Proceedings of ICEMGD 2024 Workshop: Decoupling Corporate Finance Implications of Firm Climate Action
DOI: 10.54254/2754-1169/102/2024ED0085

A Study on the Impact of Capital Structure on the Performance of Listed Companies

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Abstract: The paper investigates the influence of capital structure on listed companies' performance, with a focus on the property sector, spanning 2010 to 2021. It delves into Modigliani-Miller theorem, factors shaping capital structure decisions, and industry-specific characteristics across various sectors like real estate, technology, and healthcare, and compares capital structure trends in developed and developing countries. The findings reveal a nuanced relationship between capital structure and performance, varying by industry and market maturity. In capital-intensive sectors, like real estate, excessive leverage correlates with diminished performance, while moderate debt levels in technology and healthcare can support innovation but excess leverage may hinder it. Developed countries tend towards balanced capital structures, whereas developing nations lean more towards debt financing. Notably, Chinese firms demonstrate superior property investment efficiency and capital structure management compared to Vietnam. Contributions include a comprehensive framework for capital structure determinants, industry-specific insights aiding firms in optimizing capital structure, empirical evidence on capital structure management in different developing nations, and highlighting capital structure's multidimensional impact on firm performance, encompassing financial risk, R&D investment, and market competitiveness. This study offers valuable guidance for firms, particularly in emerging markets like China, in devising optimal capital structure strategies tailored to industry dynamics and market conditions.

Keywords: Capital Structure, Chinese-Listed Companies, Financial Performance

1. Introduction

Capital structure, which is at the center of a firm's financial decision-making, has a profound impact on the long-term growth and market performance of the firm. Theoretically, the Modigliani-Miller theorem provides an initial understanding of the relationship between a firm's capital structure and value, stating that under certain assumptions, capital structure does not affect firm value. However, real-world factors such as taxes, bankruptcy costs, and information asymmetry make the optimal mix of debt and equity a complex decision that firms must face. Capital structure is not only related to a firm's financial stability and growth potential, but also affects investor returns and the firm's market competitiveness.

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An extensive literature review shows that the relationship between capital structure and firm performance is not static, but is influenced by a variety of factors such as industry characteristics, market environment, and corporate governance. For example, Nguyen Minh Ngoc et al. show that capital structure is negatively related to business performance in the real estate industry, while Voicu D. Dragomir's study points out that the higher the proportion of structural capital, the lower the firm's profitability in the technology and healthcare industries. These case studies provide an empirical basis for understanding the role of capital structure in different industries and markets.

The purpose of this study is to examine the effect of capital structure on the performance of listed companies, particularly in the capital-intensive industry of real estate. The research questions focus on: how does capital structure affect firm performance in different industries? What are the differences in capital structure decisions in different market environments? What are the similarities and differences in capital structure management between China and developing countries such as Vietnam? The exploration of these questions has important theoretical and practical value for understanding the multidimensional impact of capital structure and optimizing corporate financial strategies.

The paper is divided into six main sections: introduction, theoretical foundations, capital structure under different industries, capital structure in different markets, comparison among developing countries, and conclusions and recommendations. The introduction section presents the background of the study, the problem and the structure of the thesis. The theoretical foundations section elaborates on the Modigliani-Miller theorem and its limitations and discusses the factors influencing capital structure decisions. The capital structure under different industries section explores the role of capital structure in real estate, labor intensive and technology and healthcare industries through empirical analysis. The section on capital structure in different markets compares the differences in capital structure decisions between developed and developing countries. The section on comparisons between developing countries pays special attention to the capital structure decisions of China and Vietnam. Finally, the conclusions and recommendations section summarizes the research findings and provides recommendations for company management and policy makers.

The main hypothesis of this study is that capital structure has a significant effect on firm performance, but this effect is influenced by factors such as industry characteristics, market environment and corporate governance. The contribution of the thesis is: (1) Provides a framework of factors influencing capital structure decisions that integrates factors such as tax policy, bankruptcy costs, information asymmetry and agency costs. (2) Empirical analyses have revealed the role of capital structure in different industries, particularly in the real estate and technology and health care sectors. (3) Capital structure decisions in China and Viet Nam are compared, providing empirical evidence for understanding the similarities and differences in capital structure management in different developing countries. (4) The multidimensional impact of capital structure on firm performance, including on financial risk, research and development investment and market competitiveness, was emphasized, providing firms with a comprehensive performance management perspective.

Through these contributions, this study not only enriches the theory of the relationship between capital structure and firm performance, but also provides practical guidance for company management in formulating capital structure strategies, which helps to promote the development of financial markets and the improvement of corporate governance structures in relevant countries.

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2. Theoretical Basis

2.1. Modigliani-Miller Theorem (M&M Theorem)

Modigliani and Miller formulated a famous theorem that shows, under the assumption of no taxes, that the capital structure of a firm does not affect its total value [1]. Their research shows that under certain assumptions, a firm's mix of debt and equity does not affect the firm's total market value. A key point of this theory is that investors will demand higher returns to compensate for higher financial risk, which results in the cost-reducing effect of debt financing being offset by an increase in the cost of equity financing.

The assumptions of the Modigliani-Miller theorem include that markets are perfectly competitive, that there are no taxes, that investors can borrow at the same interest rate, and that there are no bankruptcy costs. However, in the real world, these assumptions often do not hold. For example, the presence of taxes makes debt financing more attractive due to the tax shield effect. In addition, real-world factors such as bankruptcy costs, information asymmetry, and agency costs can affect capital structure decisions.

2.2. The Complex Decision-Making Process on Capital Structure

The capital structure decision is a complex process that is influenced by a variety of factors. These factors include, but are not limited to, tax policy, bankruptcy costs, information asymmetry, agency costs, the profitability of the firm, investment opportunities, the life cycle of the firm, and macroeconomic conditions. For example, tax policy affects the attractiveness of debt financing because interest payments are usually deductible before taxes. Bankruptcy costs, on the other hand, increase the risk of debt financing, while information asymmetry and agency costs may lead to conflicts of interest between management and shareholders.

While theory provides some guidance on capital structure, in practice, firms need to consider more practical factors in determining their capital structure. For example, firms may tailor their capital structure to their specific circumstances and market conditions rather than strictly following the theoretically optimal capital structure. In addition, firms may also base their decisions on factors such as market timing, financial flexibility, investor expectations and competitive strategy.

An example is the trade-off theory, another well-known theory explored by Deng [2]. The article explores the factors that influence the capital structure of Chinese companies by analyzing data from listed companies in China from 2010 to 2021. Although the trade-off theory provides a theoretical framework to explain firms' capital structure decisions, the actual data and analyses may differ from the theoretical predictions. These differences may be due to the complexity of real-world markets, information asymmetry, firm-specific circumstances, and macroeconomic factors.

Overall, capital structure decision-making is a dynamic and multi-dimensional process that requires companies to make comprehensive judgements based on the consideration of multiple factors. The gap between theory and practice requires enterprises to consider both theoretical guidance and practical situations and market changes when formulating capital structure strategies.

3. Capital Structure in Different Industries

3.1. Capital-Intensive Industry

Capital-intensive industries, such as real estate and manufacturing, usually require large investments in fixed assets that can be used as collateral for debt financing. As a result, companies in these industries may tend to be more highly leveraged.

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Companies in capital-intensive industries tend to own large amounts of physical assets, such as land, buildings and machinery and equipment. The high value and collateralisability of these assets allow companies to obtain funds through debt financing, thereby increasing financial leverage. However, high leverage also entails higher financial risk, especially during periods of economic instability or declining asset values.

In the real estate industry, in the study of Ngoc et al., capital structure has a negative impact on business performance [3]. The study shows that the capital structure of listed real estate companies is negatively related to their business performance, i.e. higher financial leverage is associated with lower firm performance. In addition, tangible assets (e.g. land and buildings) have a positive impact on the performance of real estate firms.

Manufacturing is also a capital intensive industry, Tse and Rodgers' study showed that the capital structure of the manufacturing industry does not exhibit any special characteristics that are different from other industries [4]. Their study points out that there is no evidence that the manufacturing sector is a special case in terms of capital structure, despite its leading role in China's economic development. This suggests that even in capital-intensive industries, capital structure decisions of different firms are influenced by a variety of factors, including industry characteristics, firm size, and market conditions.

The impact of capital structure on firm performance is complex. On the one hand, a moderate level of debt can increase firm value by reducing firm costs through the tax shield effect of debt. On the other hand, excessive debt levels may increase financial risk, leading to financial distress or even bankruptcy, thus negatively affecting firm performance. These scholars provide empirical evidence on the impact of capital structure on firm performance under different industries. And the scholars' findings are important for understanding how capital structure decisions affect firm performance and also provide insights to firm management on how to balance debt and equity financing to optimize firm performance.

3.2. Labor-Intensive Industry

Companies in labor-intensive industries often face higher operating costs and lower capital efficiency. In these industries, low leverage may help companies to remain flexible in response to rapid changes in the market and fluctuations in labor costs. Low leverage means that companies have a lower debt burden, which can reduce financial risk, especially in times of high economic uncertainty. However, moderate leverage may also provide financial benefits to firms through the interest tax shield effect.

The retail industry is one of the typical labor-intensive industries, and its capital structure has a particularly significant impact on firm performance. According to a study by Feng, the capital structure decisions of listed retail firms in China are influenced by a variety of factors, including the firm's profitability, size, collateralisability of assets, internal financing ability, tax rate, growth opportunities and volatility [5]. The study finds through empirical analyses that firm size, collateralisability of assets, tax rate and previous quarter's debt level are positively related to the firm's leverage, whereas the firm's profitability and internal financing ability are negatively related to leverage. This suggests that in the retail industry, firms with larger size, more realizable assets, more tax benefits and higher past debt levels tend to adopt higher leverage ratios, while firms with high profitability and adequate internal financing capacity may tend to have lower leverage ratios.

These findings are important for understanding the impact of capital structure on firm performance in labor-intensive industries. In labor-intensive industries such as retailing, firms may need to adopt capital structure strategies that are appropriate to their particular circumstances in order to optimize their financial performance and market competitiveness.

The impact of capital structure on firm performance is complex. On the one hand, moderate debt can increase a firm's financial leverage and increase potential returns to shareholders. On the other

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hand, excessive leverage may increase a firm's financial risk, leading to higher financial costs and possibly even financial crises. In labor-intensive industries, companies need to balance their capital structure to optimize their performance. For example, by maintaining a low leverage ratio, a company can reduce its financial risk and increase its adaptability to market changes, thereby remaining competitive in a highly competitive market.

3.3. Technology & Healthcare

In the technology and healthcare industries, research and development (R&D) investment is a key factor in driving innovation and maintaining competitiveness. Firms in these industries typically invest significant resources in research and development (R&D) of new products and technologies in order to gain market advantage and higher financial performance. However, the relationship between R&D investment and a company's financial performance is not always positive, which depends to some extent on the company's capital structure, especially the level of leverage. In the technology and healthcare industries, moderate levels of leverage may have an important impact on firms' R&D investment and performance. On the one hand, moderate debt may increase R&D investment by providing companies with a stable source of funding and reducing the cost of equity financing. On the other hand, excessive leverage may increase a firm's financial risk and limit its ability to invest in long-term, high-risk R&D projects. Therefore, companies need to find a balance between debt and equity financing to optimise their capital structure and support R&D activities.

According to a study published by Dragomir in 2024, the higher the proportion of structural capital (intangible assets excluding goodwill), the lower the firm's profitability among firms in the technology and healthcare industries in the countries of the European Union, Norway, Switzerland and the United Kingdom [6]. This suggests that investment in and use of intangible assets may not be contributing positively to company profitability in these industries. The study used financial data from the Refinitiv Eikon database covering 625 companies for the period from 2013 to 2022. The results of the study point out that a higher percentage of intangible assets may be associated with inefficiencies in structural capital management and that there is a negative correlation between profitability and investment in intangible assets due to the failure of cost accounting.

Firm performance in the technology and healthcare industries is affected by a variety of factors, including R&D investment, capital structure, industry characteristics, and market conditions. Dragomir's findings suggest that, at least in the short term, increased investment in and use of intangible assets may have a negative impact on a firm's profitability. This may be because the cost of intangible assets is not effectively factored into the cost of a product or service, or because these assets are not used efficiently. In the technology and healthcare industries, the proportion of intangible assets is negatively correlated with their profitability, possibly pointing to inefficiencies in the management of intangible assets. This finding has important implications for understanding how R&D investment and capital structure together affect firm performance.

For companies in the technology and healthcare sectors, understanding and optimizing the capital structure is critical to support R&D investment and improve company performance. Companies need to weigh the pros and cons of debt financing to ensure that they have sufficient flexibility to respond to rapid market changes and the need for technological innovation. At the same time, companies also need to focus on the effective management and accounting of intangible assets to ensure that these assets provide the company with a long-term competitive advantage and financial returns.

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4. Capital Structure in Different Markets

4.1. Developed Countries vs. Developing Countries

In developed countries, such as the United Kingdom and the United States, where capital markets are typically more mature and developed, companies tend to have a more balanced capital structure, including both equity and debt financing. Companies in these countries tend to be able to access capital through the stock and bond markets, while also focusing more on maximizing shareholder value. In addition, developed countries have better corporate governance structures and investor protection mechanisms, which help to reduce the cost of equity financing.

In contrast, in developing countries such as China, capital markets may be less mature and firms may be more dependent on debt financing, especially bank loans. This may be related to the depth and liquidity of the capital markets, as well as to inadequate investor protection mechanisms. In addition, firms in developing countries may focus more on long-term stable growth than on maximizing short-term shareholder value.

According to Al-Najjar and Hussainey the capital structure of UK firms is significantly influenced by firm characteristics (e.g., firm size, risk, growth rate, profitability, and collateralisability of assets) and corporate governance characteristics (e.g., board size and outside directors) [7]. This suggests that in the UK, firms' capital structure decisions are closely related to corporate governance.

In China, on the other hand, according to Mubeen et al., firm performance in China is positively affected by product market competition, and capital structure plays a partially mediating role between product market competition and firm performance [8]. This suggests that in China, capital structure is not only affected by internal factors of the firm, but also by the external market environment.

The impact of capital structure on firm performance is complex. In developed countries, due to better market mechanisms, companies can optimize their capital structure through both equity and debt financing to improve their performance. However, excessive debt levels may lead to increased financial risk and affect the long-term development of the firm.

In developing countries, firms may prefer to use debt financing, which may improve firm performance in the short term, but may also entail higher financial costs and risks. According to Mubeen et al, capital structure mediates the relationship between product market competition and firm performance, suggesting that in China, firm performance in a competitive market can be improved by optimizing capital structure [8].

Overall, the impact of capital structure on firm performance depends on a variety of factors, including the market environment, corporate governance, and the degree of development of financial markets. As national circumstances are not the same, developed and developing countries differ in these respects, and therefore the impact of their capital structure on firm performance may differ.

4.2. Comparisons Among Developing Countries

In developing countries, the way in which enterprises are financed is usually influenced by a number of factors, including market sophistication, the legal environment, financial policies and cultural differences. Both China and Vietnam tend to use debt financing, especially in capital-intensive industries such as real estate. According to Nguyen et al.’s study, the capital structure of listed real estate companies in Vietnam has a negative impact on business performance, which may be related to the firms' over-reliance on debt financing [9]. In China, on the other hand, although debt financing is equally prevalent, the importance of equity and internal financing is gradually increasing, especially in the context of the government's promotion of innovation and the development of high-tech industries.

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In China, there is a bi-directional relationship between corporate real estate (CRE) and capital structure according to Du and Ma [10]. CRE holdings have a negative impact on stock performance, especially in the information sector, but can significantly reduce systemic risk. This suggests that Chinese firms may be more prudent and efficient in their real estate investments and capital structure management. On the contrary, in Vietnam, according to Nguyen Minh Ngoc et al. the negative impact of capital structure on the performance of real estate firms may reflect firms' deficiencies in capital structure optimization and management [9].

The impact of capital structure on firm performance is complex. In the Chinese market, firms may be able to balance risk and cost through diversified financing channels and flexible capital structure adjustments to improve performance. In contrast, in the Vietnamese market, possibly due to the immaturity of the financial market and the legal environment, firms may be more conservative in their capital structure decisions, leading to a higher cost of capital and affecting performance.

5. Conclusion

This study provides an insight into the impact of capital structure on the performance of listed companies, particularly in the real estate industry, which is a capital-intensive sector, by analyzing data from 2010 to 2021. It is found that the relationship between capital structure and firm performance is not linear but is influenced by a variety of factors. In the real estate industry, higher financial leverage is associated with lower firm performance, whereas in the technology and healthcare industry, a moderate level of debt can support R&D investment, but too much leverage may limit a firm's ability to innovate. In addition, there are differences in capital structure decisions across markets, with firms in developed countries favoring a more balanced capital structure, while developing countries may rely more on debt financing. In particular, the comparative analysis of China and Vietnam reveals differences in capital structure optimization and management across developing countries.

Capital structure decisions are closely linked to the characteristics of the industry, the market environment and the stage of development of the company. Capital-intensive industries may favor higher leverage to take advantage of the collateralisability of physical assets, but this also entails higher financial risks. In different market environments, companies need to adjust their capital structure according to market maturity, legal environment and financial policies. Also, a company's stage of development affects its preference for debt and equity financing, with start-ups likely to rely more on equity financing, while mature companies may adopt a more balanced capital structure.

Future research could further explore the relationship between capital structure and corporate governance and investor protection. In addition, considering the impact of globalization and technological progress on capital structure decisions, research could be extended to multinational corporations and capital structure decisions in different cultural contexts. Meanwhile, for emerging market countries, research could analyze in greater depth how financial market development, legal environment and financial policies affect capital structure and firm performance.

The limitation of this study is that, despite providing an in-depth understanding of the relationship between capital structure and firm performance, the study focuses mainly on time period and industry-specific data. In addition, the study fails to adequately consider the potential impact of globalization and technological advancement on capital structure decisions. Future research directions could include comparative analyses of capital structure decisions across time periods, industries, and cultures, as well as the impact of capital structure on environmental, social, and governance (ESG) performance. In addition, research could explore how optimizing capital structure can improve firms' adaptability and resilience to market volatility.

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