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EFFECT OF AUDIT QUALITY ON EARNINGS MANAGEMENT OF LISTED OIL MARKETING COMPANIES IN NIGERIA

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Abstract

This paper examines the effect of audit quality attributes on earnings management of listed oil marketing companies in Nigeria. Secondary data were extracted from nine companies listed on the Nigerian Stock Exchange (NSE) from 2009 to 2014 and analyzed using panel multiple regression technique. The result of Hausman specification test suggests that the fixed effect regression model is most appropriate for the dataset. The result of the fixed effect regression model showed that audit firm size, auditor industry specialization, client importance and audit committee financial expertise are positively associated with earnings management of the firms at 1%, 5%, 1% and 5% level of significance respectively. In contrast, auditor tenure and the interaction between audit committee financial expertise and auditor industry specialization were negatively and significantly associated with earnings management of the firms at 5% level of significance respectively. The paper

therefore concludes that audit quality has significant effect on earnings management of listed oil marketing companies in Nigeria. In line with the findings, the paper recommends among others that public companies who hire the services of audit firms in Nigeria should judge audit firms on the basis of performance in prior assignments and not just the size of the audit firm in view of the fact that audit firm size is not associated with less earnings management of Nigerian firms. Also, regulatory authorities such as SEC should come out with a policy that will encourage audit firms in Nigeria to specialize along industry lines of companies listed on the Nigerian Stock Exchange (NSE) to enable effective audit service. Regulatory bodies such as SEC and Financial Reporting Council of Nigeria (FRCN) should also come out with a policy that makes it mandatory for Nigerian companies to publish both audit and non-audit fees paid to their auditors. The disclosure of both fees will enable users of audited financial statements in Nigeria to determine the level of auditor client importance and consequently, the reliance to place on the auditor's report.

Key Words: *Audit quality, Earnings management, Auditor industry specialization, Client importance, Audit committee financial expertise*

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1. Introduction

Financial reporting is one of the primary responsibilities of firms' management that enables them give account of their stewardship. The main objective of financial reporting is the provision of information on the financial performance and position of a reporting entity that is useful to different users for informed economic decisions (International Accounting Standards Board (IASB), 2008; Glautier, Underdown, & Morris, 2011). The need for financial reporting arises originally because of the separation of ownership from management and control in modern day business organizations. This relationship creates conflict of interests and information asymmetry between the shareholders (principal) and managers (agent), who are involved in the day to day running of the firm. The conflict sometimes reflects in the preparation of financial statements as managers use their discretion over accounting choices to manipulate financial information contained in published financial reports for their personal benefit at the expense of other stakeholders.

The manipulative behaviour of managers, called earnings management is associated with the deliberate altering of financial statements through the use of judgment in structuring transactions to either mislead the firm's stakeholders about the true economic picture of the firm or to achieve some contractual benefit that is based on reported accounting numbers (Healy & Wahlen, 1999). Extant accounting literature suggests that managers engage in earnings management for different reasons such as, to earn compensation bonus (Healy, 1985), to beat analyst forecast (Comprix, Mills & Schimidt, 2007), to attract favorable subscription during Initial Public Offerings (IPO) (Teoh, Wong & Rao, 1998), and so on. The practice of earnings management however, is not without consequences for the reporting entity. Examples of these consequences include but not limited to reduction in the relevance of reported accounting information and corporate failure in worst scenarios. Earnings management is, therefore, of great concern to regulators, practitioners and accounting researchers since it obscures facts that different stakeholders need to know about the reporting firm (Okolie, 2014).

Extant literature suggests that audit quality is one of the mechanisms that are effective in monitoring managerial opportunism. Audit quality is associated with the joint probability that a given auditor both detects and reports a violation of generally accepted accounting principles (GAAP) in the client's accounting system. Regulators from different countries of the world also make the external audit of financial reports of public companies by high quality auditors a statutory requirement. Examples include the company laws in United States (US), United Kingdom (UK), France, Japan and Malaysia. Section 357 of the Companies and Allied Matters Act (CAMA) Cap 20 LFN 2004 also makes the annual audit of all companies listed on the Nigerian Stock Exchange (NSE) by competent external auditors a statutory requirement for public companies in Nigeria.

Despite the aforementioned regulatory efforts, accounting scandals and corporate failures linked to poor audit quality still continue to occur globally. Notable accounting scandals and corporate failures in the last decade include: Enron and Worldcom in US and Parmalat in Italy. Similarly, the oil sector in Nigeria, which contributes significantly to the economic growth of the country with about 90% contribution to foreign exchange earnings (Central Bank of Nigeria - CBN, 2010), has not been spared of allegations of scandalous financial practices. For example, the Punch (February, 2015) reported the case of non-remittance of funds to the federation account and excessive expenditure of oil proceeds by the Nigerian National Petroleum Corporation (NNPC). Similar allegations are associated with

listed oil marketing companies in Nigeria as exemplified by the case of African Petroleum (now Forte Oil) PLC, where a credit facility of 24 billion naira was not disclosed in the financial statements of the company (Samaila, 2014) though the material omission occurred under the watch of a big 4 audit firm that is expected to constrain such unscrupulous practice. These scandals have led to loss of public confidence in the quality of published financial reports and the audit function globally. It has also made regulators, practitioners and accounting researchers to raise the question of whether quality of audit could curtail manipulative accounting practices by management of firms.

Consequently, many empirical researches were conducted to examine the effect of audit quality on earnings management of firms. Exemplar studies include: Becker, Defond, Jiambalvo and Subramanyam (1998), Bauwhede, Willekens and Gaeremynck (2000), Krishnan (2003), Piot and Janin (2005), Habbash (2010), Memis (2012), Yasar (2013), Pouraghajan, Tabari, Emamgholipour and Mansourinia (2013), Molik, Mir, Mclver and Bepari (2013) and Okolie (2014). However, most of these studies are foreign-based. Given the disparities in the nature of economies, the level of sophistication in the monitoring mechanisms and litigation risks faced by external auditors, studies from other jurisdictions such as Nigeria may produce different results. Besides, prior studies in this area from both developed and developing economies have documented inconsistent and conflicting empirical evidence. The inconclusiveness and mixed findings of previous studies have provided a motivation for further research effort. In addition, most of the studies excluded audit committee variable in their analysis despite its involvement in the appointment, reappointment and remuneration of external auditors. As Rohaida (2011) noted, effective audit committee enhances audit quality through its active involvement in the audit and effective interaction with the external auditors. This argument is supported by Sun and Liu (2013) who provided evidence that external and internal governance mechanisms do not work as substitutes but complement each other in mitigating earnings management of firms. This therefore, underscores the need for a study that will fill the above gaps identified in previous studies. Furthermore, studies in Nigeria on audit quality and earnings management seemed to have ignored the oil sector. Considering the sector's strategic importance to the nation's economy, the cases of financial scandals reported about the sector and the number of reforms it undergone particularly from 2009, a study that will enable better understanding of the nature and extent of association between audit quality and earnings management of the sector becomes desirable.

This paper therefore examines the effect of audit quality on earnings management of listed oil and gas companies in Nigeria for the period 2009 - 2014. The paper extends the work of Sun and Liu (2013) by investigating the effect of the interaction of audit committee financial expertise and auditor industry specialization on earnings management of the firms in view of the fact that although not one of the commonly used variables in audit quality studies, audit committee plays an important role in the appointment, reappointment and remuneration of external auditors, and that as Rohaida (2011) noted, its effectiveness enhances audit quality. Accordingly, the paper hypothesises that audit quality represented by audit firm size, auditor industry specialisation, auditor tenure, client importance, audit committee financial expertise, and interaction between audit committee financial expertise and auditor industry specialization have no significant effect on earnings management of listed oil marketing companies in Nigeria.

The paper is based on agency theory, which explains the relationship between the firm and its stakeholders, and explicates better and clearer unethical practices in accounting and financial issues such as earnings management. The theory assumes that managers are motivated by their personal gains and work to exploit their personal interest and not the interest of the shareholders (Jensen & Meckling, 1976) and hence require monitoring mechanisms such as high quality audit services. The paper therefore draws on the theory to test the relationship between audit quality and the incidence of earnings management in listed oil and gas companies in Nigeria.

The rest of the paper is structured as follows. Section two covers review of empirical studies on the nexus between audit quality attributes and earnings management. Section three discusses the design and methodology of the paper, and explains the procedure of data collection and analysis. Section four analyses and interprets the results and discusses the findings of the study in light of previous empirical studies. Section five concludes the paper and offers recommendations.

2. Review of Related Empirical Studies

The debate on the relationship between audit quality and earnings management has attracted great attention from accounting researchers in both developed and developing economies. This is evident in the number of empirical studies conducted from both economies over the years. In developed economies for instance, Becker, DeFond, Jiambalvo and Subramanyam (1998) documented evidence that income increasing discretionary accruals for clients audited by big 6 auditors are lower than those of clients audited by the non- big 6 auditors. They observed further that variation in discretionary accruals for firms audited by Big 6 audit firms is lower than that of firms audited by non-big 6. The study is however limited because given the distinct nature of the US and Nigerian economies, findings of the study are not likely to apply to Nigerian companies in general and

listed oil marketing companies in particular due to the complex nature of the oil industry business operations. Similarly, Ebrahim (2001) found evidence that discretionary accruals (DA) for a sample of firms listed on NYSE, AMEX and NASDAQ is negatively associated with audit firm size of US firms. Audit tenure and client importance have insignificant negative relationship with DA of the sampled US firms. However, this study is limited because its findings are not likely to apply to listed oil and gas companies in Nigeria owing to the peculiarity of the sector.

In another study, Krishnan (2003) found evidence which shows that US firms audited by industry specialist auditors, report less discretionary accruals than firms audited by non – industry specialist auditors. Also, Balsam, Krishnan and Yang (2003) studied the association between auditor industry specialization and earnings management of US firms. They document evidence which shows that clients of specialist auditors have lower incidence of earnings management than clients of non-specialist auditors. Though the result of Balsam, Krishnan and Yang (2003) corroborated the findings of Krishnan (2003), the two studies are limited because their findings are not likely to apply to listed oil and gas companies in Nigeria due to sectoral differences.

Piot and Janin (2005) examined the effect of audit quality on earnings management of a sample of companies in France from 1999-2001. Empirical evidence from their study shows that big 5 audit firms have no effect on earnings management of the sampled companies in France. In contrast, the study found evidence that audit committee financial expertise is associated with less abnormal accruals of the sampled companies in France. Though this study is different from some prior studies as it included audit committee financial expertise in addition to external auditor attributes in measuring audit quality, the study is limited because it estimated abnormal accruals using Jones 1991 model which erroneously assumes that all changes in revenue are non-discretionary accruals. Additionally, Gul, Fung and Bikki (2009) examined the relationship between audit quality and earnings management for a sample of 32,777 firm year observations in US for the period of 1993-2004. Findings from the study show that the association between shorter auditor tenure and lower earnings quality is weaker for firms audited by industry specialists auditors compared to those audited by non-specialist auditors.

In a related study, Habbash (2010) investigated the effect of audit quality on earnings management of sampled firms in UK. The study documented evidence that independent and specialized external auditors are negatively associated with earnings management of firms in UK. Similarly, Rohaida (2011) examined the association between audit quality and earnings management of companies in UK. Findings from the study show that industry specialist auditors are associated with less earnings management of the sampled firms for all the measures of earnings management. Audit committee financial expertise had mixed results with the different measures of earnings management.

Molik, Mir, Mclver and Bepari (2013) examined the effect of audit quality on earnings management of Australian firms during the global financial crisis of 2006 to 2009. Findings of the study indicated an insignificant positive relationship between audit firm size (represented by Big 4), audit committee financial expertise and earnings management of the sampled firms. Zhou and Guan (2014) also investigated the relationship between audit quality and earnings management of companies in China for the period of 2008-2011. The result shows that audit firm size has significant negative effect on earnings management of sampled firms in China, especially for firms with income increasing abnormal accruals. A positive relationship was however, found between auditor industry specialization and earnings management of the sampled companies.

There are also many studies from developing economies that examine the relationship between audit quality and earnings management practices of firms. Gerayli, Yanesari and Ma'atoofi (2011) investigated the relationship between audit quality and earnings management in Iran using 540 firm-year observations for the period 2004-2009. The findings indicated that discretionary accruals are negatively related to auditor size, auditor industry specialization and auditor independence measured by audit fees. Similarly, Karimi and Gerayli (2014) studied the relationship between audit quality (represented by auditor industry specialization and auditor tenure) and earnings management estimated through modified Jones 1991 model of 91 companies listed on Tehran Stock Exchange (TSE) for the period of 2008-2012. Evidence from the study indicated that auditor industry specialization is associated with less earnings management of firms listed on TSE while auditor tenure had a negative but insignificant association with earnings management of the sampled companies.

In a related study, Hegazy (2015) examined the effect of audit firm specialization on earnings management of Egyptian firms. Findings from the study indicated that industry specialist auditors do not constrain earnings management better than non-specialist auditors. Memis (2012) also investigated the relationship between audit quality and earnings management in 8 emerging countries using a sample of 1507 firm-year observations for 2008-2009. The findings of the study revealed that except for Brazilian and Mexican companies, there is significant relationship between discretionary accruals and audit quality measured by big 4 auditors. Additionally, Inaam, Khmoussi and Fatma (2012) investigated the relationship between audit quality and earnings management of Tunisian firms using 319 firm year observations for the period 2000-2010. The result of the study shows that auditor industry specialization and audit firm size-measured by Big 4 auditors are negatively associated with earnings management of sampled firms. Auditor tenure had a negative but insignificant association with discretionary accruals of sampled firms.

In a similar study, Ahmadzade, Hassanzadeh, Pooryegane and Ebrahimi (2012) examined the relationship between audit quality and earnings management of a sample of 73 companies listed on the Tehran Stock Exchange for the period 2008-2011. The result of the regression analysis indicated that audit firm tenure and audit firm industry specialization are negatively associated with earnings management of sampled Iranian firms. Additionally, Pouraghajan, Tabari, Emamgholipour and Mansourinia (2013) investigated the association between audit quality and earnings management of a sample of 140 firms listed on Tehran Stock Exchange for the period 2006-2011. The result of data analysis indicated an insignificant positive relationship between audit firm size and discretionary accruals of sampled firms. In another study, Yasar (2013) examined the effect of audit quality on earnings management of companies listed on Turkish Stock Exchange for the period 2003-2007. Empirical evidence from the regression analysis showed a positive association between audit firm size and discretionary accruals of manufacturing firms in Turkey.

Chen, Wu, and Zhou (2006) also examined the association between audit quality and earnings management of the Taiwanian companies for the period of 1998-2002. The study estimated discretionary accruals using the modified Jones model. Result of the regression analysis revealed that both Big 5 auditors (proxy for audit firm size) and industry specialist auditors are associated with less earnings management in Taiwan. Also, Bamahros and Wan-Hussin (2015) investigated the effect of audit quality on earnings management for a sample of 525 companies listed on Malaysian Stock Exchange (MSE) in 2009. Earnings management was represented by discretionary current accruals (DCA) estimated by the performance- adjusted model of Ashbaugh, Lafond and Mayhew (2003) and discretionary total accruals (DTA) estimated by the modified Jones model. Results of the study suggested a significant negative association between audit firm tenure and both measures of earnings management. Audit committee financial expertise has significant negative association with both measures of earnings management while audit firm size has insignificant negative relationship with earnings management of the sampled firms.

Similarly, Ching, Teh and San (2015) investigated the relationship between audit quality and earnings management for a sample of one hundred (100) industrial products and consumer products companies listed on the main board of Bursa Malaysia during the period of 2008-2013. The result of data analysis using regression technique indicated that both audit firm size and audit fees have insignificant negative relationship with earnings management of listed industrial products and consumer products companies in Malaysia. Audit partner tenure had an insignificant positive relationship with the sampled companies in Malaysia. He (2015) studied the relationship between auditor industry specialization, audit experience and earnings management (represented by accounting restatement) of a sample of 5,502 firm year observations for listed Taiwan companies from 2008-2009. Results from regression analysis revealed that Taiwan companies audited

by industry specialist auditors are less likely to face accounting restatements. Similarly, industry experience of auditors has a significant negative association with accounting restatements.

Relatively, a few studies in Nigeria examined the association between audit quality and earnings management of firms. Okolie, Izedonmi, and Enofe (2013) examined the effect of audit quality on earnings management of companies listed on the NSE for the period 2006-2011. The study documented a significant negative association between audit quality (proxy by audit firm size, audit tenure, audit fees and audit client importance) and discretionary accruals of the sampled companies. Similarly, Okolie (2014) investigated the relationship between audit quality and accrual-based earnings management of Nigerian firms. The study documented a significant negative association between audit tenure and discretionary accruals of Nigerian companies.

Also, Aliyu, Musa and Zachariah (2015) examined the effect of audit quality (represented by audit firm size, joint audit and auditor financial dependence- a measure of client importance) on earnings management of listed deposit money banks in Nigeria. Earnings management proxy by discretionary loan loss provision was estimated using Beaver and Engel (1996) model, tested by researchers such as Fiechter and Meyer (2011). The study used a sample of seven (7) deposit money banks listed on the NSE for the period of 2006 – 2013 while data analysis was done using ordinary least square (OLS) regression technique. Findings from data analysis indicated that both audit firm size and joint audit have significant negative effect on earnings management of listed deposit money banks in Nigeria. Auditor financial dependence had a significant positive effect on earnings management of listed deposit money banks in Nigeria during the study period.

Recently, Tyokoso and Tsegba (2015) investigated the effect of audit quality on earnings management of listed oil marketing companies in Nigeria for the period 2004-2013. The dependent variable earnings management represented by discretionary accruals (DA) was estimated using the modified Jones model while the independent variable audit quality was represented by audit firm size, auditor industry specialization and auditor tenure. The findings of the study indicated that both audit firm size and auditor industry specialization have insignificant negative effect on DA of the sampled companies. In contrast, auditor tenure had a significant negative effect on DA of the sampled companies. Though, this study is in relation to oil and gas companies in Nigeria, it focused on only three measures of audit quality and ignored the internal control aspects of audit quality (audit committee). The omission of audit committee from the proxies of audit quality implies that internal and external governance mechanisms (external auditor) work as substitutes and do not complement each other in mitigating earnings management.

3. Materials and Methods

The study adopts correlational research design based on positivist approach. This design is most appropriate for the study because it enables testing of the expected relationships between audit quality proxies and earnings management practices of listed oil and gas marketing companies in Nigeria and making predictions regarding such relationships. The population of the study comprises the ten (10) oil and gas marketing companies listed on the Nigerian Stock Exchange (NSE) as at 31st December, 2014.

The paper uses a two point filter to arrive at a working population. Firstly, the company must be listed on the NSE and have the required data for the study period of 2009 - 2014. Secondly, once listed, the company must not be delisted throughout the study period. These filters were employed to ensure availability of published financial statements of the companies throughout the study period. Consequently, nine (9) companies were found to have satisfied the filters and were therefore used as the study sample based on census approach.

Secondary data extracted from the published annual reports and accounts of the sampled companies for the relevant years were analyzed using panel multiple regression technique. The data was extracted in respect of audit firm size (AFS), auditor industry specialization (AIS), auditor tenure (ADT), client importance (CLI) and audit committee financial expertise (AFE) which represents the independent variables. Similarly, data on earnings management (dependent variable), represented by discretionary accruals (DAC) was extracted from the same source.

The absolute value of discretionary accruals was used as the proxy for earnings management. The paper uses discretionary accruals because it best captures the earnings management practices (Bello & Yero, 2011). The magnitude of discretionary accruals, irrespective of the sign (positive or negative), is an indication of the extent of earnings management of firms. This is used in line with Becker, DeFond, Jiambalvo and Subramanyam (1998), Ebrahim (2001) and Molik, Mir, Mclver and Bepari (2013). To estimate discretionary accruals, the modified cross-sectional Jones Model (Dechow, Sloan & Sweeney, 1995) was used in view of the fact that it is superior to other models of estimating discretionary accruals (Bello & Yero, 2011). In addition, the wide usage of the modified Jones model in accounting research is a clear testimony that it is better than other models of estimating discretionary accruals.

The first step in estimating discretionary accruals with the modified Jones Model is to compute total accruals. Total accruals are computed using cash flow statement and balance sheet approaches. The cash flow statement approach has however, been proved to be better than the balance sheet approach of computing total accruals (Ebrahim, 2001). Consequently, cash flow statement approach was used in this study to avoid potential measurement errors associated with

computing total accruals of oil marketing companies in Nigeria using balance sheet items.

The cash flow statement approach of computing total accruals is expressed as follows:

$TACC_{it} = NI_{it} - CFO_{it}$ (1)

Where:

$TACC_{it}$ = total accruals for firm i in year t
NI_{it} = net income for firm i in year t
CFO_{it} = cash flow from operations for firm i in year t

Net income was used instead of income before extra- ordinary or special items to avoid misclassifying discretionary accruals by Jones model. Special items are not usually discretionary but they are erroneously classified by Jones model as discretionary accruals, owing to the fact that they do not have a linear relationship with changes in revenues. The use of cash flows from operation to compute total accruals is to avoid potential measurement errors associated with computing total accruals using balance sheet items (Ebrahim, 2001).

The second step is to estimate the parameters using ordinary least square (OLS) regression as follows:

$$TACC_{it}/A_{it-1} = \alpha_1\left(1/A_{it-1} + \right)\alpha_2\left((\Delta REV_{it} - \Delta AR_{it})/A_{it-1} + \right)\alpha_3\left(PPE_{it}/A_{it-1} + \right)e_{it} \text{ - -} \quad (2)$$

Where

$TACC_{it}$ = total accruals for firm i in year t
A_{it-1} = total assets for firm i in year t-1
ΔREV_{it} = change in net revenues for firm i in year t
ΔAR_{it} = change in accounts receivables for firm i in year t
PPE_{it} = gross property, plant and equipment for firm i in year t
e_{it} = error term (discretionary accruals for firm i in year t)
α_1, $\alpha 2$ and α_3 = are firm specific parameters.

Since the study is for one industry and time, the residuals are used directly as discretionary accruals which represent earnings management (see Bugshan, 2005 as cited in Bello & Yero, 2011).

After rearranging the variables in equation two above to make residuals the subject of the formula, we have equation three as the discretionary accruals equation shown below:

$$DAC_{it} = TAC_{it/} A_{it-1} - \alpha_1\left(1/A_{it-1}\right) + \alpha 2\left((\Delta REV_{it} - \Delta AR_{it})/A_{it-1}\right) + \alpha_3 \left(PPE_{it}/A_{it-1}\right) \text{ - - - (3)}$$

Where DAC_{it} is discretionary accruals while the other variables are as earlier explained. Table 1 presents a summary of all the variables in the study and their measurements:

Table 1: Study Variables and their Measurement

Variable Acronym	Variable Name	A priori expectation	Measurement	Source
DAC	Discretionary accruals		Total accruals minus non-discretionary accruals	Becker *et al.* (1998)
AFS	Audit firm size	-	A dummy variable 1, if the firm is audited by a Big 4 auditor, 0 otherwise	Becker *et al.* (1998)
AIS	Auditor industry specialization	-	A dummy variable 1 if market size (MS) of the auditor ≥20 percent and 0 otherwise.	Inaam *et al.* (2012)
ADT	Audit firm tenure	-	Number of consecutive years the client has retained a particular audit firm. Dummy variable 1 for 3 years^{+}, 0 otherwise	Inaam *et al.* (2012)
CLI	Client Importance	+	Ratio of client's sales to the sum of all clients' sales audited by an auditor within the sample size	Ebrahim (2001)
AFE	Audit Committee Financial Expertise	-	Proportion of audit committee members with accounting and financial expertise	Thoopsamut and Jaikengkit (2008)
AFE*AIS	Interaction between Audit Committee Financial	-	Audit Committee Financial Expertise multiply by Auditor Industry Specialization	

Expertise & Auditor Industry Specialization

The linear relationship between the dependent and independent variables is expressed as follows:

$DAC_{it} = \beta_0 + \beta_1 AFS_{it} + \beta_2 AIS_{it} + \beta_3 ADT_{it} + \beta_4 CLI_{it} + \beta_5 AFE_{it} + \beta_6 AFE*AIS + \varepsilon_{it}$ - - - (4)

Where:
DAC = discretionary accruals
AFS = audit firm size
AIS = auditor industry specialization
ADT = auditor tenure
CLI = client importance
AFE = audit committee financial expertise
AFE*AIS = interaction between audit committee financial expertise and auditor industry specialization
β_0 = constant of the model
$\beta_1 - \beta_6$ = coefficients of the study model
ε = error term

4. Results and Discussion

The descriptive statistics of the dataset from the firms are presented in table 2 where the mean, standard deviation, minimum and maximum values of the data for the variables used in the study are described.

Table 2: Descriptive Statistics

VARIABLE	MEAN	STD. DEV	MIN.	MAX.
DAC	.1004662	.0544201	.00017	.278911
AFS	.6851852	.4688031	0	1
AIS	.5185185	.5043487	0	1
ADT	.5740741	.4991257	0	1
CLI	.5925937	.3518855	.0280396	1
AFE	.1450617	.1038882	0	.3333333
AFE*AIS	.0648148	.0966779	0	.3333333

Source: STATA Output Result

The standard deviation of the variables ranges from 0.05 to 0.50. Discretionary accruals have the lowest standard deviation of 0.05 followed by the interaction between audit committee financial expertise and auditor industry specialization 0.09, audit committee financial expertise 0.10, client importance 0.35, audit firm size 0.46, auditor tenure 0.49 and auditor industry specialization 0.50. The relatively low standard deviation for all the study variables is an indication that the sampled data for the study may be normally distributed. The table also indicated an average value of 0.10 for discretionary accruals. Since earnings management is measured by absolute value of discretionary accruals in this study, the value of 0.10 is an indication that sampled companies were involved in minimal earnings manipulations during the study period. The minimum and maximum values of discretionary accruals during the study period are zero (0) and 0.28 respectively.

The table further revealed an average value of 0.6851852 for audit firm size. The value implies that sixty nine (69) percent of the sampled oil and gas marketing companies was audited by the big 4 audit firms in Nigeria (KPMG, PWC, Ernst and Young, Akintola Williams Delloitte) during the study period. The minimum and maximum values of audit firm size during the study period were zero (0) and one (1) respectively. Similarly, the table shows that auditor industry specialization had a mean value of 0.5185185 during the study period. The minimum and maximum values of auditor industry specialization stood at zero (0) and one (1) respectively because the variable was measured by dichotomous numbers of one if the sampled company is audited by an industry specialist auditor and zero if otherwise. Also, the table indicated that auditor tenure had a mean value of 0.5740741 during the study period. This value indicates that fifty seven percent of the sampled oil and gas marketing companies retained their auditors for a period of three years and above. The minimum and maximum values of auditor tenure during the study period are zero and one respectively.

Client importance, which shows the level of auditors' economic dependence on the sampled oil marketing companies, had a mean value of 0.5925937. This shows that on the average, auditors' financial dependence on the sampled companies was fifty nine percent. The minimum and maximum values of client importance during the study period are 0.028 and one (1) respectively.

Moreover, the table indicated a mean value of 0.1450617 for audit committee financial expertise. This value shows that only fifteen (15) percent of the

membership of the sampled companies audit committee was made of members who have accounting and finance experience. The minimum and maximum values of audit committee financial expertise during the study period were zero (0) and 0.333 respectively. Finally, the table revealed a mean value of 0.0648148 for the interaction between audit committee financial expertise and auditor industry specialization. The mean value implies that the interaction between audit committee financial expertise and auditor industry specialization during the study period is an average of six (6) percent. The minimum and maximum values of the interaction between audit committee financial expertise and auditor industry specialization during the study period were zero (0) and 0.33 respectively.

Table 3 presents correlation values between dependent and independent variables and the correlation among the independent variables themselves. The table contains correlation matrix showing the Pearson correlation coefficients between the dependent and independent variables and among the independent variables of the study.

Table 3: Correlation Matrix

VARIABLE	DAC	AFS	AIS	ADT	CLI	AFE	AFE* AIS
DAC	1.0000						
AFS	-0.0627	1.0000					
AIS	-0.1273	0.4640	1.0000				
ADT	-0.3400	0.0612	0.1444	1.0000			
CLI	0.2617	-0.4490	-0.4883	0.0517	1.0000		
AFE	0.0729	0.2451	-0.2023	-0.1808	0.0009	1.0000	
AFE*AIS	-0.1593	0.3199	0.6521	0.0290	-0.2694	0.4030	1.0000

Source: STATA Output Result

From table 3, it is observed that the independent variables of the study correlate perfectly well (between -0.4883 and 0.6521). There is no relationship among the independent variables that is large enough (greater than 0.7) to pose the problem of singularity of data (Hassan, 2011). The extent of relationship among all the independent variables is therefore minimal and negligible.

The table revealed a negative correlation coefficient between audit firm size and discretionary accruals (-0.0627) of listed oil and gas marketing companies in Nigeria during the period of investigation. The relationship is not surprising because big 4 audit firms have the resources and capacity to perform high quality audit that is capable of mitigating earnings management of firms. Auditor industry

specialization is also negatively correlated with discretionary accruals (-0.1273) of listed oil and gas marketing companies in Nigeria during the study period. The low negative coefficient between auditor industry specialization and discretionary accruals of sampled companies may be because industry specialist auditors possess knowledge of industry specific accounting issues that enable them to detect questionable accounting practices of clients more easily than their counterparts.

Similarly, auditor tenure is negatively associated with the discretionary accruals of firms (-0.3400). The relationship is expected because as the length of auditor-client relationship increases, the auditor becomes more familiar with the business and accounting practices of the client. The relationship is in line with the learning curve theory which suggests improved performance associated with continuous performance of a task. In contrast, the table indicates a positive association between client importance and discretionary accruals of the sampled firms (0.5925937). The positive relationship between client importance and discretionary accruals of listed oil and gas marketing companies in Nigeria is an indication that client importance is associated with increase in earnings management of firms. The positive association is expected because as the auditor's financial dependence on a particular client increases, the auditor is likely to compromise his judgement, and allow the client more reporting discretion.

The table also reveals a positive correlation between audit committee financial expertise and discretionary accruals of the sampled firms (0.0729). The positive coefficient between audit committee financial expertise and discretionary accruals of listed oil and gas marketing companies in Nigeria indicates that audit committee financial expertise is associated with increase in earnings management of firms. Similarly, the table shows that audit committee financial expertise interaction with auditor industry specialization is negatively (- 0.1593) associated with discretionary accruals of sampled firms. The negative coefficient shows that the interaction between audit committee financial expertise and auditor industry specialization is associated with less earnings management. The negative relationship is expected because audit committee members with accounting and financial expertise working together with industry specialist auditors are likely to complement (Sun & Liu, 2013) each other and therefore become more effective in mitigating earnings management of firms due to synergy benefits enjoyed by the two governance experts.

We then estimated the linear relationship between the independent and dependent using pooled OLS and tested for multicollinearity using the variance inflation factor (VIF) and tolerance value (TV). The results of the VIF and TV revealed values that are consistently smaller than 10 and above 0.10 respectively indicating the absence of multicollinearity. The low mean VIF of 2.91 also pointed to the mild correlation that exist among the regressors. Next, we ran both fixed effect (FE) and random effect (RE) based on which Hausman specification test was carried out to enable selection of the best out of the two models. The result of the Hausman test revealed a chi^2 value of 15.24 with a p-value of 0.018, which is statistically significant. On the basis of the Hausman result, FE model was considered as the best fitted model and therefore used for analysis.

The summary of fixed effect regression result is presented in table 4 as follows:

Table 4: Summary of Fixed Effect Regression Results

Variable	Beta Coef	t-values	Prob.>t
AFS	.1561452	2.82	0.007
AIS	.0925595	2.55	0.015
ADT	-.0273476	-2.16	0.037
CLI	.0860875	3.03	0.004
AFE	.3054097	2.56	0.014
AFE*AIS	-.4013709	-2.48	0.017
R^2			0.4389
F-value			5.08
Prob.>F			0.0006

Source: STATA Output Result

Table 4 reveals an R^2 value of 0.44. The R^2,which represents the coefficient of multiple determination implies that 44% of the total variation in the dependent variable (discretionary accruals) of listed oil and gas marketing companies in Nigeria is jointly explained by the explanatory variables (audit firm size, auditor industry specialization, auditor tenure, client importance, audit committee financial expertise and interaction between audit committee financial expertise and auditor industry specialization). Though the R^2 of 0.44 may appear low, it does not constitute a problem to the study because the F- statistics value of 5.08 (Prob.>F = 0.00) indicates that the model is fit to explain the relationship expressed in the study model and further suggests that the explanatory variable are properly selected, combined and used. The nature and extent of relationship

between the dependent variable and each of the independent variables of the study in terms of coefficients, t- values and p- values are explained hereunder:

4.1 Audit Firm Size and Earnings Management

Contrary to a priori expectations, table 4 reports a positive relationship between audit firm size and earnings management of the firms that is significant at 1% based on the coefficient and t- values of 0.16 and 2.82 respectively and p- value of 0.007. The result implies that audit firm size is not able to constrain but rather increases earnings management practices of the companies. Audit firm size is expected to be negatively associated with earnings management because large audit firms have more resources to conduct high quality audits than small audit firms. Also, big audit firms have a large client base which makes them less dependent on any one client that could make them compromise their audit quality. Big audit firms also have more investment in reputation capital, which is at stake if they are found to have compromise audit quality than small audit firms.

The present finding is consistent with those of Yasar (2013), Pouraghajan, Tabari, Emamgholipour and Mansourinia (2013) and Molik, Mir, Mclver and Bepari (2013) who found a positive association between audit firm size and earnings management of sampled firms. The result however, contradicts the findings of Chen, Wu and Zhou (2006), Gerayli, Yanesari and Ma'atoofi (2011), Inaam, Khmoussi and Fatma (2012), Okolie, Izedonmi and Enofe (2013), Zhou and Guan (2014), Tyokoso and Tsegba (2015), Aliyu, Musa and Zachariah (2015) and Ching, Teh and San (2015) who documented a negative relationship between audit firm size and earnings management of firms. Based on the result, the first hypothesis of the study which states that audit firm size has no significant effect on earnings management of listed oil and gas companies in Nigeria is rejected.

4.2 Auditor Industry Specialization and Earnings Management

Table 4 also reports a beta coefficient of 0.09 and t- value of 2.55 for auditor industry specialization with a p- value of 0.02 that is statistically significant at 5%. Looking at the direction of relationship, the result indicates that auditor industry specialization was not able to constrain but increases earnings management of the sampled firms during the study period. The result however, contradicts a priori expectations which predicted a negative relationship between industry specialist auditors and discretionary accruals of the firms. Industry specialist auditors are expected to mitigate earnings management of firms because they possess industry specific experience of business operations of clients which is suppose to make them more effective than non- industry specialist auditors in

mitigating earnings manipulation of firms. Specialist auditors also invest in industry relevant and up to date audit technology that make them perform a more quality audit than their counterparts.

The result supports the finding of Zhou and Guan (2014) and Hegazy (2015) who found a positive relationship between auditor industry specialization and earnings management of firms. The result however, contradicts the finding of Habbash (2010), Gerayli, Yanesari and Ma'atoofi (2011), Inaam, Khmoussi and Fatma (2012), Ahmadzade, Hassanzadeh, Pooryegane and Ebrahimi (2012), Karimi and Gerayli (2014), Tyokoso and Tsegba (2015) and He (2015) who documented a negative association between industry specialist auditors and earnings management of firms. Based on the empirical evidence, the second hypothesis of the study which states that auditor industry specialization has no significant effect on earnings management of listed oil and gas companies in Nigeria is rejected.

4.3 Auditor Tenure and Earnings Management

Table 4 further reports a negative relationship between auditor tenure and earnings management that is significant at 5% based on coefficient and t- values of -.0273476 and -2.16 respectively and a p- value of 0.037. This result supports a priori expectations which predicted a negative relationship between auditor tenure and earnings management of oil companies in Nigeria. The result is expected because as the length of auditor-client relationship increases, he becomes more effective in detecting questionable financial reporting practices of the client as a result of the firm specific knowledge of the business environment and financial reporting practices of the client he has acquired.

Based on the empirical evidence in respect of auditor tenure, the third hypothesis of the study which states that auditor tenure has no significant effect on earnings management of listed oil and gas companies in Nigeria is rejected. The present result is consistent with the finding of Ebrahim (2001), Ahmadzade, Hassanzadeh, Pooryegane and Ebrahimi (2012), Inaam, Khmoussi and Fatma (2012), Okolie, Izedonmi and Enofe (2013), Okolie (2014), Karimi and Gerayli (2014), Tyokoso and Tsegba (2015) and Bamahros and Wan- Hussin (2015) who documented a negative relationship between auditor tenure and earnings management of firms. The result is however, inconsistent with those of Gul, Fung and Bikki (2009) and Ching, Teh and San (2015) who documented evidence of a positive association between auditor tenure and earnings management of firms.

4.4 Client Importance and Earnings Management

The table also shows a positive association between client importance and earnings management of the firms that is significant at 1% based on beta coefficient and t- values of .0860875 and 3.03 respectively and p-value of 0.004. The positive relationship between client importance and earnings management of listed oil marketing firms in Nigeria is not surprising because auditors are more likely to allow big (in terms of fee income contribution) clients more discretion in financial reporting than small clients (Sharma, Sharma & Ananthanarayanan, 2011).

Auditors are, generally, less willing to lose clients who contribute significantly to their fee income but more willing to lose clients who do not contribute much to their fees income. Therefore, when faced with the risk of losing an economically important client, most auditors are likely to compromise their judgement (Chen, Sun & Wu, 2010). The present finding lends support to the prior study of Aliyu, Musa and Zachariah (2015) who found a positive association between financial dependence of auditors and earnings management of Nigerian banks. The result however, contradicts the finding of Ebrahim (2001) and Okolie, Izedonmi and Enofe (2013) who documented a negative relationship between client importance and earnings management of firms. Based on the empirical evidence, the fourth hypothesis of the study which states that client importance has no significant effect on earnings management of listed oil and gas companies in Nigeria is rejected.

4.5 Audit Committee Financial Expertise and Earnings Management

Table 4 further reports a positive relationship between audit committee financial expertise and earnings management of the firms that is statistically significant based on coefficient and t- values of .3054097 and 2.56 respectively and p-value of 0.014. The significant positive relationship between audit committee financial expertise and discretionary accruals of the sampled firms shows that audit committee financial expertise is not able to constrain but increases earnings management of the firms during the study period.

The present finding lends support to the study of Rohaida (2011) and Molik, Mir, Mclver and Bepari (2013) who found a positive relationship between audit committee financial expertise and earnings management of firms. The result is however, inconsistent with the studies of Piot and Janin (2005) and Bamahros and Wan- Hussin (2015) who found a negative relationship between audit committee financial expertise and earnings management of firms. Based on the result, the

study rejects the fifth hypothesis which states that audit committee financial expertise has no significant effect on earnings management of listed oil and gas companies in Nigeria.

4.6 Interaction of Audit Committee Financial Expertise with Auditor Industry Specialization and Earnings Management

Finally, the table reports a negative effect of the interaction between audit committee financial expertise and auditor industry specialization on earnings management of the sampled firms that is statistically significant based on beta coefficient and t-values of -.4013709 and -2.48 respectively and p-value of 0.017. The result is expected because internal and external governance mechanisms work as complements and not substitutes (Sun & Liu, 2013). Audit committee with accounting and financial expertise working with industry specialist auditors are likely to improve the performance of each other in mitigating earnings management of firms as both of them share knowledge about industry expertise and financial expertise (Hundal, 2013; Cohen, Hoitash, Krishnamoorthy & Wright, 2014).

The result in respect of the interaction between audit committee financial expertise and auditor industry specialization suggests that auditor industry specialization improves the performance of audit committee financial expertise and vice versa in mitigating earnings management of firms. The result is in line with SEC (2011) code of corporate governance for public companies which requires audit committee members of companies in Nigeria to contain at least one member with accounting and financial expertise. Audit committee financial expertise improves the performance of industry specialist auditors and vice versa in mitigating earnings management of firms. The result also confirms the old saying that two good heads are better than one as the interaction between audit committee financial expertise and auditor industry specialization is negative and statistically significant with earnings management of the sampled firms. Based on the empirical evidence, the study rejects the sixth hypothesis which states that the interaction between audit committee financial expertise and auditor industry specialization has no significant effect on earnings management of listed oil and gas companies in Nigeria.

5. Conclusions and Recommendations

This paper provides an empirical evidence on the association between audit quality and earnings management of listed oil and gas companies in Nigeria.

Based on the result of data analysis and discussion, the paper concludes that audit firm size, auditor industry specialization, client importance and audit committee financial expertise have significant positive effect on discretionary accruals of the firms. In contrast, auditor tenure and the interaction of audit committee financial expertise with auditor industry specialization have significant negative effect on earnings management of the firms.

In line with the findings of the study, the paper recommends that public companies who hire the services of audit firms in Nigeria should judge audit firms on the basis of performance in prior assignments and not just the size of the audit firm. This is because audit firm size is not associated with less earnings management of Nigerian firms. Also, regulatory authorities in Nigeria such as SEC should come out with a policy that encourages audit firms in Nigeria to specialize along industry lines of companies listed on the Nigerian Stock Exchange (NSE). This is in view of the fact that its interaction with audit committee financial expertise effectively constrains earnings management of sampled firms. Additionally, the paper recommends auditor tenure of three years and above to a maximum of ten years stipulated by the SEC (2011) code of corporate governance for public companies in Nigeria. Auditor tenure of at least three years would enable the auditor acquire client specific experience that could make him detect questionable financial reporting practices of the firm more easily than he was at the beginning of his audit engagement while extension of auditor tenure beyond the ten years maximum stipulated by SEC code of corporate governance may impair the auditor's independence and his judgment. Auditor tenure of less than three years could deny the auditor firm specific experience, thus resulting to increase in earnings management of firms. Regulatory bodies such as SEC and Financial Reporting Council of Nigeria (FRCN) should also come out with a policy that makes it mandatory for Nigerian companies to publish both audit and non-audit fees paid to their auditors. The disclosure of both fees will enable users of audited financial statements in Nigeria to determine the level of auditor client importance and consequently, the reliance to place on the auditor's report. Finally, the requirement by the SEC code of corporate governance that audit committee membership of Nigerian companies should contain at least one member with accounting and financial expertise should be sustained and strictly enforced. This is in view of the fact that the interaction between audit committee financial expertise and auditor industry specialization is associated with less earnings management of sampled firms.

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     Special Edition                   College Station, Texas 77845 USA
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Notes:
      1.  (/m# option or -set memory-) 50.00 MB allocated to data
      2.  (/v# option or -set maxvar-) 5000 maximum variables

. edit

. *(10 variables, 54 observations pasted into data editor)

. xtset id year, yearly
       panel variable:  id (strongly balanced)
        time variable:  year, 2009 to 2014
                delta:  1 year

. summarize

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
        firm |          0
          id |         54           5    2.606233          1          9
        year |         54      2011.5    1.723861       2009       2014
         dac |         54   .1004662   .0544201    .00017    .278911
         afs |         54   .6851852   .4688031          0          1
-------------+---------------------------------------------------------
         ais |         54   .5185185   .5043487          0          1
         adt |         54   .5740741   .4991257          0          1
         cli |         54   .5925937   .3518855  .0280396          1
         afe |         54   .1450617   .1038882          0  .3333333
      afeais |         54   .0648148   .0966779          0  .3333333

. swilk dac afs ais adt cli  afe afeais

                    Shapiro-Wilk W test for normal data

    Variable |   Obs       W           V           z       Prob>z
-------------+-------------------------------------------------
         dac |    54    0.95856      2.071       1.560    0.05938
         afs |    54    0.97489      1.255       0.486    0.31336
         ais |    54    0.99908      0.046      -6.609    1.00000
         adt |    54    0.99668      0.166      -3.845    0.99994
         cli |    54    0.96620      1.689       1.123    0.13068
         afe |    54    0.96925      1.537       0.920    0.17869
      afeais |    54    0.85956      7.019       4.175    0.00001

. pwcorr dac afs ais adt cli afe afeais

             |      dac      afs      ais      adt      cli      afe   afeais
-------------+------------------------------------------------------------
         dac |   1.0000
         afs |  -0.0627   1.0000
         ais |  -0.1273   0.4640   1.0000
         adt |  -0.3400   0.0612   0.1444   1.0000
         cli |   0.2617  -0.4490  -0.4883   0.0517   1.0000
         afe |   0.0729   0.2451  -0.2023  -0.1808   0.0009   1.0000
      afeais |  -0.1593   0.3199   0.6521   0.0290  -0.2694   0.4030   1.0000
. reg  dac  afs ais adt cli afe afeais

      Source |       SS       df       MS              Number of obs =      54
-------------+------------------------------           F(  6,    47) =    2.80
       Model |  .041326045     6  .006887674            Prob > F      =  0.0207
    Residual |   .11563582    47  .002460337            R-squared     =  0.2633
-------------+------------------------------           Adj R-squared =  0.1692
       Total |  .156961865    53  .002961545            Root MSE      =   .0496

------------------------------------------------------------------------------
         dac |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         afs |  -.0030536   .0199542    -0.15   0.879    -.0431963    .0370892
         ais |   .0562648   .0315865     1.78   0.081    -.0072789    .1198086
         adt |  -.0393105   .0141635    -2.78   0.008    -.0678039   -.0108171
         cli |   .0597532   .0236181     2.53   0.015     .0122396    .1072667
         afe |   .1694277   .1163212     1.46   0.152    -.0645804    .4034357
      afeais |  -.2852075   .1478306    -1.93   0.060    -.5826042    .0121893
       _cons |   .0544501   .0295358     1.84   0.072    -.0049682    .1138684
------------------------------------------------------------------------------
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```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of dac

         chi2(1)      =     4.63
         Prob > chi2  =   0.0315

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
         ais |      5.47    0.182917
      afeais |      4.40    0.227267
         afe |      3.15    0.317884
         afs |      1.89    0.530479
         cli |      1.49    0.672086
         adt |      1.08    0.928870
-------------+----------------------
    Mean VIF |      2.91
. xtreg dac afs ais adt cli afe afeais, fe

Fixed-effects (within) regression               Number of obs      =        54
Group variable: id                              Number of groups   =         9

R-sq:  within  = 0.4389                         Obs per group: min =         6
       between = 0.0303                                        avg =       6.0
       overall = 0.0163                                        max =         6

                                                F(6,39)            =      5.08
corr(u_i, Xb)  = -0.8776                        Prob > F           =    0.0006

------------------------------------------------------------------------------
         dac |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         afs |   .1561452   .0553138     2.82   0.007     .0442626    .2680279
         ais |   .0925595    .036368     2.55   0.015     .0189983    .1661207
         adt |  -.0273476   .0126366    -2.16   0.037    -.0529076   -.0017876
         cli |   .0860875    .028457     3.03   0.004     .0285277    .1436472
         afe |   .3054097   .1193262     2.56   0.014     .0640496    .5467698
      afeais |  -.4013709   .1616201    -2.48   0.017    -.7282783   -.0744634
       _cons |  -.1081198   .0568367    -1.90   0.065    -.2230829    .0068432
-------------+----------------------------------------------------------------
     sigma_u |   .0903658
     sigma_e |   .04060853
         rho |   .83198697   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(8, 39) =     3.89                 Prob > F = 0.0019

. est store fixed

. xtreg dac afs ais adt cli afe afeais, re

Random-effects GLS regression                   Number of obs      =        54
Group variable: id                              Number of groups   =         9

R-sq:  within  = 0.2907                         Obs per group: min =         6
       between = 0.1739                                        avg =       6.0
       overall = 0.2510                                        max =         6

Random effects u_i ~ Gaussian                   Wald chi2(6)       =     17.12
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0089

------------------------------------------------------------------------------
         dac |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         afs |   .0034529   .0226553     0.15   0.879    -.0409507    .0478565
         ais |   .0709208   .0329059     2.16   0.031     .0064263    .1354153
         adt |  -.0381286   .0132749    -2.87   0.004     -.064147   -.0121102
         cli |   .0635109   .0254742     2.49   0.013     .0135824    .1134395
         afe |   .1835667   .1151158     1.59   0.111    -.0420561    .4091895
      afeais |  -.3449638   .1503477    -2.29   0.022    -.6396399   -.0502877
       _cons |   .0413093   .0332544     1.24   0.214    -.0238681    .1064868
-------------+----------------------------------------------------------------
     sigma_u |   .01678095
     sigma_e |   .04060853
         rho |   .14585752   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. est store random
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```
. hausman fixed random
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	Coefficients (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
afs	.1561452	.0034529	.1526923	.0504614
ais	.0925595	.0709208	.0216387	.0154864
adt	-.0273476	-.0381286	.010781	.
cli	.0860875	.0635109	.0225766	.0126833
afe	.3054097	.1835667	.121843	.0314182
afeais	-.4013709	-.3449638	-.0564071	.059301

```
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

  Test:  Ho:  difference in coefficients not systematic

              chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =       15.24
            Prob>chi2 =      0.0185
            (V_b-V_B is not positive definite)
```