

Determinants of Capital Structure in the Cement Mining Industry on the Nairobi Securities Exchange

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Abstract

In today's competitive corporate and economic landscape, businesses strive to increase their value by acquiring additional funds or capital for expansion. These funds can be obtained internally, externally, or through loans, including international borrowing. This study specifically focuses on the factors that influence the capital structure of mining companies listed on the Nairobi Securities Exchange. It highlights that businesses in a competitive corporate and economic environment often aim to enhance their value by considering various financing options, such as internal funds, external sources, or loans, including international borrowing. Previous studies have indicated that factors like profitability, company size, asset structure, and external elements such as commodity prices can impact a firm's capital structure, which is typically represented by the debt-to-equity ratio. This study employs a cross-sectional research design to investigate the determinants of capital structure among mining companies listed on the Nairobi Securities Exchange. The findings emphasize the significant role of profitability and asset structure in shaping capital structures. Additionally, commodity prices and company size also exert an influence. The study provides valuable insights into how firms, especially those in developing countries like Kenya, manage their capital structures in the face of various economic and industry-specific challenges.

Keywords: Capital Structure, Company Size, Profitability, Asset Structure

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1. Introduction

Businesses are striving to increase their value due to the fierce competition in the corporate and economic world. A company will always require more funds or capital for expanding its business. These funds could originate from a range of sources, such as internal and external sources or securing loans. A business should also take into account borrowing money from abroad (Yousef, 2019). Errors in estimating the capital structure can significantly increase the already fixed burden that the company must carry, particularly when a large amount of debt is involved. There are several key hypotheses that explain capital structure. The Modigliani-Miller model and the trade-off hypothesis are two of the most renowned models. According to the trade-off principle, a business will set the level of its capital structure it constantly aspires to have in its books (Karadeniz, Kandir, & Onal, 2009). In a capital structure, businesses frequently attempt to strike a balance between potential benefits and costs of debt, including bankruptcy expenses and agency charges. A manager of a firm could decide to use debt ratios to raise the value of the business. The Modigliani-Miller model, meanwhile, predicts that businesses will be able to grow their worth by employing debt, and one of the reasons for this is the profitability variable (Mutua & Atheru, 2020; Yousef, 2019). Numerous studies discovered that a wide range of variables could have an impact on the firm's capital structure, as indicated by the debt-to-equity ratio. A number of researchers have used the debt-to-equity ratio as a stand-in for capital structure, including El-Habashy (2018). Profitability, business size, and asset structure were generally included in these studies as independent variables that could have an impact on the debt-to-equity ratio (Goh, Tai, Rasli, Tan, & Zakuan, 2018). Most literature acknowledges that capital structure is key in any organization.

Bongoye (2017) confirms that the financial performance of any firm is directly influenced by the capital structure decisions, thus making it a vital tool in managerial decisions. The indicators used to evaluate a company's financial performance fall into five main areas: profitability, liquidity, repayment ability, financial capacity, and efficiency (Omukaga, 2017). Lacking a suitable capital structure puts companies in danger of underperforming and ultimately facing elimination. Researchers have made numerous attempts to elucidate the capital structure within the Kenyan business industry. Ogenche et al. (2018) discovered that the debt ratio and size of the company played a significant role in influencing the financial performance of Kenyan consumer goods firms listed on the NSE. A study by Mukumbi, Eugene, and Jinghong (2020) explored how the financial performance of non-financial firms listed on the Nairobi Securities Exchange is impacted by their capital structure.

In his research, Bongoye (2017) establishes that there exist conflicting results about the correlation of capital structure determinants and financial performance of mining firms on the Nairobi stock exchange. He further adds that the many-year question on how firms choose their capital structure and how it affects their financial performance still remains unanswered. This calls for extensive research on the topic. In a study published in 2013, Hermuningsih examined the capital structure utilizing the profitability index. The outcome demonstrates how profitability, growth potential, and capital structure have a positive and significant impact on the company's worth. The capital structure influences how growth profitability affects a company's value but not its profitability (Hermuningsih & Sri, 2013). The significant discoveries of previous studies on the effects of variable profitability, business size, asset structure, and dividend payout ratio on the debt-to-equity ratio have identified areas in need of further research. Research conducted in the past focused only on the mining sector. Public organizations have consistently faced the need for change in order to enhance efficiency and improve their performance (Asser & Kamau, 2024). Furthermore, they did not explore how external factors such as commodity prices or other extrinsic variables might have affected the situation. Compared to book-based measures of capital structure and randomly selected articles with more unknown and unpublished studies, long-term debt measures of capital structure show more significant determinants and publication selection bias. The same applies to traits like total debt measures of capital structure, market-based measures of capital structure, and top articles in prestigious journals. The importance of measurement in determining a company's capital structure was analyzed in a meta-study conducted in 2018.

1.2 Statement of the problem

Previous research has indicated that capital structure is a prevalent subject that has continued to pose a challenge in the world of finance. This has led to a significant increase in interest in the subject. Ogenche (2018) states that there has been no agreement on the best capital structure. It is acknowledged that optimizing capital structure is a crucial financing decision for companies as it impacts their financing and investment opportunities. Ogenche, Githui, and Omurwa (2018) confirmed that developed countries had shown more interest in the topic than developing countries. Yasin and Wepukhulu (2019) note that even though the Kenyan government has established a conducive business climate, several companies are still experiencing a drop in performance, and some have been removed from the NSE in the past century. The different opinions of scholars on capital structure warrant further examination in the field. This study aims to identify the factors influencing the capital structures of companies listed on the Nairobi Securities Exchange (Yasin & Wepukhulu, 2019).

2. Methodology

A cross-sectional research design was used for this investigation. It compared various factors simultaneously, as it did in this study. Additionally, it offers clear explanations of cause and effect, minimizing the possibility of bias. As of October 29, 2018, 15 companies listed on the Nairobi Securities Exchange were taken into account by the study. Using descriptive statistics and correlation analysis, the data collected was examined. All mining companies that had been listed on the Nairobi Stock Exchange were the population for this study. Purposive sampling using the following criteria is the sampling method utilized in this study: The companies did not have complete data connected to variables utilized in the study, and the data were inconsistent with the Kenyan stock exchange. Therefore, the mining companies should be listed on the Nairobi stock exchange.

3. Literature review

Since Modigliani and Miller (1958) first proposed the idea of capital structure, academics continue to focus on and examine the factors that determine the capital structure. Since then, a few capital structure ideas have gained popularity. Even yet, Kumar, Colombage, and Rao (2017) claimed that financial decisions are crucial for the success of the company. These theories included the pecking order hypothesis and the trade-off theory (Kumar, Colombage, & Rao, 2017). Kraus and Litzenberger (1973) developed the trade-off theory, which claimed that businesses run a higher risk of financial trouble when they take on debt for tax benefits and that the ideal capital structure is reached when the tax shield's current value margin equals the present value margin of the cost of the financial difficulties brought on by taking on more debt. The result is that expanding, lucrative businesses with little chance of bankruptcy must employ more debt, while capital finance might be the best option for riskier, less successful businesses. But if others do the same thing, businesses with a high likelihood of bankruptcy will be more in danger of defaulting or filing for bankruptcy. Although the tax rates are the same,

this hypothesis is unable to explain why the most profitable businesses borrow less money and why capital structures vary (Kraus & Litzenberger, 1973). While Stiglitz (1973) confirmed the pecking order theory, Myers and Majluf (1984) discovered that when internal funding is insufficient, corporations sometimes favor debt over capital and external finance over the capital. Retained earnings are used as the internal source of capital, which will result in the company using less debt (Popović, Zoran, Paunović, & Mihailo, 2018). According to Baker and Wurgler (2002), low-leverage businesses typically raise capital when their valuations are high, while high-leverage businesses typically do the opposite and raise capital when their valuations are low.

The central friction in the pecking order model of capital structure, according to Chirinko and Singha (2000), is the asymmetry of information between managers and less informed outside investors. This claim demonstrates how the asymmetric information theory and the pecking order theory are related (Chirinko & Singha, 2000). According to Hang, Geyer-Klingeborg, Rathgeber, and Stöckl (2018), certain variables will affect the capital structure in different ways depending on some underlying theories. For example, under the pecking order theory, firm size and profitability will have a negative effect on capital structure, whereas under the trade-off theory, those variables will have a positive effect. According to the pecking order idea, businesses that are profitable tend to use their own internal resources for funding, such as profits rather than debt, when they require capital. As a result, the company's debt ratio will decrease as profitability rises, and it's also clear that profitability has a detrimental impact on the capital structure, whose impact is negative (Hang et al., 2018).

3.1. The capital structure is negatively impacted by profitability

It will be simpler for a larger company to obtain an external loan, both in the form of debt and share capital. The Kraus and Litzenberger (1973) trade-off theory explains the direction of the link between capital structure and size. The reason for this is that big businesses typically enjoy a favorable reputation with the general public (Ernayani & Robiyanto, 2016). Small businesses, however, are unable to enlist other parties as partners because of their restricted access to finance, particularly through the capital market. Additionally, creditors will find it more difficult to lend money to small businesses with limited cash inflows since they perceive them as being riskier than big businesses. So it follows that the higher the capital structure, the bigger the company (Culata & Gunarsih, 2012).

3.2. Company's size has a beneficial effect on capital structure

The capital structure's asset structure is a crucial component. The tangible or fixed assets that a corporation owns can be pledged as security to third parties who can lend money to the company if it is having trouble meeting its financial obligations. According to the trade-off argument, firms with substantial assets will have a higher debt-to-equity ratio since such assets are used as collateral. Due to the expectation that they will have better access to external funding sources than small businesses do, they will also be able to secure significant sums of debt. According to the agency cost hypothesis, conflicts between management and shareholders would result from businesses using fixed assets as security (Handriani & Robiyanto, 2019; Sartono, 2001). The acquisition of fixed assets necessitates significant financial resources, and the corporation may incur additional debt as a result, claim Joni and Lina (2010). It follows that having a lot of debt is frequently accompanied by owning significant fixed assets, which is not surprising. Empirically, this has also been demonstrated by Handoo and Sharma (2014), Karadeniz, Kandir, Balcilar, and Onal (2009), Nguyen et al. (2017), and Mathias (2016), who discovered the beneficial influence of asset structure on the capital structure. In this study, the ratio of fixed assets to total assets served as a proxy for asset structure (Handoo & Sharma, 2014).

3.3. The capital structure is positively impacted by asset structure

Previous research has demonstrated that commodity prices may have a favorable impact on firm returns. For instance, research by Hersugondo, Robiyanto, Wahyudi, and Muharam (2015), Putra and Robiyanto (2019), and Robiyanto (2018) has shown that rising commodity prices may actually boost stock returns. The cost of this product in terms of capital structure would prompt the business to look for funding (Kurronen, 2018). As a result, it might enhance its output and deliver better outcomes. The type of industry might have an impact on the capital structure, according to Nguyen et al. (2017). It was discovered that the greater the commodity price, the bigger the capital structure would be in the industries dependent on commodity prices. "The trade-off hypothesis posts that organizations strike the optimal balance between equity and debt to optimize firm value," according to Kurronen (2018). Thus, borrowing costs and rewards have an impact on the ideal capital structure. When commodity prices are high, businesses will use both internal and external resources to increase sales in an effort to maximize firm value (Kurronen, 2018). Due to the low likelihood of financial trouble, the corporation encourages borrowing more while commodity prices are high. The signaling theory is in agreement with Enakirerhi and Chijuka (2016), Eviani 2015, Huang, and Ritter (2005) all concur with this. The higher cement price will encourage cement mining companies to borrow more money for their capital structure.

4. Discussions

With a 7-year study period and the previously proposed criteria, 15 companies were obtained, yielding 55 observations. The panel data utilized in this study were classified as balanced panel data by Park (2011) and did not deal with the issues

of too small N (Type I error) and too big N (Type II error). According to Santos and Barrios, the number of observations in this study could possibly address the minimal observation size for panel data (2011), and the number of observations complied with the 10-times guideline proposed by Hair, Black, Babin, and Anderson (2009). This presumption "builds on the assumption that the sample size should be bigger" (Kock & Hadaya, 2016).

4.1. Capital structure and financial performance

The impact of capital structure on a company's financial performance is a crucial and frequently discussed subject in management finance. However, since the days of Modigliani and Miller (1958), who claimed that a firm's worth is independent of the type of funding used, this role has remained controversial and drawn the attention of numerous academics. This suggests that a firm's worth is determined by its genuine assets rather than its financing strategy. Researchers have also looked into the possibility of an ideal capital structure through analysis. The level of the optimal capital structure is that at which the firm's cost of capital is minimized and its performance is maximized. Taking into account prior research, capital structure influences the cost of capital, which has an impact on the firm's financial performance and share prices (Abdullah & Tursoy, 2021). The use of debt financing results in an expansion of operations on a larger scale, which over time improves performance. However, debt financing results in such an improvement in performance if the return on assets exceeds the cost of debt. Debt, according to Jensen & Meckling (1976), affects the caliber of the management's investment activity. This is accomplished by requiring the management to focus their investments on initiatives that generate profit for the investors. As a result, costs are reduced, improving the financial performance of businesses. Additionally, Eldomyati and Azim (2008) conducted additional study on the subject of how capital structure affects a firm's financial performance. They discovered a link between capital structure and a firm's financial performance. However, Fama and French (2008) discovered that the firm's capital structure had a negative relationship with its financial performance. Such discrepancies between the findings of different academics' studies are to be expected and are typically caused by a number of causes. These variables include the usage of various time periods, businesses, industries, and nations; debt ratios; profitability measurements; and approaches for determining the relationship between capital structure and company performance (Mukumbi, Eugene, & Jinghong).

4.2. Kenyan perspective on capital structure

The Kenyan government should adopt policies that boost capital structures for Kenyan companies through affordable debt financing using government instruments such as grants to the youth population to encourage entrepreneurial skills and reduce unemployment. Interest rates should be lowered for companies willing to use capital structures through debt financing. This will encourage foreign investment, which improves the economic status of the country and provides employment to the local Kenyan people. The Kenyan government should avoid overtaxing companies in order to allow them to restructure debt financing, especially on long-term investments. Most scholars in Kenya have a huge task to study the impact of capital structure on Kenyan firms in several sectors and issue findings empirically for further reference (Tanui, Omare, & Atieno, 2021).

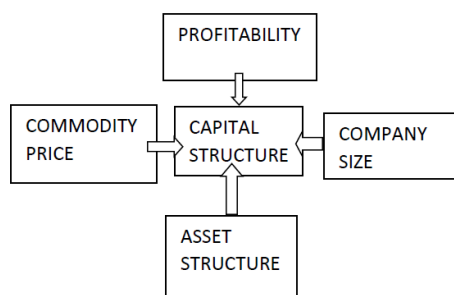


Figure 1: Capital Structure Determinants

Figure 1 illustrates the different elements that impact a firm's capital structure, defined as the combination of debt and equity utilized for funding. The "capital structure," situated in the middle of the diagram, is influenced by four primary factors: profitability, commodity price, company size, and asset structure. Profitability, placed at the top of the chart, has a direct influence on decisions regarding capital structure. Companies that have higher profits tend to rely less on external debt because they are able to generate enough internal funds. Changes in commodity prices can impact a company's finances by affecting its revenues and profitability, and in turn, its capital structure on the left side. Bigger corporations generally have advantages in accessing capital markets and securing favorable credit terms, which impacts their decisions on capital structure. At the diagram's bottom, asset structure is ultimately shown as a factor. The type and worth of a company's assets can impact its ability to take on debt, with physical assets potentially being used as security. In general, the diagram indicates that a company's mix of debt and equity financing is influenced by these interconnected factors.

5. Conclusion

The purpose of this study is to investigate the factors that affect the capital structure of mining businesses that are listed on the Nairobi Stock Exchange. The debt-to-equity ratio is used in this study to describe the capital structure. Only two of the four proposed hypotheses, namely H_1 and H_3 , may be accepted. H_1 is declaring that profitability has a negative impact on capital structure, while it is unsupported that asset structure has a favorable impact. The findings of this study showed that, of all the independent variables examined, only two independent variables—the profitability variable represented by ROA and the asset structure variable—had a substantial impact on the capital structure of cement mining companies. The impact of profitability on the capital structure is the pecking order idea, which holds that businesses will typically deploy internal funds prior to utilizing outside funding. This further demonstrates the tendency of highly profitable businesses to use their own internal resources for finance, i.e., earnings, rather than loans, when they require capital. The asset structure has a positive impact, meaning that the larger the company's fixed assets, the higher the asset structure. The findings of this study can be used as a reference in the financial literature, particularly in the literature about the capital structure of the company. The asset structure and profitability of the businesses that they manage need to be taken into consideration by corporate managers, according to the research. The managers may begin thinking about redistributing the use of asset structure (Mangeni & Mike, 2018).

The study explored the determinants of capital structure among mining companies listed on the Nairobi Securities Exchange, focusing on key factors such as profitability, asset structure, company size, and commodity prices. The results highlighted that profitability and asset structure significantly influence these firms' capital structure decisions. Specifically, companies with higher profitability tend to use less external debt, consistent with the pecking order theory, which suggests that firms prefer to finance their activities with internal funds before seeking external sources. Additionally, firms with a substantial asset base are more likely to take on debt, as these assets can be used as collateral, facilitating access to loans.

The findings emphasize the critical role of capital structure in determining a firm's financial performance. An optimized capital structure can lower the cost of capital, enhancing profitability and overall financial stability. However, the study also identified gaps in the understanding of how external factors, such as commodity prices and broader economic conditions, influence capital structure decisions, particularly within the Kenyan context. These gaps highlight the need for further research to develop a more comprehensive understanding of these dynamics.

Recommendations

Based on the findings, several recommendations are proposed for corporate managers, policymakers, and researchers. For corporate managers, it is recommended that firms prioritize using internal financing sources, especially when they are highly profitable, as this reduces reliance on debt and minimizes financial risk. Managers should also consider leveraging their asset base to secure favorable credit terms, particularly for long-term investments. Additionally, they should remain vigilant about market conditions, including fluctuations in commodity prices, to make timely and informed adjustments to their capital structure. Policymakers are advised to consider implementing measures that facilitate affordable debt financing. This could include offering lower interest rates for companies, especially those investing in long-term projects, and providing grants or tax incentives to encourage equity financing. These measures would help firms optimize their capital structures, enhancing their financial performance and competitiveness.

For researchers, there is a need for future studies to explore the impact of external factors, such as commodity prices and macroeconomic conditions, on capital structure decisions. Additionally, sector-specific research is necessary to account for the unique challenges and opportunities faced by different industries. Longitudinal studies could also provide valuable insights into how capital structure evolves over time in response to changing economic landscapes. In conclusion, optimizing capital structure is a complex but essential aspect of corporate finance. By strategically managing the factors that influence capital structure, firms can improve their financial stability and performance, contributing to their long-term success.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflicts of interest.

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