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FIRM ATTRIBUTES AND VOLUNTARY ACCOUNTING DISCLOSURE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

The study examined firm attributes and voluntary accounting disclosure of listed Money Deposit Banks (DMBs) in Nigeria.It investigates whether profitability, liquidity, leverage, firm size and firm age influence voluntary accounting disclosure of listed DMBs in Nigeria. This was necessitated by the conflicting findings documented by studies that have associated firms' attributes and voluntary accounting disclosure. Correlational research design was adopted using secondary data extracted from a sample of 11 out of 15 listed DMBs over a period of eight years (2008-2015). The data was analyzed using panel multiple regression. To ensure the validity of the data used, fixed and random regressions were carried out and robust ordinary least square (OLS) regression was suggested after conducting lagrangian multiplier test for random effects. The results revealed that profitability, liquidity, and firm size have positively and significantly predicted voluntary accounting disclosure of listed DMBs in Nigeria. While leverage has negative and significant effect on the voluntary accounting disclosure with a firm age negatively but insignificant in explaining

voluntary accounting disclosure of listed DMBs in Nigeria. The study concludes that more profitable, liquid, leveraged and big banks voluntarily disclose accounting information more than less profitable, liquid, leveraged and smaller banks irrespective of their ages. Therefore, it is recommended among others that the management of listed DMBs in Nigeria should work hard toward attaining high profits, liquidity and leverage as well as increasing fixed assets to boost voluntary accounting disclosure in their annual reports as this enhances the confidence of prospective and existing investors.

1. Introduction

Firm attributes and the extent of information precision in firms' annual reports have become one of the topical issues in research among scholars. These attributes include but not limited to profitability, liquidity, leverage, firm size, firm age, listing status, audit firm, number of shareholders, industry type, type of auditor, type of accounting standards used, type of auditing standard used country of domicile, size of home stock exchange market, parent company relationship, firm growth, market capitalization, percentage of government ownership, percentage of individual ownership, percentage of foreign ownership and number of employees. Studies have attempted to establish relationship between the attributes and accounting disclosure (Alsaeed, 2006, Ayila, 2015, Ibrahim, 2014). Some studies have established positive relationship (such as Singhvi, 1968; Ali, Ahmed & Henry, 2004; Al-Shammari, 2005, Ayila, 2015), while others have not (Naser, Alkhatib & Karbhari, 2002; Ibrahim, 2014). The interest attached to accounting information disclosure makes it a vital ingredient to stakeholders. However, the sudden failure of large corporate entities globally has cast doubts on stakeholder's confidence on information disclosed by corporate entities. These failures according to Price water house coopers (2009) raised question about the quality of financial information disclosed. Hence, a study of this nature in the Nigerian financial institutions is important and commendable.

Disclosure of accounting information by firms may be voluntary or mandatory. The voluntary disclosure is at the discretion of management to disclose any information in the financial statements. Corporate disclosure is critical for well-functioning capital markets (Healy & Palepu, 2001). Mandated financial reporting and voluntary disclosure are two channels of corporate disclosure by which managers communicate private information with capital markets and both are relevant, as evidenced by stock price as well as liquidity changes associated with the two types of disclosures (Balakrishnan, Billings, Ljungqvist & Kelly, 2012). Understanding this relation is the first step in addressing the long-standing research question on what economic rationale justifies regulating corporate

disclosure and whether voluntary disclosure obviates the need for reporting regulations.

Mandatory disclosure practices are required by laws, regulations and are widely used in business practices. Disclosure of an item is mandatory if it is required under a regulatory regime. Mandatory items therefore consist of all items that must be disclosed in annual corporate reports, based on the requirements of International Financial Reporting Standards (IFRSs), Companies and Allied Matters Act, 1990 (CAMA'90) as amended in 2004 in case of Nigeria and relevant regulatory guidelines. In this category they are classified as common to all firms immersed in the same environment. Owusu-Ansah (1998) and Sejjaaka (2003 and 2004) assert that corporate mandatory disclosure implies the presentation of a minimum amount of information in corporate reports, sufficient to permit a reasonable evaluation of the relative risks facing by stakeholders. Such stakeholders are of the view that information that is material is enough for them otherwise it will be overloaded to the extent that material information might not be looked at.

Voluntary disclosure conversely, is that discretionary release of financial and non-financial information through annual reports over and above mandatory requirements (Barako, Hancock & Izan, 2006). It is the information made public through the firms' free choice (Adina & Ion, 2008 as cited in Albertoe, 2010). Such information includes social and environmental activities as well as future projects embarked upon by the organization include items across subjects, such as corporate information, corporate strategy, acquisitions and disposals, research and development, future prospects, corporate governance, financial review and capital market information (Meek, Roberts & Gray, 1995; Chau & Gray, 2010; Haniffa & Cooke, 2002; Akhtaruddin, Hossain, Hossain & Yao, 2009; Yuen, Liu, Zhang & Lu, 2009). Owners might be interested in knowing every activity of the firm irrespective of whether it is provided by the law or not. This study therefore, concentrates on the voluntary disclosure as it serves as an extra disclosure in addition to the mandatory disclosure considering the fact that banks are highly regulated in Nigeria.

The central argument is whether profitable, levered, liquid, bigger and older banks should have strong motives to disclose more accounting information than others? Therefore, the demand for firms' information from stakeholders is on the increase day by day. Firms see it necessary to provide adequate information to fulfill their needs and build their own reputation of company image as provision of information in firms' annual report consists of both mandatory also called institutional and voluntary called specific information (Albertoe, 2010). It is

against this background that this examines the impact of firms' attributes on voluntary accounting disclosure of listed DMBs in Nigeria. Specifically, the study is to find out the impact of profitability, liquidity, leverage, firm size and firm age of listed DMBs in Nigeria on the voluntary accounting disclosure. It is therefore hypothesized that profitability, liquidity, leverage, firm size and firm age have no significant impact on the voluntary accounting disclosure of listed DMBs in Nigeria.

The study covers eight years period from 2008 to 2015. This period was chosen because it is a period within which the Nigerian listed DMBs are looking for ways to strengthen their activities due to global financial crisis of 2008. The Nigerian listed DMBs are considered as part of the major catalyst in the financial and economic activities of the nation. The study is motivated by the expected contribution immensely to future researchers, academia, banking industry as well as government. Practically, the findings of the study is expected to be used for right decision to be taken by the industry as well as policy making by government that will affect the industry.

2.1 Theory and Evidence

Disclosure of information in corporate organization has attracted a number of researches both developed and developing countries. The voluntary disclosure information in excess of mandatory disclosure has been receiving an increasing amount of attention in recent accounting studies (Robert & Schepers, 2009). This is due to inadequacy of compulsory information to the expectations of stakeholders to make more informed decisions (Alsaeed, 2006). Disclosing corporate information is considered to be the first step in solving the alleged problems of traditional financial reporting (Leadbetter, 2000). Its objectives are well defined as it close (or narrowing) the gap between a company's potential intrinsic market value and its current market value.

Various reasons were advanced as to why the disclosure is receiving a great deal of attention in the accounting literature (Hossain, Berera & Rahman, 1995). Additional disclosures may help to attract new shareholders thereby aid to maintain a healthy demand for shares, and a share price that more fully reflects its intrinsic value. It is possible that poor disclosure could lead to an undervalued share making it attractive to a potential predator. Secondly, increased information may assist in reducing informational risk and thereby lower the cost of capital (Spero, 1979).

Several studies were conducted on the extent of the relationship between corporate attributes and levels of accounting disclosure. These attributes include

profitability, liquidity, leverage, firm size, and firm age, among others that are important in any organization. Based on the argument, managers are motivated to disclose more detailed information to support the continuance of their positions, remuneration and to signal institutional confidence (Inchausti, 1997). Firms disclose more information in order to justify the level of profit (Apostolos & Konstantinos, 2009; Karim, 1996; Samir & Fornaro, 2003; Meek, Roberts & Gray, 1995). Profitable companies are expected to disclose more information about their performance due to the fact that, it is among the basis for justifying their performance and ab initio is profit oriented. In addition, management of a profitable firm may wish to disclose more information to the public to promote a positive impression (Alsaeed, 2006). However, the empirical evidences are mixed. Haniffa and Cooke (2002), Gul and Leung (2004) and Cheng and Courtenay (2006) established significant positive association between profitability and accounting disclosures. Whereas Ho and Wong (2001), Alsaeed (2006), Hossain and Hammami (2009), Wallace, Naser and Mora (1994). Inchausti (1997) and Chau & Gray (2010) established no significant association due to the sampled used and the environment. Bujaki, (2002) corroborate that firm facing a slowdown in revenues tend to increase their disclosure practices. Firms which have experienced losses for several years have also been argued to have the tendency to engage in lower financial reporting quality. Small or less profitable firms may lack necessary resources for collecting and disseminating information due to cost constraints (Buzby, 1975) but large firms according to Firth (1979) have the capacity to collect and disseminate information needed for their internal control. A counter argument is that unprofitable undertakings are also inclined to release more information to defend their poor performance (Owusu-Ansah, 1998).

Companies with high liquidity levels are more likely to disclose more information to show their superior performance to investors, regulatory authorities and lenders that they can fulfill their short term obligations. However, companies with low liquidity levels may also disclose more information to avoid shareholders claims, and to prove that management is aware of the company's problems (Wallace, Naser & Mora, 1994; Wallace & Naser, 1995; Alsaeed, 2006). On the other hand, Liquidity has not been an important firm characteristic that is widely used as an explanatory variable in previous studies (Nandi & Ghosh, 2012). This is because, firms holding large amount of current assets (high liquidity) may not employ such funds held in current assets to earn a higher rate through investments in quick business opportunities. This may raise doubts among providers of equity funds about the firms' efficiency in managing its short term finances (Nandi & Ghosh, 2012). Under such a situation, they added such a firm may not be a good choice among the investing community. In order to relieve the anxiety of the stakeholders including that of the investing community and to earn their

patronage, the firm may feel extremely motivated to provide adequate information relating to its operational efficiency (Nandi & Ghosh, 2012). Based on this proposition it is expected that liquidity is positively correlated with the corporate disclosure level. In a study by Naser, Al-Khatib and Karbhari (2002) a positive association was observed between the degree of corporate disclosure and liquidity. Cooke (1989) argued that the soundness of the firm as portrayed by high liquidity is associated with greater disclosure level. Belkaoui and Kahl (1978) on the other hand established no relationship between liquidity and disclosure level. Wallace and Naser (1995) have reported a significant negative association between liquidity and disclosure level for unlisted Spanish companies.

Leverage describes a company's financial structure, and measures the long term risk implied by that structure (Watson, Shrives & Marston, 2002). Firms which have higher debt in their capital structure are prone to higher agency cost (Alsaeed, 2006). Information disclosure may be used to avoid agency costs and to reduce information asymmetries (Inchausti, 1997). Hence, leveraged firms have to disclose more information to satisfy information needs of the creditors (Uyar & Kılıc, 2012a). Previous studies proved no significant association between leverage and the level of voluntary disclosure (Wallace, Naser & Mora, 1994; Inchausti, 1997; Ho & Wong, 2001; Aksu & Kosedag, 2006; Alsaeed, 2006; Huafang & Jianguo, 2007; Chau & Gray, 2010), while some reported a positive significant association (Hossain, Perera, & Abdul rahman, 1995). In contrast, Eng and Mak (2003) established a negative significant association.

Most of the studies established that size of firm does affect the level of disclosure according to New, Warsame and Pedwell, (1998), Ahmed and John (1999), Adams, Hill and Roberts (1998), Barako, Hancock and Izan (2006), Aripin, Tower and Taylor (2008), Watson, Shrives and Marston (2002), Da-Silva and Christensen (2004), Wallace, Naser and Mora (1994), Samir, James & Fornaro, (2003) and Ho, (2001). They established that the larger the firm, the larger the disclosures. According to them, larger firms disclose more information as the managers are more likely to realize the possible benefits of better disclosure and there is control to small companies which feel that full disclosure of information could endanger their competitive position. In addition, larger firms are more exposed to public scrutiny than smaller firms; they are inclined to disclose more information (Alsaeed, 2006). Large firms are likely to be more complex and complexity requires more disclosure (Cooke, 1989). Moreover, Singhvi & Desai (1971) conclude that corporations that disclose inadequate information are likely to be small in size. On the contrary, Dulacha (2007) and Hossain, Islam and Andrew (2006) suggested that firm size does not affect the level of corporate disclosure.

Company age as well has been assessed in few studies (Owusu-Ansah, 1998; Akhtaruddin, 2005 and Alsaeed, 2006) even though some studies take it as a control variable. Older companies are more likely to disclose information than new one, because of the ease and low cost of collecting and analyzing data, presence of track records and stability in the market. Moreover, Camfferman & Cooke (2002) suggest that age of a company should be investigated by future studies. The extent of a company's disclosure may be influenced by its age, which is a stage of development and growth (Owusu-Ansah, 1998; and Alfaraih & Alanezi, 2011). Older firms that are well-established are likely to disclose more than younger companies (Sejjaaka, 2003). This is based upon arguments that new companies may encounter difficulty in making changes to comply with the requirements of the law (Abbott, Park & Parker, 2000). Owusu-Ansah (1998) and Sejjaaka (2003) further opined that the competition argument proposes that young companies are not likely to disclose full information about their financial results and position, because this may prove to be detrimental if sensitive information is disclosed to the established competitors due to the fact that younger companies suffer competitive disadvantage through early disclosure of proprietary information.

The theories that underpin this study are agency and signaling theories as used by Ogwe (2014) and Ibrahim (2014). Agency theory was propounded by Jensen and Meckling (1976) who defined the agency relationship as "a contract under which one or more persons (the principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent." Agents correspond to managers, whereas principals correspond to shareholders from a companies' perspective. The agency relationship leads to the information asymmetry problem due to the fact that managers can access information more than shareholders (Jensen &Meckling, 1976). Voluntary disclosure is a means of mitigating the agency problem, where managers disclose more voluntary information reducing the agency costs and also to convince the external users that managers are acting in an optimal way.This theory has been widely used by accounting researchers to explain and understand voluntary disclosure phenomena in many countries with different social, political and economic background (for example Cooke, 1989b; Meek, Roberts & Gray, 1995; Depoers, 2000). According to agency theory, disclosing additional information by companies‟ managers on a voluntarily basis tends to reduce the agency costs resulting from conflicts between companies‟ managers and shareholders. It also considers corporate annual reports disclosure as a mechanism to decrease information asymmetry between the company insiders (as agents) and outsiders‟ investors (as principals) (Hawashe, 2014)

Although the signaling theory was originally developed to clarify the information asymmetry in the labour market (Spence, 1973), it has been used to explain voluntary disclosure in corporate reporting. As a result of the information asymmetry problem, companies signal certain information to investors to show that they are better than other companies in the market for the purpose of attracting investments and enhancing a favorable reputation. Voluntary disclosure is one of the signaling means, where companies would disclose more information than the mandatory ones required by laws and regulations in order to signal that they are better. Based on the signaling theory viewpoint, companies' managers are interested in disclosing good news to the market participants in order to avoid the undervaluation of their shares. Additionally, managers of firms who are more interested to disclose additional information voluntarily bear in mind that this guarantees a good signal about their performance and weakens information asymmetry (Khlifi & Bouri, 2010). Signaling theory suggests that voluntary information disclosure in corporate annual reports can be used as a signal in order to improve the corporate image/reputation, attract new investors, lower capital costs and also help to improve its relationships with the relevant stakeholders, (Hawashe, 2014).

3.1 Methodology and Data

This section discusses the methodology used in the study to achieve the research objectives. A correlation research design was adopted to describe the statistical association between the dependent and independent variables of the study. The study used five explanatory variables against one dependent variable in order to assess the extent of their relationship. The population of the study includes all the fifteen (15) listed DMBs in Nigeria as at 31st December, 2015 on the floor of the Nigerian Stock Exchange (NSE). The major activities carried out by the banks are the provision of financial services ranging from deposit, issuing loan, among others. Due to non -availability of data, the study filter out some banks on the ground that, they don't have published financial statement as par scope of the study. The banks that were filter out are Eco Bank of Nigeria Plc; Skye Bank Plc; Stanbic IBTC Bank Plc and Union Bank of Nigeria Plc. The remaining banks used as sample for the study are shown in table 3.1 below:

Table 3.1 Sampled Banks

S/N	Bank Names
1	Access Bank Plc
2	Diamond Bank Plc
3	Fidelity Bank plc
4	First Bank of Nigeria Plc

5	First City Monument Bank Plc
6	Guaranty Trust Bank Plc
7	Sterling Bank Plc
8	United bank for Africa Plc
9	Unity Bank plc
10	Zenith Bank Plc
11	Wema Bank Plc

Source: Compiled by the author, 2016

However, the study used secondary source of data. Data of the dependent variable (Voluntary Accounting Disclosure) was collected through voluntary disclosure index checklist. A disclosure checklist has been used as a research instrument in numerous disclosure studies such as Buzby (1974), Cooke (1989), Qu (2011) and Ibrahim (2014). Data of the five (5) explanatory variables were extracted from the Annual Reports and Accounts of the sampled listed DMBs on the Nigerian Stock Exchange as at 31st December, 2015. The study adopts the disclosure check list by Ibrahim, (2014) since there is no agreed theory on the number and the selection of the items to include in a disclosure checklist as noted by (Wallace, Naser & Mora, 1994).

Table 3.2: shows items considered in the disclosure check list

Table 3.2: Disclosure checklist items

S/N	**Items**
1	Financial highlights
2	Quantitative forecast of performance for the next year
3	Share price at accounting year end
4	Corporate social responsibility report
5	Corporate governance information
6	Performance trend for the past five years using graphs
7	Environmental liabilities and cost
8	Donations analysis
9	Risk management issues associated with the organization
10	Unclaimed dividend analysis
11	Information about future investments

Source: Compiled by the author, 2016

There are two important and contentious issues in previous researches on the scoring of disclosure items (Barako, 2007). The issues are whether the disclosure items should be weighted or unweighted. He argues that both approaches have been criticized. The weighted approach may introduce a bias towards a particular

user-orientation. The unweighted approach dwells on the fundamental assumption that all items are equally important, which may not necessarily be true. According to Umoren and Peace (2011), the major argument against weighted approaches is that one class of user will attach different weights to an item than another class and that the subjective weights of user groups will average each other out. On this basis the study used unweighted approach for scoring. Cooke (1989) is the first scholar that proposes it and hence it is generally refer to as Cooke index.

The study adopt multiple regression analysis as it test the relationship between one variable on another variable after conducting relevant validity and reliability test such as hettest, multicolliniarity using Variance Inflation Factor (VIF) and Tolerance Value (TV), fixed and random effect, hausman specification test, to prove it the most appropriate. Also, robustness test was conducted after running lagrangian multiplier test for random effects.

3.1.1 Model Specification

The model used to test the hypotheses of the study is specified as follows:

$$vdisl_{it} = \alpha_{0it} + \beta_2 prof_{it} + \beta_3 liqd_{it} + \beta_4 levg_{it} + \beta_1 fsiz_{it} + \beta_5 fage_{it} + \ldots\ldots\ldots\ldots\ldots\ldots \epsilon_{it}$$

Where:

Vdisl =	Voluntary Disclosure Index
α_0 =	Constant
$\beta_1..\beta_5$ =	Beta co-efficient
prof =	Profitability
liqd =	Liquidity
levg =	Leverage
fsiz =	Firm size
fage =	Firm age

3.1.2 Variable measurement

The measurement used in the study in relation to both dependent and independent variables are given in the below:

Table 3.3 Dependent and Independent variable measurement

Variables	Operationalization	Source
Voluntary Disclosure	Measured as an index that indicates level of company's compliance. 0 if no information, 1 for minimal and insufficient information and 2 for sufficient and detailed	Ibrahim (2014)

	information	
Firm Size	Log of total assets measured as book value of non-current assets plus current assets	Ayila (2015), Barako (2007), Alfraih and Almutawa (2014), Ibrahim (2014) and Akbas, Canikli and Seda (2014)
Profitability	Return on Assets measured as the ratio of net profit after tax to total assets	Akbas, Canikli and Seda (2014), Hossain (2008) and Shehata, Dahawy and Isma'il (2014)
Liquidity	The ratio of current assets to current liabilities	Alfraih and Almutawa (2014), Barako (2007) and Shehata, Dahawy and Isma'il (2014)
Leverage	The ratio of total debts to total assets	Akbas, Canikli and Seda (2014), Uyar, Kilic and Bayyirt (2013) and Alfraih and Almuatawa (2014)
Firm age	Number of years that have passed since incorporation	Akbas, Canikli and Seda (2014), Alfraih and Almuatawa (2014), Hossain (2000) and Shehata, Dahawy and Isma'il (2014)

Source: Compiled by the author, 2016

4.1 Result, Analysis and Interpretation

Descriptive and inferential statistics of the data collected for the study are presented, discussed and interpreted. The descriptive statistics of the variables are discussed first, and then the correlation matrix of the variables of the study. This is followed by the presentation, interpretation and discussion of the regression results and test of hypotheses of the study. The discussion of the major findings of study and the policy implications of the findings form the last discussion under the heading. The summary of he descriptive statistics of the data is presented in table 4.1.

Table 4.1 Summary of Descriptive statistics of the variables

Variable	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis

Vdisl	10.14352	6.222165	2	27.5	0.0001	0.1088
Prof	8.983317	2.089095	6.391742	12.96418	0.0731	0.0000
Liq	7.721947	3.57766	.012776	12.96418	0.0006	0.3071
Levg	.0875579	.066263	.00354	.231096	0.0873	0.0019
Fsiz	27.78802	.7320875	26.0494	28.95286	0.0308	0.1817
Fage	26.68182	12.94155	2	55	0.0031	0.4806

Source: Stata Output, 2016

Table 4.1 depicts the descriptive statistics. The average voluntary disclosure reported by the sample firms is 10.14, with standard deviation of 6.22 signifying that the data deviate from the mean value by 6.22. It can be deduced from the result that there is a wide dispersion between the mean and the standard deviation. This indicates that there is much gap between voluntary disclosures of the sample firms. The minimum voluntary disclosure among the sample firms is 2 with a maximum of 28. The low amount of voluntary information disclosed in the body of financial reports could be explained on the basis that this type of information is voluntary in nature, and no effective regulations enforce firms to reveal it. However, the coefficient of Skewness 0.001 implies that the data the condition of being symmetrically distributed suggests a value of 0 for Skewness. The kurtosis of 0.1088 implies that the data does not meet a Gausian distribution which suggests 0 kurtosis.

Similarly, profitability as one of the proxy has mean average of 8.98 with a standard deviation of 2.09. It also has a minimum and maximum of 6.39 and 12.96 respectively. This implies that the average profit for the sample firms is ₦8.98 billion, while the minimum and maximum profits are ₦6.39 billion and ₦12.96 billion respectively. On the other hand, the coefficient of Skewness 0.0731 implies that the data is positively skewed, and thus, the data does not meet the symmetrical distribution, which suggests a value of 0 for Skewness. The kurtosis value of 0.0000 also shows that most of the values meet a Gausian distribution of zero kurtosis.

The summary statistics with respect to liquidity shows minimum and maximum values of 0.012776 and 12.96418 respectively. On average in the sample firms the mean value of 7.721947 with the standard deviation of 3.57766. This implies that the sample firms maintained a minimum of ₦1.3 billon liquid and maximum liquid of ₦13 billion. Also on the average the sampled firms maintained an average liquid of ₦8 billion with dispersion among them of ₦3.6 billion. The coefficient of Skewness 0.0006 implies that the data is normally distributed, and therefore conform to the symmetrical distribution requirement. Moreover, the

coefficient of Kurtosis of 0.3071 indicates that the liquidity variable does not meet the Gausian distribution criterion.

The descriptive statistics in Table 4.1 shows that on average the leverage during the period covered by the study is 8.76%, from the mean value of 0.0875579 with standard deviation of 0.066263. This implies that the data deviate from the mean by 6.63%.The standard deviation suggests that the data is widely dispersed because it is closer to the mean. The minimum and maximum values of leverage as measured are 0.00354 and 0.231096 respectively. This implies that the minimum debt by the samples firms is ₦0.35 billion with a maximum of ₦23 billion. The coefficient of Skewness 0.0873 implies that the data is positively skewed, and therefore does not conform to the symmetrical distribution requirement of normal data. Similarly, the coefficient of Kurtosis 0.0019 also supports that the variable does not meet the Gausian distribution criterion of the normal data.

Table 4.1 also indicates that, the minimum and maximum values of firm size are 26.0494 and 28.95286 respectively, with the mean value of 27.78802 and standard deviation of 0.7320875. This implies that the minimum total assets of the sample firms are ₦26 with a maximum of ₦28 billion. The average total assets of the sample firms are ₦27.79 billion with a deviation of ₦7.32 billion. The coefficient of Skewness 0.0308 implies that the data is positively skewed, and therefore does not conform to the symmetrical distribution requirement. Moreover, the coefficient of Kurtosis 0.1817 indicates that the firm size as one of the proxy does not meet the Gausian distribution criterion.

Table 4.1 also shows that, the average firm age of the sampled DMBs in Nigeria is 27 years, from the mean value of 26.68182 with standard deviation of 12.94155. This implies that the data is not widely dispersed from the mean value. The minimum number of years in operation by the sample firms statistically is 2 years and 55 years maximum. The coefficient of Skewness 0.0031 implies that the data is positively skewed, and therefore does not conform to the symmetrical distribution requirement of normal data. Similarly, the coefficient of Kurtosis 0.4806 also indicates that the variable does not meet the Gausian distribution assumption of normal data.

The data collected for the variables of the study to a large extent is not normally distributed as indicated by the descriptive statistics. The study therefore adopts Shapiro Wilk test to find statistical evidence as to whether the dataset follows a normal curve or not. The results of data normality test for the variables are presented in table 4.2 as follows:

Table 4.2 Normality test result

Variables	W	V	Z	P-Values	N
Vdisl	0.90646	6.945	4.269	0.00001	88
Prof	0.92812	5.337	3.689	0.00011	88
Liq	0.87185	9.514	4.962	0.00000	88
Levg	0.92861	5.300	3.674	0.00012	88
Fsiz	0.95361	3.444	2.724	0.00322	88
Fage	0.84745	11.326	5.346	0.00000	88

Source: Stata Output, 2016

In determining the normality of the data, null hypothesis principle was used in the Shapiro-Wilk (W) test, that the data is normally distributed is tested. Table 4.2 indicates that data from the variables of the model are not normally distributed because the P-values are significant at 1% for vdisl; liq; and fage, while prof.; levg and fsiz variable, which is significant at 5%. Therefore, the null hypothesis (that, the data is normally distributed) is rejected for vdisl, liq and fage while the study failed to reject for the prof, levg, and fsiz. This may lead to some problems in OLS regression and, hence the need for a more generalized regression models. The inferential statistics of the data collected from which the hypotheses of the study are tested are presented and interpreted subsequently after analyzing the descriptive statistics and test for normality.

Table 4.3 Correlation Results

Variables	vdisl	Prof	liq	levg	fsiz	fage
Vdisl	1.0000					
Prof	0.6487	1.0000				
	0.0000					
liq	0.3656	0.4180	1.0000			
	0.0005	0.0001				
levg	-0.1025	0.2164	0.1351	1.0000		
	0.3420	0.0428	0.2095			
fsiz	0.2027	-0.0040	-0.1843	0.0062	1.0000	
	0.0582	0.9707	0.0857	0.9545		
fage	-0.0589	0.0775	-0.1224	0.1030	-0.0455	1.0000
	0.5855	0.4732	0.2558	0.3397	0.6739	

Source: Stata Output, 2016

Table 4.3 shows that voluntary disclosure is 65% positively associated with profitability and significant at 1% level. This signifies that the higher the profit, the higher the level of voluntary disclosure by the sampled firms. The table also shows the correlation coefficient between voluntary disclosure and liquidity of

37%. This positive correlation is also significant at 1% level indicating that those firms with high liquidity are likely to disclose more voluntary disclosure. Leverage is negatively associated with voluntary disclosure of listed DMBs in Nigeria and not significant at all level of confidence with p-value of 0.3420. This signifies that increase in leverage results to decrease in the level of voluntary disclosure the sampled listed DMBs in Nigeria. The result from the table also indicates that there is a positive relationship between level of voluntary disclosure and firm size from the correlation coefficient of 20% which is significant at 10% level with p-value of 0.0582. This implies that as firm size increase, equally the level of voluntary disclosure increase of the sampled firms. The table also shows insignificant statistical negative relationship between voluntary disclosure and firm age of 6% from the correlation coefficient of -0.0589 which is not significant at all level with p-value of 0.5855. This implies that as the firm age increase, the level of voluntary disclosure decrease.

The table 4.3 however shows that the correlation among the explanatory variables (in particular profitability and liquidity; profitability and leverage; profitability and firm age; liquidity and leverage; leverage and firm size and leverage and firm age) ranges between 1% and 42%. Profitability has the highest positive correlation of 42% with liquidity which is significant at 1% level. However, this high correlation would not pose any problem to our analysis. The correlation coefficient of leverage and firm size is only 1% and not significant at all level, while the correlation coefficient between the remaining positive once shows that there is no presence of serious multicolliniarity among the regressors. However, there is negative correlation between profitability and firm size, liquidity and firm size, liquidity and firm age as well as firm size and firm age of 0.04%, 18%, 12%, and 5% respectively. The relationships among the proxies with negative correlations are not significant at all level.

Similarly, the study conducted multicolliniarity test using VIF and TV. The result of the test is presented in table 4.4:

Table 4.4 VIF and Tolerance values

Variables	VIF	1/VIF
prof	1.31	0.761278
liq	1.28	0.780883
levg	1.06	0.940828
fsiz	1.05	0.948688
fage	1.05	0.952385

Source: Stata Output, 2016

Table 4.4 reveals that the variables used do not pose multicolliniarity problem. This is evident from their VIF values being less than 10 and tolerance values being greater than 0.10 as rule of thumb (Gujarati, Dawn & Porter, 2009). This is in agreement with the assumption of classical regression model which states that there should not be multicolliniarity among the regressors included in the model. Also, Heteroscedatiscity test was conducted to find out whether the disturbances appearing in the population regression function are homoscedastic (same variance). Breusch-Pagan's test for heteroscedasticity was conducted. The result as presented in Appendix (A) produces the value of chi square of 6.06 with its probability of 0.0138 which is significant at 5%. This indicates the presence of heteroscedasticity. To address this, robustness test was conducted. The result of the test, as detailed in appendix (A) reveals that the model can be relied upon for drawing statistical inferences.

Considering the panel attributes of the study, fixed and random effect tests were carried out. The results of these are presented in appendix (A). Hausman specification test was carried out to give direction as to the one (fixed or random) to choose, the result of which reveals probability greater than chi-square of 0.1629. On this basis, result for random effect test was to be used for analysis and derivation of logical inferences. The decision is subject to the result of lagrangian multiplier test in which if it is significant, random effect will be used, otherwise OLS robust regression will be used. The result shows that Breusch and pagan lagrangian multiplier test for random effects (1.0000) is not significant as shown in table 4.5 below. Therefore, robust OLS regression will be used in drawing statistical inferences because there are no panel effects in the data. Table 4.5 below shows the regression summary result.

Table 4.5: Summary of Regression result

OLS Model		**Fixed Effect Model**		**Random Effect Model**
Variables	**Statistics**	**Variables**	**Statistics**	**Statistics**
R^2	0.5541	R^2 Within	0.5165	0.4740
Adj. R^2	0.5269	R^2 Between	0.0042	0.7810
F-Stat	20.38	R^2 Overall	0.0374	0.5541
Prob>F	0.0000	F-Stat	15.38	
Hausman test:	**Specification**	Prob>F	0.0000	
Hausman Chi2 = 7.88		Wald Chi2		168.81
Prob>Chi2 = 0.1629		Prob>Chi2		0.0000
Breusch & Pagan Lagrangian Multiplier test for Random Effects:				
Chi2 = 0.00				

Prob>Chi2 = 1.0000

Source: Stata Output, 2016

Table 4.5 indicates that the variables of the firm attributes (Profitability, liquidity, leverage, firm size and firm age) explained around 55.41% of the variations against voluntary accounting disclosure of listed DMBs in Nigeria, from the overall coefficient of multiple determinations of R^2 value of 0.5541. The table also shows that the model is fitted as evident by the Wald Chi2 of 168.81 which is at 99% confidence level as shown by the P-Value of 0.0000. On this basis table 4.6 presents robustness tests conducted on the data of the sampled firms for the study and followed by test of hypothesis:.

Table 4.6: Robustness regression result

Variables	Coef.	P-Value
Prof	1.947081	0.000
Liq	.2981986	0.000
Levg	-24.42335	0.000
Fsiz	2.007505	0.011
Fage	-.0239595	0.254
Cons	-62.65725	0.005

Source: Stata Output, 2016

The study tested the hypotheses formulated for the study, in view of the robustness of the results, which can be considered as best linear unbiased estimators. Table 4.6 above presents the coefficients of the variables of the study from which the hypotheses are tested. From the result profitability has a significant positive impact on voluntary accounting disclosure of listed DMBs in Nigeria as indicated by the coefficient of 1.947081 which is significant at 1% from its P-value of 0.000. This means, firms profit is important in improving the level of voluntary accounting disclosure of listed DMBs in Nigeria. Therefore, the study rejects the null hypothesis which states that, profitability has no significant impact on the voluntary accounting disclosure of listed DMBs in Nigeria. Therefore, the study infers that profitability has significant positive impact on the voluntary accounting disclosure of listed DMBs in Nigeria. The result is consistent with that of Hossain (2008), Agyei-Mensah (2012), Soliman (2013), Alfraih and Almutawa (2014), Ogwe (2014) and contrary to Haneh (2009), Rouf (2011) and Ibrahim (2014) findings that reports insignificant relationship. The positive statistical significant relation between firms' profitability and the voluntary accounting disclosure also corroborate the argument of Meek, Roberts and Gray (1995) and of Hossain and Hammami (2009). Also according to Wang, Sewon and Claiborne (2008) as the firms' earnings increase, managers have

incentives to supply more information to the market in order to signal quality. Firms with good performance feel persuaded by the social contract to perform voluntary reporting of their activities and results. According to the signaling theory, it was expected that managers of companies that are performing well disclose more information about their present situation, in order to send signs to the market about the quality of the companies they manage (Alivar, 2006). Agency theory also suggests that managers of profitable firms tend to disclose more information to support the prolongation of their positions and compensation arrangements (Inchausti, 1997).

Similarly, the results also indicated significant positive impact of liquidity on the level of voluntary accounting disclosure of listed DMBs in Nigeria. This is evident from the coefficient of 0.2981986 which is significant at 1% from the p-value of 0.000. This implies that liquidity contributes significantly in improving the level of voluntary accounting disclosure of listed DMBs in Nigeria. As such, the study therefore rejects the null hypothesis which states that liquidity has no significant impact on the voluntary accounting disclosure of listed DMBs in Nigeria. The study therefore infers that liquidity has significant positive impact on the voluntary accounting disclosure of listed DMBs in Nigeria during the period covered by the study. The result is consistent with Barako (2007), Shehata, Dahawy and Ismail (2014), Albitar (2015) findings and contradicts Ayila (2004), Uyar, Kilic and Bayyurt (2013) and Alfraih and Almutawa (2014).

Yet, the results from the table however shows that leverage has a negative significant impact on the voluntary accounting disclosure, from the coefficient of -24.42335 which is significant at 1% levels from the p-value of 0.000. This means that as leverage increase, voluntary accounting disclosure reduce. Therefore, leverage and voluntary disclosure move in opposite direction. Based on this evidence, the study reject the null hypothesis which states that leverage has no significant impact on voluntary accounting disclosure of listed DMBs in Nigeria. The result supports the findings of Meek, Roberts and Gray (1995), which show a significant negative relationship between leverage and voluntary accounting disclosure. Also, Celik, Ecer and Karabacak (2006), Barako (2007) and Ogwe (2014) corroborate with the finding of this study. This study contradicts Mitchell, Chia and Loh (1995), Hossain, Perera and Abdul-Rahman (1995), Robbins and Austin (1986) and Juhmani (2013) that show a positive relationship. Notwithstanding, studies by Chow and Wong-Boren (1987), Mckinnon & Dalimunthe (1993), Ahmed and Nicholls (1994) and Aitken, Hooper and Pickering (1997) do not support the relationship. Although, agency theory suggests that the level of information disclosure increases as the leverage of the firm grows. But, Ahmed and Nicholls (1994) argued that in countries where

financial institutions are the primary source of company funds, there is an expectation that companies, which have large sums of debt on their statement of financial position will disclose more information in their annual reports.

On the contrary, the results from the table indicates that firm size has a positive impact on voluntary accounting disclosure of listed DMBs in Nigeria considering the coefficient of 2.007505 and p-value of 0.011 which is significant at 5%. This suggest that suggests that firm size has a direct influence on the level of voluntary accounting disclosure. Thus, based on statistical evidence, this study reject the null hypothesis which states that firm size has no significant impact on the voluntary accounting disclosure of listed DMBs in Nigeria. This implies that, as firm size increase, voluntary accounting disclosure will also increase in same direction. This study corroborate with the findings of Cooke (1989), Eng and Mak (2003), Celik, Ecer and Karabacak (2006), Wang, Sewon and Claiborne (2008), Zadeh and Eskandari (2012), Soliman (2013) and Ogwe (2014). This positive statistical significant result between the firm size and voluntary accounting disclosure can be also explained by the fact that larger firms make a more extensive use of the capital markets and have a greater number of analysts following those (Lang & Lundholm, 2000). Furthermore, firms that feel more observed tend to increase the level of disclosure to keep their reputation and ensure their survival (Alivar, 2006). This result supports the argument that large firms usually disclose more information, compared to smaller companies, because larger firms have more agency costs and a wider ownership distribution, as such they are obliged to disclose more information. On the other hand, Naser, Alkhatib and Karbhari (2002) and Akhtaruddin (2005) reported negative relationship.

Lastly, table 4.6 did not document a statistical significant association between firm age and voluntary accounting disclosure of listed DMBs in Nigeria, from the coefficient of -0.0239595 with p -value of 0.254, which is statistically not significant at all level. This implies that the level of voluntary accounting disclosure is not affected by the firm age of the sampled firms or the number of years in the business. Based on this, the study failed to rejects the null hypothesis which states that firm age has no significant impact on voluntary accounting disclosure of listed DMBs in Nigeria. The study infers that firm age in the sampled listed DMBs in Nigeria has not contributed towards voluntary accounting disclosure during the period covered the study. The result corroborate with Bushee, Matsumoto and Miller (2003), Akhtaruddin (2005), Hossain (2008) and Zadeh and Exkandari (2012). On the contrary, Soliman (2013), Hasan and Hosain (2015) reported a positive and significant association between firm age and voluntary accounting disclosure.

5.1 Conclusion and Recommendations

This study examined the relationship between firms' attributes and voluntary accounting disclosure of listed DMBs in Nigeria. Specifically, the study assessed the impact of profitability, liquidity, leverage, firm size and firm age on the voluntary accounting disclosure of listed DMBs in Nigeria. From the tests conducted on the data collected and the analysis of the results, this study found that firms' attributes examined are strongly associated with voluntary accounting disclosure of listed DMBs in Nigeria, except firm age which has no significant impact on the voluntary accounting disclosure of listed DMBs in Nigeria. The regression results indicated that the variables of firms' attributes explained more than 55.41% of the total variation on voluntary accounting disclosure of listed DMBs in Nigeria at 99% confidence level during the period covered by the study. This means 44.59% are explained by other factors not covered. This suggests that, firms' attributes covered of listed DMBs in Nigeria have impact on the voluntary accounting disclosure of the sampled firms.

Therefore, based on the findings, the study concluded that firms' attributes have significant impact on voluntary accounting disclosure of listed DMBs in Nigeria. That is, firms' attributes examined in this study except firm age have improved the voluntary accounting disclosure information of listed DMBs in Nigeria during the period covered by the study. In particular, the study concludes that profitability, liquidity and firm size have a significant positive impact on voluntary accounting disclosure of listed DMBs in Nigeria. On the contrary, the study also, concludes that leverage has significant negative effect on voluntary accounting disclosure of listed DMBs in Nigeria. Finally, the study concludes that firm age has negative insignificant effect on voluntary accounting disclosure of listed DMBs in Nigeria. On this, it is infers that improving these attributes could enhance voluntary accounting disclosure for those with positive relationship.

In line with the findings and the conclusions of the study, the study recommends that relevant policy makers and regulators should intensify regulations, surveillances and monitoring listed DMBs in Nigeria due to the evidence of voluntary accounting disclosure that is associated with the firms attributes examined. Particularly, they should make it a policy that listed firms examined should consider disclosing firms' information voluntarily. Specifically, the following recommendations are offered:

i. The managements and regulators of the examined listed DMBs to improve on the voluntary accounting information disclosure in their annual reports. This will enhance the confidence of their investors and satisfying their customers, thereby improve their profitability. This can be achieved by employing uniform

policy that will make them disclose more information voluntarily looking at the profit being among firms main objective. Also, regulatory bodies in Nigeria have got some implications that they are expected to guide firms toward the best practices of voluntary disclosures since firms look for such guidance. They should play a motivating role in this new era of information disclosure.

ii. The managements and regulators of the examined firms should maintained minimum liquid to reduce extra cost attached to holding unnecessary liquid assets. This is due to the fact that, liquidity has a strong statistical positive relationship with voluntary accounting disclosure. This can be achieved by ensuring that working capital management concept is strictly adhered and applied accordingly. This implies that, they should not keep excess cash or having less cash at their disposal.

iii. The management and regulators of examined listed DMBs in Nigeria should abscond from keeping high level of leverage as it has negative relationship with voluntary accounting disclosure of listed DMBs in Nigeria. This can be achieved by setting a bench mark in the debt limit that will make them not to disclose voluntary accounting information. Leverage level of up to 50% per cent of total assets is considered high. Therefore, capital structure should be perfectly design.

iv. The management and regulators of examined listed DMBs in Nigeria should ensure that firms assets are judiciously utilized and replace as and when due. This is because firm size has a statistically significant positive relationship with voluntary accounting disclosure of listed DMBs in Nigeria. This can be achieved by setting a committee that will be responsible in check-meting the durability of the assets and to ensure that all the branches have required assets.

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Appendix A

```
  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
___/   /   /___/   /   /___/   11.2   Copyright 1985-2009 StataCorp LP
  Statistics/Data Analysis             StataCorp
                                       4905 Lakeway Drive
     Special Edition                   College Station, Texas 77845 USA
                                       800-STATA-PC        http://www.stata.com
                                       979-696-4600        stata@stata.com
                                       979-696-4601 (fax)
Single-user Stata license expires 31 Dec 9999:
       Serial number:  71606281563
         Licensed to:  STATAForAll
                       STATA
Notes:
      1.  (/m# option or -set memory-) 50.00 MB allocated to data
      2.  (/v# option or -set maxvar-) 5000 maximum variables
Checking http://www.stata.com for update... host not found
unable to check for update; verify Internet settings are correct.

. edit

. *(9 variables, 88 observations pasted into data editor)

. xtset0
unrecognized command:  xtset0
r(199);

. xtset0 vdisl prof liq levg fsiz fage
unrecognized command:  xtset0
r(199);
. sum vdisl prof liq levg fsiz fage
```

Variable	Obs	Mean	Std. Dev.	Min	Max
vdisl	88	10.14352	6.222165	2	27.5
prof	88	8.983317	2.039095	6.391742	12.96418
liq	88	7.721947	3.57766	.012776	12.96418
levg	88	.0875579	.066263	.00354	.231096
fsiz	88	27.78802	.7320375	26.0494	28.95286
fage	88	26.68182	12.94155	2	55

```
. pwcorr vdisl prof liq levg fsiz fage, star (0.05) sig
```

	vdisl	prof	liq	levg	fsiz	fage
vdisl	1.0000					
prof	0.6487*	1.0000				
	0.0000					
liq	0.3656*	0.4180*	1.0000			
	0.0005	0.0001				
levg	-0.1025	0.2164*	0.1351	1.0000		
	0.3420	0.0428	0.2095			
fsiz	0.2027	-0.0040	-0.1843	0.0062	1.0000	
	0.0582	0.9707	0.0857	0.9542		
fage	-0.0589	0.0775	-0.1224	0.1030	-0.0455	1.0000
	0.5855	0.4732	0.2558	0.3397	0.6739	

```
. reg vdisl prof liq levg fsiz fage
```

Source	SS	df	MS		
Model	1866.21955	5	373.24391	Number of obs	= 88
Residual	1502.01519	82	18.3172585	F(5, 82)	= 20.38
				Prob > F	= 0.0000
				R-squared	= 0.5541
				Adj R-squared	= 0.5269
Total	3368.23475	87	38.7153419	Root MSE	= 4.2799

vdisl	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
prof	1.947081	.2546479	7.65	0.000	1.440505	2.453657
liq	.2981986	.1469941	2.03	0.046	.0057805	.5906167
levg	-24.42335	7.139113	-3.42	0.001	-38.62532	-10.22138
fsiz	2.007505	.6422899	3.13	0.002	.7297858	3.285224
fage	-.0239595	.0364018	-0.66	0.512	-.0963742	.0484552
_cons	-62.65725	18.09507	-3.46	0.001	-98.65411	-26.66039

```
. vif
```

Variable	VIF	1/VIF
liq	1.31	0.761278
prof	1.28	0.780883
levg	1.06	0.940828
fage	1.05	0.948688
fsiz	1.05	0.952385
Mean VIF	1.15	

```
. swilk vdisl prof liq levg fsiz fage
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
vdisl	88	0.90646	6.945	4.269	0.00001
prof	88	0.92812	5.337	3.689	0.00011
liq	88	0.87185	9.514	4.962	0.00000
levg	88	0.92861	5.300	3.674	0.00012
fsiz	88	0.95361	3.444	2.724	0.00322
fage	88	0.84745	11.326	5.346	0.00000

```
. hettest

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

         chi2(1)      =     6.06
         Prob > chi2  =   0.0138
. xtset id yr
       panel variable:  id (strongly balanced)
        time variable:  yr, 2008 to 2015
                delta:  1 unit
. sktest vdisl prof liq levg fsiz fage
```

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint adj chi2(2)	joint Prob>chi2
vdisl	88	0.0001	0.1088	13.87	0.0010
prof	88	0.0731	0.0000	17.09	0.0002
liq	88	0.0006	0.3071	10.90	0.0043
levg	88	0.0873	0.0019	10.62	0.0049
fsiz	88	0.0308	0.1817	6.09	0.0477
fage	88	0.0031	0.4806	8.18	0.0167

```
. xtreg vdisl prof liq levg fsiz fage, fe

Fixed-effects (within) regression               Number of obs      =        88
Group variable: id                              Number of groups   =        11

R-sq:  within  = 0.5165                         Obs per group: min =         8
       between = 0.0042                                        avg =       8.0
       overall = 0.0374                                        max =         8

                                                F(5,72)            =     15.38
corr(u_i, Xb)  = -0.8836                        Prob > F           =    0.0000
```

vdisl	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
prof	1.721157	.5033783	3.42	0.001	.7176907	2.724623
liq	.006491	.4061687	0.02	0.987	-.8031914	.8161734
levg	-22.99539	7.442864	-3.09	0.003	-37.83247	-8.158313
fsiz	.9243096	1.617186	0.57	0.569	-2.299492	4.148111
fage	.7470569	.3454331	2.16	0.034	.0584486	1.435665
_cons	-48.97244	39.12377	-1.25	0.215	-126.9643	29.01937
sigma_u	10.835649					
sigma_e	4.0541552					
rho	.8772022	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(10, 72) =     1.94                 Prob > F = 0.0535

. est store fe
```

```
. xtreg vdisl prof liq levg fsiz fage, re

Random-effects GLS regression                   Number of obs      =        88
Group variable: id                              Number of groups   =        11

R-sq:  within  = 0.4740                         Obs per group: min =         8
       between = 0.7810                                        avg =       8.0
       overall = 0.5541                                        max =         8

                                                Wald chi2(5)       =    101.88
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

------------------------------------------------------------------------------
       vdisl |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        prof |    1.947081   .2546479     7.65   0.000     1.447981    2.446182
         liq |    .2981986   .1469941     2.03   0.042     .0100954    .5863018
        levg |   -24.42335   7.139113    -3.42   0.001    -38.41576   -10.43095
        fsiz |    2.007505   .6422899     3.13   0.002     .7486399     3.26637
       fage |   -.0239595   .0364018    -0.66   0.510    -.0953057    .0473867
       _cons |   -62.65725   18.09507    -3.46   0.001    -98.12294   -27.19157
-------------+----------------------------------------------------------------
     sigma_u |           0
     sigma_e |  4.0541552
         rho |           0   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. est store re
. hausman fe re

                 ---- Coefficients ----
                |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                |       fe          re          Difference          S.E.
----------------+----------------------------------------------------------------
           prof |    1.721157    1.947081      -.2259243        .4342167
            liq |     .006491    .2981986      -.2917076        .3786366
           levg |   -22.99539   -24.42335       1.427962        2.104589
           fsiz |    .9243096    2.007505      -1.083195        1.484168
          fage |    .7470569   -.0239595       .7710164        .3435097
------------------------------------------------------------------------------
                           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(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =          7.88
                Prob>chi2 =      0.1629
                (V_b-V_B is not positive definite)
. xtreg vdisl prof liq levg fsiz fage, robust

Random-effects GLS regression                   Number of obs      =        88
Group variable: id                              Number of groups   =        11

R-sq:  within  = 0.4740                         Obs per group: min =         8
       between = 0.7810                                        avg =       8.0
       overall = 0.5541                                        max =         8

                                                Wald chi2(5)       =    168.81
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                    (Std. Err. adjusted for 11 clusters in id)
------------------------------------------------------------------------------
             |               Robust
       vdisl |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        prof |    1.947081   .2423339     8.03   0.000     1.472116    2.422047
         liq |    .2981986   .0780205     3.82   0.000     .1452812     .451116
        levg |   -24.42335   3.141804    -7.77   0.000    -30.58118   -18.26553
        fsiz |    2.007505   .7894213     2.54   0.011     .4602677    3.554742
       fage |   -.0239595   .0210142    -1.14   0.254    -.0651466    .0172276
       _cons |   -62.65725   22.09538    -2.84   0.005    -105.9634   -19.35109
-------------+----------------------------------------------------------------
     sigma_u |           0
     sigma_e |  4.0541552
         rho |           0   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        vdisl[id,t] = Xb + u[id] + e[id,t]

        Estimated results:
                     |       Var     sd = sqrt(Var)
             ---------+-----------------------------
               vdisl |    38.71534        6.222165
                   e |    16.43617        4.054155
                   u |           0               0

        Test:   Var(u) = 0
                                 chibar2(01) =     0.00
                              Prob > chibar2 =   1.0000
```