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# Determinants of Corporate Profitability in Developing Economies

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**Abstract**
The study investigates the determinants of corporate profitability in developing economies, with main emphasis on the Nigerian context. The study analyzes the relationship between capital structure, firm size, cash liquidity, financial leverage and corporate profitability. A panel data consisting of forty (40) randomly selected companies, spanning a period of five (5) years was utilized for the study. The ordinary least square regression was used to analyze the existence of relationships among the dependent and independent variables. A positive relationship was found to exist between firm size and corporate profitability, and financial leverage and corporate profitability. Capital structure and cash liquidity exhibited negative relationships with corporate profitability. The study recommended the use of different indices of profitability; as differing results are possible. The study further proposed the inclusion of additional variables in order to improve the stability and explanatory power of the overall model.
**Keywords**: Corporate Profitability, Capital Structure, Firm Size, Cash Liquidity, Financial Leverage.

## Introduction

Most organizations are set up with the aim of making profit and giving back sufficient returns to its shareholders. Corporate profitability can basically be defined as the degree to which an organization can effectively utilize its available funds and assets, and convert them into profits. Profitability of corporate ventures enables organizations to better withstand negative shocks and contribute to the stability of the business environment. The profitability of an organization is affected by numerous factors. These factors include elements internal to each organization and several important external forces shaping earnings performance (Ani, Ugwunta, Ezeudu & Ugwuanyi, 2012).

The importance of corporate profitability can be appraised at the micro and macro levels of the economy. At the micro level, profit is the essential prerequisite of a competitive enterprise and the cheapest source of funds. It is not merely a result, but also a necessity for successful business in a period of growing competition in financial markets. Hence, the basic aim of an organization's management is to achieve profit, as the essential requirement for conducting any business (Bobakova, 2003). At the macro level, a sound and profitable business environment is better able to withstand negative shocks and contribute to the stability of the business environment.

Organizations are generally perceived to play a central role in developing economies and their performance is one of the most important issues for many firm stakeholders such as shareholders, creditors, employees, suppliers and governments (Bhayani, 2010; Madrid-Guijarro, Auken & Perez-de-Lema, 2007). For this reason, analyzing the factors determining firm profitability and identification of the sources of variation in firm-level profitability has been regarded as important research themes by the researchers in the fields of economics, strategic management, marketing, accounting and finance (Gaur and Gupta, 2011; Nunes , 2009; Jonsson, 2007).

## Statement of the Research Problem

Due to the fact that firms' financial performance directly affects the stability of the countries' economic systems in today's capitalist world economy, the factors affecting firm profitability deserve special attention (Akbas & Karaduman, 2012). Profitability is the major tenet of most corporate entities; hence it's relative importance in the analysis of corporate growth and survival. There are lots of factors that can have impact on the profitability of firms. Among these factors, capital structure, firm size, cash liquidity and financial leverage have been considered for analysis in this study as determinants of corporate profitability. The study therefore proposed the following research questions:

1. What is the relationship between capital structure and corporate profitability?
2. What is the relationship between firm size and corporate profitability?
3. What is the relationship between cash liquidity and corporate profitability?
4. What is the relationship between financial leverage and corporate profitability?

## Objectives of the Study

The objectives of the study are to:

1. Analyze the relationship between capital structure and corporate profitability.
2. Analyze the relationship between firm size and corporate profitability.
3. Analyze the relationship between cash liquidity and corporate profitability.

 

4. Analyze the relationship between financial leverage and corporate profitability.

**Hypothesis**

**$H_1$**: There is a positive relationship between capital structure and corporate profitability.
**$H_2$**: There is a positive relationship between firm size and corporate profitability.
**$H_3$**: There is a positive relationship between cash liquidity and corporate profitability.
**$H_4$**: There is a positive relationship between financial leverage and corporate profitability.

## Literature Review

### *Capital Structure and Corporate Profitability*

Osuji and Odita (2012) examined the impact of capital structure on the financial performance of Nigerian firms using a sample of thirty non-financial firms listed on the Nigerian Stock Exchange during the period, 2004 to 2010. Panel data for the selected firms were generated and analyzed using ordinary least squares (OLS) as a method of estimation. Their result shows that a firm's capital structure surrogated by debt ratio has a significantly negative impact on the firm's financial profitability measured by return on asset (ROA) and return on equity (ROE).

Ogbulu and Emeni (2012) examined the relationship between capital structure, size, growth, tangibility, age and profitability of a firm. Using cross-sectional survey data from 110 firms listed on the Nigerian stock exchange and analysis of the data by the OLS method, they found that the relationship between capital structure and profitability was non-significant, albeit positive.

Omorogie and Erah (2010) analyzed the relationship between capital structure and corporate performance in Nigeria. They utilized data ranging between 1995 and 2009. A model was specified for the study comprising five explanatory variables; based on theoretical underpinnings. The Ordinary Least Squares (OLS) technique of model estimation was employed to ascertain the existence of relationships among the variables. They found that capital structure exhibited a significant relationship with corporate performance. They also found that the other explanatory variables were useful and had a statistical relationship with corporate performance.

Zeitun and Tian (2007) investigated the effect of capital structure on corporate performance using a panel data sample of 167 Jordanian companies during the period 1989 to 2003. Their results showed that a firm's capital structure has a significantly negative impact on the firm's performance measures. They also found that the level of leverage has a significantly positive effect on the market performance measures.

### *Firm Size and Corporate Profitability*

Akbas and Karaduman (2012) analyzed the effect of firm size on the profitability of manufacturing companies listed in the Istanbul Stock Exchange by using a panel data set over the period 2005 to 2011. Profitability was measured by using Return on Assets, while both total assets and total sales were used as the proxies of firm size. According to the results of the study, firm size, both in terms of total assets and in terms of total sales, had a positive impact on the profitability of Turkish manufacturing companies.

Salawu, Asaolu and Yinusa (2012) investigated the effects of financial policy and firm specific characteristics; such as firm size, on corporate performance. Panel data covering the period from 1990 to 2006, for 70 firms were analyzed. Pooled OLS, Fixed Effect Model and Generalized Method of Moment panel model were employed in the estimation. Their results showed that firm size, growth and foreign direct investment are negatively related with firms' performance.

Ani, Ugwunta, Ezeudu and Ugwuanyi (2012) investigated the determinants of the profitability of banks in Nigeria. Their data set was made up of 147 bank level observations over a 10-year period, (2001 to 2010) in respect of 15 banks that satisfied the study requirements. Pooled OLS stated in a multiple regression form was used to estimate the coefficients. Their major results hinged on the fact that increase in firm size may not necessarily lead to higher profits due to diseconomies of scale; as higher capital-assets ratio, and loans and advances contribute strongly to bank profitability.

Abu-Tapanjeh (2006) examined the relationship between firm structure and profitability, taking into consideration major characteristics such as firm size, firm age, debt ratio and ownership structure of 48 Jordanian companies from 1995 to 2004, listed in the Amman Stock Exchange.

The study employed two model specifications in order to test the proposed hypotheses, using the profitability measure of return on equity (ROE) return on investment (ROI). The results indicate that a positive, non-significant relationship existed between the independent variables (including firm size) and profitability; with the exception of debt ratio.

### *Liquidity and Corporate Profitability*

Owolabi and Obida (2012) measured the relationship between liquidity management and corporate profitability using data from selected manufacturing companies quoted on the floor of the Nigerian stock exchange. The result of the study was obtained using descriptive analysis and their findings showed that liquidity management measured in terms of the company's credit policies, cash flow management and cash conversion cycle has

 

significant impact on corporate profitability.
Bordeleau and Graham (2010) analyzed the impact of liquid asset holdings on bank profitability for a sample of large U.S. and Canadian banks. Their results suggest that profitability is improved for banks that hold some liquid assets. However, there is a point at which holding further liquid assets diminishes a banks' profitability, all else equal. Moreover, empirical evidence suggests that this relationship varies depending on the firm's business model and the state of the economy.

***Financial Leverage and Corporate Profitability***

Ojo (2012) examined the effect of financial leverage on selected indicators of corporate performance in Nigeria. In an attempt to juxtapose the earlier findings that were specific to developed nations, econometric technique of Vector Auto Regression (VAR) model was employed to analyze the model. The findings of the study revealed that leverage shocks exert substantially on corporate performance in Nigeria.
Soumadi and Hayajneh (2011) investigated the effect of capital structure and financial leverage on the performance of Jordanian firms listed in the Amman stock market. The study used multiple regression model represented by ordinary least squares (OLS) as a technique to examine the effect of capital structure on the firm performance. The study investigated 76 firms (53 industrial firms and 23 service firms) for the period 2001 to 2006.Their results indicated that capital structure was negatively associated with firm performance. In addition, the study found out that there was no significant difference to the impact of the financial leverage between high financial leverage firms and low financial leverage firms on their performance.
Gill and Mathur (2011) examined the factors that influenced financial leverage of Canadian firms. Among these factors was profitability measured by Returns on Assets (ROA). A sample of 166 Canadian firms listed on the Toronto Stock Exchange was selected for a period of 3 years (2008 to 2010). The study applied correlation and non-experimental research design. Their results depicted a negative non-significant relationship between financial leverage and profitability.

**Research Methodology**

The research utilized secondary data sourced from the financial statements of the companies under review. Data was sourced from a sample of 40 companies listed on the Nigerian stock exchange. The companies were randomly selected across industries, and the data covered a period of five (5) years; between 2006 and 2010. The data for the various years consist of Corporate Profitability (represented by returns on assets), Capital Structure (measured as the sum of: reinvested profit, new equity capital, and long-term debt financing), Firm Size (represented by sales turnover), Cash Liquidity (measured by the sum of cash and cash equivalents), and Financial Leverage (measured as the sum of fixed interest bearing funds). A model was constructed in order to analyze the existence of relationships between the dependent and the independent variable, and also, plausible relationships between and amongst the variables. The variables were analyzed through descriptive statistics, and the various relationships amongst the variables analyzed through the correlation matrix. The model specified is estimated using the Ordinary Least Squares (OLS) regression technique with the aid of E-Views software.

**Model Specification**

$CPRT = \beta_0 + \beta_1 CSTR + \beta_2 FSIZ + \beta_3 CLIQ + \beta_4 FLEV + \varepsilon_t$

An explanation of the variables is as follows:
CPRT = Corporate Profitability
CSTR = Capital Structure
FSIZ = Firm Size
CLIQ = Cash Liquidity
FLEV = Financial Leverage
$\beta_0$ = Constant
$\beta_1 - \beta_6$ = Regression Parameters
$\varepsilon_t$ = Error Term

**Results and Discussions**

An examination of the descriptive statistics for the dependent and explanatory variables reveals the following observations. Corporate profitability experienced a low growth rate with the average growth rate standing at 26.96% (Appendix 2). The disparity in profitability ranged from -3.919 minimum values for some firms to a maximum value of 13.469 (Appendix 2). This presents a great disparity between firms in terms of performance. Considering the standard deviation (SD) which measures the level of variation or degree of dispersion of the variables from their mean, it reveals that corporate profitability is relatively stable (least volatile) with a SD of 1.08238 (Appendix 2) compared with other variables.
The OLS results indicate that a negative relationship exist between capital structure and corporate performance.

 

Firm size exhibited a positive relationship with corporate profitability with a t-value of 0.349089 (Appendix 3). Cash liquidity was negatively related to corporate profitability with a t-value of -0.437405 (Appendix 3), while the relationship between financial leverage and corporate profitability was found to be negative. All the explanatory variables however exhibited non-significant relationships with the dependent variable. This is justified by an adjusted $R^2$ of 0.017513 (Appendix 3); which depicts that only about 2% of the dependent variable is explained by the totality of the independent variable.

The probability (F-statistics) of 0.965586 (Appendix 3) is an indication of a relatively weak model; in terms of explanatory power, in the determination of the total systematic variations of the dependent variable. The model however portrays absence of auto correlation among the independent variables with a Durbin-Watson statistics of 2.202449 (Appendix 3), indicating that there are differences between the past and present error terms. The correlation matrix (Appendix 1) gives a picture of the existence of significant and non-significant relationships among the independent variables; as a statistical value 0.50 to 1 is regarded as significant. Capital structure exhibited a significant relationship with liquidity and financial leverage; while financial leverage also exhibited a significant relationship with liquidity. All other variables exhibited non-significant relationships among themselves.

Further diagnostic tests are executed to ascertain the validity of the model. Appendix 4 shows the Breusch-Godfrey serial correlation test, used to investigate the presence or absence of autocorrelation. The F-statistic and Obs*R-squared probability values are greater than 0.05 (5% level of confidence), which indicates the absence of autocorrelation in the model. The test for heteroskedasticity (Appendix 5) also reveals an F-statistic and Obs*R-squared probability values of 0.9522 and 0.9506 respectively; both of which are greater than 0.05, and indicates the absence of heteroskedasticity. The Ramsey reset test (Appendix 6) with F-statistic and t-statistic probability figures of 0.7977 is an indication of a properly specified model.

**Conclusion and Recommendations**

Capital structure and liquidity possessed negative relationships with corporate performance. The negative relationship between liquidity and corporate profitability can be borne out of the idealized liquidity-profitability tradeoff which posits that increases in liquidity generally gives rise to reduction in profitability levels due to the opportunity cost of holding cash rather than investing it.

Firm size and leverage are seen to positively affect corporate profitability in Nigeria. Theories that are adequate for indigenous macroeconomic variables should be developed instead of depending on the structured theories of the advanced developed countries of the world, as these theories cannot be appropriate proxies for advancing the course of the developing nations.

Several studies (Osuji & Odita, 2012; Abu-Tapanjeh, 2006) that utilized different profitability measures achieved diverse results. Consequently, it can be argued that different conclusions can result from differences in performance measures. This phenomenon may also be the result of the fact that studies use unsatisfactory performance measures, as the disadvantages of using raw accounting measures to evaluate corporate performance are well-known (Osuji & Odita, 2012). It is worth noting, however, that most of the studies were only performed on one country. Therefore, different conclusions may result from the influence of the institutional framework on the relationships. Firm influences and characteristics are to a large extent determined by the nature of the business environment within which the firm operates. This phenomenon could lead to discrepancies in the generation of statistical outcomes that aim to serve the purpose of generalization.

Due to the inability of the study to effectively capture the significant determinants of corporate profitability for the period under review, it is advised that for future studies, more variables be incorporated; these variables should include not only firm-specific variables, but also macroeconomic variables. Also, based on availability of data, a wider time range could be covered; as this would enhance adequate comparison. This might however lead to reduced stationarity of the variables; hence, the variables would have to be controlled for, especially due to possible increases in auto correlation and heteroscedasticity.

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## Appendix 1

**Correlation Matrix**

| | CPRT | CSTR | FSIZ | CLIQ | FLEV |
|---|---|---|---|---|---|
| CPRT | 1 | -0.0092 | 0.0358 | -0.0333 | 0.0162 |
| CSTR | -0.0092 | 1 | 0.2797 | 0.5397 | 0.5720 |
| FSIZ | 0.0358 | 0.2797 | 1 | 0.1855 | 0.1948 |
| CLIQ | -0.0333 | 0.5397 | 0.1855 | 1 | 0.6824 |
| FLEV | 0.0162 | 0.5720 | 0.1948 | 0.6824 | 1 |

Source: *E-Views Software 7.0*

 

**Appendix 2**

**Descriptive Statistics**

| | CPRT | CSTR | FSIZ | CLIQ | FLEV |
|---|---|---|---|---|---|
| Mean | 0.269616 | 15064.1 | 43267.33 | 18742.2 | 7966.293 |
| Median | 0.1385 | 2496 | 9311.5 | 741.5 | 851.5 |
| Maximum | 13.469 | 262351 | 339420 | 1176303 | 184208 |
| Minimum | -3.919 | 2 | 211 | 0.04 | 0 |
| Std. Dev. | 1.08238 | 34451.46 | 62929.37 | 97137.75 | 25671.77 |
| Skewness | 9.02551 | 4.462748 | 2.078009 | 9.714215 | 5.172686 |
| Kurtosis | 113.6473 | 25.70994 | 7.855359 | 108.0592 | 30.67046 |
| | | | | | |
| Jarque-Bera | 104738.8 | 4961.717 | 340.3917 | 95124.18 | 7272.343 |
| Probability | 0 | 0 | 0 | 0 | 0 |
| | | | | | |
| Sum | 53.9233 | 3012819 | 8653465 | 3748440 | 1593259 |
| Sum Sq. Dev. | 233.1376 | 2.36E+11 | 7.88E+11 | 1.88E+12 | 1.31E+11 |
| No. of Firms | 40 | 40 | 40 | 40 | 40 |
| Observations | 200 | 200 | 200 | 200 | 200 |

Source: *E-Views Software 7.0*

**Appendix 3**

**OLS Regression Results**

Dependent Variable: CPRT

Method: Least Squares

Sample: 1 – 200

Included observations: 200

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.278362 | 0.094771 | 2.937218 | 0.0037 |
| CSTR | -2.08E-06 | 5.94E-06 | -0.349558 | 0.7270 |
| FSIZ | 5.57E-07 | 1.60E-06 | 0.349089 | 0.7274 |
| CLIQ | -3.64E-07 | 8.33E-07 | -0.437405 | 0.6623 |
| FLEV | 6.61E-07 | 7.43E-06 | 0.088957 | 0.9292 |
| R-squared | 0.002940 | Mean dependent var | | 0.269617 |
| Adjusted R-squared | 0.017513 | S.D. dependent var | | 1.082380 |
| S.E. of regression | 1.091816 | Akaike info criterion | | 3.038244 |
| Sum squared resid | 232.4522 | Schwarz criterion | | 3.120702 |
| Log likelihood | 298.8244 | F-statistic | | 0.143725 |
| Durbin-Watson stat | 2.202449 | Prob(F-statistic) | | 0.965586 |

Source: *E-Views Software 7.0*

 

**Appendix 4**

**Breusch-Godfrey Serial Correlation LM Test:**

| | | | |
|---|---|---|---|
| F-statistic | 1.182773 | Prob. F(2,193) | 0.3086 |
| Obs*R-squared | 2.421662 | Prob. Chi-Square(2) | 0.2979 |

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Sample: 1-200
Included observations: 200
Presample missing value lagged residuals set to zero.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.000585 | 0.093917 | 0.006228 | 0.9950 |
| FSIZ | 3.65E-08 | 1.58E-06 | 0.023118 | 0.9816 |
| CLIQ | -3.13E-08 | 8.31E-07 | -0.037664 | 0.9700 |
| FLEV | -1.20E-07 | 4.26E-06 | -0.028134 | 0.9776 |
| CSTR | -3.31E-08 | 3.20E-06 | -0.010346 | 0.9918 |
| RESID(-1) | -0.104235 | 0.071936 | -1.448997 | 0.1490 |
| RESID(-2) | -0.047395 | 0.071967 | -0.658568 | 0.5110 |

| | | | |
|---|---|---|---|
| R-squared | 0.012108 | Mean dependent var | 1.14E-16 |
| Adjusted R-squared | -0.018603 | S.D. dependent var | 1.081102 |
| S.E. of regression | 1.091112 | Akaike info criterion | 3.046644 |
| Sum squared resid | 229.7712 | Schwarz criterion | 3.162085 |
| Log likelihood | -297.6644 | Hannan-Quinn criter. | 3.093361 |
| F-statistic | 0.394258 | Durbin-Watson stat | 2.000338 |
| Prob(F-statistic) | 0.882141 | | |

Source: *E-Views Software 7.0*

 

**Appendix 5**

**Heteroskedasticity Test: Breusch-Pagan-Godfrey**

| | | | |
|---|---|---|---|
| F-statistic | 0.172745 | Prob. F(4,195) | 0.9522 |
| Obs*R-squared | 0.706197 | Prob. Chi-Square(4) | 0.9506 |
| Scaled explained SS | 37.98313 | Prob. Chi-Square(4) | 0.0000 |

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Sample: 1-200
Included observations: 200

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 1.669959 | 1.076462 | 1.551340 | 0.1224 |
| FSIZ | -1.23E-05 | 1.81E-05 | -0.679876 | 0.4974 |
| CLIQ | -2.42E-07 | 9.52E-06 | -0.025447 | 0.9797 |
| FLEV | 9.08E-06 | 4.88E-05 | 0.186106 | 0.8526 |
| CSTR | -3.14E-06 | 3.67E-05 | -0.085705 | 0.9318 |

| | | | |
|---|---|---|---|
| R-squared | 0.003531 | Mean dependent var | 1.162937 |
| Adjusted R-squared | -0.016909 | S.D. dependent var | 12.40188 |
| S.E. of regression | 12.50630 | Akaike info criterion | 7.915024 |
| Sum squared resid | 30499.45 | Schwarz criterion | 7.997482 |
| Log likelihood | -786.5024 | Hannan-Quinn criter. | 7.948393 |
| F-statistic | 0.172745 | Durbin-Watson stat | 2.000987 |
| Prob(F-statistic) | 0.952154 | | |

Source: *E-Views Software 7.0*

 

**Appendix 6**

**Ramsey RESET Test**

Specification: CPRT C FSIZ CLIQ FLEV CSTR

Omitted Variables: Squares of fitted values

| | Value | df | Probability |
|---|---|---|---|
| t-statistic | 0.256700 | 194 | 0.7977 |
| F-statistic | 0.065895 | (1, 194) | 0.7977 |
| Likelihood ratio | 0.067921 | 1 | 0.7944 |

F-test summary:

| | Sum of Sq. | df | Mean Squares |
|---|---|---|---|
| Test SSR | 0.078975 | 1 | 0.078975 |
| Restricted SSR | 232.5875 | 195 | 1.192756 |
| Unrestricted SSR | 232.5085 | 194 | 1.198497 |
| Unrestricted SSR | 232.5085 | 194 | 1.198497 |

Unrestricted Test Equation:

Dependent Variable: CPRT

Method: Least Squares

Sample: 1-200

Included observations: 200

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -0.006130 | 1.094162 | -0.005602 | 0.9955 |
| FSIZ | -2.53E-07 | 2.72E-06 | -0.092808 | 0.9262 |
| CLIQ | -1.09E-07 | 1.37E-06 | -0.079455 | 0.9368 |
| FLEV | 6.44E-07 | 1.05E-05 | 0.061078 | 0.9514 |
| CSTR | 1.28E-07 | 3.28E-06 | 0.038988 | 0.9689 |
| FITTED^2 | 3.736041 | 14.55413 | 0.256700 | 0.7977 |

| | | | |
|---|---|---|---|
| R-squared | 0.002698 | Mean dependent var | 0.269616 |
| Adjusted R-squared | -0.023005 | S.D. dependent var | 1.082380 |
| S.E. of regression | 1.094759 | Akaike info criterion | 3.048486 |
| Sum squared resid | 232.5085 | Schwarz criterion | 3.147436 |
| Log likelihood | -298.8486 | Hannan-Quinn criter. | 3.088530 |
| F-statistic | 0.104976 | Durbin-Watson stat | 2.199282 |
| Prob(F-statistic) | 0.991054 | | |

Source: *E-Views Software 7.0*