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Impact of Corporate Diversification on the Market Value of Firms: A study of Deposit Money Banks Nigerian

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Abstract

This paper investigates the impact of diversification on banks market value. Many studies have been conducted on the effect of diversification on firm value. From a theoretical view point, it is commonly accepted that if the costs of diversification exceed its benefits, the market will discount the share price of diversified firms. The paper hypothesized that diversification does not impact significantly on market value of banks in Nigeria. Adopting an Ex-post facto research design and applying OLS, the regression results at 5% significant level of significance rejected the null hypothesis and thereby accepting the alternate. This suggests that corporate diversification impacts significantly on the market value of banks, implying that diversification in Nigerian banks impacts significantly on the market value of the diversified banks.

Keywords: Diversification; market value; regression; banks.

1. Introduction

Many studies have been conducted on the effect of diversification on firm value. Even theoretical arguments still suggest that diversification has both value-enhancing (benefits) and value reducing (costs) effects. From a theoretical view point, it is commonly accepted that if the costs of diversification exceed its benefits, the market will discount the share price of diversified firms (Boubaker, *et. al.,* 2001). Empirically, however, results of prior researches are rather inconclusive. Indeed, several works suggested that diversified firms create value tanks to economies of scale, greater debt capacity, greater debt capacity due to risk reduction and a great number of profitable activities (Stein, 1997). These diversified firms are said to be more profitable because of their ability to pool internally generated funds and allocate them properly; and such efficient allocation of resources and economies of scale are expected to have a positive impact on valuation (Stein, 1997; Teece 1990). Based on a similar argument, Meyer, *et. al.,* (1992) argued that a failing firm when standing alone cannot have a value less than zero but under the conglomerate structure the failing firm might have a negative value. The profitable division(s) carrying the failing division(s) will ultimately reduce the value of the conglomerate. In contrast, other studies document value losses following corporate diversification; for instance, Berger and Ofek (1995) reported that the value loss is smaller when the segments of the diversified firms are in related industries. Recent studies focusing on the data of various developed countries generally reach similar results (Mansi and Rebb, 2002; Denis, *et. al.*2002, Barnes and Hardie – Brown, 2006). In emerging markets, Lins and Servaes (2002) also found that diversified firms trade at a discount of approximately 7% compared with single –segment firms and they are also less profitable than single-segment firms.

The results of Chakrabarti, *et. al.,* (2007) for East Asian firms are somewhat mitigated because diversification negatively impacts performance in more developed institutional environments while improving performance in the least developed environments. As far as the firm size is concerned, the majority of previous studies assess that the size of a firm has many effects on its performance, and indirectly on its growth opportunities and share prices. These benefits from diversification which increase the value of a diversified firm may arise from many sources such as:

- From management economies of scale as proposed by Chandler (1977);

- More efficient resource allocation through internal capital markets by Stulz (1990) and Stein (1997);
- Diversified firm's ability to internalize market failures evidenced by Khanna and Palepu (2000); or
- Higher productivity of diversified firms suggested by Schoar (2002).

There are also many sources from which costs of diversification, which reduce the value of a diversified firm, may arise such as from:

- Inefficient allocation of capital among divisions of a diversified firm (Lamont and Polk, 2001; Scharfstein and Stein, 2000; Rajan, *et. al.,* 2000);
- Agency problems in a diversified firm can also generate costs of diversification.

Given the above, this paper tends to explore the effect of corporate diversification on the market value of firms while concentrating on the banking industry. Based on this, some critical questions need to be asked and answered by this paper. Such questions include: Has bank diversification affected the market value of Nigeria banks in any way? The objective of this paper is to investigate the impact of diversification on banks market value; and the paper hypothesizes Diversification does not impact significantly on market value of banks.

The rest of the paper is divided into four sections. Section 2 highlights the review of related literature. Methodological issues are the concern of section 3. Section 4 is devoted to presentation of the data and results. We present conclusions in section 5.

2. Review of Related Literature.

Lang and Stulz (1994) shows Tobin's q, a surrogate for a firm value, and firm diversification are negatively related through the 1980's. They also show that diversified firms have lower q's than comparable portfolios of pure play firms; and firms that choose diversification are poor performers relative to firms that do not. Berger and Ofek (1995) also finds a value loss from diversification (about 15 percent loss) in 1980's, while Servaes (1996) finds a diversification loss in the 1960's, and a lesser extent in the 1970,s

Using an econometric technique that remedies the measurement error problem in Tobin's q, Whited (2001) finds no evidence of inefficient capital allocations in diversified firms and in value reductions by diversifications. Mansi and Rebb (2002) also find that diversification is insignificantly related to excess firm value. Thus, value discount by diversification in many studies may be artifacts of measurement errors in using Tobin's q as a firm value proxy. In sum, results from previous studies on the diversification effect are neither consistent nor conclusive, which may be due to econometric problems (Li and Jin, 2006). In line with the above studies, Li and Jin, (2006) investigated the marginal effect of diversification on firm returns (in the chemical and oil industry) by resolving these econometric problems and controlling for influencing factors on returns other than diversification. Three-factor asset pricing models developed by Fama and French (1996) are used to avoid these econometric problems and control for other influencing factors on equity returns. Among independent variables in the model is market return (market effect), firm size (industry effect) and effect of endogenous variables (e.g. book value to market value) of a sample firm that lead the firm to decide to diversify or focus on stock returns. These regression models were estimated in chemical industry and oil industry, separately to control for the effect of industry specific characteristics on firm returns. The findings revealed that diversified firms have significantly higher returns than focused firms in both chemical and oil industries. It may be because the investor in the market view diversified firm riskier than focused firm and hence expect higher rate of return on invest in diversified firms than in the pure-play firms. As a result the value of a diversified firm is discounted upon acquisition of new division to preserve the higher rate of returns on investment in diversified firms. The results are robust across different diversification measures, methodologies and industries.

Some researchers have argued that diversification increases the information asymmetry between managers and shareholders (Harris, *et. al.,* 1982). They contend that increased diversification makes it more difficult to get information about the firm. So, information asymmetry costs are higher in conglomerates than in more focused firms. Examination of the relationship between information asymmetry and market reaction to the announcement of seasoned equity offerings reveals that as the level of information asymmetry increases, the greater is the value loss to the firm (Dierkens, 1991). In a more recent work, Karim, *et. al.,* (2000) documented that market reaction to seasoned equity offering is consistently negatively related to the level of information asymmetry.

Fee and Thomas (1999) studied the effect of corporate diversification on firm value based on asymmetric information. In this study, Fee and Thomas (1999), investigated-comparing stock market based measures of asymmetric information for diversified firms with those they could reasonably expect to exhibit if they were split along industry lines into separately traded entities. Their findings revealed that approximately 74% of the diversified firms in their sample have less severe asymmetric information problems as conglomerates than they could expect to experience as separately traded pure-play firms. They also found evidence that diversified firms with low levels of information asymmetric trade at significant diversification discounts.

Amihud and Lev (1981) mentioned that managers prefer diversification in order to protect the value of their human capital. In the context of both Jensen's (1986) free "cash flow theory and 'agency theory', managers' benefit from managing larger, diversified firms since such firms have relatively larger debt capacity. So, the management might tend to indulge them in value decreasing investment projects (Berger and Ofek, 1995). Agency problems resulting from sub-optimal behaviour of divisional managers (agents) for the firm as a whole may occur in a diversified firm due to opportunistic behaviour of divisional managers, informational asymmetries between central management and divisional managers, and the difficulty of designing optimal incentive compensation scheme to eliminate agency costs (Denis, *et. al.,* 2002; Aggarwal and Samwick, 2003).

Anderson, *et. al.,* (2000), equally made a study on corporate governance and firms diversification. They empirically investigated whether corporate governance structure is different between focused and diversified firms, and whether any differences in corporate governance are associated with the value loss from diversification. Their findings reveal that relative to focused firms, CEOS in diversified firms have lower stock ownership and lower pay-for-performance sensitivities. Diversified companies, however, have more outside directors, no difference in independent block-holdings, and sensitivity of CEO turnover to performance similar to that in single-segment firms. Moreover, they found no compelling evidence that internal governance failures are associated with the decision to diversify, or that governance characteristics explain the value loss from diversification. These their findings argue that the structure of corporate governance varies systematically with the degree of diversification and suggest that diversified firms use alternative governance mechanisms as substitute for low pay-for-performance sensitivities and CEO ownership. They concluded that agency costs do not provide a complete explanation for the magnitude and persistence of the diversification discount. They therefore added to the existing literature on "diversification and firm performance by providing a comprehensive analysis of differences in the overall structure of corporate governance between diversified and focused firms, and addressing how these differences are related to firm performance since most prior studies have focused on a single governance characteristic.

3. Methodological Framework.

This paper employed the Ex-post facto research design. Onwumere (2009:113) opined that Ex-post facto research involves events that have already taken place (already exists) and as such no attempt was made to control or manipulate relevant independent and dependent variables. Also, an analytical research, all manners of tools (mathematical, econometric, statistical etc,) were employed in the appraisal of data with the aim of establishing relationships (Onwumere, 2009:42). The population of this study is presumed to cover the twenty five (25) banks which emerged (out of 89 banks) having met the minimum capitalization requirement, at the close of the first phase of the consolidation programme on 31st December, 2005 but for the analysis, eighteen (18) banks selected through the Yaro Yamane (1964) formula constitutes our sample. The study relied on historic accounting data generated from financial (annual) reports and accounts of sampled banks between the period 1998 and 2007 (a ten-year period).

3.1 The Test Statistic

To test the hypothesis which states that diversification does not impact significantly on market value of banks, two model equations were used. The first model equation used is written below:

$Ev_i t, = \beta_o + \beta_1 OD_{i,}t + \beta_2 GD_{i,}t + \beta_3 LogTA + \beta_4 LR_{i,}t + \beta_5 0Ei,t + ц_{i,t}$ …… …(1)

Where: $Ev_{i,t}$ = Excess value of $bank_i$ at time t..

OD = Operational Diversification

GD = Geographical Diversification

LogTA = Log of Total Assets

LR = Liquidity Ratio

OE = Operational Efficiency

β_o = Constant of regression

$\beta_1 - \beta_5$ = Coefficients of the independent variables

μ = The stochastic error term.

The second model equation to test the above hypothesis is as written below:

$Ev = bo + b_1\ DD + b_2\ LogTA + b_3\ CEGI + b_4\ GD + b_5\ OIGI + \varepsilon$ ……..(2)

Where Ev = Excess value

DD = Diversification Dummy

LogTA = Log of Total Assets

CEGI = ratio of Capital expenditure to Gross – income.

GD = Geographical Diversification

OIGI = Ratio of operational income To Gross income

b_o = constant of regression

$b_1 = b_5$ = coefficients of the independent variables

ε = the stochiastic error term

The essence of using these two model equations, equation 1 and equation 2 in regressing for Excess value in this work is to check for the fitness of the modified form (equation 2) of Berger and Ofek (1995) and Lins and Servaes (2002). The modification of the equation3.1 is purposely for it to suit this work which is focused on institutions offering financial services while the researches of the Berger and Ofek (1995), and Lins and Servaes (2002) were based on non- financial firms.

3.1 The Test Variables

Firm Valuation Measures: According to Wild et al (2004:603), the two widely cited valuation measures are the price-to-book (PB) and price-to-earnings (PE) ratios and users often base investment decisions on the observed values of these ratios. These PB and P/E ratios are as such called fundamental ratios. For companies whose shares are not traded in active markets, the fundamental ratios serve as a means for estimating equity value. The formulae for these ratios are:

(i) Price-to-book (PB) Ratio = Market Value of equity …… 3.
Book Value of equity

(ii) Price-to-Earnings Ratio = Market Value of equity ……..... 4.
Net Income

OR

P/E = Market Value Per Share …… 5.
Earnings per share

Other measures that past researchers had used in measuring value of firms are return on Total Assets, Percentage growth rate in Total Assets and Excess Value of the firm. This percentage growth Rate in Total Assets can be expressed as:

Percentage Growth Rate in Total Assets = Current Value of Assets minus Base Value of Assets x 100 … 6.
Base Value of Assets

All these value measurement instruments were used in this research in one way or the other. In using the % growth

rate in total Assets for the ten-year-period of this study, 1998 was used as a base year whereas the picking of the current value of Total Assets started with 1999 year.

For the Excess Value, it is expressed in this study as Market Value Per share minus Book Value Per share. Whereas the Book Value Per Share is obtained from Net Profit Value After Tax divided by the number of Outstanding shares i.e

$$\text{Book Value per share} = \frac{\text{Net Value After Tax}}{\text{The Number of Outstanding shares}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ 7.$$

Liquidity Ratio: This is defined as the ratio of Total specified liquid assets to Total Current liabilities of each bank which must be held by the bank. It can be calculated thus:

$$\text{Liquidity Ratio} = \frac{\text{Total Specified Liquid Assets}}{\text{Total current liabilities}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ 8.$$

Firm size: Although there exist two measures of firm size – namely Total Assets and Turnover (Pandey, 2004:85, Barclay and Smith 1996:16), this research adopts Total Assets for firm size.

Thus firm size = Average level of log of Total Assets (log TA)……..…….. 9.

Because firm (bank) size and excess value may be correlated (Morck, Shleifer and Vishny, 1988) we include firm (bank) size, which we measure by total assets as a control variable in all our models.

Operational efficiency: According to Wild et al (2004) and Pandey (2004), a good measure of operational efficiency is the ratio of expenditure (operating expenses) to income.

$$OE = \frac{\text{Operational Expenses}}{\text{Income}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ 10.$$

In this paper just as in Lin and Serveas (20002), the operational efficiency has been proxied by capital expenditure to Gross income

$$\text{That is, } OE = \frac{\text{Capital expenditure}}{\text{Gross income}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ 11.$$

Ownership: Two main sets of ownership characteristics are adopted in the general regression models: Firstly, in terms of Operational diversification (OD) or diversification dummy (DD) whereby an indicator variable is set equal to one if the bank has subsidiaries/Affiliates; and/or conducts GROUP ANNUAL reports and accounts but equal to zero if the bank has no subsidiaries/Affiliates and thus has only the 'BANK' annual reports and accounts. Secondly, in terms of Geographical diversification (GD) an indicator variable is set equal to one if the bank has dominant foreign interest (51% and above) but equal to zero for banks with dominant local interests.

4. Findings

Test for Hypothesis.

H_0 Diversification does not impact significantly on market value of banks.

H_A Diversification impacts significantly on market value of banks.

This hypothesis was tested using two model equations:

(a) The first model equation used is as follows:

$$Ev_i t = \beta_0 + \beta_1 OD_i,t + \beta_2 GD_i, t + \beta_3 \log Ta_i,t + \beta_4 LR_i,t + \beta_5 0E_i,t + \mu_I,t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ (1)$$

Excess value is the dependent variable. Ev_i,t = Excess value of bank i at time t and the other variables are as defined above.

The regression results in table 1 shows that the regression is significant at 5 percent level of significance. Thus, the null hypothesis is rejected thereby accepting. As per the influence of the variables, the coefficient of the geographical diversification remains significantly positive meaning a positive relationship between internationalization and bank value whereas operational diversification was significantly negative. The result for operational efficiency under

Panel Model was positive but non-significant. This is equally an indication that not all the banks included in the study sample had the same level of efficiency, and hence value. Some might actually be inefficient. For both models, also, loan-to-deposit ratio proves to have positive but non-significant relationship with bank performance. The non-significance nature of the coefficient of loan-to-deposit ratio is understandable especially considering the high volume of non-performing credits carried by the banks during the periods covered in this study. In terms of the R^2 value, the results show that about 10.8 to 11.5 percent of the changes in the performance of a bank can be explained by changes in the levels of operating efficiency, geographical and operational diversifications, and loan-to-deposit ratio. The results are not also by chance considering the probability of F-value at just 0.00 percent.

The second model equation is the modified form of multiple linear regression equation used by Berger and Ofek (1995) Lins and Servaes (2002) which is shown below and as defined in section three:

$Ev = b_o + b_i\ DD + b_2\ logTA + b_3\ CEGI + b_4\ GD + b_5\ OIGI + e$ ……..(2)

The individual parameters of the regression model are tested through t-test for parameters.

For the analysis Excess Value is defined thus:

$$Excess\ value = \log\left(\frac{actual\ market\ value}{imputed\ market\ value}\right)$$

Where the imputed market value is obtained as the median actual market value of stand-alone banks times the actual market value of diversified banks. No restriction is given to excess values; all the excess values that were obtained were used in the analysis. The regression results are described thus.

The ANOVA in table 3 tests the acceptability of the model from a statistical perspective. The Regression row displays information about the variation accounted for by the model. The Residual row displays information about the variation that is not accounted for by the model. The regression and residual sums of squares are not equal, which indicates that about 90% of the variation in excess value is explained by the model. The significant value of the F statistic is less than 0.05 and to be more precise is 0.00: which means that the variation explained by the model is not due to chance. While the ANOVA table is a useful test of the model's ability to explain any variation in the dependent variable, it does not directly address the strength of that relationship.

The model summary table (table 4) reports the strength of the relationship between the model and the dependent variable. R, the multiple correlation coefficients is the linear correlation between the observed and model-predicted values of the dependent variable = .936. This indicates a strong relationship. R Square, the coefficient of determination, is the squared value of the multiple correlation coefficients = .88. It shows that about 88% of the variation in excess value is explained by the model. Equally, the work relied on the adjusted coefficient of the multiple determinants because of the number (five) of explanatory variables used in the study. This is to harmonize the numerator with the denominator in the coefficient formula. Accordingly from Table 4, adjusted coefficient = 87.3% and indicates that 87.3% of changes in the dependent variable (Excess Value) are explained by change in the five explanatory variables in the model. This is a high value and can be relied upon as a proper fit for the model.

Although the model fit looks positive in table 5, the coefficients shows that (CEGI) ratio of Capital expenditure to Gross – income in the model is not significant and does not impact on the dependent variable (Excess Value). All other predictor variables have significant coefficients as follows: at .000 for total assets and the ratio of capital expenditure to gross expenditure each; .004 and 001 for Geographical Diversification and Ratio of operational income To Gross income respectively. These indicates that the explanatory variables contributed to the model and impacts on the value of banks.

With reference to the analytical results obtained in the two regression results above, the hypothesis that diversification does not impact significantly on market value of banks is rejected, thereby accepting the alternate. This then implies that diversification impacts significantly on market value of banks.

5. Conclusion

The objective of this research is to investigate the impact of diversification on banks market values and was achieved. Here the regression results is significant at 5 percent level of significance, thus the null hypothesis is rejected and thereby accepting the alternate. This means that diversification in Nigerian Deposit Money Banks impacts significantly on the market value of such banks. The benefits from diversification which increases the value

of a diversified firm may arise from many sources such as: from management economies of scale as proposed by Chandler (1977); more efficient resource allocation through internal capital markets as opined by (Stulz, 1990, and Stein, 1997); diversified firm's ability to internalize market failures (Khanna and Palepu, 2000); or higher productivity of diversified firms as suggested by (Schoar, 2002).

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Table 1: Estimated coefficients for both Pooled and Panel Regression Models – with Excess Value as the Endogenous Factor

		Pooled		Panel	
Variables		Co efficient	t-value	Coefficient	t-value
Operating efficiency		0.254*	3.01	0.822*	2.18
Geographical Diversification		0.010	0.14	0.882*	2.71
Operational Diversification		-0.119*	-2.65*	-0.632*	-3.66
Liquidity ratio		0.999*	241.75*	0.020	1.04
Constant		-0.177*	-3.51	7.222*	37.81
R^2		Within	-	-	0.123
	Between	-	-	0.255	-
	Overall	0.998	-	0.115	-
F-test	14,662.79	-	22.79	-	-
Prob>F		0.000	-	0.000	-
No of observation		149	-	179	-

* Regression is significant at 5 percent level of significance.

Source: Authors SPSS computation.

Table 2: Descriptive Statistics

	Mean	Std. Deviation	N
Excess Value	.9273070	1.36482769	150
DD	.72	.451	150
LogTA	7.0643558	1.17679398	150
CE_GI	.3382433	.21769220	150
GD	.07	.250	150
OI_GI	.7163866	.13675944	150

Source: Authors SPSS result.

Table 3: The ANOVA

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	243.355	5	48.671	204.956	.000[a]
	Residual	34.196	144	.237		
	Total	277.550	149			

a. Predictors: (Constant), OI_GI, GD, CE_GI, DD, LogTA

b. Dependent Variable: ExcessValue

Table 4: Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	.936(a)	.877	.873	.48730956	1.812

a Predictors: (Constant), OI_GI, GD, CE_GI, DD, LogTA

Source: Authors' SPSS regression result.

Table 5: Coefficients.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.885	.383		17.991	.000
	DD	.418	.094	.138	4.465	.000
	LogTA	-.990	.037	-.854	-26.971	.000
	CE_GI	.108	.187	.017	.576	.565
	GD	-.488	.165	-.090	-2.962	.004
	OI_GI	1.020	.301	.102	3.389	.001

a. Dependent Variable: ExcessValue