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# A STUDY ON INFLUENCE OF CAPITAL STRUCTURE ON PROFITABILITY OF MANUFACTURING COMPANIES

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**Abstract:** One of the most crucial financial choices that directly affects a business's profitability and long-term viability is its capital structure. Manufacturing firms must carefully consider the best combination of debt and equity financing because of their capital-intensive nature and high investment in fixed assets. This study reviews traditional financial theories and empirical data from earlier research to investigate how capital structure affects manufacturing companies' profitability. The works of Franco Modigliani and Merton Miller (1958, 1963), as well as Stewart C.'s trade-off theory and pecking order theory, form the theoretical basis. Myers and Majluf, Nicholas S. (1984). To comprehend the connection between leverage and firm performance, empirical studies by Joshua Abor (2005, 2007), Dimitrios Margaritis and Maria Psillaki (2010), Mohd Salim and Raj Yadav (2012), and others are examined. Regression models and secondary data analysis are the foundation of the study's quantitative methodological framework. The results show that while excessive leverage raises financial risk and lowers profitability, moderate debt levels may boost profitability due to tax benefits and financial discipline. The study comes to the conclusion that in order to attain sustainable growth and a competitive edge, manufacturing companies must maintain an ideal capital structure.

**Keywords:** Capital Structure, Profitability, Manufacturing, Equity and Debt.

## 2. Introduction

Most important decisions for companies of all sizes is financing. It is claimed that the majority of businesses, particularly small ones, fail or perform poorly as a result of various difficulties managers or owners face when making financing decisions. Businesses' choices about which types of financing to use lead to various capital structures, each of which may have a distinct effect on performance. Studies on capital structure have been presented from a variety of angles; some support the earlier theories, such as those put forth by Modiglian and Miller (1958) regarding the irrelevance of capital structure; others concentrate on agency cost and pecking order theories, which maintain that businesses should balance their capital structures to create an ideal structure that could improve their performance. Since Modiglian and Miller (1958) emphasized that, in ideal circumstances without bankruptcy costs, frictionless capital, and taxes, the capital structure of the firm has no effect on the value of the firm, the implications of capital structure on corporate performance have drawn numerous studies. Since then, a variety of empirical studies have been carried out to investigate the applicability of Modiglian and Miller's theories in the business world. While some findings have emphasized the

importance of capital structure on corporate performances, others have supported the idea that it is irrelevant (Carpentier, 2006; Myers, 2001). The percentage of debt and equity that a business uses to fund its operations and investments is referred to as its capital structure. Because manufacturing companies need to make significant investments in plant, machinery, technology, and working capital, capital structure decisions are especially crucial. Retained earnings, bank loans, bonds, and equity financing are frequently used by these businesses. The seminal theory of Franco Modigliani and Merton Miller (1958) started the discussion about whether capital structure influences profitability. They contended that capital structure has no bearing on firm value in a perfect market. However, subsequent developments demonstrated that capital structure is relevant to firm performance due to real-world factors like taxes, bankruptcy costs, and information asymmetry.Manufacturing businesses compete in markets that are frequently unstable. Financial decisions are more delicate due to high fixed costs, operational leverage, and exposure to economic cycles. Therefore, it is crucial for financial managers, investors, and policymakers to comprehend how capital structure affects profitability.In order to comprehend how capital structure affects manufacturing companies' profitability, this research paper will examine theoretical viewpoints and empirical data.

**3. Literature Review**

Capital Structure Capital Structure One of the most important decisions in business firms is financing. According to Kipesha and Moshie (2014), the majority of businesses, particularly small ones, fail or perform horribly as a result of various difficulties managers or owners face when making financing decisions. Additionally, Abdabi and Abu-Rub (2012) argue that a company's choice to employ various financing sources leads to distinct capital structures, which may have varying effects on a firm's performance. Scholars and researchers have studied capital structure both theoretically and empirically over the years. However, after Modigliani and Miller's irrelevance theory of capital structure was developed in 1958, it caught the interest of financial economists. According to Pinto and Quadras (2016), capital structure is a combination of a company's long-term, permanent financing, represented by debt, preferred stock, and common stock equity. Capital structure, according to Soumadi (2012), is the financing of a company's overall operations and expansion through a combination of long-term debt, specific short-term debt, common equity, preferred equity, and retained earnings. The authors argued that since a firm's capital structure directly affects its risk and return, it is an important financial decision. According to Suardi and Noor (2015), a company's capital structure is its long-term debt, preferred stock, and net worth. According to related literature, capital structure is the mix of internal and external funding sources that businesses use to finance their assets (Ebrati et al., 2013). The authors confirmed that while businesses can choose to finance their assets through debt or equity, a combination of both is preferable. According to Awais et al. (2016), businesses can rely on a variety of funding sources to support their investments. According to the author, there are two primary sources of funding: internal financing, which includes reserves, preferred shares, and equity shares. According to the author, there are two primary categories of financing sources: internal financing, which includes equity shares, preferred shares, reserves, and retained earnings; and external financing, which includes the issuance of bonds and short- and long-term loans.Influence of capital structure on the financial performance of publicly listed commercial banks. The findings indicated conflicting outcomes regarding the effect of capital structure on firm performance. The finding is that while research in developed nations shows a beneficial effect, studies carried out in developing nations generally suggest a detrimental effect.

**4. Objectives**

The main objectives of this study are:
To examine the theoretical relationship between capital structure and profitability.
To analyze empirical evidence on the impact of leverage on firm performance.
To identify the optimal capital structure for manufacturing companies.
To evaluate whether debt positively or negatively influences profitability.

## 5. Methodology

Research Design

The study used quantitative, descriptive, and correlational research methods. It also used secondary data collection. The population included all twelve manufacturing companies listed on the Ghana Stock Exchange as of February 28, 2017. The study used annual reports from these companies for the years 2010 to 2016. This provided a total of ninety-six annual reports for analysis. All data was obtained from the Ghana Stock Exchange website. Specifically, the companies' statements of profit or loss and other comprehensive income, as well as their financial position statements, were used. A linear regression model was applied to examine how capital structure affects the performance of listed manufacturing companies in Ghana.

A linear regression model was employed to assess the effect of capital structure on the performance of listed manufacturing companies in Ghana. The explanation for each variable in the regression model is given below. Performance Measurement: A lot of different factors have been used to evaluate how well a company is doing. The most common things used to show how well a company is doing are: Sales or Revenue, Gross Profit Margin (GPM), Operating Profit, Net Profit, Net Profit Margin (NPM), Return on Capital Employed (ROCE), and Return on Equity (ROE). In this study, two performance measurement variables, namely Return on Capital Employed (ROCE) and Return on Equity (ROE), are utilized.

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Many researchers have often used these performance variables to evaluate how well firms are doing. Studies by Maina and Ishmail (2014), Suardi and Noor (2015), Awais et al. (2016), Huang and Pan (2016), and Kanwal et al. (2017) all show this. Return on Capital Employed (ROCE) is a measure that shows how much profit a company makes after taxes compared to the total assets it uses. The Return on Equity (ROE) is also defined as the ratio of earnings after preference dividends to the book value of total equity.

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So, ROCE and ROE are the outcomes we're looking at in our regression model. Capital Structure Measurement: The main thing this study is focusing on is 'leverage,' which shows how the companies are structured in terms of their capital. In this study, leverage is defined as the ratio of interest-bearing debts to total assets. It shows the percentage of all the assets that are paid for using debts that earn interest. Leverage (LEV) is the main factor used in the econometric or regression model. Control Variables: Research shows that, in addition to 'leverage,' other factors might also affect how well a company performs. The elimination of these variables may lead to omitted variable bias. To deal with the possible problem of missing variable bias, some control variables are included in the model.

$ROCE = \beta 0 + \beta 1LEV + B2SIZE + B3AGE + B4IND + Ɛ$

$ROE = \beta 0 + \beta 1LEV + B2SIZE + B3AGE + B4IND + Ɛ$

The variables in the model are explained in Table 1 below.

| Variables | Explanation of Variables | A Priori |
|---|---|---|
| ROCE and ROE | Return on Capital Employed and Return on Equity respectively (Proxies for Performance): Dependent Variables | + |
| LEV | Leverage of the Firms (ratio of interest bearing debt to total assets): Independent Variabl | - |
| SIZE | Natural Logarithm of Total Assets: Control Variable | + |
| AGE | Age of Firms (Years of listing on GSE): Control Variable | + |
| IND. | Industry of the Firms: Control Variable | + |

| | | |
|---|---|---|
| β0, | Constant | + |
| β1,β2, β3, β4 | Coefficient of Slope of the Regression Line | |
| Ɛ | The Random Error Term | |

**6. Data Analysis**

Descriptive Statistics

As shown in Table 2, the average return on capital employed (ROCE) for the sample firms was 2.24%, with a standard deviation of 12.36. The ROCE values ranged from a low of -36.67% to a high of 30.86%. The positive average ROCE suggests that, overall, the manufacturing companies generated profits, even though several firms experienced losses as indicated by the negative minimum value. For return on equity (ROE), the mean was 2.71% with a standard deviation of 14.245. The ROE values spanned from -38.31% at the lower end to 34.72% at the upper end. The mean ROE of 2.71% implies that the firms were, on average, profitable. Nevertheless, the negative minimum value demonstrates that some companies also operated at a loss.

Table 2 shows the mean financial leverage was 21.3%. These listed manufacturing companies weren't heavily geared on average—most of their assets came from equity. The standard deviation of 21.65 reveals massive variation: minimum leverage was 0.00 while the maximum hit 98.47.

Asset sizes varied wildly too. The average was GHS 67.4 million, with companies ranging from GHS 1.09 million to GHS 480.7 million. The standard deviation of 98.35 confirms there's a huge gap between the smallest and largest firms.

Table 2: Descriptive Statistics

| | Observations | Mean | Std. Dev. | Maximum | Minimum |
|---|---|---|---|---|---|
| ROCE | 96 | 2.24 | 12.36 | 30.83 | -36.67 |
| ROE | 96 | 2.71 | 14.245 | 34.72 | -38.31 |
| LEV | 96 | 21.3 | 21.65 | 98.47 | 0.00 |
| SIZE (Millions of Cedis) | 96 | 67.4 | 98.35 | 480.7 | 1.09 |
| AGE | 96 | 17.6 | 3.5 | 26 | 11 |

The analysis shows that leverage hurts both ROCE and ROE for Ghana's listed manufacturing firms. More debt means lower returns. That's the finding, and it's pretty clear-cut. Here's what gets interesting: this contradicts what agency cost theory would predict. That theory suggests leverage should actually improve performance by forcing managers to be more disciplined with shareholder money. It also contradicts Modigliani and Miller, who argued capital structure doesn't matter at all for firm value. In this case, it clearly does. So why the negative relationship? The most obvious culprit is the interest rate environment. In Ghana, rates were brutal around the end of 2017—somewhere in the neighborhood of 35% annually. When you're paying that much on borrowed money, it's hard to generate positive returns on any capital, whether it's equity or the total capital employed. The interest expense simply eats up whatever profits the business makes. It's worth noting this was a specific moment in time. Rates like that are extraordinary by most standards, and they'd absolutely skew any analysis of how leverage affects performance. The finding makes perfect sense once you factor in that cost of debt. Debt backed by assets

actually limits what companies can do with those items. When businesses use property or equipment as collateral, they can't easily sell or leverage those items to generate additional income. Beyond that, debt obligations mean fixed payments regardless of how the company performs. This often forces managers to postpone profitable projects because the cash simply isn't available. The end result is weaker profitability.These results line up with what other researchers have found in developing countries. Maina and Ishmail (2014) looked at companies listed on the Nairobi Securities Exchange and discovered that capital structure had a significant negative effect on performance. Mwangi, Makau and Kosimbei (2014) reached a similar conclusion - their regression analysis showed that financial leverage hurt both return on equity and return on assets. Huang and Pan (2016) found that ROE drops when the capital adequacy ratio, nonperforming loan ratio, and loan-to-deposit ratio go up. Suardi and Noor (2015) got similar results in Indonesia—debt equity ratio hurts ROE. But here's where it gets interesting: Dessi and Robertson (2003), Abor (2005), Margrates and Psillaki (2010), and Ebrati et al. (2013) found the opposite. They argue capital structure actually improves performance. So the relationship isn't clear-cut—it depends on context, industry, and probably a dozen other factors researchers are still unpacking.

## 7. Findings

The findings point to a clear pattern: capital structure choices directly impact how profitable manufacturing firms become. When companies take on moderate debt, ROE tends to improve because of the leverage effect. But too much debt triggers financial distress costs that eat into profits. The data confirms this with a significant negative relationship between leverage and both ROCE and ROE.

So what does this mean for the people running these companies? Basically, before loading up on debt, they need to think through how it will affect their performance metrics. Same goes for investors - checking the leverage level should be part of any basic due diligence.

The practical takeaway is pretty straightforward: many firms would likely benefit from trimming their debt loads. It's not about avoiding debt entirely, but finding that balance where the leverage advantage doesn't get swallowed by distress costs. Firm size and asset structure also play a role in what works best for each company.

## 8. Conclusion

Capital structure affects how profitable manufacturing companies become. Early theories suggested debt levels shouldn't matter for firm value, but real-world data shows a clear link between leverage and performance. Manufacturing firms in Ghana need to find the right balance between debt and equity to maximize profits while keeping financial risk manageable. Sound financial management, strict cost control, and smart investment choices all contribute to sustainable growth.

This study looked at how capital structure affects performance for listed manufacturing companies in Ghana. The researchers used return on capital employed and return on equity as their main performance measures. They applied ordinary least squares regression to estimate the relationship between leverage and firm performance.The results showed that leverage has a significant negative impact on both ROCE and ROE for these companies. This means higher debt levels are associated with lower profitability. The study also found that firm age and the industry a company operates in both have a positive effect on both performance measures. Bigger companies, however, did not show a significant advantage when it came to ROCE.

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