
Effect of Product Diversification on Capital Structure of Selected Manufacturing Companies in Nigeria

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Abstract: *This study examines the effect of Product Diversification on capital structure of selected manufacturing companies in Nigeria. The main objective of the study is to analyze within the Nigerian context the effect of product diversification on capital structure. The data used for this study was obtained from the published annual reports of the sampled manufacturing companies (foods/beverages and conglomerate). Simple random sampling technique was employed in selecting the Nigerian manufacturing companies into the sample. Both Random effect and Wald mode fixed effect regression method were used to test the formulated hypotheses which revealed that product diversification is negatively and insignificantly related to capital structure. The study recommended that factors such as total asset size, profitability and exchange rate exposure that are relevant to the companies' capital structure decisions should be properly analyzed and balanced and that the companies should seek more investment in product diversification in order to enhance profitability without having negative effect on capital structure.*

Keywords: *Capital Structure, Exchange Rate Exposure, Leverage, Product Diversification.*

1. Introduction

Diversification has been a central topic in strategic management studies since the work of Ansoff, (1958) who presented a matrix that focused on company's present and potential products and markets (customers), by considering ways to grow via existing products and new products, and in existing market and new markets. Recent empirical studies have focused on how diversification offers companies the financing and investment advantages (Hubbard & Palia, 1999; Campelo, 2002; Hovakimian, 2011). The results of these studies indicate that efficiency in the allocation of internal resources alleviates credit constraints generated by adverse external market conditions. According to the authors, under such adverse conditions, diversification can provide investment advantages in that diversified firms can choose to allocate scarce resources to one project in preference to a less cost-effective one. With regard to financing advantages, previous results show that in times of financial crisis, conglomerates are significantly more leveraged than focused companies (e.g., Dimitrov & Tice, 2006; Yan, Yang, & Jiao, 2010; Kuppuswamy & Villalonga, 2010). This fact is explained by diversification in corporate projects, which provides a type of insurance to investors against adverse market conditions.

The choice of financial policy is the most important decision of a company. Financial policy refers to the decision regarding company's capital structure. The capital structure of the company consists of the mix of debt and equity instruments used to finance company's assets. This mix basically consists of common stock, debt, and preferred stock. The biggest challenge for the managers at a company is to choose the capital structure (mix of securities) that minimizes the cost of financing the company's activities and thus maximizes the value of the company. This right mix is referred to as the optimum capital structure (Ranjitha & Madhumathi, 2012); however, in practice it is very difficult to attain the optimal level. Several factors including diversification may have an impact on company's financial choice and several empirical studies have tried to explore the most important determinants of capital structure. Optimal combination of debt and equity capital plays key role in achieving the overriding goal of financial management. In order to achieve this, it is therefore necessary for firms to determine their target capital structure. This requires firms to be aware of the various factors that can influence their capital structure decision making (Vries, 2010).

In this study, the effects of product diversification in the capital-structure choices are analyzed. The study is carried out in the context of research on capital-structure determinants (*how does product*

diversification influence capital structure?), which attempts to explain the effects of diversification strategy on financial choices. Also, in my own opinion, there are no studies on the effects of product diversification on capital structure for companies in Nigeria. This work therefore tries to analyze to what extent product diversification affect financial leverage focusing on a sample of foods/beverages and conglomerates sectors of the manufacturing companies in Nigeria.

1.2 Research Problem

The debt to equity ratio or level of leverage of the Nigeria manufacturing companies has continued to reduce over the years signifying low risk capacity of the companies in spite of their continued attempt to go into multiple products (product diversification) in order to boost their general risk level (financial and operating risk). This happening is contrary to the various empirical studies (e.g Banerjee & Dey, 2011; Dimitrov & Tice, 2006; Yan, Yang, & Jiao, 2010; Kuppaswamy & Villalonga, 2010) that have shown that companies that are more diversified have greater risk capacity to be more leveraged than less or non-diversified companies. So, it becomes unclear if diversification actually adds value to a company as compared to a company that adopts a more focused or single product strategy. This prompted the attempt to look into the particular impact of the product diversification strategies on financial choices of the Nigerian Manufacturing companies with emphasis on the most diversified sectors which are foods/beverages and conglomerate (NSE, Fact book, 2011). Also, the proliferation of research relating this diversification strategies to the various financial components of companies have focused primarily on US based companies and those in developed economies' context (Qureshi, Akhtar, & Muhammad, 2012) such as Alonso (2003) and La Rocca *et al.* (2009).

1.3 Research Questions

To adequately address the stated research problem, the following questions are explicitly stated:

1. What are the effects of product diversification on capital structure of manufacturing companies in Nigeria?
2. To what extent does optimum selection gap in financial leverage affect capital structure decisions of Nigerian manufacturing companies?

1.4 Research Objectives

The main objective of this research is to analyze within the Nigerian context the effects of product diversification on capital structure. The specific objectives of this study are:

1. To analyze the effects of product diversification on capital structure of Nigerian Manufacturing companies.
2. To determine if the optimum selection gap in financial leverage affect capital structure decisions of Nigerian manufacturing companies.

1.5 Research Hypotheses

In order to achieve the objectives of the study, the following hypotheses were formulated:

H₀: Product Diversification has no significant effect on capital structure of manufacturing companies in Nigeria.

H_o: Optimum selection gap in financial leverage has no significant effect on capital structure decisions of Nigerian manufacturing companies.

2. Literature Review

2.1 Concept of Diversification

A review of literature reveals that there is a great deal of variation in the way diversification is conceptualized, defined and measured. Kamien and Schwartz (1975) defined diversification as the extent to which companies classified in one industry produce goods classified in another. Still more recent attempts at defining diversification have focused on the multidimensional nature of the diversification

phenomenon. For example, Matsusaka (2001) defines it as a process by which companies search for new uses of their organizational capabilities.

According to Adamu, Zubairu, Ibrahim & Ibrahim(2011) viewed diversification as the ratio of the company's annual revenues from its largest discrete core product market (segment) to its total revenues (specialization ratio) provides a basis for classifying the companies into undiversified, moderately diversified and highly diversified organisations. If a company's turnover from its dominant business is between 70% and 95% of its total turnover, then according to the classification, such a company is moderately diversified. A company is highly diversified if the turnover from its dominant business is less than 70% of its total turnover. According to Schoar 2002, diversification can be measured using the Herfindahl-Hirschman Index (HHI) which is a sales-based measure of diversification. It is computed as 1 minus the sum of the squares of each industrial segment's sales over total sales, so that indices that are closer to 1 indicate higher industrial diversification. In essence, the above definitions capture the decision focus of diversification in so far as it stresses the different types of investment decisions that qualify as diversification moves. Broad as they are, they do not go far enough in that they fail to include the administrative linkages and process aspects of diversification.

2.2 Concept of Product Diversification

Theoretical arguments suggest that product diversification has both value-enhancing and value-reducing effects. Teece (1980) argued that multiproduct companies can capture economies of scale better when the production of two or more products depends upon the same proprietary know-how and when a specialized indivisible asset is a common input into the production of two or more products. The potential benefits of product-diversified companies are related to high incentive to accept positive net present value projects, greater debt capacity and lower taxes and economies of scope.

Another potential benefit arising from industrial diversification is greater debt capacity. Lewellen (1971) argued that conglomerates can sustain higher levels of debt because they reduce earnings volatility by combining businesses with imperfectly correlated earnings streams. If debt tax shields increase company value then conglomerate companies should be more valuable than companies operating in a single industry. Shleifer and Vishny (1992) also predicted that conglomerates and multi-division companies have a higher optimal debt level at the same level of cash flow volatility because in bad states of the world they can sell assets in those industries and suffer the least from liquidity problems.

2.3 Concept of Capital Structure

The term capital structure refers to the percentage of capital (money) at work in a business by type. It is the mix of debt and equity instruments which are used to finance a company's assets. The mix comprises of common stock, debt and preferred stock and it's different from company to company. Managers of a company have a big challenge of choosing the optimal capital structure which is the mix of securities that minimizes the cost of financing the company's activities and thereby maximises the value of the company (Ajay & Madhumathi, 2012). Enow (2010) describes optimal capital as the capital structure with a minimum weighted cost of capital and thereby maximises the value of the company's stock, one in which the share price is maximized.

A company's capital structure can have significant implications for its operations. It can both create opportunities and also impose limitations for the company (Chen & Low, 2004). False capital structure decisions may lead to financial distress and eventually to bankruptcy hence, management of a company sets its capital structure in a way that company's value is maximized (Poddar & Mittal, 2014). Enow (2010) argued that in contrast to debt financing, equity financing does not require direct obligation from the company to repay funds. Instead, equity investors become part of the owners in the business, and thus are able to exercise some degree of control of the company. Rocca *et al.*, 2009 analyzed leverage as a ratio of total financial debt to total financial debt plus equity.

A company's capital structure is then the composition or structure of its liabilities (Salawu, 2007). For example, a company that sells N30 billion in equity and N70 billion in debts is said to be 30% equity-financed and 70% debt-financed. The company's ratio of debt to total financing is 70% referred to as the company's leverage which can also be described as its gearing ratio.

2.4 Empirical Review on Product Diversification and Capital Structure

The empirical evidence about the relationship between capital structure and product diversification is quite limited. Alonso (2003) examined whether diversification strategy has a real influence on company's capital structure. He studied the effect of diversification strategy on company capital structure using a panel data analysis for a sample of 480 Spanish manufacturing companies during the period 1991-1994. For more robust results, he used four alternative measures of capital structure (the total debt ratio, a logistic transformation of total debt ratio, short term debt ratio, the long term debt ratio) and two different proxies of diversification strategies (the Herfindahl index and the Entropy index of total product diversification). After controlling for company's business risk, growth opportunities, firm size, intangible assets and company profitability, he found no significant relationship between capital structure and the degree of company product diversification.

La Rocca, La Rocca, Gerace and Smark (2009) extended prior analyses on financial policy and diversification by examining the relationship between capital structure and diversification over a long period (27 years). Their sample consisted of a panel made up of 180 Italian companies (76 listed) evaluated in the period from 1980 to 2006. Using a target adjusted model estimated by the Generalized Method of Moments (GMM) approach, they show that total diversification is negatively related to debt ratios. Furthermore, their analysis indicated that the degree of relatedness between business segments is important in the relationship between diversification and capital structure. They found that a related-diversification strategy, which is based on business synergies and resource sharing, has a negative influence on leverage. By contrast, unrelated diversify, which is based on financial synergies, has a positive effect on debt. In addition they found that the diversification structure significantly influenced the speed at which companies adjusted their leverage ratios toward the optimal ones. Specifically, companies that had adopted a related diversification strategy, and specialized companies moved more slowly toward their target capital structure, while companies with an unrelated diversification strategy quickly adjusted their capital structure to the equilibrium level.

Jandir and Bruno (2012) examined whether corporate diversification increases the borrowing capacity of Brazilian companies by means of cross-pledging. Using a panel data model, they estimated the relationship between leverage and the degree of corporate diversification on a sample of companies listed on the São Paulo Stock Exchange (Bovespa) between 2009 and 2011 and Brazilian companies with access to international markets through American Depositary Receipts (ADRs) in the period 2003-2011. After the empirical analysis, they found no relationship between diversification and debt in either sample, this according to them indicated that a strategy of corporate diversification should not be used as a strategy to expand a company's financing capacity.

2.5 Theoretical Framework

Since the publication of Modigliani and Miller's work in 1958, there have evolved several theories of capital structure, the most important being the *trade-off theory* and the *pecking order theory*.

2.5.1 The Trade-off Theory

The basic idea of the trade-off theory is that the optimal capital structure of the company will be determined such that the marginal benefits of debt are equal to the marginal costs of debt. Therefore, there exists a trade-off between the benefits of the interest tax shields and the cost of bankruptcy or financial distress. Risky and small companies will borrow less because they are more volatile and have a higher probability of bankruptcy. Companies with large amounts of intangible assets, specialized assets and high growth opportunities borrow less because their assets are more difficult to evaluate and lose a lot of value in case of bankruptcy.

According to the static trade-off theory, the observed capital structure should be optimal in the sense that it maximizes the company's value, provided there are no adjustment costs attached to capital structure changes (Myers, 1984). On the other hand, the dynamic trade-off theory predicts that, in the presence of transaction costs, companies do not automatically adjust their debt level to the optimal structure as they do in the static trade-off model. Rather they adjust their realized debt-equity ratios over time. Therefore, a decision maker of a company needs to evaluate the various costs and benefits of alternative leverage plans (Luigi & Sorin, 2009). This will enhance decision on the target debt ratio of the company which will

maximize its value and then the company can slowly move toward achieving it. The optimal capital structure is reached when the marginal benefit of each incremental unit of debt (i.e. interest tax shields) is equal to marginal cost of each incremental unit of debt i.e. financial distress (Naidu, 2011).

2.5.2 Pecking Order Theory

The pecking order suggests that companies prefer internal to external financing (Jong, Kabir & Nguyen, 2007). If internal funds are not enough to finance investment opportunities, companies may or may not acquire external financing, and if they do, they will choose among different external finance sources in such a way as to minimize additional costs of asymmetric information. The pecking order theory regards the market-to-book ratio as a measure of investment opportunities (Luigi & Sorin, 2009). A company issues the safest security first if external finance is required. That is, it issues debt, then possibly hybrid securities such as convertible bonds. And equity only as a last resort (Jong et al., 2007).

Empirical studies show weak support for the Pecking Order Theory. Frank and Goyal (2012) tested this theory on a broad cross-section of publicly traded American companies over the period 1971-1998. They found that internal financing is not sufficient to cover investment spending, external financing is heavily used and debt financing is not preferred to equity financing. To conclude, Myers (2001) stated that none of the theories gives a general explanation of financing strategy and that there are convincing examples of all theories at work. The theories are not designed to be general and the results might vary depending on the sample on which the theory is tested.

3. Methodology

The study used the descriptive and quantitative research design which entails the analysis of existing secondary data including time series for the period of 2008 to 2012 and cross section analysis on six sampled companies considering company size, profitability and exchange rate as control variables to the regression design. The regression design was used to establish the extent to which capital structure is affected by the independent variable (product diversification). The population focused mainly on two major manufacturing industry sectors Food/Beverages & Tobacco and Conglomerates as classified by the Nigeria Stock Exchange as at Dec, 2012 with total number of 24 companies and a probability method in the form of simple random sampling technique was employed in selecting the manufacturing companies. The population of the study is presented in the Table 3.1

Table 3.1: Population of the Study

Food/Beverages & Tobacco	Conglomerates
1) 7-up Bottling Comp Plc	1) A.G Leventis Nig Plc
2) Big Treat Plc	2) Chellarams Plc
3) Cadbury Nig. plc	3) John Holt Plc
4) Dangote Flour Mills plc	4) P.Z Cussons Nig. Plc
5) Dangote sugar refinery plc	5) SCOA Nig. Plc
6) Flour Mills Nig. Plc	6) Trans. Corporation of Nig. Plc
7) Northern Nig. Flour Mills Plc.	7) UAC of Nig. Plc
8) National Salt Co. Nig. Plc	8) Unilever Nig. Plc
9) Nestle Nigeria Plc	
10) Nigeria Bottling co. Plc	
11) P.S Mandrides & Co. Plc	
12) Tantalizers Plc	
13) UTC Nigeria Plc	
14) Union Decon Salt Plc	
15) Foremost Dairies Plc	
16) Honey Well Flour Mill Plc	

Source: Daily Official List (NSE)

Six companies were selected using convenience sampling method which are Cadbury Nigeria Plc, Nestle Nigeria Plc, 7-up Bottling Company Plc, PZ Cusson Industries Plc, UAC of Nigeria Plc, and Unilever Nigeria Plc. They are made up of domestic as well as multinational corporations and five years data (period of consistent product lines) of the six (6) companies form the sample size.

However, due to the violation of independent rule in the data variable for company product diversification, the fixed effect model proposed by Hausman test using panel data was less appropriate. The coefficient diagnostic model of wald test – wald mode of fixed effect was instrumental to examine the goodness – of - fit of the control variables on an overall basis. The rule is that if the p-value < 0.05 level of significance, reject the null hypothesis and accept the alternate hypothesis. On the other hand if the p-value is > 0.05 level of significance, accept the null hypothesis and reject the alternate hypothesis.

3.1 Model Specification.

To capture the effect of product diversification on capital structure, the following model is specified:
 $CPS = C(1) + C(2) * proddiver + C(3) * tassetsize + C(4) * profit + C(5) * exchvalue + C(6) * cop + C(7) * year$
Where:

Dependent Variable = Capital structure of company (CPS). It is long-term debt over the sum of long-term debt and market value of equity.

Independent variable = the independent variable for the study is Product Diversification which is measured here by; number of product line a company produces denoted in the model as **proddiver**.

The following are used as control variables

- Company size measured by; the total assets of company and denoted in the model as **tassetsize**.
- Profitability of company measured by; net profit after tax of company and denoted in the model as **profit**.
- Exchange rate exposure of company measured by; the rate at which the company stock is traded and denoted in the model as **exchvalue**.
- *Company, measured by; number of company used in the analysis and denoted in the model as cop*
- *Year, measured by; number of years in the analysis and denoted in the model as year*

4. Results and Discussions

4.1 Data Analysis

The company specific characteristics need to be taken into consideration as determinants of affiliate leverage ratio. To finding the possible relationships that is critical for effective risk management of the optimum capital structure frontier, Table 4.1 presents the correlation among the variables.

Evidence on the capital structure decisions of six Nigerian cross section companies in Table 4.1 reveals that company size proxy in total assets and profitability are inversely related with the leverage ratio. On the other hand, manufacturing stock exchange rate in market price value has a positive (rho coefficient = 0.5457) association with the debt level. The preference for internal equity implies that companies will use less debt than suggested by the trade-off theory.

Hypothesis One:

H_0 : *There is no significant effect of product diversification on capital structure of manufacturing companies in Nigeria*

Estimation Command:

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LS (CX=R) CPS, C, LOGPRO, All variables are significant at $\alpha=0.05$ level.

Estimation Equation:

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 $CPS = C(1) + C(2) * LOGPRO + [CX=R]$

Table 4.1: Rank (rho) Correlation between Capital Structure and Three Factor Determinant

@Risk Correlations	Company capital structure in Debt Ratio	Total Asset Size of Manufacturing Company	Profitability Threshold level of Manufacturing Company	Exchange Rate Exposure of the Manufacturing Company
Company capital structure in Debt Ratio	1			
Total Asset Size of Manufacturing Company	-0.5003082	1		
Profitability Threshold level of Manufacturing Company	-0.2274128	-0.3365709	1	
Exchange Rate Exposure of the Manufacturing Company	0.5457907	-0.39115	-0.2456058	1

Table 4.2: E-views 7, Econometric Panel Data Analysis

Dependent Variable: CPS
 Method: Panel EGLS (Cross-section random effects)
 Date: 03/08/15 Time: 13:00
 Sample: 2008 2012
 Periods included: 5
 Cross-sections included: 6
 Total panel (balanced) observations: 30
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.550280	0.681054	0.807983	0.4262
LOGPRO	-0.236950	0.175756	-1.348180	0.1888

Effects Specification		S.D.	Rho
Cross-section random		0.174950	0.4737
Idiosyncratic random		0.184425	0.5263
R-squared	0.084044	Mean dependent variance	0.115162
Adjusted R-squared	0.016196	S.D. dependent variance	0.185937
S.E. of regression	0.184425	Sum squared residual	0.918338
F-statistic	1.238702	Durbin-Watson stat	1.028638
Prob(F-statistic)	0.305708		

$$CPS = 0.550279966974 - 0.236950156199*LOGPRO + [CX=R]$$

Based on results in Table 4.2, lagged dependent variable is the one period lagged value (Xt-1) of CPS (capital structure) proxy by debt usage ratio [long term debt/ (summation of long term debt + equity market value)].

According to regression analysis, R-Squared is 0.0840. That means 8.40 per cent of variations in leverage ratio could be explained by this model. Yet, 91.83% [1-R² value weighted) of changes in leverage is better explained by company specific characteristics or residual [CX=R] sum of squared model. The coefficients of product diversification logarithm is approximately found as -0.236. These results show that about 23.6% decreases in financial leverage of the Nigerian manufacturing companies is attributed to influence due to product diversification level. The existence of negative impact between the leverage ratio and product diversification is statistically insignificant at 95% confidence limit; that is, the result accepted Hypothesis 1. Because calculated probability value 0.1888 is greater than 0.05 α level tested (see Table 4.2). The pooled regression results in Table 4.3 depict a simultaneous equation for the non-logarithm diversification levels and the companies specific five factor determinants employed as control variables to account for the fixed effect appropriateness in hypothesis summary (compare the wald test in Table 4.4).

Table 4.3: E-views 7, Simultaneous Equation Analysis for the Non-logarithm

Dependent Variable: CPS
 Method: Panel Least Squares
 Date: 03/08/15 Time: 14:55
 Sample: 2008 2012
 Periods included: 5
 Cross-sections included: 6
 Total panel (balanced) observations: 30
 CPS=C(1)+C(2)*PRODDIVER+C(3)*TASSETSIZE+C(4)
 *PROFIT+C(5)*EXCHVALUE+C(6)*COP+C(7)*YEAR

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	125.2759	52.19796	2.400016	0.0253
*C(2)	-0.022737	0.007736	-2.939068	0.0076
*C(3)	5.80E-09	2.41E-09	2.409372	0.0248
C(4)	-3.61E-08	3.11E-08	-1.160010	0.2585
C(5)	-0.001206	0.002348	-0.513830	0.6125
C(6)	0.068970	0.046187	1.493279	0.1496
*C(7)	-0.062282	0.026046	-2.391228	0.0258
R-squared	0.613995	Mean dependent var		0.270065
Adjusted R-squared	0.491175	S.D. dependent var		0.251947
S.E. of regression	0.179719	Akaike info criterion		-0.371666
Sum squared resid	0.710576	Schwarz criterion		0.001987
Log likelihood	13.57499	Hannan-Quinn criter.		-0.252131
F-statistic	4.999153	Durbin-Watson stat		1.211155
Prob(F-statistic)	0.001663			

Note: * statistical significant factors at $\alpha=0.05$ level.

It has been revealed that on the companies specific five factor determinants employed as control variables to account for the fixed effect appropriateness, only the coefficient of total asset size and the difference in time lag (years) appear to be significant (P- value = 0.0248 and 0.0258) at the 0.05 alpha thresholds. The coefficient of profitability (P- value = 0.2585), exchange rate value (P- value =0.6125) & company category i.e cross section level (P- value = 0.1496) are not significant. However, this shed light to show that manufacturing companies in Nigeria with large profits use internal finances and companies generating smaller profits use external financing.

Table 4.4: Wald Test
Equation: WALDMOD FIXED EFFECT

Test Statistic	Value	Df	Probability
F-statistic	4.250452	(5, 22)	0.0074
Chi-square	21.25226	5	0.0007

Null Hypothesis: $C(3)=C(4)=C(5)=C(6)=C(7)=0$
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(3)	5.80E-09	2.41E-09
C(4)	-3.61E-08	3.11E-08
C(5)	-0.001206	0.002348
C(6)	0.068970	0.046187
C(7)	-0.062282	0.026046

Restrictions are linear in coefficients.

In Table 4.43 above, the F-statistic, Chi-square value and probability value suggest that the diagnostic coefficient increases or decreases in debt utilization rate attributed to changes within five determinant factors of capital structure are significantly different from zero or heterogeneous, based on statistical significant probability values of $(0.0074, 0.0007 < 0.05)$ fixed effect results of Wald test. The results of the present analysis indicate that the product diversification strategies developed by companies indeed affect their capital-structure decisions, together with other company-specific characteristics. While the findings of this study point to the importance of diversification in explaining financing choices, diversification is clearly a determining factor in capital structure decisions and thus deserves more attention in future investigations.

Hypotheses Two

Ho: Optimum selection gap in financial leverage has no significant effect on capital structure decisions of manufacturing companies in Nigeria.

Finding the optimum threshold to achieve desired mix of financial leverage [long term debt/ (summation of long term debt + equity market value)] with unique outcome to improve capital structure decisions and consequently value of the company towards maximizing shareholders wealth, appear to be the major missing link in agency theory of the company.

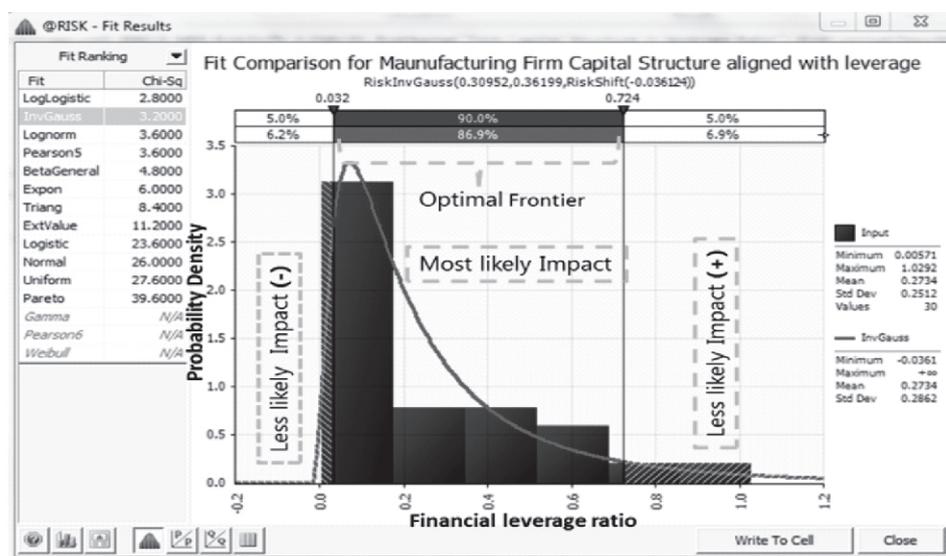


Figure 1: Monte Carlo Simulation of Debt to Equity Risk Probability and Impacts (2008-2012)

In relation to capital structure optimization techniques, the significant findings or lesson learnt from Figure 1 result, suggested that an optimal selection frontier of financial leverage which is greater than 0.032 – 0.724 of relative 86.9% probability density estimate is found as the most likely impacts ratio for improved capital structure decisions as desired by managers and the shareholders of the company. The empirical evidence here, thus help in understanding the relevancy of tradeoffs theory & policy of capital structure choice between prorated of debt to equity financing mix.

4.2 Major Findings

From the analysis, the result shows that, company size proxy in total assets and profitability are inversely related with the leverage ratio. On the other hand, manufacturing stock exchange rate in market price value has a positive association with the debt level. The preference for internal equity implies that companies will use less debt

According to the regression analysis, about 23.6% decreases in financial leverage that is, reduction in debt usage of Nigeria manufacturing companies is attributed to influence due to product diversification level. On employing five factors determinants as control variables to account for the fixed effect appropriateness in the analysis, only the coefficient of total asset size and the difference in time lag (years) appear to be significant (P-value = 0.0248 and 0.0258) at the 0.05 alpha thresholds. The coefficient of profitability (P-value = 0.2585), exchange rate value (P-value = 0.6125) & company category i.e cross section level (P-value = 0.1496) are not significant, however, this shed light to show that manufacturing companies in Nigeria with large profits use internal financing and companies generating smaller profits use external financing.

The results of the present analysis indicate that the product diversification strategies developed by companies indeed affect their capital-structure decisions, together with other company-specific characteristics. While the findings of this study point to the importance of diversification in explaining financing choices, diversification is clearly a determining factor in capital structure decisions and thus deserves more attention in future investigations.

5. Conclusion and Recommendations

5.1 Conclusion

On the test of hypothesis one, the research hypotheses cannot be rejected at the 95% confidence threshold. Based on this ground, using the panel data which revealed a negative and insignificant relationship between the dependent variable of capital structure and the independent variable of Product diversification with $\beta = -0.236950$, P-value = 0.1888, t test = -1.348180 at 0.05 level of significance. These results show that about 23.6% decreases in financial leverage of Nigeria manufacturing companies, is attributed to influence due to product diversification level. Based on these results, the p-value = 0.1888 > 0.05, therefore, the hypothesis one is accepted, there is no significant effect of product diversification on capital structure.

Finding the optimum threshold to achieve desired mix of financial leverage, the result suggested that an optimal selection frontier of financial leverage which is greater than 0.032 – 0.724 of relative 86.9% probability density estimate was found as the most likely impacts ratio. Therefore hypothesis two is rejected and we concluded that there is optimum selection gap in capital structure decisions of manufacturing companies in Nigeria. Owing to the case study used in this study, the findings cannot be generalized to mean the Nigerian manufacturing companies; this constitutes a serious limitation to the study.

5.2 Recommendations

Based on the findings of this research, it is recommended that:

1. Management of manufacturing companies in Nigeria must strive to invest more in multiple product lines in order to increase the returns to shareholders that will be accompanied with a less debt ratio to equity ratio.
2. Selection of optimal frontier of financial leverage to guarantee sustainable interest that will improve capital structure decisions of the company is highly recommended.
3. Management should strive to increase the assets size and consequently profitability through diversification if they have preference for internal financing than debt option.

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