

## How Corporate Diversification affects Excess Value and Excess Profitability: A study of Deposit Money Banks in Nigeria.

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### Abstract

This paper examines the relationship between excess value and excess profitability using deposit money banks in Nigeria as focal points of the study. The study relied on historic accounting data generated from financial (annual) reports and accounts of sampled banks between the ten-year period covered by the study. Borrowing from previous studies, appropriate regression and correlation equations were formulated to measure the relationship between excess value and excess profitability of Nigerian banks. The regression and correlation analyses revealed that the correlation is positive and significantly different from zero. This implies that there is significant relationship between excess value and excess profitability of deposit money banks in Nigeria. Thus the study provides evidence that there is a significant relationship between excess value and excess profitability of both diversified and standalone banks.

**Keywords:** Diversification; excess value; excess profitability; stand alone banks.

### 1. Introduction

The relationship between excess value and excess profitability of banks has received considerable attention by many academics in recent times. What is not clear however is the strength, sign, and size of that relationship in many emerging countries including Nigeria.

With regard to the overall effect of diversification on a bank's performance, Boyd and Prescott (1986) recommends that the optimal organization of a bank is one where it is as diversified as possible but Acharya et al (2004) suggest that there seem to be diseconomies of diversification for a bank that expands into industries where it faces a high degree of competition or lacks prior lending experience. Acharya, *et. al.*, (2004:49) further suggests that these diseconomies arise in the form of a worsening of the credit quality of loan portfolios simultaneously with a fall in bank returns (perhaps due to worse monitoring, adverse selection, higher overheads, or some combination of these factors). Such diseconomies imply that the optimal industrial organization of a banking sector might be one that comprises several focused or specialized banks instead of a large number of diversified banks, an outcome that may also be attractive from a systematic risk standpoint. However, according to Bernstein (1996:6), the choice of focus or diversification in the business activities of firms is the subject of a large body of literature in corporate finance. The evidence seems to indicate that diversification is value destroying, leading to what is known as the "diversification discount". Theoretical explanations for this include managerial risk aversion, agency problems between managers and shareholders, inefficiency of internal capital markets, and power struggles between different segments of a firm. However, diversification is particularly important for a bank, given its nature as a financial intermediary.

In a like-manner, the efficiency is measured by how well banks achieve an optimal risk – return trade-off in the mix of their business activities. Banks as financial intermediaries generate financing from three sources: depositors, equity holders and debt-holders. They then allocate these funds to a credit (D'Souza and Lai, 2002:2). On the other hand, Acharya, *et. al.*, (2002) tested the following two hypotheses (i) diversification improves bank returns and (ii) diversification reduces the risk of banks; when studying the diversification effect on loan portfolios on the performance of a sample of Italian banks. They find that diversification reduces bank returns while producing a riskier portfolio. Furthermore, banks with higher risk are more likely to improve their returns with focus. Their test relies on showing that as focus increases, either returns rise and risk falls, or returns fall and risk rises. The outcome is unambiguous for a bank when risk and return move in opposite directions. However, in the event that both risk and return move in the same direction, the implications are ambiguous.

In practice however, banks cannot fully diversify all their risks. Overall, results support Winton (1999)'s hypothesis that diversification (focus) has a small benefit (cost) at low bank risk levels, and also has maximum benefit (cost) at moderate risk levels, and in fact, hurts (helps) bank returns at very high risk levels. This was found to hold for both industrial and asset sectoral focus, for return on bank assets as well as stock returns of banks, and for a variety of accounting and stock return based measures for unexpected and expected bank risk. In considering whether diversification improves bank efficiency or not, Acharya, *et. al.*, (2004) stated that with respect to bank mergers, there are no important scale effects, but there can be important economies (and diseconomies) of scope to consider. Thus, merger between banks with different business lines but with similarities in the regional composition in their portfolios can result in more efficient entities. In determining whether a merger between two financial institutions will be beneficial (in terms of improving bank efficiency), it is thus essential to consider the resulting change in the portfolio composition of the merged institutions. This is consistent with the message from the theoretical analysis in D'Souza and Lai (2002), which considered the effects of a merger between two banks on the merged institution's capital-allocation decisions and the subsequent impact on the efficiency of financial markets in which the bank is a market-maker.

Based on this, some critical questions need to be asked and answered by this paper. Such questions include: How does the excess value and excess profitability of the diversified banks relate with those of the standalone banks? The objective of this paper is to measure the relationship between excess value and excess profitability of Nigerian banks; and the paper hypothesizes that there is no significant relationship between Excess Value and Excess profitability for both diversified banks and standalone 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.

This research work rallied around the studies of Berger and Ofek (1995) and Lins and Servaes (2002). Berger and Ofek (1995) studied the diversification effect on firm value by evaluating US firms that have multi-segment investments in comparison with the sum of imputed stand-alone firms in the same industry. They came up with theoretical arguments that diversification has both value – enhancing and value reducing effects. They discovered that potential benefits of operating different lines of business within one firm include greater operating efficiency, less incentive to forego positive net present value projects, greater debt capacity, and lower taxes. Their research also believed that potential costs of diversification include the use of increased discretionary resources to undertake value decreasing investments, cross-subsidies that allow poor segments to drain resources from better – performing segments, and misalignment of incentives between central and divisional managers. They however, could not come up with clear prediction about the overall value effect of diversification.

Lins & Servaes (2002) studied whether Corporate Diversification is beneficial in emerging markets. In their study, they focused on countries identified by IMF and The Economic Magazine as emerging market countries. Seven of such countries were used (Hongkong, India, Indonesia, Malaysia, Singapore, South Korea, and Thailand) all of which were located in Asia. They relied on firms that report consolidated financial statements. They ensured that the firms they used were all listed in stock exchanges. In their research, they maintained consistency with US data by excluding firms whose primary business were financial services, or that have diversified into financial services (Lins & Servaes, 2002). Their final sample consisted of 1,195 firms. Their research came up with facts that diversified firms' trade at a discount of approximately 7%, compared to single segment firms. They also studied whether they could link the characteristics of firms to the diversification discount. The result showed that diversified firms are less profitable than focused firms but this result only explained part of the discount.

According to Banal – Estanol and Ottaviani (2006), the motive of banks for merging is for diversification. These authors in their paper formulated a single modeling framework to analyze the role of risk and diversification in banking competition and to quantify the impact of mergers on the welfare of borrowers and depositors. The model has two main ingredients – banks are assumed to be risk averse or behave in a risk averse fashion. This assumption is in line with the evidence in Hughes and Mester (1998) who attribute the banks' choice of financial capital (above the cost-minimizing level) to risk aversion. Risk averse banks can improve their protection against financial risks by merging with other banks. Through such mergers, banks can achieve a larger scale, increase their geographical scope, and offer a more diverse mix of financial services. In addition, better diversified banks

may take on additional risks, by holding riskier loans or reducing equity ratios (Demsetz and Strahan, 1997).

Banks are imperfect competitors in the markets for loans and deposits. Following the Monti-Klein framework, banks are modeled as financial intermediaries that grant loans and collect deposits. A limited number of banks set loan and deposit rates independently. Subsequently, borrowers and depositors endowed with different preferences choose the bank to which they supply and from which they demand funds. Bana-Estanol and Ottaviani (2006) therefore contributed the following facts: one, the impact of the different types of risk on the competitive behaviour of banks. They noted that as the risk in the interbank market increases, banks reduce their deposit rates but increase their loan rates. They established that merged banks are able to diversify some of the risks and essentially reduce the risk cost associated with more borrowing or lending activity. When banks are imperfectly competitive, a cost reduction makes the merged bank more aggressive. In response to a tougher competitor, the rival banks have an incentive to act back their activity to the benefit of the merged bank. Although rivals might offer fewer loans and collect fewer deposits, the reduction is compensated by the increased activity by the merged bank. As a result, both lenders and borrowers might be better off as a result of the merger.

In addition, diversification may help banks to explore better investment opportunities and create synergies in different regions and different business sectors, thereby enhancing firm value. These arguments suggest a negative relation between bank diversification and the cost of debt financing. The results therefore, suggest that different types of diversification involve different levels of trade-off between the benefits and costs.

It is also well documented that merger and acquisition (M & A) activities in the banking industry can achieve cost savings and synergy gains, as well as increased market power, thereby yielding a lower cost of capital (Pilloff, 1996; Houston, *et. al.*, 2001; Penas and Unal, 2004). Also, Berger, *et. al.*, (1999) found that consolidation in financial services industry has been consistent with greater diversification of risks on average but with little or no cost efficiency improvements.

With regard to the benefits of diversification through mergers and acquisitions, Soludo (2004:3) added that diversification through mergers and acquisition is an instrument for enhancing banking efficiency, size, and development roles. It was equally noted that mergers and acquisitions trend is influenced by factors such as prospects of cost-savings due to economies of scale as well as more efficient allocation of resources; enhanced efficiency in resource allocation; and risk reduction arising from improved management. According to the study of Delong (1999), he observed that although the number and size of mergers within the banking industry have steadily increased, there is no clear evidence that banking mergers are economically valuable to shareholders upon announcement. Several studies find that on average, the sum of the weighted gains to the partners arising from mergers is negligible.

Delong (1999), examined the wealth effect of bank mergers by distinguishing between types of mergers. Specifically, mergers are classified according to their focus or diversification along the dimensions of activity and geography. The study determines the value effect, for bidders and for targets of mergers, and the combined value effect for these players for each group according to the focusing versus diversifying classification. The results show that bank mergers that focus both geography and activity are value-increasing whereas diversifying mergers (who diversify either geography or activities or both) do not create value. Overall mergers in the banking industry neither create nor destroy shareholders wealth, but mergers that focus both geography and activities earn a positive 3% return. Bidders in this group do not destroy value, while bidders in the other groups do destroy value.

### **3. Methodological Framework.**

The study adopted an *Ex-post-facto* design approach. This approach according to Onwumere (2009:113), involves events that have already taken place and as such no attempt is made to control or manipulate relevant independent and dependent variables. As 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 31<sup>st</sup> 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

This paper hypothesizes thus: There is no significant relationship between Excess Value and excess profitability of both diversified and standalone banks. This hypothesis was tested by checking the strength of relationship between the variables through correlation analysis.

The test-statistic for the correlation analysis is the Pearson's product moment correlation coefficient having the formula:

$$R = \frac{N\sum xy - (\sum X)(\sum Y)}{\sqrt{N\sum x^2 - (\sum X)^2(N\sum y^2 - (\sum Y)^2)}} \dots\dots\dots(1)$$

Prior to the correlation analysis, a multiple linear regression analysis was applied for Excess profitability using the following model:

$$EP = b_0 + b_1 DD + b_2 TA + e \dots\dots\dots(2)$$

- Where EP = Excess profitability
- $b_0$  = regression constant
- $b_1 - b_2$  = coefficients of regression
- DD = Diversification Dummy
- TA = Total Assets
- e = The stochastic error term

Where;

Excess Value is computed as the log of the ratio of the actual market value to the imputed market value OR the actual market value minus the book value.

The diversification dummy is an indicator variable set equal to one if the bank has subsidiaries/Associates and/or conducts GROUP annual reports and accounts; but equal to zero if the bank has no subsidiaries/Associates and thus has only the BANK annual reports and accounts.

Geographical diversification is an indicator variable set equal to one if the bank has dominant foreign interest (51% and above) but equal to zero for banks with dominant local interests.

Imputed market value is obtained as the median actual market value of standalone banks times the actual market value of diversified banks.

Excess profitability is computed as the actual profitability minus the imputed profitability of banks, where the imputed profitability is obtained as the median profitability of stand-alone banks.

### 4. Findings

The hypothesis that there is no significant relationship between excess value and excess profitability of both diversified and standalone banks were tested by employing a correlation analysis. Prior to the correlation analysis, a multiple linear regression analysis was applied to excess profitability using the following models:

$$EP = b_0 + b_1 DD + b_2 TA + e \dots\dots\dots(2)$$

- Where EP = excess profitability
- $B_0$  = regression constant
- $B_1 - b_2$  = coefficients of regression
- DD = Diversification Dummy
- TA = Total Assets

For the analysis, excess profitability was computed as the actual profitability minus the imputed profitability of banks, where the imputed profitability is obtained as the median profitability of stand-alone banks.

The model summary in table 3 reports the strength of the relationship between the model and the dependent variable (Excess Profitability). R, the multiple correlation coefficient is the linear correlation between the observed and model-predicted values of the dependent variable. Its large value indicates a strong relationship. R Square, the coefficient of determination, is the squared value of the multiple correlation coefficients.  $R^2$  shows

that about 69% of the variation in excess profitability is explained by the model.

As shown in table 4, the only significant predictor is total assets with p-value of .000 being  $< 0.05$  significance level. This implies that total assets affect Deposit Money Bank's profitability greatly. The p-value for DD is 0.794 which is  $> 0.05$  significance level and as such is not significant. With the regression analysis results, the strength of the relationship between the variables among the excess value and excess profitability of the banks were then checked through correlation analysis.

The correlation reported in the table 5 above is positive and significantly different from zero. This implies that there is significant relationship between excess value and excess profitability of these banks hence the null hypothesis stands rejected while the alternative is accepted. Therefore, there is a significant relationship between excess value and excess profitability of both diversified and standalone banks.

## 5. Conclusion

This paper sought to shed light on the strength, size and sign of the relationship between excess value and excess profitability of Nigerian banks. Results from the statistical analysis gives assurance that this objective has been achieved. It was established that the relationship between the two variables is positive and significantly different from zero. This implies that there is significant and positive relationship between the excess value and excess profitability of both diversified and standalone banks. This suggests that the the null hypothesis stands rejected while the alternate is accepted. It also means that the degree of profitability of these banks has an effect either positive or negative on the value of the banks. Thus, there is a significant relationship between excess value and excess profitability of banks – in both diversified and standalone banks at even one percent level of significance. This result is in line with apriori expectation – that there is a significant positive relationship between excess value and excess profitability and in line with the findings of Lins and Servaes, (2002). Thus an increase in excess profitability brings about increase in the excess value for firms.

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Table 1: Descriptive Statistics.

	Mean	Std. Deviation	N
Excess Profitability	1038846.9000	3291100.08855	180
DD	.6500	.47830	180
Total Assets	79621270.6611	156070158.36603	180

Source: Authors' SPSS computation

Table 2: The ANOVA for the Regression.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1328500262591705.000	2	664250131295852.000	192.644	.000(a)
	Residual	610309560326557.000	177	3448076612014.450		
	Total	1938809822918263.000	179			

a. Predictors: (Constant), Total Assets, DD b. Dependent Variable: Excess Profitability.

Source: Authors SPSS computation.

Table 3: Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	.828(a)	.685	.682	1856899.73128	1.738

a. Predictors: (Constant), Total Assets, DD

Source: Authors SPSS computation

Table 4: Coefficients.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-400707.073	245818.986		-1.630	.105
	DD	75977.713	290263.858	.011	.262	.794
	Total Assets	.017	.001	.828	19.627	.000

a Dependent Variable: Excess Profitability

Source: Authors SPSS computation

Table 5: Correlations

		Excess Profitability	Excess Value
Excess Profitability	Pearson Correlation	1	.338(**)
	Sig. (2-tailed)		.000
	N	180	150
Excess Value	Pearson Correlation	.338(**)	1
	Sig. (2-tailed)	.000	
	N	150	150

\*\*Correlation is significant at the 0.01 level (2-tailed).

Source: Authors SPSS computation

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