

RELATIONSHIP BETWEEN CAPITAL STRENGTH AND RISK

(A CASE STUDY OF SELECTED FLOUR MILL COMPANIES IN NIGERIA)

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ABSTRACT

This study examined the relationship between capital strength and risk. Financing decision is one of the major challenges confronting manager of finance. There are many ways to source for fund to finance the assets of a company. The choice undoubtedly will have effect on the level of profit. Leverage either directly or indirectly will affect the risk perception of the firm. The objective of the study is to find out the relationship between profitability and capital strength. Return on capital employe (ROCE) is used as proxy for profitability while financial leverage, asset leverage and operating leverage are used as proxies for capital strength. Three hypotheses covering the three leverages were formulated to see how each is related to profitability using this model: $ROCE = \beta_0 + \beta_1 (FINL) + \beta_2 (ASSL) + \beta_3 (OPEL) + \epsilon$. The result of the analysis showed that there is significant relationship between profitability and financial leverage, asset leverage and operating leverage.

Keywords: Capital strength, profitability. Leverage, risk, financing decision.

Introduction:

The assets of a company can be financed either by increasing owners' claims or creditor' claims'. The owners' claims increase when the firm raises fund by increasing ordinary shares or by retaining the earnings. Creditors claim increases by borrowing (Pandey, 2009). The capital strength of a company depends to a larger extent the way and manner that company is being financed.

Financing decision is a very important decision that can make or mar an organization. Business managers more often than not face two types of risks; business risk and finance risk. Business risk is associated with the operations of an organization while finance risk on the other hand is concerned with the way an organization is being financed (Mojgan, 2012). For this singular reason, careful attention must be paid to the way and manner an organization is being financed.

Financing assets is a major concern in every business organization and as a general rule, there should be proper mix of debt and equity capital in financing the business organization assets. Financial structure refers to the way the organization's assets are being financed. In other words, it includes both long-term as well as short-term sources of funds. Thus, capital structure is only a part of financial structure (Rama, 2009). Capital structure of a business organization is therefore the composition or make up of its capitalization and it includes all long term capital

structure viz, loans, advances, reserves, shares and bonds (Michael and Williams, 1976).

Statement of the problem:

Risk can be thought of as the possibility that the actual return will deviate from the expected return. To some extent, risk is unavoidable. Therefore, in the choice of the way a company is to be financed there is the need to consider the element of risk. There are two types of risk associated with capital strength, namely: (1) Business risk and (2) Finance risk.

Business risk is the relationship between the firm's sales and earnings before interest and tax (EBIT). In general, the greater the firm's operating leverage, the higher the use of fixed operating cost, the higher the business risk. The onus is on the management of the firm to use fixed operating costs to magnify the effects of changes in sales and earnings before interest and tax. Financial leverage measures a firm exposure to financial risk and result from the presence of fixed financial charges.

Research questions:

From the foregoing, the pertinent question is what relationship exists between capital strength and risk as measured by the level of profitability of a firm.

The specific questions are as follows:

- (i) To what extent does profitability affect financial leverage?
- (ii) What is the relationship between profitability and asset leverage?
- (iii) What relationship exists between profitability and operating leverage?

Statement of hypotheses:

To answer the above questions the following hypotheses stated in null form are formulated.

H₀1: There is no significant relationship between profitability and financial leverage.

H₀2: There is no significant relationship between profitability and asset leverage.

H₀3: There is no significant relationship between profitability and operating leverage.

Literature review:

This section is divided into three namely: conceptual frame work, theoretical frame work and empirical studies.

Conceptual framework:

The balance sheet of a business organization is in form of assets and claims against those assets by creditors and owners (SAS2). This can be represented by accounting model.

$$\text{LIABILITIES} = \text{ASSETS} \quad (1)$$

The left hand side of the equation represents those who provide funds to acquire the assets in the right hand side of the equation.

The above model can be broken down further as follows:

$$\text{LTL} + \text{STL} = \text{FA} + \text{CA} \quad (2)$$

$$\text{EQ} + \text{LTD} + \text{STL} = \text{FA} + \text{CA} \quad (3)$$

Where:

LTL=Long- term liability

STL=Short-term liability

FA= Fixed asset

CA=Current asset

EQ= Equity

LTD=Long term debt

The expression on the left hand of model (3) can be inferred to be the capital strength (financial structure) of a business organization. That is the way and manner by which an organization is being financed.

Capital strength therefore involves determining the best mix of debt, equity and hybrid securities to employ in the running and management of a business organization.

Maximization of profit is one of the objectives of a business organization. There are many ways to measure profitability of a business organization. It can be measured as a percentage of gross profit to sales, assets turnover and return on capital employed.

The irrelevance theory of capital structure hypothesis propounded by Miller and Modigliani in 1958 had generated a lot of debates. Since then a lot of theories had been put forward to challenge the theory propounded by

Modigliani and Miller. For the purpose of this study, the following will be discussed:

Theoretical framework:

Agency cost theory:

These are the costs that occur as a consequence of conflict of interest and can originate as a result of conflicts between the managers and shareholders (owners) of firms or the debt holders and equity holders of the firm (Harris and Raviv, 1991).

The trade- off theory:

This suggests that there is an optimum capital structure in which the benefits of debt are off-set by the cost of debt. The optimal capital structure is achieved when the marginal benefit of an additional unit of debt is exactly off set by the marginal cost of an additional cost of an additional units of debts(Fama and French,2005)

Static trade-off theory:

This is referred to as the tax based theory. The theory believes that the value maximizing firm will consider the tradeoff between the tax shelter provided by debt and the cost of financial distress (Brealey and Myers, 2003). Under this theory, firms select optimal capital structure by examining the net tax advantage of debt financing by comparing debt advantages (tax shield benefits) the disciplinary role of debt on managers (Jensen and Meckling, 1976)

The dynamic trade off theory:

Unlike the static trade off theory which implicitly holds the assumption that firms always stay at target leverage by continuously adjusting leverage to the target. The dynamic version recognizes that financing frictions make it sub-optimal for firms to continuously adjust their leverage to the target. Firms weigh the benefit of adjusting their capital structures against the adjustments only when the benefit outweighs the cost(Ovtchinnikov,2010)

Pecking order theory:

There is no well-defined target debt/equity ratio and each firm's observed debt ratio simply reflects the firms cumulative requirement for external finance over an extended period (Myers, 1984). According to this theory, firms will first use internal funds (retained earnings) before using debt and will finally use equity under duress or when the investment requirement so far exceeded debt capacity that it would lead excessive leverage(Fama and French,2005).

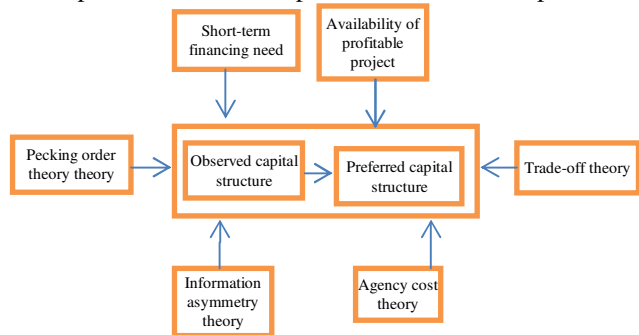
Market timing theory:

This refers to the practice of issuing shares when equity valuations are high relative to book value and past market valuations and repurchasing equities when the market

values are low. Consequently, observed capital structures are a function of the past market values of securities rather than a desire to achieve an optimum capital structures or as a consequence of following a pecking order(Baker and Wurgler, 2002).

The association between the capital structure and various theories as it affects financing needs of company is illustrated in the table below.

Conceptual overview of capital structure land scape



Source: Rayan, 2008

Extant literature:

Name of author	Year	Title of the study	Findings
Fama, E.F. and French, K.R.	1998	Taxes, financing decisions and firm value	There is significant negative relationship between short term debt and profitability, negative association between long term debt and profitability. This implies that an increase in the short-term and long term debt position is associated with decrease in profitability.
Booth, L., Aivazian, V., Demircug-Kunt, A.E. and Maksimovi a,V.	2001	Capital structure in developing country	The lower the debt, the lower the profitability. This shows that profitable firms depend more on equity as their main financing option.
Gill, Amarjit, Nahum, Biger and Niel, Mathur	2011	The effect of capital structure on profitability :Evidence from United State.	The correlation and regression were used to estimate the functions relating to profitability(measured by return on assets) with measure of capital structure. Empirical results show a positive relationship between short-term debt to total assets and profits
Zuraidah Ahmad, Norhasuiza Mohd Hassan Abdullah and Shashazrina Roslan	2012	Capital structure effect on firms performance. Focusing on consumers and industrials sectors on Malaysian	The study found out that only short-term debt and total debt have significant relationship with return on assets while return on equity has significant on each of debt level. However, analysis with lagged values showed that none of lagged values for short-term debt, total debt and long-term debt has significant relationship with

		firms.	performance.
Mohammad , F. Shubita and Jafer Maroofalsa walhah	2012	The relationship between capital structure and profitability	The study revealed negative association between all the independent variable except the association between debt equity ratio and return on equity.
Mojgan Derayat	2012	The investigation of experimental relationship between capital structure and profitability in accepted companies of Tehran stock exchange(T SE).	The study confirmed direct relationship between variables explaining the type of capital structure used in the companies and return on the assets ratio as an indicator for the company's profitability.

Methodology:

The study used secondary data for the analysis. Secondary data is data that had been previously collected for some other project rather than the one at hand but found to be useful by the researcher. The financial statements which are made up of profit and loss account and balance sheet of the sampled companies were the main sources of data for this study. Additionally, scholarly articles from academic journals, relevant text books on the subject were also used. Specifically, the financial statement of companies in the sample were collected for the period 2007-2011.

The total population of this study is made up of companies producing flour listed in the Nigerian Stock Exchange under food and beverage sector of the economy. As at January, 2013; there were 21 quoted companies under this sector of the economy and only five were in flour production. Purposively, only two were selected for this study.

Research Variable model:

$$ROCE = \beta_0 + \beta_1 (FINL) + \beta_2 (ASSL) + \beta_3 (OPEL) + \epsilon$$

Definition of Variables:

The expression on the left hand side of the model is dependent variable while the expression on the right hand side of the model is independent variables which will determine the effect it has on the dependent variable

- ROCE=Return on capital employed, measured as EBIT/Capital employed
- EBIT= Earnings before interest and tax
- EAT= Earnings after tax
- CE= Capital employed
- FINL= Financial leverage measured as EAT/EBIT
- ASSL= Asset leverage, measured as CE/Shareholders Net worth
- OPEL= Operating leverage, measured as Sales/ EBIT

Data presentation and Analysis:

Statistical method using regression analysis method to discuss the finding and make comparison between the two companies as the way they are able to use capital strength to reduce the risk as it affects profitability.

Table1: Regression analysis for Honeywell flour mill

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. regress ROCE FINL ASSL OPEL
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Source	SS	df	MS			
Model	.032108931	3	.010702977	Number of obs =	10	
Residual	.02265107	6	.003775178	F(3, 6) =	2.84	
Total	.054760001	9	.006084445	Prob > F	= 0.1284	
				R-squared	= 0.5864	
				Adj R-squared	= 0.3795	
				Root MSE	= .06144	

ROCE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
FINL	.086615	.1230419	0.70	0.508	-.2144578	.3876877
ASSL	.0289236	.0627826	0.46	0.661	-.1246998	.182547
OPEL	-1.400763	.9709214	-1.44	0.199	-3.776522	.9749964
_cons	.292661	.124527	2.35	0.057	-.0120456	.5973675

Source: Processed data

$$ROCE = \beta_0 + \beta_1 (FINL) + \beta_2 (ASSL) + \beta_3 (OPEL) + \epsilon$$

$$ROCE = .292661 + .086615(FINL) + .0289236(ASSL) - 1.400763(OPEL) + \epsilon$$

Table 2: Regression analysis for Dangote flour mill

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. regress ROCE FINL ASSL OPEL
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Source	SS	df	MS			
Model	.015442987	3	.005147662	Number of obs =	10	
Residual	.023367015	6	.003894502	F(3, 6) =	1.32	
Total	.038810002	9	.004312222	Prob > F	= 0.3517	
				R-squared	= 0.3979	
				Adj R-squared	= 0.0969	
				Root MSE	= .06241	

ROCE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
FINL	-.0096514	.152701	-0.06	0.952	-.3832972	.3639945
ASSL	-.1384773	.2538317	-0.55	0.605	-.7595811	.4826264
OPEL	-.0139991	.010094	-1.39	0.215	-.0386983	.0107
_cons	.4231175	.3144029	1.35	0.227	-.3461987	1.192434

Source: Processed data

$$ROCE = \beta_0 + \beta_1 (FINL) + \beta_2 (ASSL) + \beta_3 (OPEL) + \epsilon$$

$$ROCE = .4231175 - .0096514(FINL) - .1384773(ASSL) - .0139991(OPEL) + \epsilon$$

Hypotheses Testing:

To test whether there is significant relationship between profitability and financial leverage, asset leverage and operating leverage, t-value test was used. The following is the decision rule for the acceptance or rejection of null hypotheses:

t-value > 1.96 and p-value < 0.05

H₀₁: There is no significant relationship between profitability and financial leverage.

H₀₂: There is no significant relationship between profitability and asset leverage.

H₀₃: There is no significant relationship between profitability and operating leverage.

Table 3: Comparison of regression analysis

Honeywell Flour Mill	Dangote Flour Mill	FINL
0.086615	-0.0096514	ASSL
0.0289236	-0.1384773	OPEL
-1.400763	-0.0139991	

Table:

Table 4: Comparison of t-value and p-value

Honeywell Flour Mill		Dangote Flour Mill		
t-value	p-value	t-value	p-value	
0.70	0.508	-0.06	0.955	FINL
0.46	0.665	-0.55	0.605	ASSL
-1.44	0.199	-1.39	0.215	OPEL

Discussion of result:

Regression analysis Honeywell flour mill shows that financial leverage and asset leverage are positively correlated with profitability, as financial leverage and asset leverage increases, profitability will also increase while operating leverage is negatively correlated with profitability. This means that as operating leverage decreases, profitability increases and vice versa.

The situation is different under Dangote flour mill where financial leverage, asset leverage and operating leverage are negatively correlated with profitability. As financial leverage, asset leverage and operating leverage decreases profitability will increase and vice versa.

Considering the decision rule above, the three null hypotheses are rejected while the alternative hypotheses are accepted. This shows that for the two companies, alternative hypotheses are accepted. That is, there is significant relationship between profitability and financial leverage, asset leverage and operating leverage.

The result of p-value showed that financial leverage and operating leverage is statistically significant for the two companies under consideration although the coefficient of the two leverage is negative. On the other hand the p-value of the operating leverage showed that it is not statistically significant with negative co-efficient.

Table 5: Summary of result of hypotheses testing

Hypothesis	Statement	Result
H ₀₁	There is no significant relationship between profitability and financial leverage	Reject
H ₀₂	There is no significant relationship between profitability and asset leverage	Reject
H ₀₃	There is no significant relationship between profitability and operating leverage	Reject

Source: Result of processed data

Conclusion and Recommendation:

Financing decision is the most crucial a manager of a company will have to take. In the choice of the best way to finance the assets of the company consideration must be given to the structure of ownership because the way a company is financed will affect the profitability of the company and the owners whether directly or indirectly.

Therefore, the choice of leverage must be seriously considered by management as the capital strength is crucial to profitability of a company. Equally important the capital strength of a company is an indicator of the financial health of the company. If the capital strength is strong, it will affect the perception of the outsider as regards whether to transact business with it or not.

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