listing, its true financial data gradually emerged and the real profitability of the business was also gradually revealed. The profit indicators declined sharply after the company entered the bankruptcy reorganization process in 2018, and all indicators were subsequently at their lowest for nearly a decade. Moreover, as ABC Group's tax incentives had always accounted for a large proportion of its net profits, the profitability of the company was even worse after these were deducted.

Development capability

Growth ability refers to the company's future development trend and development speed. The purpose is to explain the long-term development capability of the enterprise and the future production and operation strength of the enterprise. The main indicators for evaluating the growth ability of enterprises are main business income growth rate, net profit growth rate, net assets growth rate and total assets growth rate (Table 5).

The net asset growth rate of ABC Group also showed a gradual downward trend from 2011 to 2019, from 22.42% in 2011 to -11.89% in 2019, decreasing by as much as 231.83% in 2018 compared with the same

Table 6. Falsification of accounts receivable of ABC group (2011–2014).

Year	Annual report data (10,000 yuan)	Fictitious data (10,000 yuan)	Real data (10,000 yuan)
2011	14,364.51	10,156.00	24,520.51
2012	17,965.13	11,792.23	29,757.36
2013	22,094.23	18,377.54	40,471.77
2014	41,438.61	7,262.32	48,700.98

Source: ABC group's special explanation on the correction of important errors in the early stage; the CSRC Administrative Punishment Decision

period of the previous year. The growth rate of net assets declined gradually from positive to negative after 2015. Since then, the rate declined year on year, and the scale of net assets shrank gradually. This shows that the business scale of the company was reduced, thereby decreasing the profitability prospects for future development. The company is no longer good at using idle funds and cannot create profit through management and operation. The growth rate of total assets also showed a gradual downward trend, from 52.32% in 2011 to -11.23% in 2019. Total assets increased in 2015 but shrank thereafter. This confirms that the total assets and net assets of ABC GROUP had not increased but were in fact reduced by the ongoing sale of assets in bankruptcy to pay off debts from the financial fraud.

Nature of the problems at ABC group

Intentional reduction of accounts receivable

Through analysis of the financial data, we have determined that ABC Group was not in a good operating condition before it went public. The overstock of inventory had led to a substantial risk of bad debts. In order to improve its business conditions, the enterprise used credit sales to expand its sales on a large scale, thereby generating a large number of accounts receivable. Normally, a decline in customer quality would have led to a decline in the rate of receivables recovery, but before the company went public, that rate had been rising. The recovery speed of accounts receivable not only determines the strength of an enterprise's operating capacity but is also one of the conditions of its IPO listing. Moreover, the deliberate reduction of accounts receivable led to undercounting and inadequate provision for bad debts, falsely inflating the company's profits. Therefore, the recovery of fictitious accounts receivable was one of the main fraudulent mechanisms that ABC Group used to go public.

As Table 6 shows, ABC Group began to forge accounts receivable before it went public in 2011, and such fraud still existed in its financial statements after the listing. Its main fraudulent methods were false borrowing, internal circulation of funds and forging bank receipts and invoices.

In the first method, false borrowing, chairman borrowed money, and when making cash payment, he filled in the name of the customer company as the payer, which was regarded as payment collected from the customer company. Although this method does not cause abnormalities in the financial statements at the end of the period, the company needs to pay interest expenses on borrowing, which can easily generate financial pressure for enterprises with weak profitability and tight capital flow. In the second method, the internal circulation of funds, ABC group transferred its own funds to customers in the form of payment for goods to suppliers, and customers transferred the funds back in the name of payment for product purchase, so as to realize the circulation mode of ABC Group. In both cases, accounts receivable were reduced during the reporting period and given back at the beginning of the next accounting period. In the third method, forging bank bills, the amount of accounts receivable was reduced by direct falsification of bank receipts and invoices. Direct forging of bank documents avoids having to pay interest on the loan and does not generate financial pressure, but it is usually easy for auditors to find. However, the external auditors of ABC Group failed to identify the material misstatement risk, which led to doubts concerning the objectivity and independence of the auditors, and even suspicions of collusion between the external auditors and the management of the enterprise.

Intentional reduction of costs

To achieve its goal of going public, ABC Group glossed over profit targets in its financial statements. In addition to the method, discussed above, of intentionally reducing receivables to increase the company's profits, ABC Group understated material costs to increase profits, thereby misleading investors by fabricating a trend of stable and rising profitability. As ABC Group is an electric production enterprise, raw materials account for more than 92% of its production costs. Hence, fluctuations in raw material prices are the main reason for fluctuations in the main business cost. For example, in 2011 the purchase price of silicon steel sheeting was 14,906 yuan per ton, the quantity purchased was 6,310 tons, and the total cost was 94.05 million yuan. However, consultation

of the industry data for the steel market shows that the average price of silicon wafers in the market in that year was 19,500 yuan per ton, and the lowest price was 17,000 yuan/ton; thus, the price was never as low as the purchase price reported by ABC Group. The price of the silicon steel sheeting purchased by ABC Group was 12% lower than the lowest price in the market and 22% lower than the average price in the market, making the purchase price in the prospectus 25.83 million yuan lower than the actual purchase price. In 2011, the disclosed annual net profit was 59.03 million yuan. However, after deducting the falsely reduced material cost of 25.83 million yuan, the true net profit for that year was 33.2 million yuan. Thus, the company inflated its net profit by 44%.

Failure to disclose in a timely manner the use of funds by affiliated parties

From the CSRC's punishment report, we find that ABC group had a large number of undisclosed transactions with affiliated parties. First, the chairman and actual controller borrowed more than 60 million yuan from the company over a few years. However, this transaction was not publicly disclosed in the 2014 financial statements. The chairman also tried to hide the fact that he was working for private interests on the grounds of non-operational occupation. In the second half of 2015, he sold property rights in the company's name to his family, a transaction that was neither approved by the board of directors and the board of supervisors nor disclosed in the current financial statements in a timely manner. A number of other transactions with affiliated parties were not effectively monitored by corporate governance or truthfully disclosed by the company's financial personnel. The supervision defects of corporate governance and the dereliction of duty of senior management abetted the manipulation of profits by the management, which led to the occurrence of financial fraud.

Penalties and outcomes

In 2015, the CSRC and the relevant regulatory authorities found that ABC group had committed financial fraud, and the company was forced to undergo the delisting procedure starting on July 8, 2016. In August of the same year, trading in ABC Group's shares was suspended. In June 2017, the Shenzhen Stock Exchange decided to terminate the listing of ABC group, which subsequently entered the delisting period. At the same time, various penalties and fines were imposed on the relevant responsible persons of ABC Group, along with the legal responsibility to pay for the fraud. The company's sponsor, XX Securities, was given a warning by the CSRC in relation to the case. The confiscated illegal gains and fines amounted to 12 million yuan and 24 million yuan, respectively. Employees of XX Securities involved in the financial fraud case have been punished to varying degrees with warnings, confiscation of illegal earnings, fines, and cancelation of employment licenses. The auditors of ABC Group were ordered to correct its illegal behavior. The illegal income in relation to this case was confiscated, and the firm was fined, in the amounts of 3,224,400 yuan and 9,673,200 yuan, respectively. The accounting firms and related parties involved were warned, fined or banned from the market, leaving a stain on their careers and affecting their credibility and business development in the industry.

Why did corporate governance fail to monitor the problems?

Sound corporate governance should satisfy the seven functions of the corporate governance model simultaneously. They are the oversight function, board of management function, managerial function, regulatory function, external auditor function, internal auditor function and compliance function. Failure to perform any of these functions effectively will result in the failure of corporate governance and increase the risk of financial fraud. Drawing on the corporate governance model, the model shows that all the seven functions failed to monitor effectively ABC Group's financial fraud.

DISCUSSION

As shown in the ratio analysis above, all financial ratios of ABC Group were not in satisfactory conditions from 2011 to 2019. For example, profitability ratios decreased from 12.15% in 2011 to -405.12% in 2019 whereas return on assets ratios decreased from 10.48 to -14.01% in 2019. In recent years, fraud has occurred frequently in China, and its impact on the country's securities market has been severe. The strict penalties imposed by the CSRC on ABC Group have also sounded the alarm for other companies that intend to go public. Drawing on the financial fraud case of ABC group from the perspective of corporate governance, this study puts forward recommendations for listed companies with similar problems and for the relevant industry regulatory authorities, so as to strengthen the corporate governance of listed companies and improve the quality of information in their corporate financial reports.

Optimizing the shareholding structure and system

Over-concentration of shareholding structure is not conducive to the development of enterprises. In the case of ABC Group, over-concentration of equity and over-dispersion of the remaining equity gave complete control of the company to one individual, which paved the way to financial fraud.

Developing more institutional investors

A first response to this issue would be to introduce multiple institutional investors, such as securities, trusts, insurance companies and banks, to avoid excessive concentration of equity. The professionalism of such organizations gives them a unique advantage in the field of information collection and processing, which would further encourage enterprises to disclose accounting information more accurately and transparently.

Improving the shareholder voting system

A second response would be to improve the voting system to ensure that non-controlling shareholders can participate meaningfully in corporate decision-making. For example, in terms of voting for major decisions concerning the company's future operations, a one-person-one-vote system for the top ten shareholders could be adopted instead of voting in accordance with the proportion of shares they hold. At the same time, opportunities for minority shareholders to participate in corporate decision-making should be actively increased. Small and medium shareholders should be allowed to participate in shareholder meetings and voting online, so that the voting results of the shareholders' meetings will better reflect the interests of all the shareholders.

Improving the board of directors system

This analysis of the corporate governance structure of Xintai Electric has shown that China's listed companies have a serious problem with senior executives serving concurrently on the board of directors and thus failing to be independent.

Optimizing the structure of the board of directors

A first way to address this issue would be to optimize the structure of the board of directors to avoid directors serving concurrently as management. Listed companies can modify corporate rules and regulations to allow employee representatives and minority shareholders to become directors and to participate in decision-making, thereby reducing the control of the internal board of directors and increasing the supervision effect.

Enhancing the independent directors system

Another solution involves improving the system of independent directors by changing their recruitment. Candidates for the role of independent director should be able to present themselves only after their résumés and academic records have been fully verified and made public by the enterprise. In addition, during the recruitment period, public investors should have the right to review, supervise and report on the unqualified independent director candidates, ensuring that the people selected have the relevant competence and qualifications. The voting procedure for independent directors should also be changed to a one-person-one-vote system so that all shareholders have a real and fair right to choose. Only independent directors selected in this way can be considered as representative of the interests of all shareholders.

Improving the supervisory board mechanism

The board of supervisors of ABC Group failed to fulfill its oversight function, which meant that financial fraud was not detected or stopped for four consecutive years. Therefore, it is necessary to improve the mechanism of the board of supervisors in order to ensure better corporate governance.

Developing a minority shareholders representative supervisor

The composition of the board of supervisors should be diversified. In addition to supervisors who represent employees and major shareholders, supervisors who represent small and medium-sized shareholders should be included so that the interests of all parties can be checked and balanced effectively. Moreover, an independent supervisory system should be introduced to ensure that independent supervisor roles are held only by highly professional personnel, and the nomination process should be open and transparent. With such diversification of the board of supervisors, their decision-making can achieve and maintain independence, impartiality and objectivity.

Enhancing the competence of supervisors

The importance of examining the qualifications and professional skills of supervisors is clear. Whether they represent employees, major shareholders or small and medium-sized shareholders, they should be assessed for professional quality and required to have a full understanding of the company's operational decision-making and strategic planning. They should also be required to have professional knowledge of accounting, management and law, and to demonstrate a strongly professional approach to the role.

Optimizing the management mechanism

From ABC Group's failure in corporate governance, we

can see a close connection between the moral integrity of managers and a company's risk of fraud. The assessment mechanism for management suffers from major flaws. Therefore, it is necessary for management to improve its moral and legal awareness, and for the company to optimize its mechanism for evaluating its management.

Enhancing management's moral and legal awareness

When the management has good moral integrity and sound legal awareness, the overall culture of the company will be one of compliance and respect for the law. To improve the moral and legal awareness of the management, we should first strengthen their moral education to include regular training, timely assessment, and promotion of ethical rules and behavioral norms. Second, to establish a positive corporate management atmosphere, penalties for illegal business activities should be increased, and good ethical and legal behaviors are promoted. Third, a pre-job assessment system should be implemented, requiring the management of listed companies to pass a basic test of professional ethics and legal awareness. Finally, professionals with legal knowledge should be hired as internal legal counsel to enhance the enterprise's internal legal awareness.

Optimizing the management evaluation and incentive mechanism

Many companies take profit as the evaluation index for executives. Therefore, when the management cannot meet their own performance targets by normal means, they will be tempted to use financial fraud to whitewash the company's statements. Changing the evaluation system for executives could effectively reduce this phenomenon; for example, more rounded performance appraisal tools, such as the so-called balanced scorecard, could be introduced, and a more diverse range of indicators (including economic added value, market added value and residual income) could be taken into account. There is also scope to improve hiring standards, compensation mechanisms and incentive mechanisms for management. For instance, combining short-term incentives with longer-term incentives and introducing non-financial indicators would help to ensure the fairness and effectiveness of the system.

Changing the IPO legal system

At present, the stock issuance system in China adopts an approval process in which the regulatory authorities examine the compliance conditions of the listing of enterprises, and IPO enterprises in China's GEM must meet certain conditions in terms of profitability and growth. However, many enterprises cannot meet these rigid requirements and are tempted to commit financial fraud as a result. In contrast, many other countries use a registration system according to which the regulatory authorities conduct a formal review of the filing. In the review, enterprise assets, profit situation and other indexes are not regarded as rigid requirements; the question of whether the issuing company's stock is good and whether it is worth investing in is decided by the market. Under that system, all companies have the opportunity to go public, listing is no longer a scarce good, and there is less incentive to resort to fraud. Demands on investors and regulators are greater; for example, investors need to have superior investment knowledge, and regulators need to be more closely involved in market supervision. Thus, a registration system is an effective means to improve the listing mechanism of enterprises and to enhance the construction of the capital market while making fraudulent activity less attractive. It is therefore recommended that ChiNext should adopt a registration system for stock issuance.

Enhancing the role of regulatory institutions

Compared with many other countries, punishments given to listed companies for financial fraud in China are relatively light. In the case of ABC group, the fine was 8.32 million yuan, less than 5% of the capital raised by the enterprise in the capital market even after the financial fraud was identified. Most punishment of financial fraud cases in China is still at the administrative level, and there is no substantial deterrent. In foreign countries, however, the system clearly states that enterprises that violate the information disclosure system will not only be subject to administrative punishment but will also be investigated for administrative and criminal responsibility. In China, the definition of this aspect remains vague, and the relevant punishment measures need to be improved. Thus, it is vital for the government and the relevant regulatory departments to increase the cost of illegal activities and gradually improve the accountability mechanism so that the law can effectively prevent offenders from committing further fraud.

Improving the regulatory functions of intermediaries

Implementing rotation of accounting firms in IPO audit

Auditors lacked independence and repeatedly issued unqualified opinions on fraudulent financial statements. As a result, investors suffered significant losses. If a change of audit firm were mandatory after the listing of a company, accounting firms that assisted in an IPO would not be affected by the continuation of the subsequent

business and would thus have greater independence. Requiring certified public accountants to check the audit opinions of previous accounting firms would also increase the capacity to detect and prevent fraud.

Implementing a mutual check mechanism for financial sponsor institutions

The lack of independence of intermediaries is one of the significant factors affecting financial fraud. In the case of ABC Group, XX Securities lost its basic professionalism and turned a blind eye to the falsity of the listing materials, which laid the groundwork for financial fraud. If the XX Securities had joined a peer inquiry link as part of the sponsorship process, these problems might have been identified in time.

Similarly, when the company manipulated the data in relation to receivables and payables by fabricating bank statements, bank staff not only failed to find and stop this activity in time but facilitated it. This strongly suggests that the bankers in this case also lacked independence. To prevent the recurrence of such problems, the frequency of mutual inspection between banks should be increased and the scrutiny of business authorities should be strengthened.

Limitations

Many aspects of this research area remain to be covered in greater detail. For example, the level of the research problem and the perspective on the research problem are limited. The occurrence of financial fraud is jointly determined by many factors, far more than the single reason of corporate governance can be explained. The overall economic environment, corporate culture, personal behavior and so on will provide a push to the generation of financial fraud. Future research needs to study the causes of IPO financial fraud and its linear relationship in multi-faceted and multivariable areas. It is to be hoped that the work done here will be supplemented and improved in subsequent study and research.

Conclusions

Drawing on the conclusions of previous studies and the corporate governance model, the case of ABC Group has been analyzed from the perspective of corporate governance and financial statement analysis, confirming that financial fraud is closely related to defects in corporate governance. Through analysis of the governance structure and the methods of financial fraud used, the following conclusions are reached. Defects in corporate governance structure are the institutional reason for financial fraud. This study of the corporate governance defects at ABC Group suggests that many enterprises with poor corporate governance face issues with excessive concentration of equity, and with the lack of independence, professional ethics and professional competence of independent directors. As a result, corporate governance fails in its monitoring, oversight and management functions, thereby increasing the risk of financial fraud. In terms of external factors, problems are posed by the imperfect listing and delisting systems of China's GEM, a lack of independence of intermediary agencies, and ineffective government supervision. Under such circumstances, the audit, advisory and compliance functions of corporate governance cannot be implemented in a timely manner, and this makes corporate governance scandals more likely.

In order to achieve listing, ABC Group committed financial fraud including fictitious accounts receivable, fictitious cost reduction and undisclosed related party transactions. However, these measures were possible largely because of defects in corporate governance. Therefore, the key to reducing the occurrence of financial fraud is to strengthen corporate governance. First, companies should optimize their ownership structure and develop institutional investors to improve the voting system, asking non-controlling shareholders to participate in the management of the company and thus enhancing the monitoring function of corporate governance. Second, the board system should be improved and its oversight functions enhanced by increasing the independence of the board members and improving the operating mechanism of the board of supervisors. Finally, the management should improve their professional ethics and professional ability so that they can better perform their corporate governance functions. In terms of external factors, the capital market should improve the relevant systems, and intermediary organizations should accord more weight to their obligations of professionalism and independence. Promotion of the corporate governance of enterprises will enable them to fulfill their advisory, compliance and audit functions more effectively.

With the late development of the capital market in China, the defects in the internal and external governance structure of listed companies are more serious, providing many opportunities and loopholes for financial fraud. Based on analysis of the IPO financial fraud of ABC Group, this study identifies ways to optimize the corporate governance structure and provides suggestions for the prevention of financial fraud from the perspective of corporate governance. If the corporate governance system is improved, financial fraud can be detected and prevented in time, the quality of financial reporting of listed companies can be improved, the system of the capital market can be standardized, and investor confidence in the capital market can be restored.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Beasley MS (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud. Accounting Review 71(4):443-465.

Forker J (1992). Corporate governance and disclosure quality. Accounting and Business Research 22(86):111-124.

Huang W (2015). Research on the Correlation between Corporate Governance Characteristics and Material Misstatement Risks. Shandong University.

Kong D, Xiang J, Zhang Y (2019). Politically connected independent directors and corporate fraud in China. Accounting and Finance 58(5):1347-1383.

Li D (2012). Correlation Analysis between characteristics of board of Directors and authenticity of Accounting Information--Empirical data from Listed Companies in China. Finance and Accounting Newsletter.

Tian JJ (2014). Board monitoring and endogenous information asymmetry. Contemporary Accounting Research 31(1):136-151.

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The impact of leverage on earnings management and the trade-off between discretionary accruals and real earnings management

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This research studies the impact of leverage on the earnings management levels of firms and investigates the role it plays in determining the choice of earnings management methods utilized by managers. This study is conducted within the context of European countries. Multiple panel regressions are run with leverage against various measures of earnings management. The results indicate that leverage curtails earnings management but this is only limited to discretionary accruals. Firms make a switch to real earnings management in cases of high leverage. The results indicate a positive impact of leverage on total earnings management and leverage moderates the choice between the two forms of earnings management. In the face of high leverage, managers make more use of real earnings management. This study broadens the scope of literature on leverage and earnings management by being the first study to investigate the impact of leverage on the total earnings management of firms and how leverage moderates the choice between the two forms of earnings management.

Key words: Earnings management, leverage, discretionary accruals, real earnings management, trade-off.

INTRODUCTION

The earnings reported by the managers of companies have always been of great importance to stakeholders. However, over the years major scandals that have led companies to bankruptcy have reduced the level of confidence stakeholders have in the quality of reported financial information (García-Meca and Sánchez-Ballesta, 2019). These scandals highlighted the need for quality financial information and effective control mechanisms in financial reporting to secure the trust that should exist between managers and stakeholders of companies (Dilger and Graschitz, 2015). This research assesses the quality of financial reporting from the perspective of earnings management through real activities and discretionary accruals. Managers have the motivation to take opportunistic advantage of the level of discretion available to them to massage earnings or to draw a wrong picture of the organization's future and this is what is known as earnings management (Christie and Zimmerman, 1994). The occurrence of this act is further corroborated by Aini et al. (2006) where evidence is

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found that managers have incentives to manipulate financial statements to paint a financial image that aligns with their interests. This reduces the quality of financial statements being published. Besides the usage of discretionary accruals where managers make use of accounting methods to manipulate earnings, Graham et al. (2005) explain that firms make use of actual financial and production decisions to yield preferred results. They detail that about 80% of their survey respondents stated that they make certain economic decisions such as minimizing certain expenses to meet their companies' profit objectives. This is what Roychowdhury (2006) describes as 'real activity manipulation' which is popularly termed as real earnings management (REM). In the view of Roychowdhury (2006), even though this style of managing earnings is detrimental to the growth of the firm in its entirety, managers are motivated to adopt this tactic because it is more difficult to trace.

One notable incentive for earnings management prevalent in the literature is the need to avoid the violation of debt covenants (Healy and Wahlen, 1999). The association between the manipulation of financial information and lending contracts as established by various scholars makes it necessary to investigate the sort of relationship that may exist between earnings management and the leverage of companies. Various researchers who have worked on this link have observed contradictory results. Some studies that have found a positive relationship between leverage and earnings management have supported their argument by explaining that firms increase their levels of earnings management to put companies in better positions to obtain debt financing and also to avoid the violation of debt terms and conditions thereafter (Chamberlain et al., 2014; Iatridis and Kadorinis, 2009; Rodríguez-Pérez and Van Hemmen, 2010; Lazzem and Jilani, 2018). Conversely, another theory suggests that financial institutions and creditors serve as an external monitoring mechanism in a bid to protect their interests. Studies that have made this conclusion observed negative associations between leverage and earnings management (Alsharairi and Salama, 2012; Kutha and Susan, 2021 Rodríguez-Pérez and van Hemmen, 2010; Vakilifard and Mortazavi, 2016; Zamri et al., 2013).

Other spectrums of literature concerning earnings management also establish the existence of schemes where there is a trade-off between accruals earnings management (AEM) and real earnings management (REM). These studies suggest that firms sometimes alternate between AEM and REM depending on the specific circumstance the firms find themselves in (Cohen et al., 2008; Zang, 2012). In this light, Ewert and Wagenhofer (2005) document how managers prefer the use of REM in the event of regulators being stricter on accounting standards. This is a critical position for companies to be in because REM does not only affect the financial books but poses a real-time danger to the existence of the firms. This is because most company managers are ready to misuse resources and forego viable projects to meet certain aims that may not be in the best interest of stakeholders (Graham et al., 2005).

In this research, the aim is to establish what sort of relationship exists between the leverage of firms and their levels of earnings management. This is done by first observing the impact of leverage separately on the two forms of earnings management and then observes this impact on the overall level of earnings management. The study also tries to observe the nature of trade-offs between AEM and REM. This research contributes to the existing literature by building on the established frameworks to explore how leverage impacts total earnings management and how it influences the choice of earnings management between AEM and REM. Some studies have just discussed the impact of leverage on AEM or REM but this research goes a step further to analyze and understand what role leverage plays when companies alternate between the two methods of earnings management. The study is also conducted on a European sample where there is the mandatory adoption of the IFRS which is a principle-based accounting system as compared to the other prominent studies conducted in the US where there is the use of the US GAAP which is a law-based accounting system. The results acquired from this analysis serve as a guide for creditors and debt holders who rely on the quality of financial information. It will generate a sense of cautiousness about the ability of managers to manipulate earnings given specific circumstances.

LITERATURE REVIEW

Earnings management and leverage

Earnings management has been documented to be an inevitable part of companies. From a practical point of view, several executives who participated in a survey conducted by Graham et al. (2005) admit that earnings management activities are present in every company. In circumstances where these activities are pervasive, Leuz et al. (2003) state that it limits the ability of primary external stakeholders to effectively oversee the company. Previous studies have documented that firms perpetuate two forms of earnings management. They either decide to focus on AEM and/or REM. In the case of AEM, managers use the judgment accorded them to find loopholes within the accounting system and tweak accounting policies and estimates to align with their goals (Christie and Zimmerman, 1994). On the other hand, real earnings management entails firms deviating from their usual operations and affecting real-time cash flows to lure interested parties into thinking that financial objectives have been accomplished (Roychowdhury, 2006).

According to the free cash flow theory by Jensen

(1986), leverage plays the role of a control mechanism by imposing limitations on managers' access to cash flows and also regulating the discretionary accruals of the firm. This is what is known as the Jensen control hypothesis. By so doing, leverage alleviates the occurrences of agency conflicts between managers and shareholders. Despite leverage having the ability to reduce agency problems and information asymmetry, it also poses a problem of diverging interest between shareholders and debt holders (Lazzem and Jilani, 2018). In the light of this conflict of interest, debt holders initially negotiate their debt contract to include conditions that stipulate profitability thresholds of the companies. When companies fall below these thresholds, debt holders have the right to renegotiate the terms of the original contract to include terms that are less favourable to the companies. Indeed, accounting figures and results form the basis of these terms and conditions and firms will be penalized in the event of breaching any of them. The cost of breaching these covenants may be too hefty for the organization. From this perspective, mangers have a major incentive to manage earnings. This perspective is contrary to the control hypothesis as leverage is rather providing incentives for managers to manipulate earnings.

Many studies have concluded on a mix of results that define the relationship between leverage and earnings management. Studies that have discovered a negative relationship between the two concepts have used the control hypothesis as the reason for their result. In the study of Ahn and Choi (2009) where they observed the role of banks in monitoring the corporate governance practices of their clients, it was concluded that the earnings management of firms' decreases as the strength of the bank monitoring increases. This conclusion was attained after observing that the reputation of the bank giving out the loan as an 'institutional investor' of a sort plus the magnitude of the loan are sufficient factors to limit the earnings management activity of a firm.

Alsharairi and Salama (2012) found a negative association between earnings management and leverage. In their case of studying non-cash mergers and acquisitions, only the low-level leverage group of non-cash acquirers showed significant signs of earnings management. They are of the view that debtors play a vital monitoring role in firms which further increases the credibility of financial reporting and limit the use of management discretion to manipulate accounting figures before business projects like mergers and acquisitions. Zamri et al. (2013) provide evidence to support the view that leverage reduces REM. By following Roychowdhury's (2006) approach to estimating REM, they arrive at results that suggest that leverage limits the occurrence of REM and improves the quality of financial reporting. Contrary to the negative relationship between leverage and earnings management established by the mentioned studies, some other studies have found a positive association. Iatridis and Kadorinis (2009) study the motivating factors that encourage UK listed firms to engage in earnings management and conclude that leverage has a positive impact on earnings management. This result was attained through an analysis of the earnings management inclination of firms that try to match or beat the forecasts made by financial analysts and the results attained indicate that firms that are highly leveraged are more likely to engage in earnings management. A similar result is obtained by Lazzem and Jilani (2018) who studied the impact of leverage on accruals based earnings management within the context of French listed companies. Their results are consistent with the debt covenant hypothesis with leverage having a positive impact on earnings management. This result is also consistent with that of Khanh and Thu (2019) and Obeidat (2016). Tulcanaza-Prieto et al. (2020) also attained a positive association between leverage and REM in the context of Korean firms. In their study, they divided firms into classes of "suspicious" and "non-suspicious" firms. Firms that had a scaled net income of 0.005 or below were considered suspicious and otherwise, non-suspicious. They found a positive and significant impact of leverage on REM among suspicious firms and an insignificant result for non-suspicious firms.

Another interesting study on the subject was done by Rodríguez-Pérez and Van Hemmen (2010) where they studied the impact of debt on earnings management within the context of more and less diversified firms. They postulate that diversity increases the complexity of a firm and this leads to firms becoming less transparent. Their results show that in less diversified firms which are more transparent, debt reduces earnings management and in more diversified firms that are less transparent, debt has a positive impact on earnings management. For them, an increase in debt provides an incentive to manage earnings and diversification provides the needed context to achieve it.

The trade-off between AEM and REM

Studies have provided evidence that firms make strategic decisions between the two methods of earnings management. One prominent work in this field is by Cohen et al. (2008) where they analysed both AEM and REM before and after the passage of the Sarbanes Oxley Act (SOX). Their study observed the increasing nature of AEM before the SOX and its decrease after the SOX was passed as opposed to the decreasing nature of REM before the SOX and its increase after the SOX had been passed. Their study suggests that firms can choose which model of earnings management to enforce to suit their need. In circumstances where one form of earnings management become too costly to perform, managers engage more in the other form. In the study of Elkalla (2020), the findings buttress this point and indicate that

managers make use of these two methods of earnings management to complement each other. In studying the case of reverse mergers in the context of Chinese and non-Chinese firms Zhu et al. (2015) also provide results that support the idea that managers use the two forms of earnings management as substitutes. It is unclear as to whether highly leveraged firms are likely to switch from AEM to REM or vice versa. Company executives in the US have admitted that they would prefer the usage of REM over the usage of AEM to achieve desired earnings (Graham et al., 2005). This idea is confirmed by the results obtained by Anagnostopoulou and Tsekrekos (2017) and Gao et al. (2017). This is rather a more grievous choice since REM actually affects business activities and would decrease the future financial performance of the firm or even threaten its going concern (Cohen and Zarowin, 2010). Due to the mixed result already discussed where leverage has the capacity of both limiting and encouraging both AEM and REM, it is necessary to investigate the trade-off between the two methods of earnings management. This investigation is currently lacking in the literature.

HYPOTHESES DEVELOPMENT

Despite the mixed theories of how leverage impacts earnings management, it is expedient to assume the validity of one of the theories to serve as the base for the multivariate analyses. Several studies are in favour of the debt covenant violation hypothesis. Stemming from the fact that accounting figures are used as the basis for most parts of debt covenants, managers are motivated to manipulate these figures to avoid the cost of violation. Given this:

H1: *Leverage has a positive impact on AEM.*

A similar case can be argued for REM. As documented by Ewert and Wagenhofer (2005), even though REM has more damaging impacts on the firm, managers do prefer the usage of REM to achieve earnings goals because they are relatively more difficult to trace. Given that this mode of earnings management is more elusive to regulators and auditors, it will be logical to expect that most managers will make use of it to avoid the violation of debt covenants. Given this:

H2: *Leverage has a positive impact on REM.*

A major gap in this stream of literature is ascertaining the impact of leverage on the overall earnings management of a company. The few studies that have analysed both forms of earnings management only did so independently and not jointly. By still leaning on the debt covenant violation theory we test the effect leverage has jointly on AEM and REM. Given that firms will use any means of earnings management to avoid the violation of debt covenants, we expect a positive relationship between leverage and the overall earnings management of a firm. Given this:

H3: *Leverage has a positive impact on the overall earnings management of firms.*

Instead of just increasing or decreasing AEM and REM, leverage may also shape their trade-off. Cohen et al. (2008) document that manager's use AEM and REM as substitutes but there is no clear evidence of which form of earnings management firms use within the context of leverage. However, Graham et al. (2005) do confirm that managers generally prefer to use REM. Given this:

H4: *Highly leveraged firms are more likely to engage in REM than in AEM.*

SAMPLE AND METHODOLOGY

Sample

This work focuses on European listed firms. The sample is made up of firms from 8 European countries (Belgium, France, Germany, Italy, Netherlands, Spain, Sweden, and the United Kingdom*). Table 1 shows the country distribution where it can be noted that the highest representation is from the UK making up 38.85% of the sample. Spain on the other hand has the lowest representation, making up 3.28% of the sample. Firms from 17 sectors using the FactSet Level 1 Sector Code as a base of classification and for a period from 2009 to 2016 are studied. The sector distribution is reported in Table 2. The producer manufacturing sector has the highest representation making up 13.72% of the sample while the health service sector has the lowest representation, making up 1.16% of the sample. After eliminating firms in the finance and utility sectors because of the specific regulations that govern these sectors and firms with missing data there is a total of 9045 firm-year observations. All estimates and actual firm data collected for this research are sourced from the *FactSet* Database with all monetary values quoted in US dollars.

Variable measurement

Accruals earnings management (AEM)

Total accruals are split into two: discretionary accruals which are influenced by the discretion of managers and non-discretionary accruals, which arise as a result of the nature of the company (Mangala and Isha, 2017). AEM estimation generally focuses on discretionary accrual. To estimate AEM as a proxy for earnings management, the study makes use of a version of the performance matched discretionary accruals developed by Kothari et al. (2005). The model is defined as:

$$\frac{TAC_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta REV_{it} - \Delta AR_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \alpha_4 ROA_{it} + \varepsilon_{it} \quad (1)$$

Where *TAC* is the total accruals $(TAC_{it} = NIBI_{it} - OCF_{it} / A_{t-1}$ where $NIBI_{it}$ is net income before extraordinary items for firm *i* in the year *t*, OCF_{it} is operating cash flow for firm *i* in the year *t*. (Hribar and Collins, 2002)), *ΔREV* is a change in revenue from time *t-1* to *t*, *ΔAR is the* is a change in account receivable from time *t-1* to *t, PPE* is the gross property plant and equipment, *A* is the total assets, *ε* is

Table 1. Country and Sector Distribution.

Country	Count	Percentage
Belgium	335	3.70
France	1,682	18.60
Germany	1,747	19.31
Italy	680	7.52
Netherlands	299	3.31
Spain	297	3.28
Sweden	943	10.43
United Kingdom	3,062	33.85
Total	9045	100.00

Table 2. Sector distribution.

Fact set level 1 sector	Count	Percentage
Commercial Services	472	5.22
Communications	223	2.47
Consumer Durables	488	5.40
Consumer Non-Durables	675	7.46
Consumer Services	600	6.63
Distribution Services	337	3.73
Electronic Technology	924	10.22
Energy Minerals	226	2.50
Health Services	105	1.16
Health Technology	705	7.79
Industrial Services	477	5.27
Non-Energy Minerals	492	5.44
Process Industries	657	7.26
Producer Manufacturing	1,241	13.72
Retail Trade	497	5.49
Technology Services	606	6.70
Transportation	320	3.54
Total	9045	100.00

the residual, and the subscripts *i* and *t* denote firm and year respectively. The residual *(ε)* represents discretionary accruals (DAC) for firm *i* in year *t*. The estimation is conducted with a cross-sectional regression by industry and by year to partially control for industry and year specificities that affect the economic condition and total accruals.

Real earnings management (REM)

REM is estimated per Roychowdhury (2006). The study measures total REM by using an aggregate model that combines different proxies of REM. The proxies of REM as postulated by Roychowdhury are the abnormal cash flow from operations *(Abn_CFO),* the abnormal discretionary expenditure *(Abn_DisExp)* and the abnormal production cost *(Abn_Prod).* The author argues that firms may try to augment sales figures upwards by providing more sales discounts and more lenient credit terms. This would increase sales but will have an adverse effect on the cash flow from operations. This abnormal cash flow from operations is estimated in Equation *2*. Also, the reduction of discretionary expenses is another way through which firms boost their earnings. Research and Development costs (R&D), selling, general and administrative expenses (SGA) and advertising expenses (ADVT) are reduced in an attempt to increase earnings. The estimation of the abnormal discretionary expense is defined in Equation 3. Finally, companies also take advantage of the principle of economies of scale to manage earnings through overproduction. The fixed costs per unit are reduced through this means and earnings increased. The abnormal production is estimated in Equation 4.

$$\frac{CFO_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{SALES_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{A_{it-1}} + \varepsilon_{it} \quad (2)$$

$$\frac{DISEXP_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{SALES_{it-1}}{A_{it-1}} + \varepsilon_{it} \quad (3)$$

Table 3. Variable definition.

Variable	Definition
|DAC|	Absolute value of discretionary accruals
Abn_CFO	Abnormal cash flow from operations
Abn_PROD	Abnormal cost of production
Abn_DisExp	Abnormal discretionary expense
Ag_REM	Total Real earnings management
EM_ALL	Total earnings management
REM_vs_AEM	Use of REM in proportion to AEM
LEV	Leverage
LA	Log of total assets
INT	Interest expense
LOSS_D	Loss dummy variable coded as 1 if firm makes a loss and 0 if firm makes a profit
ANALYST	The number of financial analysts following a firm
Big4	Audit quality coded as 1 if firm is audited by Big4 and 0 if otherwise.

BIG4 audit firms are KPMG, PWC, EY and DELOITTE.

$$\frac{PROD_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{SALES_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{A_{it-1}} + \alpha_4 \frac{\Delta SALES_{it-1}}{A_{it-1}} + \varepsilon_{it} \quad (4)$$

Where *i* and *t* represent firm and year respectively, CFO = cash flow from operations, DISEXP = discretionary expense which is estimated by summing R&D, SGA and ADVT, PROD = production cost estimated by summing the cost of goods sold and the change in inventory, A = total assets, SALES = total sales, ΔSALES = the change in total sales, ε = the residuals, which is the estimation of *Abn_CFO, Abn_DisExp* and *Abn_Prod.*

These proxies of REM are then aggregated into one proxy representing the total REM engaged in by firms. To generate total REM (*Ag_REM*) the methods of Bozzolan et al. (2015) and Zang (2012) are followed. *Ag_REM* is estimated by summing abnormal production costs and the inverse of abnormal discretionary expenses which is defined as follows

$$Ag\_REM_{it} = Abn\_PROD_{it} + (-1 * Abn\_DiscExp_{it}) \quad (5)$$

The greater the value the more total REM has been employed by firms. The abnormal cash flow from operations is excluded from the aggregate REM because of some insignificant results obtained in further tests (more details of this in the empirical analyses section).

Total earnings management and the trade-off between AEM and REM

To analyse the impact of leverage on total earnings management and the role it plays in shaping the trade-off between AEM and REM, the metrics developed by Bozzolan et al. (2015) are used. To estimate these metrics, all values of AEM and REM are classified into deciles. The metrics are defined as:

$$EM_{ALL} = DECILE\ DAC + DECILE\ Abn\_Ag\_REM \quad (6)$$

$$REM\_vs\_AEM = \frac{DECILE\ Abn\_Ag\_REM}{DECILE\ DAC + DECILE\ Anb\_AG\_REM} \quad (7)$$

EM_ALL is a measurement of total earnings management activity engaged in by a firm whether it is AEM or REM. On the other hand, *REM_vs_AEM* estimates the firm's usage of REM in proportion to the total earnings management engaged in by the firm. To interpret this, the greater the value of *REM_vs_AEM* the greater use of REM in proportion to AEM.

Leverage

Leverage is calculated using total debts scaled by total assets. The formula is defined as:

$$LEV_{it} = \frac{DEBT_{it}}{ASSET_{it}} \quad (8)$$

Control variables

Firm size is controlled using the log of total assets. There are conflicting theories to explain the impact firm size has on earnings management. Large firms have big reputations to protect so are willing to put in place strategies to avoid losses that will negatively affect stock prices (Bozzolan et al., 2015). However, other studies have observed a negative relationship between firm size and earnings management because small firms do not draw much attention to themselves and are free to manage earnings (Balsam et al., 2003). Also as a control variable is the interest expense. Jelinek (2007) argues that high interest payments would lead to low net income and to compensate for this, firms may actively manage earnings upwards and therefore a positive relationship between interest expense and earnings management is expected. The interest expense is scaled by the lagged total assets. To control for performance, a loss dummy is included because firms that incur losses have been found to manage earnings more (Francis et al., 2004). Financial analysts limit earnings management in firms because they act as external monitors (Aubert and Grudnitski, 2012; Dyck et al., 2010; Yu, 2008). Finally, the study includes audit quality using the *Big4* dummy variable. While Alhadab and Clacher (2018) and Alzoubi (2018) argue that audit quality can restrain the activities of earnings management, Piot and Janin (2007) argue that audit quality makes no difference in levels of earnings management (Table 3).

Multivariate model

To test the various hypotheses of this, leverage as the independent variable is regressed against the varying measures of earnings management estimated as the dependent variable. The models are defined as:

$$|DAC|_{it} = \alpha_1 + \alpha_2 * LEV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * Big4_{it} + \varepsilon_{it} \quad (9)$$

$$Ag\_REM_{it} = \alpha_1 + \alpha_2 * LEV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * Big4_{it} + \varepsilon_{it} \quad (10)$$

$$EM\_ALL_{it} = \alpha_1 + \alpha_2 * LEV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * Big4_{it} + \varepsilon_{it} \quad (11)$$

$$REM\_vs\_AEM_{it} = \alpha_1 + \alpha_2 * LEV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * Big4_{it} + \varepsilon_{it} \quad (12)$$

The regressions are panel regressions with industry, year and country fixed effects with VCE industry clusters. The VCE industry clusters cater for the issues of heteroskedasticity and autocorrelation issues observed from untabulated tests. The absolute value of *DAC* is used because with discretionary accruals it is more relevant to focus on the magnitude of earnings management and not the direction.

RESULTS AND DISCUSSION

Descriptive statistics and correlation matrix

As shown in Table 4, the mean values of both discretionary accruals and real earnings management are close to zero, which is an indication of good model estimations. The estimations of EM_ALL and REM_vs_AEM do not share this characteristic because of the nature of the metrics used (deciles). The mean leverage of firms in the sample is 21.179 and that of the natural log of total assets is 6.460. It is also interesting to note that 21.7% of the samples are loss-making firms. Firms in the sample are averagely followed by 5.735 financial analysts and 78.4% of firms are audited by the Big4. This indicates the fairly large size of firms in the sample. Table 5 shows the correlation that exists between the variables in the analyses. The highest correlation coefficient estimated is 0.674 indicating that multicollinearity will not be a problem in the model. This is supported by the fact that the highest Variance Inflation Factor (VIF) estimated is 2.27.

Multivariate analyses

Results for the various main multivariate models are reported in Table 6. H1 is tested in the first multivariate model as defined by Equation 9 where the absolute value of discretionary accruals (|*DAC*|) is used as the dependent variable and results are reported in Column A of Table 6. The negative and significant leverage coefficient (significant at p<0.1) attained signifies that firms with high levels of leverage are less likely to engage in AEM. This is not consistent with H1 which states that leverage has a positive impact on AEM. The result goes contrary to the claim that firms with high leverage manage earnings for the fear of debt covenant violations. This is consistent with the results of Lazzem and Jilani (2018). Based on the results obtained for Equation 9 where the H1 of the study is rejected, there is an indication that the control hypothesis is effective to the extent of AEM. This may be as a result of the ease with which activities of AEM are noted as stated by Graham et al. (2005). Managers will have to find more elusive ways to manage earnings without leaving obvious trails. Even though this result is inconsistent with H1, it does not conclusively rule out the validity of debt covenant violation theory that states that managers engage in earnings management to avoid the violation of debt covenants. This is because of the other methods of managing earnings and this is investigated by H2.

H2 is tested in the second model which is defined by Equation 10 and results are reported in Column B of Table 6. Here, the measure of REM (*Ag_REM*) is the dependent variable. Consistent with Tulcanaza-Prieto et al. (2020), the positive and significant leverage coefficient (significant at p<0.01) attained signifies that firms with high levels of leverage engage in high levels of REM. The H2 of the study which states that leverage has a positive impact on REM is validated. The result is consistent with H2 and the debt covenant violation theory which suggests that firms manage earnings to avoid violation. The opposing results of Equations 9 and 10 give meaning to the findings of other studies that suggest that firms use the two methods of earnings management as substitutes and pick whichever one fulfills their need. Especially in this case, firms prefer the usage of REM to AEM which may be due to the difficulty in tracing activities of REM. Managers can elude stakeholders more easily by using this form of earnings management. To fully understand this phenomenon, it is imperative to a have metric that estimates the overall earnings management activity of a firm.

Following the metric designed by Bozzolan et al (2015), the overall earnings management activity of firms is estimated to investigate the H3 of the study. The H3 of the study which states that leverage has a positive impact on the overall earnings management of firms is tested in the third multivariate model defined by Equation 11 where the variable *EM_ALL* is used as reported in Column C of Table 6. The positive and significant coefficient of leverage (significant at p<0.05) supports the hypothesis that firms with high leverage are likely to engage in more activities of earnings management. This is in support of

Table 4. Descriptive statistics.

Variable	Mean	Std. Dev.	25th Perc.	50th Perc.	75th Perc	*N*
|DAC|	0.044	0.043	0.014	0.031	0.059	9045
Ag_REM	0.001	0.367	-0.166	0.044	0.211	9045
EM_ALL	11.002	4.057	8.000	11.000	14.000	9045
REM_vs_AEM	0.501	0.207	0.357	0.500	0.667	9045
LEV	21.179	16.144	8.084	19.688	30.807	9045
INT	0.011	0.012	0.003	0.008	0.015	9045
LOSS_D	0.217	0.412	0.000	0.000	0.000	9045
LA	6.460	2.181	4.871	6.315	7.957	9045
ANALYST	5.735	6.956	1.000	2.000	8.000	9045
Big4	0.784	0.412	1.000	1.000	1.000	9045

The descriptive statistics (mean, standard deviation, quartile values and number of observations) for dependent and independent variables in the models, all variables defined. Outliers are winsorized at 1-99%.

Table 5. Correlation matrix.

Variable	*|DAC|*	*Ag_REM*	*EM_ALL*	*REM_vs_AEM*	*LEV*	*INT*	*LOSS_D*	*LA*	ANALYSTS	*Big4*
|DAC|	1.000									
Ag_REM	-0.017	1.000								
EM_ALL	0.610***	0.635***	1.000							
REM_vs_AEM	-0.540***	0.657***	-0.012	1.000						
LEV	-0.062***	0.057***	-0.014	0.091***	1.000					
INT	0.059***	-0.012	0.018*	-0.025**	0.637***	1.000				
LOSS_D	0.161***	0.024**	0.117***	-0.077***	0.104***	0.182***	1.000			
LA	-0.253***	0.097****	-0.114***	0.237***	0.276***	0.076***	-0.209***	1.000		
ANALYST	-0.155***	0.019*	-0.104***	0.130***	0.110***	0.023**	-0.182***	0.674***	1.000	
Big4	-0.082***	0.033***	-0.034***	0.076***	0.111***	0.057***	-0.039***	0.396***	0.253***	1.000

Table 6. Main regression - leverage and earnings management measures.

Variable	*Expected sign*	*A: |DAC|*	*B: Ag_REM*	*C: EM_ALL*	*D: REM_vs_AEM*
CONSTANT		0.076***	-0.133***	4.709***	0.336***
LEV	+	-0.00015*	0.00213***	0.01450**	0.00128***
INT	+	0.315***	-2.755***	-17.482**	-1.667***
LOSS_D	+	0.009***	0.051**	0.440**	-0.007
LA	?	-0.005***	0.032***	0.196***	0.0278***
ANALYST	-	0.0002**	-0.004*	-0.035**	-0.002
Big4	?	0.002	-0.015	0.021	-0.015
F VALUE		38.89	21.31	19.35	37.99
R^2		8.68%	4.15%	3.79%	7.67%
N		9045	9045	9045	9045

The coefficients after running the main regression models, the dependent variable in column A is the absolute value of discretionary accruals (Kothari Model), in column B is the total real earnings management, in column C is the total earnings management and in Column D is the ratio of real earnings management to total earnings management, *, **,*** indicate statistical significance at 10, 5 and 1% level, respectively. P-values are two-tailed. Standard errors are clustered at industry level (applies to all regressions).

the debt covenant violation theory described by Healy and Wahlen (1999). Indeed, the findings until this point indicate that AEM decreases with increases in leverage and REM increases with the increase in leverage but the

Table 7. Regression - leverage and individual REM proxies/|DAC_MJM.

Variable	Expected sign	A: Abn_CFO_1	B: Abn_PROD	C: Abn_DisExp_1	D: |DAC_MJM|
CONSTANT		0.044***	-0.099***	-0.035***	0.080***
LEV	+	0.000014	0.000518***	0.001614***	-0.000138***
INT	+	0.348***	-0.398*	-2.356***	0.528***
LOSS_D	+	0.071***	0.064***	-0.013**	0.020***
LA	?	0.003***	0.017***	0.015***	-0.006***
ANALYST	-	-0.001*	-0.002***	-0.002***	0.0002
BIG4	?	0.004	0.007	-0.023***	0.001
F VALUE		70.18	20.72	26.56	53.10
R^2		13.01%	4.09%	5.16%	11.39%
N		9045	9045	9045	9045

The coefficients after running additional regression models, the dependent variable in column A is the abnormal cash flow from operations, in column B is the abnormal production costs, in column C is the abnormal discretionary expense and in Column D is the absolute value of discretionary accruals (Modified Jones Model).

result after testing H3 indicates that firms' usage of REM outweighs their decrease in the usage of AEM. This result makes it interesting to explore the notion that, in the face of high leverage, firms prefer the usage of REM over the usage of AEM.

To investigate the trade-off between AEM and REM in the presence of leverage, the H4 of the study is tested by using the aggregate portion of REM in comparison to AEM as the dependent variable (*REM_vs_AEM*). This fourth model is defined by Equation 12, and results are reported in Column D of Table 6. The positive and significant coefficient of leverage (significant at p<0.01) is consistent with the H4 of the study and indicates that highly leveraged firms are more likely to make use of REM rather than AEM. This is in line with the assertions of managers in the study of Graham et al. (2005) where they indicated that they preferred the usage of REM to AEM. These results lead us to reject H1 and accept H2, H3 and H4.

Additional analyses and robustness check

Individual REM proxies and Modified Jones

The study of Roychowdhury (2006) proposed three proxies of REM and many studies following have made use of the aggregation of these proxies. Since REM is an aggregation of individual proxies, an investigation into these individual proxies may be relevant to ascertain which of them firms are more likely to engage in to protect their interests.

To ensure the robustness of results relating to AEM, the study also makes use of another model for its estimation. The Modified Jones Model (MJM) (1995) is used in the estimation of AEM and this is used as the dependent variable. (The MJM is defined as: $\frac{TAC_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta REV_{it} - \Delta AR_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}$)
The individual proxies of REM and the discretionary accruals from MJM are used as dependent variables in the following models:

$$Abn\_CFO\_1_{it} = \alpha_1 + \alpha_2 * LEV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * Big4_{it} + \varepsilon_{it} \quad (13)$$

$$Abn\_PROD_{it} = \alpha_1 + \alpha_2 * LEV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * Big4_{it} + \varepsilon_{it} \quad (14)$$

$$Abn\_DisExp\_1_{it} = \alpha_1 + \alpha_2 * LEV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * Big4_{it} + \varepsilon_{it} \quad (15)$$

$$|DAC\_MJM|_{it} = \alpha_1 + \alpha_2 * LEV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * Big4_{it} + \varepsilon_{it} \quad (16)$$

Where *Abn_CFO_1* and *Abn_DisExp_1* both stand for the inverses of abnormal cash flow from operations and abnormal discretionary expenses respectively (all other variables already defined). Panel A of Table 7 indicates an insignificant result for *Abn_CFO_1*. It is difficult to justify this result and this is the reason for its exclusion from the estimation of *Ag_REM.* Even though this is not enough justification for its exclusion, it is consistent with methods used by Bozzolan et al. (2015) and Zang (2012). These studies excluded the abnormal cash flow from operations while estimating total REM. Results for *Abn_PROD* are reported on Panel B of Table 7. The positive and significant leverage coefficient attained (p<0.01) in this model signifies that firms are likely to use overproduction as a form of REM to attain desired earnings in cases of high leverage. Panel C of Table 7

Table 8. Regression - leverage and ME Component.

Variable	*Expected sign*	*|ME|*
CONSTANT		-0.023***
LEV	+	0.000157*
LOSS_D	+	0.100***
LA	?	0.006***
ANALYST	-	-0.001***
BIG4	?	0.001
F VALUE		65.28
R^2		13.61%
N		8272

The coefficients after running an additional regression model, the dependent variable in this regression is total earnings management estimated using managed earnings component model.

indicates the results for *Abn_DisExp_1* where a positive and significant leverage coefficient is attained as well (p<0.01). This is also consistent with the H2 of the study and indicates that firms are likely to use the reduction of discretionary expenses to manage earnings in cases of high leverage. In Panel D of Table 7, results for |*DAC_MJM*| are reported where the negative and significant leverage coefficient (p<0.01) obtained is consistent with the results of the main regression model. Leverage has a negative impact on AEM.

Earnings management from the perspective of financial analysts

For further analyses, earnings management is estimated from the perspective of financial analysts as defined in the model proposed by Aubert and Grudnitski (2012). This is defined as:

$$ME_{it} = |Reported\ EPS_{it} - ex\ post\ convergent\ consensus\ EPS_{it}| \quad (17)$$

Where, *ME* represents the managed earnings component which is a measure for earnings management. *Reported EPS* is the Earnings Per Share published by companies. The *Ex post convergent consensus EPS* represents the recalculated EPS estimates made by financial analysts after firms have published their financial statements and more information is made available. The median of these *ex-post* estimates is used. To further corroborate the findings of the main analyses, the additional analysis makes use of the *ME* Component as a dependent variable. In this case, the *ME* Component is recognized as the total earnings management engaged in by firms. The *ME* is scaled by the prior year closing stock price as done by Aubert and Grudnitski, (2012). Also, the absolute values of the ME are used because the interest is in the degree of earnings management and not the direction of earnings management. This results in the following model:

$$ME_{it} = \alpha_1 + \alpha_2 * LEV_{it} + \alpha_3 * LA_{it} + \alpha_4 * LOSS\_D_{it} + \alpha_5 * ANALYST_{it} + \alpha_6 * BIG4_{it} + \varepsilon_{it} \quad (18)$$

The result of the model defined in Equation 18 reported in Table 8 corroborates the results of the main analyses and supports the H3 of the study. The positive and significant coefficient of leverage attained (p<0.1) indicates that firms with high leverage are more likely to manage their earnings.

Interest cover ratio

The results of the main models suggest that firms with high leverage are likely to engage in higher levels of earnings management and they do this preferring REM over AEM; the supporting theory being that firms with high leverage manage earnings to prevent debt covenant violations. Interest coverage covenant is one of the widely used debt covenants by financial institutions when giving out loans. Dichev and Skinner (2002) documented that the median interest coverage ratio is lower for firms that fall within their threshold of firms classified as debt covenant violators. From this, it is logical to assume that firms with lower interest cover ratios are closer to debt covenant violations. Firms with a low interest coverage ratio are more likely to manage earnings to avoid violation. This leads to the following models:

$$|DAC|_{it} = \alpha_1 + \alpha_2 * INTCOV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * BIG4_{it} + \varepsilon_{it} \quad (19)$$

Table 9. Regression - interest cover ratio and earnings management.

Variable	*Expected sign*	*A: |DAC|*	*B: Abn_Ag_REM*	*C: EM_ALL*	*D: REM_vs_AEM*
CONSTANT		0.044***	-0.078***	12.399***	0.359***
INTCOV	-	0.00000063*	-0.000343***	-0.00142***	-0.00015***
INT	+	0.203***	-1.818***	-2.929	0.980***
LOSS_D	+	0.010***	0.032***	0.895***	-0.014**
LA	?	-0.005***	0.033***	-0.070**	0.029***
ANALYST	-	0.0002*	-0.005***	-0.035***	-0.002***
BIG4	?	0.002*	-0.020*	0.068	-0.016***
F VALUE		70.18	25.05	20.46	37.30
R^2		8.46%	5.13%	4.66%	7.84%
N		8752	8752	8752	8752

The coefficients after running additional regression models, interest cover ratio replaces leverage as the independent variable, the dependent variable in column A is the absolute value of discretionary accruals (Kothari Model), in column B is the total real earnings management, in column C is the total earnings management and in Column D is the ratio of real earnings management to total earnings management.

$$Ag\_REM_{it} = \alpha_1 + \alpha_2 * INTCOV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * BIG4_{it} + \varepsilon_{it} \quad (20)$$

$$EM\_ALL_{it} = \alpha_1 + \alpha_2 * INTCOV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * BIG4_{it} + \varepsilon_{it} \quad (21)$$

$$REM\_vs\_AEM_{it} = \alpha_1 + \alpha_2 * INTCOV_{it} + \alpha_3 * LA_{it} + \alpha_4 * INT_{it} + \alpha_5 * LOSS\_D_{it} + \alpha_6 * ANALYST_{it} + \alpha_7 * BIG4_{it} + \varepsilon_{it} \quad (22)$$

Where, *INTCOV* represents the interest coverage of firms.

Results of these models defined in Equation 19 to 22 are reported in Table 9. The results indicate almost a neutral relationship between discretionary accruals and interest coverage ratio. Even though this does perfectly not match the expectation, the results is still positive and indicate that firms do not manage earnings through AEM as their interest coverage ratio decreases and they get closer to debt covenant violation. However, in the case of REM, a negative and significant coefficient signifies that firms that have low interest coverage ratios have higher levels of REM to manipulate their earnings. This result is consistent with the major theory of this study which is the debt covenant violation theory. With the case of the overall earnings management engaged in by firms, a negative and significant relationship with interest cover is found. Firms that are closer to violation of covenants (low interest cover ratio) have higher levels of total earnings management. Similarly, a negative relationship between the levels of REM used in proportion to AEM and interest cover is found. This indicates that the more firms are close to debt covenant violation, the more they make use of REM to manage earnings.

Conclusion

This study investigates the impact of leverage on the earnings management strategy of firms. This is done by: testing the impact of leverage on AEM; testing the impact of leverage on REM; testing the impact of leverage on the total earnings management activity; investigating how leverage moderates the usage of REM and AEM. This study contributes to the current stream of literature by providing deeper insights into how leverage affects the quality of financial reporting. Analysing the impact of leverage on total earnings management and also studying how leverage moderates the trade-off between REM and AEM is a study that had not been conducted and this research makes this contribution to literature. Two major theories support results obtained in this stream of research. One is the control hypothesis by Jensen (1986) and the other is the debt covenant violation hypothesis also covered by Healy and Wahlen (1999) and many researchers thereafter. The results of this study provide insights into both theories. First, the tests on AEM indicate that the control hypothesis is in force. The results show that firms with high leverage are less likely to manage their earnings using AEM procedures. However, further tests on REM indicate that the fear of debt covenant violation urges firms to manage their earnings through REM. The second insight is that the role leverage plays in shaping firms' choices between AEM and REM has been established. AEM has been noted to be more easily traceable as compared to REM. Leverage can control the level of earnings management but this ability is only limited to AEM. Instead of firms succumbing to the monitoring mechanism of leverage, managers rather find other ways to manage earnings. The fear of violating debt covenants provides a much stronger incentive to manage earnings over the control

hypothesis. Firms, therefore, opt for REM which is much harder to trace because this mode of earnings management affects the day-to-day operations of the firm and not just directly cooking the books. A positive relationship between leverage and the total earnings management levels of firms is therefore found. This result is strengthened by the fact that regressions using the ratio of REM to total earnings management are run and this shows firms' preference for REM over AEM. Also, further analysis including the individual proxies of REM provides additional evidence. Two out of the three proxies indicate increases in REM as leverage increases.

These results may be of interest to a variety of stakeholders of firms. First, potential and current debt holders must pay close attention to the operations and decisions made by managers of firms with specific regard to production volumes and discretionary expenses. There should be an interest in ascertaining the regularity of these operations and decisions. Indeed, REM activities are more difficult to trace, but debt holders should not rely on their ability to limit AEM but also enquire further into REM activities which are better concealed to make sure that firms are not violating debt covenants. Secondly, shareholders must be concerned about the choice of managers to prefer the use of REM in high leverage situations. REM seems the worse option out of the two modes of managing earnings. This is because real-time operations of the firms are affected and in the long run this would threaten the going concern of firms. Managers' preference of REM in the face of high leverage despite the adverse effects on the continuity of firms indicates how strong the fear of debt covenant violation is.

This study does indeed have certain limitations that should not be overlooked. There are several measures of leverage but to simplify the analysis because of the multiple tests ran, this study only makes use of total debt. It may be interesting to compare the relationship that may exist between other forms of leverage and earnings management and also ascertain the key reasons for the differences that may be observed. Another avenue would be to study the impact of leverage changes in firms on the quality of financial reporting instead of using the raw leverage levels as done in this study.

CONFLICT OF INTEREST

The authors have not declared any conflict of interest.

REFERENCES

Ahn S, Choi W (2009). The role of bank monitoring in corporate governance: Evidence from borrowers' earnings management behaviour. Journal of Banking and Finance 33(2):425-434.

Aini A, Iskandar T, Pourjalali H, Teruya J (2006). Earnings management in Malaysia: a study on effects of accounting choices. Malaysian Accounting Review 5(2):185-209.

Alhadab M, Clacher I (2018). The impact of audit quality on real and accrual earnings management around IPOs. British Accounting Review 50(4):442-461.

Alsharairi M, Salama A (2012). Does high leverage impact earnings management? Evidence from non-cash mergers and acquisitions. Journal of Financial and Economic Practice 12(1):17-33.

Alzoubi ESS (2018). Audit quality, debt financing, and earnings management: Evidence from Jordan. Journal of International Accounting, Auditing and Taxation 30(12):69-84.

Anagnostopoulou SC, Tsekrekos AE (2017). The effect of financial leverage on real and accrual-based earnings management. Accounting and Business Research 47(2):191-236.

Aubert F, Grudnitski G (2012). Analysts' estimates; What they could be telling us about the impact of IFRS on earnings manipulation in Europe. Review of Accounting and Finance 11(1):53-72.

Balsam S, Krishnan J, Yang J (2003). Auditor Industry Specialisation And Earnings Quality. Auditing: A Journal of Practice and Theory 22(2):71-97.

Bozzolan S, Fabrizi M, Mallin CA, Michelon G (2015). Corporate Social Responsibility and Earnings Quality: International Evidence. International Journal of Accounting 50(4):361-396.

Chamberlain TW, Butt UR, Sarkar S (2014). Accruals and Real Earnings Management around Debt Covenant Violations. International Advances in Economic Research 20(1):119-120.

Christie A, Zimmerman JL (1994). Efficient and Opportunistic Choices of Accounting Procedures: Corporate Control Contests. Accounting Review 69(4):539-566.

Cohen DA, Dey A, Lys TZ (2008). Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. The Accounting Review 83(3):757-787.

Cohen D, Zarowin P (2010). Accrual-based and real earnings management activities around Seasoned Equity Offerings. In Journal of Accounting and Economics 50(1):2-19.

Dichev ID, Skinner DJ (2002). Large-Sample Evidence on the Debt Covenant Hypothesis. Journal of Accounting Research 40(4):1091-1123.

Dilger T, Graschitz S (2015). Influencing Factors on Earnings Management Empirical Evidence from Listed German and Austrian Companies. International Journal of Business and Economic Sciences Applied Research 8(2):69-86.

Dyck A, Morse A, Zingales L (2010). Who Blows the Whistle on Corporate Fraud? Journal of Finance 65(10):2213-2253.

Elkalla T (2020). Do firms substitute earnings management methods? The case of the MENA region. Journal of Research in Emerging Markets 3(1):32-43.

Ewert R, Wagenhofer A (2005). Economic effects of tightening accounting standards to restrict earnings management. The Accounting Review 80(4):1101-1124.

Francis J, Lafond R, Olsson PM, Schipper K, Lafond R, Schipper K (2004). Costs of Equity and Earnings Attributes. The Accounting Review 79(4):967-1010.

Gao J, Gao B, Wang X (2017). Trade-off between real activities earnings management and accrual-based manipulation-evidence from China. Journal of International Accounting, Auditing and Taxation 29:66-80.

García-Meca E, Sánchez-Ballesta JP (2019). Corporate governance and earnings management: A meta-analysis. Iconic Research and Engineering Journals 2(12):212-214.

Graham JR, Harvey CR, Rajgopal S (2005). The economic implications of corporate financial reporting. Journal of Accounting and Economics 40(1–3):3-73.

Healy PM, Wahlen JM (1999). A Review of the Earnings Management Literature and Its Implications for Standard Setting. Accounting Horizons 13(4):365-383.

Hribar P, Collins DW (2002). Errors in Estimating Accruals: Implications for Empirical Research. Journal of Accounting Research 40(1):105-134.

Iatridis G, Kadorinis G (2009). Earnings management and firm financial motives: A financial investigation of UK listed firms. International Review of Financial Analysis 18(4):164-173.

Jelinek K (2007). The Effect of Leverage Increases on Earnings Management. Journal of Business and Economic Studies 13(2):24-46.

Jensen MC (1986). Agency Costs of Free Cash-Flow, Corporate Finance, and Takeovers. The American Economic Review 76(2):323-329.
Khanh MTH, Thu AP (2019). The effect of financial leverage on real and accrual-based earnings management in Vietnamese firms. Economics and Sociology 12(4):299-312.
Kothari SP, Leone AJ, Wasley CE (2005). Performance matched discretionary accrual measures. Journal of Accounting and Economics 39(1):163-197.
Kutha NM, Susan M (2021). Institutional Ownership, External Auditor Reputation, Financial Leverage, and Earnings Management. Journal of Economics and Business 4(1):93-99.
Lazzem S, Jilani F (2018). The impact of leverage on accrual-based earnings management: The case of listed French firms. Research in International Business and Finance 44:350-358.
Leuz C, Nanda D, Wysocki PD (2003). Earnings management and investor protection: An international comparison. Journal of Financial Economics 69(3):505-527.
Mangala D, Isha A (2017). Influence of corporate characteristics on extent of disclosure in published annual reports in India. Amity Journal of Finance 1(2):22-34.
Obeidat MIS (2016). Capital Structure Effect on the Practices of Earnings Management Phenomenon? The Evidence of Listed Firms in Abu Dhabi Securities Exchange. Asian Journal of Finance and Accounting 8(2):171-193.
Piot C, Janin R (2007). External Auditors, Audit Committees and Earnings Management in France. European Accounting Review 16(2):37-41.
Rodríguez-Pérez G, Van Hemmen S (2010). Debt, diversification and earnings management. Journal of Accounting and Public Policy 29(2):138-159.
Roychowdhury S (2006). Earnings management through real activities manipulation. Journal of Accounting and Economics 42(3):335-370.
Tulcanaza-Prieto AB, Lee Y, Koo JH (2020). Effect of leverage on real earnings management: Evidence from Korea. Sustainability 12(6):1-20.
Vakilifard H, Mortazavi MS (2016). The impact of financial leverage on accrual-based and real earnings management. International Journal of Academic Research in Accounting, Finance and Management Sciences 6(2):53-60.
Yu F (2008). Analyst coverage and earnings management. Journal of Financial Economics 88:245-271.
Zamri N, Rahman RA, Isa NSM (2013). The Impact of Leverage on Real Earnings Management. Procedia Economics and Finance 7:86-95.
Zang AY (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. The Accounting Review 87(2):675-703.
Zhu T, Lu M, Shan Y, Zhang Y (2015). Accrual-based and real activity earnings management at the back door: Evidence from Chinese reverse mergers. Pacific Basin Finance Journal 35(12):317-339.

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Complexity of costing systems, integrated information technology and retail industry performance

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The evolution of technology, mandated the innovation numerous and different functions within the economic unit. Cost systems are also included to these system upgrades, since detailed planning regarding expenses greatly impacts the economic stability and sustainability of an organization. Therefore, the combined utility derived from use of cost data and information systems; after taking into consideration each unique goals an organization sets', results in development, optimization of processes, sufficient control mechanisms. The latter greatly improve and guide managers to proper strategic and everyday planning. However, these systems are affected easily by a number of factors that could differ depending on the region or sector the company is based. This paper evaluates the variables that can have a positive effect on the use of cost and information systems in Retail businesses operating in a vital agricultural area. A questionnaire was administered via e-mail to retail's employees from the urban and suburban areas of Thessaly. Statistical analysis included descriptive statistics, scale reliability control and multiple regressions. The results demonstrated a positive impact of cost and information systems on performance, assuming the cost system does not increase complexity, while a company is capable of integrating information systems. Concerning the latter result, the ability and knowhow of employees operating these systems was of particular interest, since companies do not always consider employees' training as part of the overall system's investment.

Key words: Integrated information technology, cost systems, information systems, business performance, and human factor.

INTRODUCTION

Over the years, significant changes and developments took place in all aspects of the economy. Consequently, society, people and the business world need to adapt. A very important role for better operation is the ability of companies to keep up with technological changes. The use of information systems has been established worldwide in operations. Competitiveness is achieved by understanding factors that affect operating systems and

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how companies utilize the aforementioned systems (Sorros et al., 2021).

One system greatly affected is costing (Sorros et al., 2021). In fact, technology and cost systems interfere with each other. Given this assumption, the entire business world has to address the impact factors of this relationship in the most productive way and achieve combined operating benefits. In the context of this requirement, it was necessary to delve into specific factors influencing these systems. That is, in the ways of performance levels are predicted in an environment of cost and information systems, taking into account complexity of the cost systems and the human factor. The results indicate that through the implementation of cost information systems an entity could increase its operational benefits.

Through a set of data, this paper efforts to identify factors that balance the difficulty of implementing and sustaining costing and information systems in improving performance. Traditionally, the importance of costing and the basic product of information systems is evident (Butterworth, 1972)). The difficulty of balancing the cost of an implementation and afterwards maintenance of information systems is a demanding process. The retail sector is constrained by restrictions on investments (Stout and Bedenis, 2007) in the two aforementioned systems. An attempt is made to identify and manage these limitations. It is an issue that does not seem to have been analyzed in depth. Recently, research has begun to look at the redesign of costing systems for performance in a medium-sized company (Stout and Bedenis, 2007; Karagiorgos et al., 2020) but not the combination of the two systems.

This paper is divided as follows: Following the introduction, section two depicts the literature review examining the most important research approaches related to the variables discussed, specifically the conceptual framework of costing, costing systems and information technology systems. Within section two, the research hypotheses are presented. Section three discusses the methodology together with the main parts and items of the questionnaire, as well as the variables to be tested. Section four shows the results of descriptive statistics and correlation analysis and the paper concludes with the most substantial conclusions of the empirical research, limitations and suggestions for future research.

LITERATURE REVIEW

Costing and Information Systems (IS)

Yasin and Quigley (1995) conducted a survey on 25 executives and IS heads on information systems' usefulness for organizations. Through this research, a gap was identified between the views of the two groups regarding system satisfaction. According to their conclusions, the aforementioned gap is reduced through training and education, in order to reach IS effectiveness.

Leek (1997) investigated the reasons behind IS management providers' failure to deliver systems that meet the needs of its users. Important factors found include the lack of a strategic perspective of IS and information support technology, but also the different views among organizations on what the management of IS requires.

In addition, according to a research performed by Dechow et al. (2007), it seems that with the introduction of advanced information technologies, such as Enterprise Resource Planning (ERP) systems, administrative control is performed from different departments, since technology is integrated. As a result, the functions performed with information accounting systems were changed.

Tsai et al. (2010) conducted a survey to suggest ways of integrating Activity-Based Costing (ABC) costing systems and environmental costing systems. Results showed that through integration, management could be given financial information for activities as part for the product's total cost, and support decision-making.

In 2014, in a study conducted by Tan et al. (2014) they compared the costing systems of 12 European countries in hospitals. Results showed that costing systems in European hospitals differ significantly depending on the existence of mandatory costing instructions, costing methods or data controls regarding cost data.

Costing systems and business performance

Fry et al. (1995) dealt with the importance of well-developed strategy in construction organizations. One of the most important features of this strategy is to achieve consistency in the way products and services compete in a selected market, in order to achieve best performance. The catalytic factor in this consequence is the costing system. This research has shown that many companies use accounting systems not suitable to implement this strategy. Instead, companies choose systems that do not fit the market and are not in line with the appropriate strategy.

Subsequently, in 2013 a study conducted by Cugini et al. (2013) assessed the importance of accounting innovation in costing systems of rail transportation systems. Results showed that a new accounting practice facilitates the functional link between the company's resources and their consumption in the provision of transportation services.

In addition, Krumwiede and Charles (2014) investigated the impact of ABC systems on business performance. In particular, they researched ABC's influence on strategic customer service and low cost priorities or those that do not prioritize such strategies. They argued that ABC

systems have a higher impact on profitability for companies that emphasize the aforementioned strategies.

Consequently, the following research hypothesis was formulated in line with the research problem, H_1: "Costing Systems and Business Performance" influence "Costing and Information Systems".

Information systems and business performance

Meldrum and Berranger (1999) analyzed the problems of trying to adapt knowledge development on small and medium-sized enterprise IS through higher education institutions. The importance of knowledge of information systems is also shown by the fact that states provide funding to small and medium-sized enterprises in order to apply to higher education institutions. This research compared the different views that exist on the subject, and concluded that there is a great willingness on the part of small and medium enterprises.

In addition, Chan (2000) examined the increasing impact of information technology (IT) on business processes through specific forms of technology - mainly computer, telecommunications and display technology. Results showed that a complete and thorough understanding of the roles of IT would lead to the systematic identification and evaluation of risk and cost relationships associated with the application of IT in the business processes of an organization.

Later in 2007, Roy and Sivakumar (2007) studied the role of IT in the globalization of business market behavior. The results showed that the adoption of information technology presupposes adoption by both the buyer and the seller, but also compatibility of these two information systems. The globalization of purchasing behavior is influenced by factors at the enterprise level (e.g., perceived risk, digitization) and globally (e.g., availability of alternative suppliers in the buyer's country, political stability in the supplier's country).

Moreover, Lindh and Nordman (2017) examined the effects of information technology on business development and performance in business relationships of industrial companies. According to its findings, it seems that there is no direct effect of IT on the performance of the relationship but it acts as a mediator for business development, which is characterized by business creativity and product development.

Finally, in a study conducted in 2020 by Martínez-Caro et al. (2020) explored how IT assimilation can encourage capability and facilitation of organic flexibility and performance. The results showed that there is a positive relationship between the above characteristics.

Consequently, the following research hypothesis was formulated in line with the research problem, H_2: "Information Systems and Business Performance" influences "Costing and Information Systems".

Complexity of costing systems

Schoute (2009) sought to examine the relationship between complexity, purpose, and cost-effectiveness of a system, using research data from medium-sized construction companies. Results showed that when a cost system is used more for product design purposes, its complexity negatively affects the intensity of system use, while when it is used more for cost management purposes; its complexity positively affects the intensity of use of the system. According to this view, the cost system can be more efficient when its design and purposes of use are aligned.

Consequently, the following research hypothesis was formulated in line with the research problem, H_3: "Complexity of Costing Systems" influence "Costing and Information Systems".

Integrated information technology

Lee (2004) evaluated integrated information technology, which incorporates business strategy, business process design, and IT investment support. The results suggest that it is vital to measure the impact on the time cycle for a repurchase decision by customers in order to assess the potential value of a process-based IT investment.

Also, Maiga et al. (2014) attempted to investigate the effect of the interaction of cost control systems and IT integration on cost-effectiveness of a production plant. Results have shown that the financial performance is positively affected when investments are made in ABC control systems, combined with the integration of information technology.

Moreover, Vanpoucke et al. (2017) showed that exchange of information, which has increased in companies, help to develop their supply chain. The latter is an important element in a partnership, but does not improve performance, if not combined with other integrated IT. According to the results, the exploitation of the benefits of information exchange presupposes this integration through information technology.

Finally, Razak et al. (2018) intended in their research to understand the conditions and to explain the systemic contradictions that facilitate the successful integrated information and communication technology in schools. According to the results, three conditions emerged for the successful integration of information and communication technology:

1) Types of tools of this integration in the school,
2) Rules and regulations in the school that shape the culture of integration and
3) Division of labor within the school community.

Cooperation is required from the interested bodies, in order to resolve tensions created by systemic contradictions in different systems of activities, which shape the culture of successful integration of information

and communications technology (ICT) in schools.

Consequently, the following research hypothesis was formulated in line with the research problem, H_4: “Integrated Information Technology” influence “Costing and Information Systems”.

Cost, information systems and the human factor

Boudreau and Robey (2005) conducted a research study of an ERP system after its implementation in a government agency, in order to assess the importance of the human factor in an organizational change. According to the research, users initially chose to avoid using it as much as possible (inactivity) and later to resolve system constraints in involuntary ways (reinvention). The conclusion was that an integrated technology, such as the ERP system, could be developed and rediscovered in use by the human factor. In addition, Agourram and Ingham (2007) conducted research to understand the interpretation given to IS and their success by people from different national cultures. Participants from France, Canada and Germany showed that people from different national cultures define information systems differently.

Nagirikandalage and Binsardi (2017) conducted a study to examine the impact of Sri Lankan cultural and local characteristics on the adoption of cost systems, that is, the factors that facilitate or hinder their implementation. Their research showed a complete institutional isomorphism and partial institutional heterogeneity in Sri Lanka. In addition, insufficient access to information and the orientation of the local culture affected the implementation of cost systems, as there was a lack of awareness of the importance of the cost system.

Consequently, the following research hypothesis was formulated in line with the research problem, H_5: “Cost, Information Systems and the Human Factor” influence “Costing and Information Systems”.

METHODOLOGY

This research is quantitative based on a survey questionnaire administered to a sample consisting of 78 retail companies with moderate to good experience in applied cost techniques activity in the retail trade. The paper utilizes a regression model to describe the relationships by fitting a line to the observed data and estimate how a dependent variable is affected by the changes of independent variables. A multiple linear regression is used to estimate the strength of the relationship between variables.

The empirical research questionnaire consisted of seven (7) basic parts with a total of 45 five-level Likert scale questions. The questions derived from the literature review and tools from precious researched. The first part concerns the demographic data (operating years, the position and education). The second part was about "Cost Systems and Information Systems" (9 items) and evaluates the degree of application, use and operation of costing, as well as information systems.The next part, concerns the Costing Systems and the performance of companies (7 items). This section examined the impact of costing system on performance, strategy, growth and profits of a business. The fourth part concerns Information Systems and Business Performance (8 items) and the degree of impact of its use on flexibility, business relationships, online stores and advertising. The next section examined the complexity of costing systems on business control, decision-making, cost management and inventory management. The next part, Integrated Information Technology, consisted of two (2) items and examined its impact on the operations and performance of the business. The questionnaire is completed with a set of items measuring cost and information systems’ relation with the human factor. More specifically, it measured the degree that the company's culture, investments in training employees to learn the systems, and the latter’s willingness to use them relate.

Statistical analysis methods and variables

Hejase et al. (2012) contend that informed objective decisions are based on facts and numbers, real, realistic and timely information. Furthermore, according to Hejase and Hejase (2013), “*descriptive statistics deals with describing a collection of data by condensing the amounts of data into simple representative numerical quantities or plots that can provide a better understanding of the collected data*”. Therefore, in order to capture the purpose of the empirical research, descriptive statistics were used. Then from the parts of the questionnaire related to the thematic units, variables were defined and created. These variables were evaluated for reliability using Cronbach alpha index. More specifically, the research variables are:

1) The use of "Cost and Information Systems." Is considered as dependent variable Y, resulting from questions 1 to 9 (Part B of the questionnaire).
2) The first independent variable is the effect of "Business Performance in Cost Systems", resulting from questions 10 to 16 (Part C of the questionnaire).
3) The second independent variable is the effect of "Business Performance in Information Systems", resulting from questions 17 to 24 (Part D of the questionnaire).
4) The third independent variable is the effect of "Complexity of costing systems", questions 25 to 28 (Part E of the questionnaire).
5) The fourth independent variable is the effect of "Integrated Information Technology", resulting from questions 29 and 30 (F part of the questionnaire).
6) The fifth and final independent variable is the link between "cost and information systems and the human factor", resulting from questions 31 to 42 (Part G of the questionnaire).

These variables were initially analyzed for their correlations using the Pearson’s Correlation coefficient. Finally, the empirical analysis is completed by listing the results of the multiple regression analysis.

Since the relationship between the variables X and Y is linear, the following multiple linear regression models were used to examine the strength of association between the different independent variables and the dependent variable:

$$y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e_i$$

Where, Y: is the dependent variable "Cost Systems and Information Systems" "(V1), X_1, X_2, X_3, X_4, X_5: are the independent variables; b_1, b_2, b_3, b_4, b_5: are the independent variables parameters or coefficients which quantify the relationship with the dependent variable; e_i: is the error.

RESULTS

Descriptive statistics results

The first part which consists of questions 1-3 refers to the

demographics of the participants from the companies in the empirical research. More specifically, the years in which each entity that participated in the research operates and is active are examined. Most companies operate for 2 to 10 years. Question 2 investigates the position of responsibility of the respondent. From the respondents, 55.8% were corporate staff. Subsequently, 18.2% were administrative staff, 13% were business owners, 9.15% were accountants and only 3.9% were IT personnel. 37.7% of the respondents 37.7% have completed secondary education, 36.4% higher education, while a 22.1% holds a master's degree and 3.9% have completed a PhD.

Research variables

Costing and information systems

The first part of the study "Cost and Information Systems" examines whether the integration of costing systems gives important information for the company. 64.9% of the respondents said that the integration of costing systems gives information about the company to a great extent, while 28.6% believe that it gives a very large degree of information. Also, 61% of companies invest heavily in costing systems, while 22.1% invested lightly. 67.5% of respondents believe that the business's costing system contributes more or less to addressing its weaknesses, while 85.8% believe that the costing system used by a company contributes more or less to addressing its threats.

83.1% of the respondents believe that the company's information systems are more or less affected by its operation. 63.6% of the respondents believe that ease of use more or less influenced the choice of information system, according. In addition, 22.1% of the respondents believe that ease of use significantly influenced the choice of information system. On the other hand, 57.2% believe that ease of learning greatly influenced the choice of information system, according to 57.2%. While, 28.6% believe that ease of use significantly influenced the choice of information system. The cost of implementation more or less influenced the choice of the information system as declared by 77.9% of the respondents. Also, 79.2% of them believe that customer needs influenced the choice of information system.

Costing systems and business performance

Table 1 show that respondents were mostly interested to upgrade the costing system and at the same time were satisfied with the efficiency of the cost system. On the other hand, respondents agreed on the average that their cost system serves the company profits and performance.

Information systems and business performance

Eight questions constitute of the third Thematic Section, examining Information Systems and Business Performance. The use of information systems by employees is based on the training received from academic institutions according to 45.5%. In addition, a 33.8% believe that their IS is well-founded. The next question examines whether the use of information systems by employees is based on training from seminars or workshops (Public or Private). Information technology affects the performance of business, while it also affects business relationships. Information technology contributes to organic flexibility and advertising according to 85.7% of responses. Information technology affects online stores, according to 89.6% of responses. The impact of digitization on business processes has increased more or less, according to 90.9% of responses.

Complexity of costing systems

The first question examines the degree of contribution of the quantification of a company's operations to decision-making, whereby 56.60% believe it has large contribution. The second question shows that 63.60% of respondents believe that quantifying the operations of a company contributes a lot to control. Moreover, 58.40% of the respondents believe that the costing system contributes a lot to cost management [third question]. Finally, 58.40% of the respondents believe that a cost management system contributes lot to inventory management.

Integrated information technology

Integrated information technology examines the degree to which operation of business is facilitated by investing in new technology tools. 64.90% of respondents believe that investing in new technology greatly facilitates the operation of businesses. While 63.60% of the respondents believe the contribution of investing in new technology tools affects a lot the increase of profitability of the business.

Cost-Information systems and the human factor

The last thematic unit analyzes the correlation of cost systems and information systems with the human factor. Table 2 shows that respondents are comfortable on the average with the human factor involvement, impact and influence on the cost information system.

Correlation analysis

The Internal Reliability of the 6-item scale is assessed

Table 1. Costing systems and business performance.

No.	Statement	Percentage	Remarks
1	The cost system used in a business affects its efficiency	68.80	Greatly
2	It contributes a lot to the development of strategy	55.80	Greatly
		24.70	Significantly
3	Companies would like more or less an upgrade of the costing system	83.10	
4	The use of costing systems affects profits when implementing a customer service strategy	54.50	Greatly
		32.50	Significantly
5	The use of costing systems greatly affect profits when applying a low price strategy	48.10	Very high
		39.00	High
6	The use of costing systems affects performance when a customer service strategy is implemented	50.60	Greatly
		37.70	Significantly
7	The use of costing systems affects performance when a low price strategy is implemented	44.20	Greatly
		36.40	Significantly

Table 2. Cost-information systems and the human factor.

No.	Statement	Percentage	Remarks
1	The culture of a company seems to influence the implementation of costing and costing systems	67.50	Agree
2	The company takes into account the opinion of employees for the implementation of information systems	65.80	Agree
3	The company gives a lot of time to teach new information systems to employees	54.50	Agree
4	Companies contribute a lot to the training of employees on information systems.	61.00	Agree
5	Companies take into account the opinion of employees on the implementation of costing systems	59.70	Agree
6	Business give time to teach new costing systems to employees	22.10	Enough time
		58.40	More time
7	The company contribute to the training of employees on cost systems	54.50	Agree
8	Employees are very willing to use new information systems	59.70	Agree
9	Willingness of employees to contribute to the collection of cost data during their work	54.50	Very willing
		35.10	Quite willing
10	Accountants are more or less trained in information systems	77.90	
11	An accountant helps a lot in creating a costing strategy	55.80	Agree
12	The store manager believes that he contributes a lot to the design of a costing strategy	62.30	A lot
		28.60	Greatly

using the Cronbach's Alpha technique. Table 3 shows that the 6-item scale produced a Cronbach's Alpha if items deleted all fall in the range 0.659 to 0.728 matching the range 0.6 - 0.8 labeled "Good" (Hejase and Hejase, 2013:570; Burns and Burns, 2008:481).

Table 3. Reliability analysis.

Variable	Cronbach's Alpha
Y1 Costing and information systems	0.728
X1 Costing systems and business performance	0.724
X2 Information systems and business performance	0.672
X3 Complexity of costing systems	0.661
X4 Integrated information technology	0.659
X5 Cost- information systems and the human factor	0.725

Table 4. Correlation analysis.

Correlations		b	g	d	e	st	z
b	Pearson's correlation	1	0.255*	0.350**	0.487**	0.035	0.336**
	Sig. (2-tailed)		0.025	0.002	<0.001	0.764	0.003
g	Pearson's correlation	0.255*	1	0.261*	0.286*	0.101	0.312**
	Sig. (2-tailed)	0.025		0.022	0.012	0.382	0.006
d	Pearson's correlation	0.3050**	0.261*	1	0.406**	0.425**	0.494**
	Sig. (2-tailed)	0.002	0.022		<0.001	<0.001	<0.001
e	Pearson's correlation	0.487**	0.286*	0.406**	1	0.300**	0.337**
	Sig. (2-tailed)	0.001	0.012	0.001		0.008	0.003
st	Pearson's correlation	0.035	0.101	0.425**	0.300**	1	0.399**
	Sig. (2-tailed)	0.764	0.382	0.001	0.008		0.001
z	Pearson's correlation	0.336**	0 .312**	0.494**	0.337**	0.399**	1
	Sig. (2-tailed)	0.003	0.006	0.001	0.003	0.001	

*Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).

According to Chehimi et al. (2019), "this indicates a very good strength of association and proves that the selection of the questions is suitable for the questionnaire purpose" (1915). Then, Pearson's correlations of variables were checked. Table 4 presents the statistically significant linear correlation between the dependent variable "Cost Systems and Information Systems" and the independent variable "Integrated Information Technology" (V5). Also, there is a statistically significant linear correlation between the dependent variable "Cost Systems" and the independent variable "Cost Systems and Business Performance" (V2), the independent variable "Information Systems and Business Performance" (V3) and independent variable "Cost Complexity Systems" (V4). Therefore, no negative linear correlation of the dependent variable with the independent ones is observed.

More specifically, the regression model to be evaluated is:

"Costing Systems and Information Systems = b_o + b_1 * Costing Systems and Business Performance + b_2 * Information Systems and Business Performance + b_3 * Complexity of Costing Systems + b_4 * Integrated Information Technology + b_5 * Cost Systems, Information Systems and the Human Factor"

The Coefficients are depicted in Table 5. Consequently, the resultant regression equation of the model is derived as follows:

"Costing Systems and Information Systems = 2.02+ 0.044* Costing Systems and Business Performance + 0.168* Information Systems and Business Performance + 0.333* Complexity of Costing Systems + 0.24* Integrated Information Technology + 0.171* Cost Systems, Information Systems and the Human Factor".

The Coefficients show that the first independent variable "Cost Systems and Information Systems" (V2), sig = p-

Table 5. Coefficients and regression statistics.

Variable		Coefficients	P-value	t Stat	Standard error
Intercept	Costing and information systems	2.027804	0.000616	3.584571925	0.565703333
X Variable 1	Costing systems and business performance	0.043934	0.048375	0.543665049	0.099204366
X Variable 2	Information systems and business performance	0.168346	0.041311	1.487499676	0.11317372
X Variable 3	Complexity of costing systems	0.333279	0.000443	3.685076893	0.090440292
X Variable 4	Integrated information technology	0.23807	0.031204	-2.198098413	0.108308771
X Variable 5	Cost- information systems and the human factor	0.171076	0.012927	1.605028615	0.106587722

Regression statistics			
Multiple R	**R Square**	**Adjusted R Square**	**Standard error**
0,575457684	0.331151546	0.284049542	0.45658761

*Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).

value = 0.048 <0.05, the null hypothesis is rejected and therefore has a statistically significant effect on the dependent variable "Cost Systems and Information Systems".

For the second independent variable "Information Systems and Business Performance" (V3), sig = p-value = 0.041 <0.05, the null hypothesis is rejected and therefore the independent variable has a statistically significant effect on the dependent variable "Costing Systems and Information Systems "(V1).

For the third independent variable "Cost Complexity Systems" (V4), sig = p-value = 0.000 <0.05, the null hypothesis is rejected and therefore the independent variable has a statistically significant effect on the dependent variable "Costing Systems and Information Systems" V1).

For the fourth independent variable "Integrated Information Technology" (V5), sig = p-value = 0.031 (<0.05), the null hypothesis is rejected and therefore the independent variable has a statistically significant effect on the dependent variable.

For the fifth and last independent variable "Cost Systems, Information Systems and the Human Factor" (V6), sig = p-value 0.013 <0.05, the null hypothesis is rejected and therefore the independent variable has a statistically significant effect on the dependent variable " Cost Systems and Information Systems "(V1).

DISCUSSION

Most companies participated in this survey have been operating for ten years. Given the general Greek problematic economy, the financial crisis of 2009, the recent health crisis of Covid19; many companies faced problems or been led to solve them. Retail and its commercial activity are characterized by lower capital costs and therefore companies are entered and leave the market faster compared to their larger counterparts. A great number of respondents were managers. This implies the small number of staff or the direct correlation of managers and overlapping responsibilities.

Most respondents (93.5%) were positive about implementing costing practices and information systems. Generally, companies invest heavily or lightly in costing systems, admitting that a business's costing system contributes in addressing weaknesses and threats. It was expected that information systems in addition to great investment costs, would also be affected by operational needs, user and training friendliness. Results demonstrate that the retail sector, in terms of information systems implementation, is affected by the needs of the company's customers.

Successful costing seems to affect performance and business strategy. Businesses are willing to upgrade their costing system. The goal of using and upgrading these systems is to develop customer service strategies. There are companies that have chosen or want to use cost methods for low priced products. Retail companies are heavily involved in products of different price ranges. Those that aim to utilize the costing of low products are those realized cost's usefulness in marginal profit. As retailers deal with different profit margins, accurate costing allows maximized profit due to separation of goods by type. With this in mind, it is understood that the percentage that has a full understanding of costing both as a method and a strategy is lower than what initially appeared (near 40%). Nevertheless the percentage of utility of costing in performance remains important.

Nearly half of the respondents argue that an employ's ability to use information systems is based mostly on training received prior to their recruitment in the work environment. This translates that half employees do not expect significant training after being hired, while simultaneously half of the companies had not made budget or investment preparations for training costs. On the other hand, while only 33.8% believe the IS used by the company is well-founded, 85.7% answered that

Information technology contributes to organic flexibility and advertising. Furthermore, respondents are aware that Information technology affects business performance, business relationships. The questionnaires show a 90.9% agreement on the impact of digitization on business processes. Results demonstrate an understanding of a changing environment in which technology's role is increasing. Most businesses turn towards recruitment techniques to acquire personnel capable of implementing new technologies in the work place. Few businesses are willing or capable of continually training employees. This could be interpreted by constant changes in technology or high employee turnover rates.

It is worth mentioning that regarding integrated information technology 64.9% argues greatly for new investments in technology towards facilitating business operations. While 63.60% of the respondents believe the contribution of investing in new technology tools significantly increases profitability. This approach characterized by willingness to invest in technology, but lacking the necessary plan of training employees to use it could explain a serious gap in the understanding of the incorporation of informational systems as part of business. However, it is possible to emanate a lack of knowledge originating inside the company's intellectual capital. This absence of know how could stem from the company's higher management. Thusly a company finds difficulty in training new employees.

This research verifies the contribution of quantifying operations and goals to decision-making and control. Generally, cost managements are found as a vital contribution to the operation of a company, while in the same time increases its cost system complexity.

"Costing Systems and Business Performance" was found to significantly affect "Cost Systems and Information Systems". Thusly management invests in costing and information systems mostly for improving performance and in particular through expenses reduction and management. A similar case was observed regarding "Information Systems and Business Performance" effect on "Costing Systems and Information Systems".

A cost system's complexity and integrated information technology were both found to affect the utilization and implementation not only of the costing System but also the choice of an information system. Significance drops when integrating the human factor in the cost and information system equation. This correlation strengthens this research interpretation of results regarding employees training, since the latter do not expect to be trained and corporations do not include it in system investment costs.

Conclusion

Companies are willing to invest and implement cost practices and information system strategies. Respondents declare that a business's costing system contributes in addressing weaknesses and threats. Costing seems to affect performance and business strategy. Regarding information systems, companies work towards constant upgrading to develop customer service strategies. However, retail fails to perceive employees' training as a significant part of the investment and budget. Results demonstrate the constant changing of the industry and technology's role in it. The paper verifies the contribution of quantifying operations and goals to decision-making and control. Finally, a cost system's complexity and existing integrated information technology each separately found to affect the utilization and implementation both of the costing system and the information system.

Implications

Results support retail businesses that operate away from a country's largest urban centers, develop strategies and general to decentralize the economy. At the same time, the importance of staff training is evident. The approach a retail company adopts seems to affect its ability to assimilate costing and information systems. The continuous investment in systems aimed at efficiency and the inclusion of lifelong learning must be impressed in modern business policies.

Research limitations

The sample consisted from retail companies operating away from the largest urban centers. The survey was performed during the Covid 19 pandemic and restrictive measures. Many employees were unable to answer the questionnaire.

Future research

The exact reasons that affect the importance of employee training in costing and information systems can be explored further. This could clarify whether the lack of training plans is a result of expenses or a retail managers and owners' approach. Furthermore, a more in depth survey could try replicating results for different industries, or integrating additional geographical factors.

CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

REFERENCES

Burns RP, Burns R (2008). Cluster Analysis In: Business Research Methods and Statistics Using SPSS. Sage Publications, Thousand Oaks.

Butterworth JE (1972). The accounting system as an information

function. Journal of Accounting Research 10(1):1-27.
Chan SL (2000). Information technology in business processes. Business Process Management Journal 6(3):224-237
Chehimi GM, Hejase AJ, Hejase NH (2019), An Assessment of Lebanese Companies' Motivators to Adopt CSR Strategies. Open Journal of Business and Management 7(19):1891-1925.
Dechow N, Granlund M, Mouritsen J (2007). Interactions between modern information technology and management control. Issues in Management Accounting 3:45-64.
Agourram H, Ingham J (2007). The impact of national culture on the meaning of information system success at the user level. Journal of Enterprise Information Management 20(6):641-656.
Boudreau MC, Robey D (2005). Enacting integrated information technology: A human agency perspective. Organization Science 16(1):3-18.
Cugini A, Michelon G, Pilonato S (2013). Innovating Cost Accounting Practices in Rail Transport Companies. Journal of Applied Accounting Research 14(2):147-164.
Fry TD, Steele DC, Saladin BA (1995). The role of management accounting in the development of a manufacturing strategy. International Journal of Operations and Production Management 15(12):21-31.
Hejase HJ, Hejase AJ, Hejase HANJ (2012). Quantitative Methods for Decision Makers: Management Approach. Beirut, Dar Sader Publishers.
Hejase AJ, Hejase HJ (2013). Research Methods: A Practical Approach for Business Students (2nd edition). Philadelphia, PA, USA: Masadir Incorporated.
Karagiorgos A, Alexandra G, Ignatiou O, Terzidou A (2020). Role and contribution of administrative accounting to small and very small businesses. Journal of Accounting and Taxation 12(2):75-84.
Krumwiede KR, Charles SL (2014). The use of activity-based costing with competitive strategies: impact on firm performance. Advances in Management Accounting 23:113-148.
Lee I (2004). Evaluating Business Process-integrated Information Technology Investment. Business Process Management Journal 10(2):214-233.
Leek C (1997). Information Systems Frameworks and Strategy. Industrial Management and Data Systems 97(3):86-89.
Lindh C, Nordman ER (2017). Information technology and performance in industrial business relationships: the mediating effect of business development. Journal of Business and Industrial Marketing 32(7):998-1008.
Maiga AS, Nilsson A, Jacobs FA (2014). Assessing the Interaction Effect of Cost Control Systems and Information Technology Integration on Manufacturing Plant Financial Performance. The British Accounting Review 46(1):77-90.
Martínez-Caro E, Cepeda-Carrión G, Cegarra-Navarro JG, Garcia-Perez A (2020). The Effect of Information Technology Assimilation on Firm Performance in B2B Scenarios. Industrial Management and Data Systems 120(12):2269-2296.
Meldrum M, De Berranger P (1999). Can Higher Education Match the Information Systems Learning Needs of SMEs? Journal of European Industrial Training 23(8):323-344.
Nagirikandalage P, Binsardi B (2017). Inquiry into the cultural impact on cost accounting systems (CAS) in Sri Lanka. Managerial Auditing Journal 32(4/5):463-499.
Razak NA, Jalil HA, Krauss SE, Ahmad NA (2018). Successful implementation of information and communication technology integration in Malaysian public schools: An activity systems analysis approach. Studies in Educational Evaluation 58:17-29.
Schoute M (2009). The Relationship between Cost System Complexity, Purposes of Use, and Cost System Effectiveness. The British Accounting Review 41(4):208-226.
Sorros J, Lois P, Charitou M, Karagiorgos AT, Belesis N (2021). Improving competitiveness in education institutes–ABC's neglected potential. Available at: https://www.emerald.com/insight/content/doi/10.1108/CR-01-2021-0008/full/html?utm_source=rss&utm_medium=feed&utm_campaign=rss_journalLatest
Roy S, Sivakumar K (2007). The role of information technology adoption in the globalization of business buying behavior: a conceptual model and research propositions. Journal of Business and Industrial Marketing 22(4):220-227.
Stout DE, Bedenis GP (2007). Cost-system redesign at a medium-sized company: Getting the right numbers to drive improvements in business performance. Management Accounting Quarterly 8(4):9-19.
Tan SS, Geissler A, Serdén L, Heurgren M, Van Ineveld BM, Redekop WK, Hakkaart-van RL (2014). DRG systems in Europe: variations in cost accounting systems among 12 countries. The European Journal of Public Health 24(6):1023-1028.
Tsai WH, Lin TW, Chou WC (2010). Integrating activity-based costing and environmental cost accounting systems: a case study. International Journal of Business and Systems Research 4(2):186-208.
Vanpoucke E, Vereecke A, Muylle S, (2017). Leveraging the Impact of Supply Chain Integration through Information Technology. International Journal of Operations and Production Management 37(4):510-530.
Yasin MM, Quigley JV (1995). The Utility of Information Systems Views of CEOs and Information System Executives. Information Management and Computer Security 3(2):34-38.

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