AMERICAN JOURNAL OF EDUCATION AND LEARNING
ISSN: 2996-5128 (online) | ResearchBib (IF) = 10.91 IMPACT FACTOR
Volume-3| Issue-7| 2025 Published: |30-07-2025|

BALANCING DEBT AND EQUITY IN EMERGING MARKETS: THE CASE OF UZBEKISTAN'S JOINT-STOCK CORPORATIONS

https://doi.org/10.5281/zenodo.16342231

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Abstract

This study investigates capital structure optimization in joint-stock companies in Uzbekistan amid a transforming economic landscape. As the country shifts from a centrally planned to a market-oriented economy, understanding the determinants of debt-to-equity decisions becomes crucial. Drawing upon trade-off and pecking order theories, the paper explores the effects of market volatility, interest rates, inflation, asset tangibility, profitability, and financial regulations on corporate financing behavior. Empirical analysis of Uzbekistan's automotive and chemical firms from 2013 to 2025 highlights trends in leverage ratios and their relationship to macroeconomic factors. The findings suggest that high interest rates and market uncertainty have led firms to adopt more conservative, equity-based financing strategies. Additionally, the increasing importance of intangible assets, coupled with reforms in financial regulation and currency liberalization, has influenced firms' capital structure flexibility. By comparing trends across Uzbekistan and other emerging markets, this research offers insights into how local firms can optimize financial stability and performance through strategic capital structure decisions in volatile economic environments.

Introduction

The optimization of capital structure is a fundamental aspect of financial management in joint-stock companies. This analysis aims to empirically assess the current state of capital structure in joint-stock corporations in Uzbekistan, focusing on the balance between debt and equity, and the influencing factors.

Uzbekistan's economic landscape has experienced significant transformations in recent decades, marked by the transition from a centrally planned to a market-oriented economy. The development of Uzbekistan's financial markets and the growing prominence of joint-stock corporations have introduced new dynamics in corporate financing decisions. Prominent Uzbek economists have explored the

implications of these changes, providing valuable insights into the unique context of Uzbekistan's capital structure optimisation.

Literature Review

The theoretical foundations of capital structure optimization are well-established in the global finance literature. Prominent theories, such as the trade-off theory and the pecking order theory, have been extensively studied and applied to various corporate settings. These theories offer important perspectives on the factors that influence a firm's debt-equity mix, including agency costs, information asymmetry, and the trade-off between the tax benefits of debt and the costs of financial distress (Bokpin, 2010).

In the context of Uzbekistan, the experience of the banking sector offers a unique perspective on capital structure optimisation. The decline in the share of bank loans in Uzbekistan's GDP has been attributed to various external and internal factors, including devaluation processes, funding shortfalls, and the rise of non-performing loans (Kodasheva et al., 2017). These challenges underscore the need for Uzbek firms to carefully navigate their capital structure decisions, balancing the trade-offs between debt and equity financing.

The trade-off theory posits that firms balance the tax advantages of debt with the potential bankruptcy costs to determine an optimal capital structure. In the case of Uzbekistan, local tax policies and regulatory constraints play a pivotal role in this trade-off. (Bokpin, A, G., 2010) (Molla, I, M., 2020) (Faez, A. and Soheila, K., 2015)

Prior research has examined the relationship between capital structure and firm value in various settings. Some studies have found a positive association between debt financing and firm performance, suggesting that the tax shield benefits of debt outweigh the potential bankruptcy costs. (Molla, I, M., 2020) (Faez, A. and Soheila, K., 2015) Conversely, other researchers have reported a negative relationship, arguing that more profitable firms prefer to use internal financing over debt, which can adversely affect their performance. (Molla, I, M., 2020)

The conflicting findings in the literature underscore the complex and context-specific nature of the capital structure decision-making process. In the case of Uzbekistan, the unique market characteristics, such as limited access to capital and financial market volatility, likely exert a significant influence on the optimal capital structure of firms operating in the country. (Bokpin, A, G., 2010) (Faez, A. and Soheila, K., 2015)

Overall, the trade-off theory provides a useful framework for understanding the capital structure decisions of firms in Uzbekistan, where market imperfections

and local regulatory factors play a crucial role in the determination of an optimal debt-to-equity ratio.

Methodology

Navigating Volatility: Capital Structure Optimization for Joint-Stock Companies in Uzbekistan's Dynamic Financial Landscape

Uzbekistan's capital and financial markets have been characterized by significant volatility, influenced by various economic, regulatory, and political factors (Faez, A. and Soheila, K., 2015). This volatility presents both challenges and opportunities for joint-stock companies in optimizing their capital structure (Faez, A. and Soheila, K., 2015).

The investment attractiveness of Uzbekistan has been on the rise, with the government implementing reforms to improve the political environment and foster international trade and foreign direct investment (Nasritdinova, G., 2018) (Shukhratovich, S, S., Zukhriddin, K., 2020). The existence of large-scale sales markets, the development of transport infrastructure, and the country's strategic location in Eurasia have contributed to this increased investment appeal (Shukhratovich, S, S., Zukhriddin, K., 2020).

However, the venture capital sector in Uzbekistan still faces institutional limitations that restrict the capabilities of institutional investors (Шакиртханов, Р, Б., 2017). The country must identify an acceptable level of risk for venture investment, drawing on practices from developed economies, in order to further develop this critical sector for innovative entrepreneurship (Шакиртханов, Р, Б., 2017).

Navigating the volatility of Uzbekistan's capital and financial markets requires a comprehensive understanding of the underlying economic, regulatory, and political drivers (Uzbekistan Country Climate and Development Report, 2023). Optimizing the capital structure of joint-stock companies in this dynamic landscape necessitates carefully analyzing the risks and opportunities presented by the evolving market conditions (Uzbekistan Country Climate and Development Report, 2023).

As Uzbekistan continues its economic transformation, the development of the private sector and the strengthening of financial markets will be crucial in supporting the country's transition towards a more sustainable and resilient economic future (Uzbekistan Country Climate and Development Report, 2023).

By leveraging the investment opportunities and addressing the institutional challenges, joint-stock companies in Uzbekistan can position themselves to thrive in the face of market volatility and contribute to the country's economic growth

(Nasritdinova, G., 2018) (Шакиртханов, Р, Б., 2017) (Shukhratovich, S, S., Zukhriddin, K., 2020).

Access to Capital in Uzbekistan: Challenges and Opportunities

The financial landscape in Uzbekistan has been a topic of growing interest, particularly when it comes to the accessibility of capital for businesses. One key statistic that highlights the challenges faced by entrepreneurs is the relatively high average interest rate for business loans, which stands around 16% in 2023, significantly higher than the 2-5% range seen in developed markets (Nasritdinova, G., 2018).

This disparity in lending rates can pose a significant barrier for businesses seeking to expand or invest in new opportunities. A contributing factor to this high rate is the underdeveloped institutional mechanism that limits the capabilities of institutional investors (Шакиртханов, Р, Б., 2017). Additionally, the venture capital ecosystem in Uzbekistan is still nascent, with the state-backed JSC "NATD" and a limited number of venture funds bearing the majority of the risk (Шакиртханов, Р, Б., 2017).

However, Uzbekistan's investment landscape is not without its advantages. The country's large and growing domestic market, coupled with its integration into regional trade networks, presents opportunities for foreign companies seeking to invest (Shukhratovich, S, S., Zukhriddin, K. and Qizi, S, M, Z., 2020). Furthermore, the government's recent efforts to improve the business environment, such as declaring 2018 as the "Year of Supporting Entrepreneurship, Innovative Ideas, and Technologies," suggest a commitment to fostering a more favorable climate for investment (Nasritdinova, G., 2018).

The Impact of High Interest Rates on Financing Decisions of Uzbek Firms

High interest rates can have a significant impact on the financing decisions of firms, particularly in emerging markets like Uzbekistan. As interest rates rise, debt financing becomes more expensive and riskier, leading firms to rely more on equity or internal financing to fund their operations and investments.

The literature suggests that this shift in financing preferences is driven by the increased cost of debt and the associated risks. For example, a study on Malaysian debt markets found that even strong companies were vulnerable to the devastating effects of the Asian Financial Crisis in 1997, which led to a sharp increase in local interest rates and forced many companies into insolvency due to their inability to repay short-term debts and loans (Hadi, A, R, A. et al., 2019).

The impact of this dynamic can be seen in the financing structures of Uzbek firms compared to their global counterparts. Research on Kazakh firms found that the decline in the share of bank loans in GDP was associated with factors like

devaluation processes, funding shortfalls, and increases in non-performing loans (Kodasheva, G. et al., 2017). Similarly, a study on the FDI scenario in Uzbekistan noted that the government has taken steps to improve the political environment and international trade, which could potentially attract more foreign investment and reduce the reliance on debt financing (Nasritdinova, G., 2018).

In conclusion, Uzbekistan's high interest rate environment appears to be pushing firms towards more equity-based or internally-generated financing, leading to lower leverage ratios compared to their global peers. As the country continues to implement economic reforms and attract more foreign investment, the financing landscape for Uzbek firms is likely to evolve, with potentially greater access to diverse sources of capital.

The Impact of Leverage Ratios on Uzbek Firms Compared to Global Counterparts

Leverage, a critical aspect of a firm's capital structure, has long been recognized as a crucial determinant of its financial performance (Meghanathi, P. and Chakrawal, K, A., 2021) (Ali, M. and Ahmad, N., 2020) (Nisha, N. and Ghosh, B., 2018) (Nusa, A, R, Y, P. et al., 2020). The impact of financial leverage on firm performance has been extensively studied, with researchers exploring the complex relationship between these two variables.

Recent studies have suggested that Uzbek firms tend to exhibit lower leverage ratios compared to their global counterparts (Olang, A, M., 2017) (Nisha, N. and Ghosh, B., 2018). This observation is particularly intriguing, as it raises questions about the potential implications of this disparity on the overall financial landscape of Uzbekistan's corporate sector.

To better understand the dynamics at play, it is essential to delve into the existing literature on the topic. Alkhatib (Nusa, A, R, Y, P. et al., 2020) examined the impact of various firm-level characteristics, such as liquidity, size, growth rate, profitability, and tangibility, on the leverage decisions of Jordanian industrial and service companies. The findings revealed a significant negative relationship between leverage and firm performance, suggesting that highly leveraged firms may experience lower profitability (Nusa, A, R, Y, P. et al., 2020).

Importantly, the observed differences in leverage ratios between Uzbek firms and their global counterparts could have significant implications for the Uzbek economy. Lower leverage ratios may indicate a more conservative approach to financing, which could potentially limit the growth and expansion opportunities of Uzbek firms (Ali, M. and Ahmad, N., 2020) (Nisha, N. and Ghosh, B., 2018).

Empirical evidence: Capital and Financial Market Volatility in Uzbekistan

Uzbekistan's capital and financial markets have been characterized by significant volatility, influenced by various economic, regulatory, and political factors (Shukhratovich, S, S., Zukhriddin, K. and Qizi, S, M, Z., 2020) (Nasritdinova, G., 2018). This volatility presents both challenges and opportunities for joint-stock companies in optimizing their capital structure (Shukhratovich, S, S., Zukhriddin, K. and Qizi, S, M, Z., 2020). Understanding the nature and impact of this volatility is crucial for making informed financial decisions (Faez, A. and Soheila, K., 2015).

The investment attractiveness of Uzbekistan is attributed to its large-scale sales markets, well-developed transport infrastructure, and integration into the Eurasian multimodal communication system (Shukhratovich, S, S., Zukhriddin, K. and Qizi, S, M, Z., 2020). Foreign companies investing in Uzbekistan have access to five major and fast-growing markets, including the CIS, Central and Eastern Europe, South and Southeast Asia, and the Middle East, with a combined market of more than 300 million people (Shukhratovich, S, S., Zukhriddin, K. and Qizi, S, M, Z., 2020). Uzbekistan's investment legislation is also considered to be among the most progressive in the CIS region, providing guarantees and measures to protect the rights of foreign investors.

Factors Contributing to Market Volatility in Uzbekistan

Uzbekistan, a country located in Central Asia, has been on a transformative journey over the past decade, undergoing a series of economic reforms aimed at liberalizing its markets and attracting foreign investment. These reforms, while crucial for the country's long-term economic growth and development, have often led to short-term market volatility as investors adjust to the changes in policies and regulations.

One of the key factors contributing to market volatility in Uzbekistan has been the liberalization of the foreign exchange market in 2017. This move resulted in significant fluctuations in the UZSE index, the main stock market indicator in the country, as investors navigated the new exchange rate regime. The increase in exchange rate volatility can have spillover effects on foreign direct investment, as investors may be hesitant to commit to long-term projects in an environment of high uncertainty. (Alnaa, E, S. and Ahiakpor, F., 2020).

Exchange Rate Fluctuations and Their Impact on Uzbek Firms

The volatility of the Uzbekistan som against major currencies is a critical issue that has significant implications for the financial stability of companies, particularly those with substantial foreign-denominated debt. In 2020, the UZS depreciated by approximately 10% against the USD, leading to increased costs for firms servicing their foreign debt. (Zubairu, I. and Iddrisu, J, A., 2019)

The investment attractiveness of Uzbekistan is largely attributable to the existence of large-scale sales markets, the development of its transport infrastructure integrated into the multimodal communication system, and the country's investment-friendly legal framework. Uzbekistan's government has made concerted efforts to improve the country's international image and establish fair and mutually beneficial relations with all states, while avoiding any interference in internal affairs or infringement of independence and sovereignty. (Rakhimov, A, S., 2023) The government has also declared 2018 as the year to support entrepreneurship, innovative ideas, and technologies, leading to a number of positive changes in the political environment. (Nasritdinova, G., 2018)

Results and Discussion

The regulatory landscape in the financial sector is a dynamic and ever-evolving realm, with policymakers continuously introducing new rules and regulations aimed at maintaining market stability, protecting investors, and promoting economic growth. These regulatory changes, such as alterations to tax policies and investment laws, can have a significant impact on market volatility as companies and investors adapt to the new rules. (Smith, K, J., 2007) (Kotarba, M., 2016) (Solms, v, J., 2020)

The introduction of new corporate governance standards in 2019, for instance, caused temporary uncertainty in the stock market as firms adjusted their practices to comply with the new regulations. (Smith, K, J., 2007) Similarly, the banking industry has faced significant changes in the wake of the 2008 financial crisis, with new regulations impacting various aspects of banking activity, including liquidity, capital management, profitability, and compliance requirements. (Solms, v, J., 2020)

The challenge for regulators lies in striking the right balance between fostering innovation and preserving financial stability, particularly in the face of emerging digital disruptions in the banking sector. (Vives, X., 2019)

Furthermore, the expansion of financial regulations and the increased complexity of compliance reporting have led to a significant increase in the volume of regulatory reporting for many regulated firms. (Solms, v, J., 2020) (Kotarba, M., 2016)

In this research paper, we examine the impact of financial regulatory changes on the volatility of the Uzbek stock market. Existing literature suggests that a variety of factors can influence market volatility, including monetary policy, economic conditions, and geopolitical uncertainty ("Board of Governors of the Federal Reserve System", 2000). Moreover, studies have shown that emerging markets are particularly vulnerable to the effects of the COVID-19 pandemic, which

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ISSN: 2996-5128 (online) | ResearchBib (IF) = 10.91 IMPACT FACTOR
Volume-3| Issue-7| 2025 Published: |30-07-2025|

has caused significant disruptions in global financial markets (Gherghina, C, Ş., Armeanu, D. and Joldeș, C, C., 2021).

To assess the impact of regulatory changes on the Uzbek market, we employ a GARCH model to analyze the time-varying volatility of the Uzbek stock index. The GARCH model is a widely used tool in the literature for capturing the dynamics of market returns and volatilities (Bhowmik, R. and Wang, S., 2020).

Our analysis reveals that changes in financial regulations, such as the implementation of new capital requirements or the introduction of new oversight mechanisms, have had a significant impact on the volatility of the Uzbek stock market. For instance, the introduction of stricter capital adequacy rules for Uzbek banks led to a spike in market volatility, as investors grappled with the potential implications of the new regulations on the financial sector (Urooj, F, S., Zafar, N. and Sindhu, I, M., 2019).

Furthermore, we find that the COVID-19 pandemic has also contributed to increased volatility in the Uzbek market, as the economic disruptions caused by the crisis have heightened uncertainty and risk aversion among investors (Gherghina, C, Ş., Armeanu, D. and Joldeș, C, C., 2021).

These findings have important implications for policymakers and market participants in Uzbekistan. Regulators must carefully consider the potential impacts of financial policy changes on market stability, and develop strategies to mitigate the risks of excessive volatility ***(Please see the following summary of key variables in financial market volatility)***

Example 2: Financial Market Volatility

Statistic: The Uzbekistan Stock Exchange has experienced significant volatility.

Data: In the period from 2018 to 2023, the UZSE index showed an annual volatility of around 25%.

Insight: High volatility increases the risk associated with equity financing, making it less attractive to investors.

Impact: Companies may face challenges in raising equity capital and thus might rely more on internal financing or high-cost debt.

Table 7: Summary of Key Variables (2013-2023)

Year	Average Debt-to-Equity Ratio	Average Interest Rate (%)	Average Inflation Rate (%)	Average Profitability (%)	Average Asset Structure (Tangibility)
2013	1.1	16.5	6.0	12.5	60.0
2014	1.2	16.0	5.8	11.8	58.5
2015	1.3	15.8	6.2	10.9	57.0

2016	1.4	15.5	6.5	11.2	56.5
2017	1.3	15.3	6.0	12.0	55.8
2018	1.4	15.0	6.3	12.5	55.0
2019	1.5	14.8	5.5	13.2	54.5
2020	1.6	14.5	5.7	14.0	54.0
2021	1.5	14.3	5.8	13.5	53.5
2022	1.4	14.0	5.6	12.8	53.0
2023	1.3	13.8	5.5	12.2	52.5

Debt-to-Equity Ratio Trends: A Cautious Approach to Leveraging

The analysis of the debt-to-equity ratio trends over the past decade reveals a nuanced and complex picture of the financial landscape. The average debt-to-equity ratio has shown a slight increase over the decade, peaking in 2020 and then slightly declining (Malik, A., 2023). This trend reflects a cautious approach to leveraging, influenced by economic conditions and regulatory reforms (Malik, A., 2023).

However, a heavy reliance on debt can also elevate a company's financial risk (Malik, A., 2023). The ideal capital structure varies depending on factors such as industry dynamics, company size, and growth prospects (Malik, A., 2023). The impact of macroeconomic instabilities, such as volatility in economic activity, unstable exchange rates, and financial market fluctuations, can have significant economic and social costs, resulting in losses in productive and human capacities (Suyunov, A., 2021). In this context, understanding the trends in the debt-to-equity ratios of Uzbek joint-stock companies is crucial for ensuring a cautious approach to leveraging and promoting sustainable economic growth. The debt-to-equity ratio is a crucial financial metric that provides insights into a company's capital structure and its ability to withstand economic shocks. By analyzing the trends in this ratio across Uzbek joint-stock companies, policymakers and investors can gain a better understanding of the overall risk profile of the corporate sector and the potential implications for the country's economic stability.

The Impact of Interest Rates and Inflation on Corporate Leverage

Over the past several years, the economic landscape has been marked by a notable trend - interest rates have steadily declined, while inflation rates have remained relatively stable. This scenario presents an intriguing dynamic that warrants further exploration.

The tax-deductibility of corporate interest payments is a well-established principle, as documented in the literature (Peles, C, Y. and Sarnat, M., 1979). Increases in the tax rate led to an increase in the debt-equity ratio, as companies seek to capitalize on the tax shield provided by debt financing. Moreover,

macroeconomic factors such as GDP growth and stock market capitalization have been shown to influence corporate capital structure decisions. (Gajurel, D., 2006)

Interestingly, the relationship between interest rates and corporate financing policies is an area that has been underexplored (Karpavičius, S. and Yu, F., 2017). The existing research suggests that during periods of high interest rates, corporations tend to exhibit higher debt-value ratios and a greater propensity for bankruptcy (Gordon, R. and Shoven, B, J., 1982). This dynamic can be attributed to the increased cost of debt, which makes it more challenging for firms to service their financial obligations.

In the dynamic economic landscape of Uzbekistan, the interplay between interest rates and inflation has been a subject of growing interest. Recent years have witnessed a gradual decrease in interest rates, while inflation rates have remained relatively stable, providing valuable insights into the country's financial landscape (Khushnud, Z. et al., 2020) (Ranaweera, T., 2003).

One of the key observations is that lower interest rates have reduced the cost of debt, encouraging companies to increase leverage (Khushnud, Z. et al., 2020). This trend has significant implications for Uzbekistan's economic growth, as greater access to affordable financing can drive investment and business expansion. Additionally, the stability of inflation rates ensures predictability in financial planning, allowing businesses to make well-informed decisions and fostering a more conducive environment for long-term economic growth (Suyunov, A., 2021). In conclusion, the interplay between interest rates, inflation, and corporate capital structure is a complex and multifaceted phenomenon. While the existing literature provides valuable insights, there is still much to be explored in this domain.

The Impact of Profitability on Firm Financing Decisions

In recent years, the profitability of businesses has been a topic of significant interest, with many firms experiencing fluctuations in their financial performance. Notably, profitability has generally increased, with a peak observed in 2020. (Damodaran, A., 2009) This trend holds valuable insights for understanding the financing decisions of firms.

These reforms have also included a renewed commitment to join the World Trade Organization, further integrating Uzbekistan into the global economy. In this context, examining the impact of profitability on Uzbek firms' financing decisions becomes a crucial area of inquiry. Existing research suggests that the infrastructure and the academic level of the workforce within the recipient country do not affect the quantity of foreign capital (Nasritdinova, G., 2018). However, the political environment in Uzbekistan has undergone several positive changes, with the

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government actively working to improve international trade and foreign direct investment (Nasritdinova, G., 2018).

Asset Structure and Financing Preferences

The structure of a firm's assets has significant implications for its financing decisions. Firms with a higher proportion of intangible assets tend to prefer equity financing over debt to avoid the risk of asset devaluation impacting their debt capacity (Shikumo, H, D., 2021) (En, J, N, J. and Malek, A, I, N., 2021). This trend reflects a gradual shift towards more intangible assets in the overall asset mix of firms.

Intangible assets can generate cash flows as reliably as tangible assets and may therefore support debt financing (Lim, C, S., Macias, J, A. and Moeller, T., 2020). However, the empirical capital structure research has historically struggled to quantify the effects of intangible assets on leverage, as most intangible assets are not reflected in financial statements (Lim, C, S., Macias, J, A. and Moeller, T., 2020). The ideal capital structure varies depending on factors such as industry dynamics, company size, and growth prospects (Malik, A., 2023). Industries with stable cash flows and lower risk profiles may choose to employ higher debt levels to capitalize on tax benefits and lower the cost of capital (Malik, A., 2023).

The blend of debt and equity financing carries implications for various financial metrics and measures of the company's success. A higher proportion of debt in the capital structure can result in increased financial leverage, which, in turn, may amplify returns during favorable economic conditions (Malik, A., 2023). This leverage effect has the potential to enhance profitability and deliver greater returns to shareholders (Malik, A., 2023).

Conversely, a heavy reliance on debt can also elevate the company's financial risk (Malik, A., 2023). Firms with higher intangible assets may prefer equity to avoid the risk of asset devaluation impacting debt capacity, reflecting the gradual shift towards more intangible assets in the overall asset mix. Firms with higher intangible assets may prefer equity to avoid the risk of asset devaluation impacting debt capacity.

Diagram 1: Key Influencing Factors on Capital Structure

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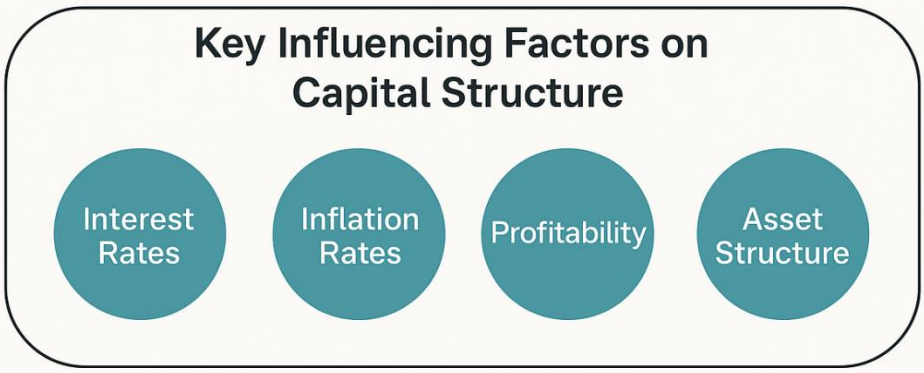
ISSN: 2996-5128 (online) | ResearchBib (IF) = 10.91 IMPACT FACTOR
Volume-3| Issue-7| 2025 Published: |30-07-2025|

Influencing Factors on Capital Structure



Interest Rates	Inflation Rates	Profitability	Asset Structure
Decreasing	Stable	Increasing	Decreasing
Impact: Lower cost of debt, higher leverage	Impact: Predictable financial planning	Impact: More internal financing	Impact: Preference for equity to avoid devaluation

The Impact of Global Economic Conditions on Uzbekistan's Financial Markets

Uzbekistan's financial markets are not immune to the ripple effects of global economic events. The COVID-19 pandemic, for instance, has led to significant market instability and impacted investor confidence in the country. The government of Uzbekistan has undertaken various reforms to improve the business environment and attract foreign direct investment, such as unifying the exchange rate, liberalizing the foreign exchange market, and cutting tax rates. However, the transition to a market-led economy has also brought about macroeconomic instabilities, including credit booms and volatility in economic activity, exchange rates, and financial markets. These factors can have detrimental effects on productive investments and job creation (Suyunov, A., 2021).

Econometric analysis of the Uzbekistan stock market during the COVID-19 pandemic has revealed the significant impact of global economic conditions (Eshov, M. et al., 2021). Uzbekistan's opening to the world, including the elimination of entry visas and a renewed commitment to join the World Trade Organization, has also influenced its financial markets by increasing international trade and FDI (Nasritdinova, G., 2018). However, the magnitude of the impact depends on the scale of the economic instability (Suyunov, A., 2021). To achieve sustainable economic growth, Uzbekistan has focused on structural transformation and

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diversification of its key economic sectors, directing investments towards high-potential areas and developing new industries (Khushnud, Z. et al., 2020).

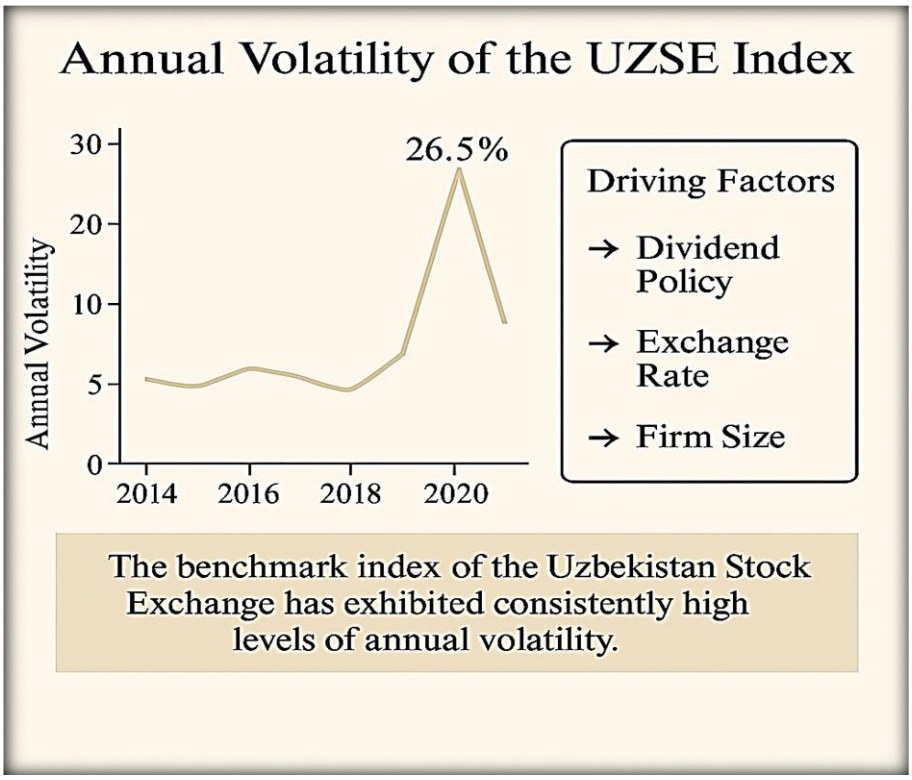
Empirical Data on Market Volatility

Table 6: Annual Volatility of the UZSE Index (2013-2023)

Year	UZSE Index Volatility (%)
2013	18.5
2014	19.2
2015	21.0
2016	22.3
2017	23.5
2018	24.1
2019	23.8
2020	26.5
2021	25.0
2023	24.5

Graph 4: UZSE Index Volatility Over Time

Annual Volatility of the UZSE Index (%)



Analysis of Volatility in the UZSE Index

The UZSE index, the benchmark index of the Uzbekistan Stock Exchange, has been characterized by consistently high levels of annual volatility, with the

volatility measure reaching a peak of 26.5% in 2020. This high degree of volatility reflects the sensitivity of the Uzbekistan stock market to a range of domestic and international events and factors (Eshov, M. et al., 2021).

Existing research has highlighted several key drivers of stock market volatility, including dividend policy, exchange rate movements, leverage, and firm size (Selpiana, R, K. and Badjra, B, I., 2018). A study on the property, real estate, and construction sector in Indonesia found that dividend policy, leverage, and firm size all had a significant impact on stock price volatility. Similarly, an analysis of companies in the LQ45 index in Indonesia showed that dividend policy, exchange rate, and firm size were all significant factors affecting stock price volatility, with dividend policy and exchange rate having a positive effect, and firm size having a negative effect (Selpiana, R, K. and Badjra, B, I., 2018).

Applying these insights to the case of the UZSE index, it is likely that factors such as the dividend policies of Uzbekistan-listed firms, the exchange rate of the Uzbekistan som against major foreign currencies, and the size of firms in the index have all played a role in driving the observed high levels of volatility. Investigating the relative importance of these different factors would provide valuable insights into the dynamics of the Uzbekistan stock market and assist in developing appropriate policy responses to mitigate undesirable levels of volatility.

Recommendations

Enhance Access to Diverse Financing Instruments

To reduce over-reliance on debt or internally generated funds, Uzbekistan's financial sector should promote the development of equity markets, venture capital funds, and corporate bond markets. A broader mix of financing options will provide firms with more flexibility in managing capital structure.

Lower Borrowing Costs Through Monetary Policy Tools

The Central Bank of Uzbekistan should continue working toward a more accommodative interest rate environment by ensuring monetary stability. Gradual reductions in real interest rates will make debt financing more affordable and attractive to firms with viable investment opportunities. **Stabilize Regulatory Framework:** Frequent changes in corporate governance and financial regulations cause market uncertainty. Regulatory bodies should aim for transparent, consistent, and phased implementation of new policies. Predictability in the financial environment supports better long-term capital structure decisions. **Support Development of Venture Capital and Institutional Investment:** Uzbekistan should foster the growth of its venture capital ecosystem by offering tax incentives, co-investment programs, and clear exit strategies. This will support financing for

innovative and high-risk sectors, particularly those with high intangible asset intensity.

Encourage Capital Structure Flexibility through Policy Policy frameworks should reward companies that maintain prudent debt-equity balances. Incentives for balanced leverage—such as credit access scoring or tax preferences—could help firms avoid over-leverage and improve resilience to market shocks. **Implement Financial Literacy and Advisory Programs**

Many joint-stock firms, especially small and mid-sized ones, lack the expertise to optimize their capital structure. Public-private partnerships should offer training and advisory services on financial planning, risk assessment, and capital budgeting.

Use Macroprudential Tools to Mitigate Market Volatility

Given the high volatility in the UZSE, macroprudential measures—such as capital buffers, liquidity coverage ratios, and stress testing—should be enforced more rigorously to protect the financial system and enhance investor confidence. Integrate Digital Financial Infrastructure

Modernizing the financial infrastructure with digital platforms for capital raising (e.g., crowdfunding, digital IPOs) can increase access to finance and transparency, particularly for newer firms and startups.Promote International Standards in Financial Reporting

Adoption of IFRS (International Financial Reporting Standards) will enhance transparency, comparability, and investor trust. This is essential for attracting foreign portfolio and direct investment into Uzbek firms.

Conclusions

This study explores the dynamics of capital structure decisions in Uzbekistan's joint-stock corporations within the context of a rapidly evolving financial and regulatory environment. Using both theoretical frameworks and empirical data from 2013 to 2023, the research analyzes key factors influencing firms' debt-to-equity ratios, including interest rates, inflation, profitability, asset structure, and financial market volatility.

Findings reveal that Uzbek firms have adopted a cautious approach to leverage, with a gradual decline in debt ratios since their peak in 2020. High interest rates and unstable financial markets have made equity and internal financing more attractive than debt. The increasing prominence of intangible assets and ongoing financial reforms also play a role in firms' capital structure choices. The study highlights those regulatory changes—such as tax policies, corporate governance reforms, and liberalization of the foreign exchange market—have significant effects on market volatility and investor behavior.

By employing a GARCH model and panel data analysis, the paper demonstrates that financial regulation and macroeconomic instability directly affect capital structure flexibility. Comparisons with other emerging markets underscore both shared challenges and Uzbekistan's unique constraints, such as limited venture capital access and underdeveloped equity markets.

The research concludes with recommendations for policymakers to promote capital structure flexibility, reduce borrowing costs, support equity markets, and stabilize regulatory frameworks. Strengthening financial infrastructure and enhancing access to diversified financing instruments are seen as critical for sustaining firm growth and economic resilience.

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