“Optimization of a company’s capital structure based on the criterion of minimizing the level of financial risk”

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OPTIMIZATION OF A COMPANY'S CAPITAL STRUCTURE BASED ON THE CRITERION OF MINIMIZING THE LEVEL OF FINANCIAL RISK

Abstract

In the context of growing economic uncertainty, capital structure optimization is becoming a critical tool for minimizing financial risks, providing companies with the necessary stability and adaptability in modern conditions. This paper aims to develop theoretical foundations for the existing capital structure optimization methods and elaborate an optimal capital structure formation strategy to ensure companies' financial stability and flexibility in conditions of high financial uncertainty. The article offers a stabilization-flexible approach to optimizing companies' capital structure in financial instability and crises, making it possible to ensure the companies' financial stability while preserving their ability to adapt to a volatile environment quickly. The main idea of the approach is the balanced use of equity capital and long-term and short-term liabilities to finance various components of assets, which helps to minimize risks and increase the efficiency of financial management. A roadmap for the implementation of the stabilization-flexible approach to optimizing the capital structure has been formed, the basis of which is the construction of a logical chain of actions, including the definition of companies' goals, the assessment of available financial resources and risks, and the development of financing strategies, their implementation, further control and monitoring of results. The study results can be helpful for financial managers, analysts, and investors seeking to improve the efficiency of capital management and reduce the impact of external and internal risks on the financial condition of companies.

Keywords financial risk, equity capital, loan capital, financial stability, risk management, economic instability, financial management

JEL Classification G33, G34, G01, M41

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INTRODUCTION

Capital is one of any company's essential resources, ensuring its functioning and development. Equity is understood from two points of view: as a company's own property, the totality of resources and means invested in the company's assets, and as the totality of economic goods.

The possibility of a company's functioning, competitiveness, and financial condition ultimately depends on the presence or absence of the necessary financial resources. At the same time, the optimal structure of equity capital plays an important role, which in turn should ensure maximum profit and maximum profitability of activities.

In today's environment of economic instability, global financial uncertainty, unresolved consequences of the COVID-19 pandemic, and geopolitical conflicts, the right approach to capital structure formation is decisive in the activity of any company. At the same time, it is necessary to take a balanced approach to the formation of capital structure. On the one hand, excessive use of debt capital can lead to increased financial risks and even bankruptcy. On the other hand, an

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overly cautious approach can limit companies' growth potential and their ability to use financial leverage to achieve strategic goals. The chosen financial strategy of companies must correspond to the company's goals. According to them, the formation of the target capital structure should be carried out.

In Ukraine, where the economy is experiencing instability and crisis, the issue of optimizing the equity capital structure is becoming particularly relevant. The state of war in Ukraine creates additional challenges for companies, in particular, limited resources, reduced revenues, and increased risks. Improper capital management in such conditions can lead to financial difficulties and even bankruptcy. Businesses need to quickly adapt their financial strategies to ensure stability and viability in the face of instability. An effectively developed capital structure optimization strategy can reduce the level of risk, reduce costs, and increase flexibility, which is critically important for the survival and development of companies, even in conditions of increased danger.

These conditions emphasize the need to develop adaptive capital structure optimization strategies that minimize financial risk and promote sustainable business growth.

1. LITERATURE REVIEW

Optimization of capital structure is a key aspect of a company's financial management, as it affects financial risk, liquidity, and value. One of the key theories related to capital structure optimization is the trade-off theory, which determines that companies, forming an optimal capital structure, balance between tax benefits from debt and financial costs (Brusov et al., 2013; Msomi & Nzama, 2023; Msomi, 2024). Another popular theory – the Pecking Order Theory – states that companies have priority in using internal sources of financing over external ones, and among external ones, they prefer debt to issuing new shares (Effendi, 2017, Brigham & Daves, 1987).

A considerable amount of theoretical and empirical scientific research in this area is devoted to studying the influence of capital structure on companies' financial stability by analyzing key indicators of a company's activity and comparing them with the size of equity and loan capital (Msomi, 2024). However, as Ma and Xu (2020) rightly note, the analysis of only absolute values does not provide a complete picture of the company's performance. Instead, the authors emphasize the need to use more advanced methods and methodologies of data analysis and the calculation of relative indicators.

In addition, Bystryakov et al. (2018) argued that modern technologies are also important when modeling the optimal capital structure. Using intelligent systems and computing methods, the authors proved that an effective capital structure can significantly affect companies' financial stability, which confirms the importance of a scientific approach to optimization.

In addition, Kulikov et al. (2023) modeled the optimal capital structure using the theory of simulations and the Python programming language, arguing that modern technologies eliminate the risk of subjective assessment of reality.

Using statistical methods to forecast possible changes in financial indicators, A. Chowdhury and S. Chowdhury (2010) optimized a company's capital structure. This study is a vivid example of how companies can respond to external and internal risks by dynamically adjusting the equity capital structure.

An innovative approach to determining the optimal capital structure is the study by Dreżewski et al. (2018), which proved the possibility of using bio-inspired agent systems for making corporate financial decisions, including capital structure optimization.

At the same time, De Wet (2006) emphasizes that there is no universal approach to choosing the optimal capital structure, as this choice depends on many internal and external factors (such as industry specifics, company size, state of the economy, etc.).

Kundakchyan and Zulfakarova (2014) emphasize the importance of considering industry specifics when determining the optimal capital structure.

In particular, Tsai et al. (2010) developed an analytical model for optimizing the capital structure of construction companies, taking into account the industry's specifics. The authors emphasize that the factors of the developed model are variable except for the industry specifics.

Feng et al. (2017) and Wang et al. (2018) determine the optimal capital structure of public-private partnership projects taking into account their industry specifics and the state of the country's economy. In addition, these studies emphasize the importance of considering the needs of various stakeholders in optimizing the capital structure, emphasizing that it allows for balancing risks and benefits.

Filimonova et al. (2021) also evidence the importance of considering the industry's specific conditions; the researchers explored the need and opportunity to optimize capital structure in mining companies, noting that capital management in this sector is critical due to high levels of financial risk.

Therefore, numerous studies demonstrate different approaches to optimizing capital structure, emphasizing their impact on a company's financial condition. From intelligent systems to analytical models, they all emphasize the importance of dynamic capital management to ensure sustainability and growth of company value.

Capital structure management acquires special relevance and importance in the conditions of economic instability caused by the consequences of the global COVID-19 pandemic and geopolitical conflicts.

Boz et al. (2019) argue that in the context of financial and economic crises, companies are forced to review their financial strategies, reducing the dependence on external financing and increasing liquidity to ensure flexibility. As Kacer et al. (2024) rightly note, military conflicts cause an even greater risk of uncertainty, leading to the need to quickly adapt the company's actions to changing conditions. For example, Berens and Cuny (1985) argued that owners are primarily focused on reducing the level of financial risk when making decisions about changing the capital structure. Other studies, in particular, Frank and Goyal (2009), emphasize that companies under conditions of high uncertainty (uncertainty of profitability of operations, uncertainty of the state of the economy, etc.) tend to acquire less debt financing to reduce the risk of bankruptcy.

Among the most widespread methods of optimizing a company's equity capital structure, researchers single out conservative, compromise, and aggressive approaches. However, the researchers themselves emphasize that, as a rule, it is quite difficult for companies to follow only one approach during the entire life cycle of companies, especially given the instability of the modern economic system.

Despite a large number of studies, the problem of optimizing the capital structure remains complex, multifaceted, and poorly understood in conditions of high uncertainty and risks associated with external shocks. Further study of this issue is required to develop effective approaches in modern conditions of economic instability.

This paper aims to develop theoretical foundations for existing methods of capital structure optimization and develop an optimal capital structure formation strategy that will ensure companies' financial stability and flexibility in conditions of economic instability and crisis situations.

2. METHODOLOGY

This study uses a theoretical approach to optimizing companies' capital structure in economic instability conditions.

The research methodology involves a step-by-step implementation of the following key steps:

1) Analysis of traditional approaches to capital management: This step analyzes the existing approaches to optimizing companies' capital structures and their main characteristics.

2) Identification of problems and limitations: It identifies advantages and limitations that companies face when using each of the previously defined approaches in conditions of economic instability and crisis situations.

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3) Development of an optimal strategy for capital structure formation: A new conceptual approach has been developed that combines elements of various approaches to capital management.

4) Development of a road map for the implementation by companies of the proposed approach to forming an optimal capital structure, taking into account the risk minimization factor.

3. RESULTS

As previously mentioned, in the economic literature, most scientists single out three approaches to determining the optimal capital structure (to financing groups of company assets).

1. *Conservative approach* involves the use of equity capital and long-term liabilities for the formation of non-current assets, the permanent part of current assets and half of the variable part of current assets (Figure 1).

2. *Aggressive approach* is aimed at using equity capital and long-term liabilities only to finance non-current assets (Figure 2).

3. *Compromise approach* involves financing of non-current assets and a permanent part of current assets at the expense of equity and long-term liabilities. At the same time, the variable part of current assets is financed by short-term liabilities. This policy of attracting sources allows us to reach a compromise between the cost of capital and the risk of its loss (Figure 3).

It should be noted that each of these methods has its own advantages and disadvantages, which are summarized in Table 1.

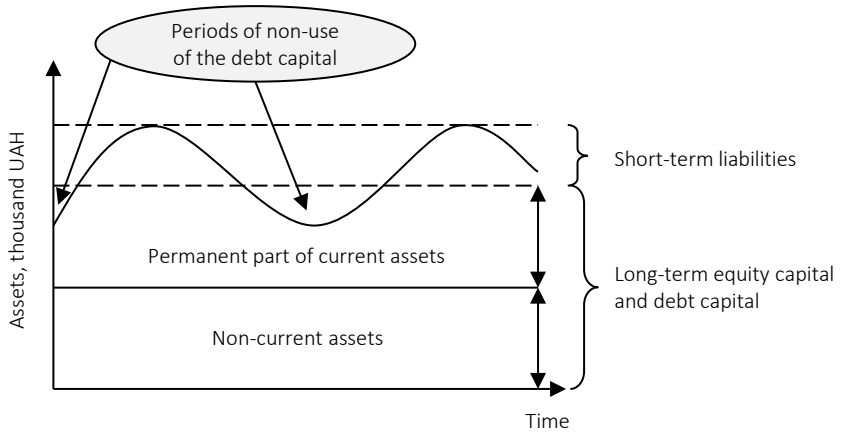

Figure 1. Conservative approach to asset financing

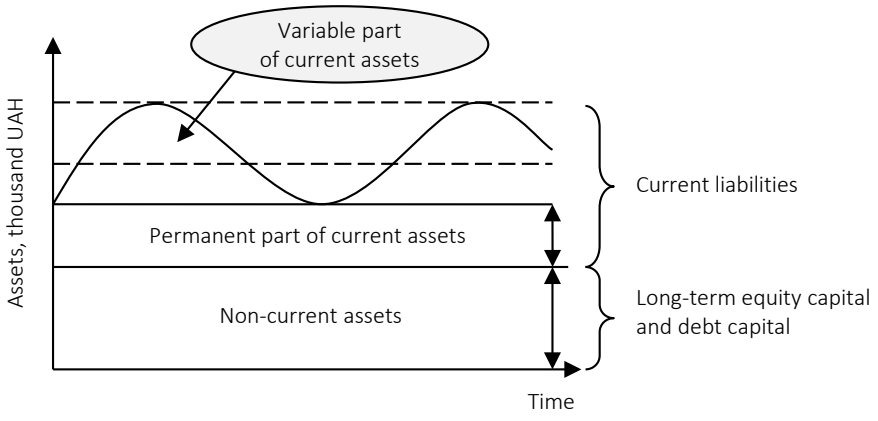

Figure 2. Aggressive approach to asset financing

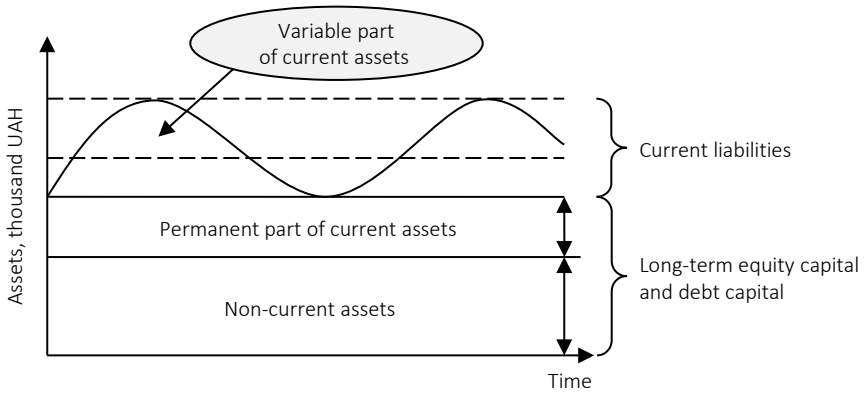

Figure 3. Compromise approach to asset financing

Table 1. Advantages and disadvantages of traditional methods of capital structure optimization

Approach	Advantages	Disadvantages
Aggressive approach	Minimal cost of capital, which makes it possible to maximize profitability in the short term	High risk of insolvency, as current assets are financed by short-term liabilities, which may lead to liquidity shortages in times of crisis or instability
Compromise approach	Balance between risk and cost of capital, a more sustainable funding structure compared to an aggressive approach	May not be flexible enough in conditions of sudden changes in the financial markets or during prolonged crises, which may lead to a decrease in the ability to quickly adapt to new conditions
Conservative approach	High resistance to financial risks, ensuring liquidity and reducing dependence on external sources of financing	High cost of capital due to a higher share of equity capital and long-term liabilities, which can reduce the company's profitability and competitiveness in the long term

It should be noted that traditional approaches to optimizing the capital structure (see Table 1) have relevant well-argued advantages, but the key drawback of all three approaches is that, in their pure form, none of them can effectively ensure the stable functioning of companies in conditions of crises and financial shocks. Each of these approaches focuses on a certain aspect of asset and liability management, but does not consider changing conditions that require greater flexibility and adaptability.

In particular, although the cost of capital is reduced with an aggressive approach, a sufficient level of liquidity is not ensured, which may lead to the company not being able to pay its debt obligations, and in a crisis situation, to its bankruptcy.

A compromise approach partially provides a balance between risks and the cost of capital, but at the same time, it does not provide flexibility and adaptability in the changing conditions of economic instability. The most "cautious" approach is conservative. It ensures stability, but at the expense of large capital expenditures, reducing the profitability of companies.

In Ukraine, in the conditions of martial law and financial instability, none of the traditional approaches to optimizing the capital structure will be unequivocally effective, because they often assume the presence of a stable market environment and access to predictable financial resources. In Ukraine, in conditions of high uncertainty, these approaches cannot adequately respond to sudden changes in economic conditions, such as fluctuations in exchange rates, restrictions on access to financing, and constant interruptions in the supply of resources. This limits their ability to ensure financial sustainability and efficiency.

Therefore, given the aforementioned shortcomings of each of the identified approaches to optimizing a company's capital structure, there is a need to develop another approach that would integrate the advantages of traditional approaches and minimize their shortcomings.

Based on the need to take into account two mandatory factors – stability and flexibility, which are critically important for ensuring the stable financial state of companies in conditions

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of uncertainty, it was decided to call the new approach "stabilization-flexible".

The stabilization-flexible approach will make it possible to maintain the stability of financing of non-current assets and the permanent part of current assets at the expense of long-term capital, which provides protection against liquidity risks. At the same time, this approach provides flexible management of the variable part of current assets through the use of short-term liabilities and liquidity reserves, which allows us to quickly respond to market changes and maintain financial stability (Figure 4)

As Figure 4 shows, the stabilization-flexibility approach to asset financing combines elements of all three classic approaches – aggressive, compromise and conservative – and adapts them to conditions of financial instability and uncertainty.

Under the stabilization and flexibility approach, non-current assets are financed mainly through equity and long-term liabilities. This ensures the stability of companies in the long term, since these assets are less subject to market fluctuations and require a stable source of financing. The permanent part of current assets is financed by a combination of long-term and short-term liabilities, depending on market conditions. It represents those current assets that are needed by companies regardless of seasonal or other fluctuations. In Figure 4, the permanent part of current assets is displayed above non-current assets and has a slightly variable, but mostly stable financing structure.

The variable part of current assets is financed by short-term liabilities or liquid reserves. This allows companies to quickly adapt to changes in the market and avoid liquidity shortages in case of unexpected expenses or a decrease in income.

In Figure 4, the variable part of current assets is presented as the most dynamic area, constantly changing, demonstrating flexibility and quick adaptation to market conditions. The stabilization-flexible approach also involves creating reserve funds to cover unforeseen costs in crisis situations. The presence of liquid assets, such as cash and securities, which can be quickly mobilized, allows companies to meet operational needs.

Therefore, the proposed approach will provide better adaptability and the ability to react quickly to changing conditions, reducing dependence on external sources of financing and risks associated with a lack of liquidity. This will allow companies to function efficiently in periods of stability and be ready for crisis situations while maintaining competitive advantages.

Implementing a stabilization-flexibility approach to capital optimization and management is a complex process that requires careful planning and consistent actions. Below is a road map for implementing this approach to optimizing the capital structure. This step-by-step action plan will ensure a systematic approach to implementing changes, reducing financial risks, and increasing resource use efficiency (Fig. 5).

It should be noted that implementing the stabilization-flexibility approach requires constant assess-

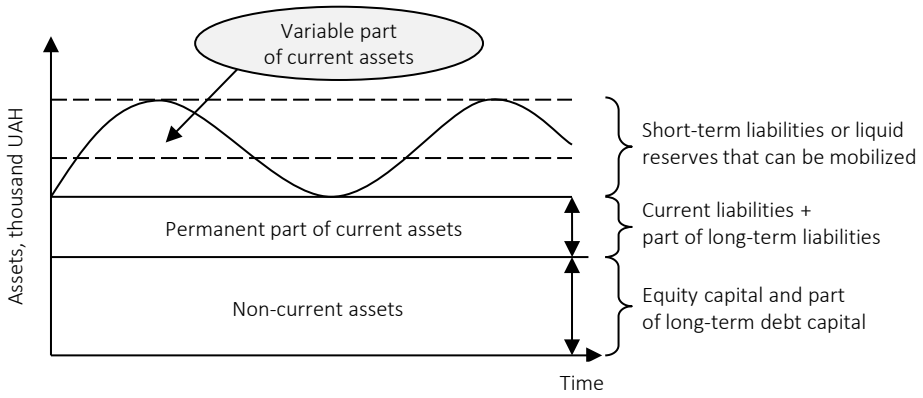

Figure 4. Stabilization-flexibility approach

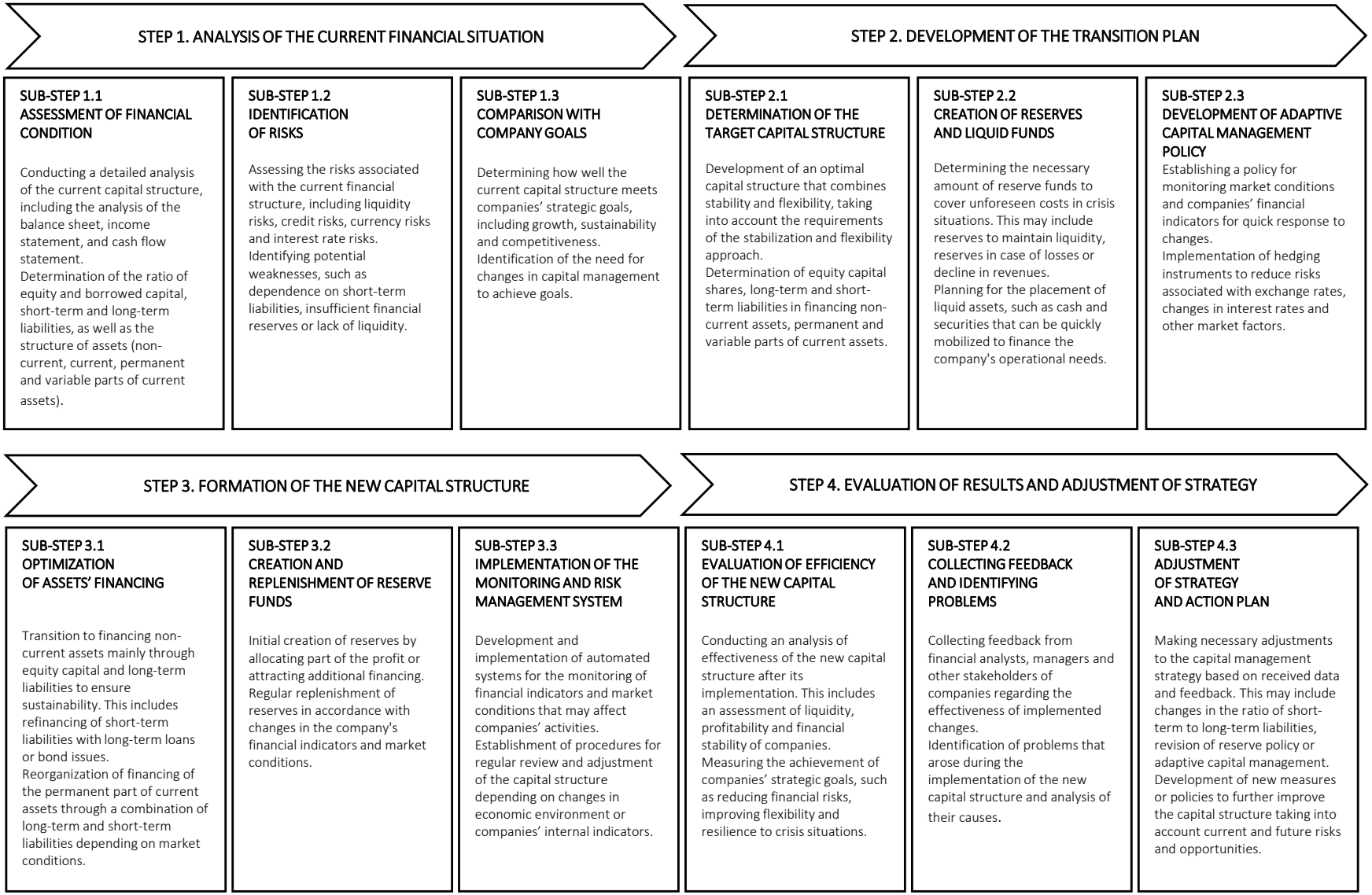

Figure 5. Road map for implementing the stabilization-flexible approach to capital structure optimization

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ment and adaptation to changing market conditions, i.e., the time intervals during which the existing financial strategies must be monitored and adjusted are determined by the company's management apparatus. The main goal of this approach is to ensure the long-term sustainability of companies and their ability to quickly respond to financial challenges, minimizing risks and maximizing profitability.

Commenting on the stages shown in Figure 5, it should be noted that an important component of this approach is the constant monitoring of market conditions and companies' financial indicators. This allows timely adjustment of the capital structure and reduction of risks associated with exchange rates or interest rates. Using hedging instruments also helps minimize potential financial losses.In addition, it should be noted that the amount of equity and loan capital can be balanced using one of the methods shown in Figure 6.

In general, it should be noted that under the prevailing unstable external conditions, it is quite difficult to plan one's activities in the long term due to the high level of uncertainty. Therefore, it is necessary to follow the following recommendations. Firstly, when choosing sources of funds, it is necessary to consider both their cost and availability. Under these conditions, loan funds, especially short-term ones, should become a source of financing with lesser priority. Secondly, preference should be given to internal sources of funds in the form of retained earnings. With an increase in their own resources, companies have potential opportunities for growth in the long term. Thirdly, the combination of various external and internal sources of financing should contribute to increasing the level of return on capital. The decision to attract funds should be made if there is no decrease in the level of profitability of the total amount of capital. Also, all changes in companies' capital structure should be aimed at increasing financial stability and liquidity, reducing the risk of insolvency, and significantly improving relations with banks, suppliers, etc.

- Also, it is worth emphasizing certain nuances that must be considered when implementing and applying the stabilization-flexible approach to optimizing the equity structure of companies in Ukraine. In particular:

- Financial risks and management of currency fluctuations: the high degree of volatility of exchange rates and financial markets in martial law conditions makes it necessary to implement mechanisms for hedging currency risks and planning financial flows considering possible fluctuations. As a rule, such volatility requires constant monitoring of financial indicators and taking measures to optimize the debt load.

- Security and protection of infrastructure: Ukrainian companies should invest in the security of their facilities, particularly in protecting critical assets from possible damage or destruction. At the same time, a stabilization-flexible approach should include planning for backup and recovery activities and concluding insurance contracts in case of force majeure.

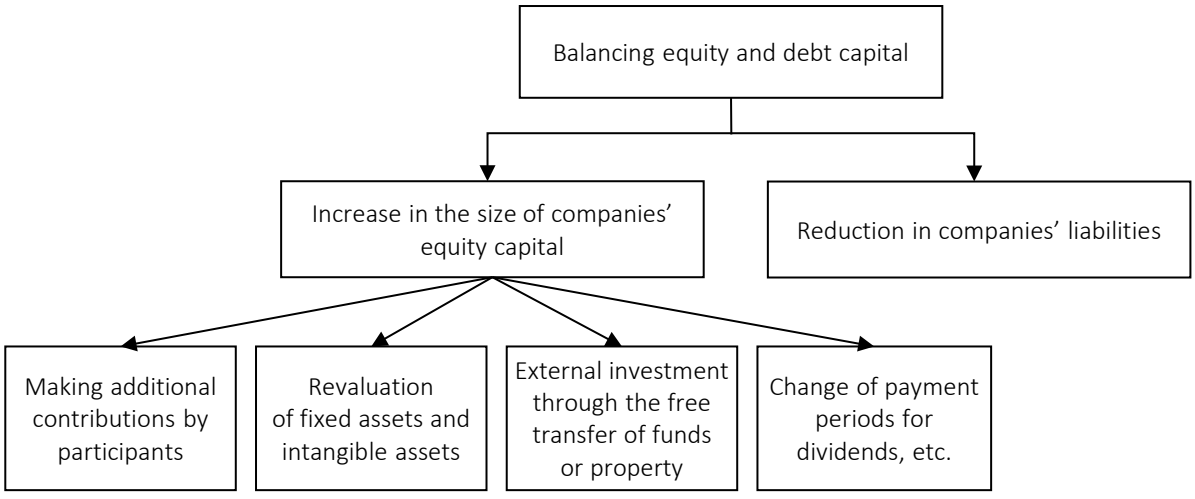

Figure 6. Methods for balancing the size of companies' capital

4. DISCUSSION

In conducting this study, it was proposed to develop a stabilization-flexible approach to the formation of the optimal capital structure, which combines the advantages of traditional methods, such as aggressive, compromise, and conservative ones, while being adapted to changing conditions and economic instability. The proposed approach makes it possible to achieve an optimal balance between risk and profitability while ensuring companies' high flexibility and financial stability.

A comparison of the obtained results with the conclusions of other researchers confirms the feasibility of using a stabilization-flexible approach in conditions of economic instability. In particular, this study's findings correlate with those of Filimonova et al. (2021), who found that aggressive or conservative approaches can lead to significant financial losses or low profitability in crisis conditions.

In this context, the results of this study also supplement the conclusions made by Effendi (2017), who emphasizes the importance of integrating elements of flexibility and adaptability into the capital management strategy.

Kacer et al. (2024) also indicate the need to create reserve funds and liquid assets as important components of companies' financial strategy. This study supports this idea, further demonstrating how a combination of long-term and short-term liabilities can be effectively used to cover both fixed and variable assets, thereby minimizing risks and increasing financial flexibility. However, unlike other approaches, the proposed stabilization-flexible method focuses on constant monitoring of market conditions and financial indicators, allowing companies to respond to changes on time and maintain stability. This aspect emphasizes the importance of dynamic capital management, which considers current economic indicators and possible future changes.

However, some studies (De Wet, 2006; Kundakchyan & Zulfakarova, 2014) focusing on trade-off approaches have been found to be easier to implement and less demanding on managerial resources. This approach may seem more complex, as it requires more careful planning, monitoring, and management. The implementation of a stabilization and flexibility approach requires a deep understanding of companies' financial conditions, regular assessment of market conditions, and the use of complex financial instruments, which can be a challenge for some companies, especially smaller ones or those with limited resources. Therefore, this article proposes a more comprehensive and adaptive approach to capital management that better meets today's challenges but may require more effort and resources to implement compared to other, less flexible methods.

CONCLUSION

The study reviewed the existing methods of capital structure optimization and proposed a stabilization-flexible approach that demonstrates its effectiveness in conditions of financial instability and economic crises. This approach ensures balanced management of assets and liabilities, taking into account the factors of stability and flexibility, which allows companies to maintain financial stability and adapt to rapid changes in the market. Thanks to this approach, companies will be able to minimize financial risks, maintain liquidity, and optimize capital structure to achieve strategic goals. The proposed approach includes the creation of reserves, adaptive capital management, and active use of hedging instruments, which makes it universal for different types of businesses and industries.

The prospects for further research in this area include a detailed empirical study of the feasibility of implementing the proposed approach and an analysis of the effectiveness of the stabilization-flexible approach in various industries, particularly in prolonged economic crises. It is important to study the impact of macroeconomic factors on the success of this approach implementation and its adaptation to specific economic conditions caused by crises (for example, martial law in the country). It is also promising to study the possibilities of integrating new financial instruments and technologies, such as

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blockchain and artificial intelligence, into the capital management system to improve its efficiency and reduce risks. Additional research can focus on developing methodologies for assessing the impact of the stabilization-flexible approach on companies' long-term profitability and competitiveness.

AUTHOR CONTRIBUTIONS

Conceptualization: Hanna Filatova.
Formal analysis: Viktoriya Kulyk, Olena Kravchenko.
Investigation: Viktoriya Kulyk, Olena Kravchenko.
Methodology: Hanna Filatova, Olena Kravchenko.
Project administration: Hanna Filatova.
Resources: Hanna Filatova.
Supervision: Hanna Filatova.
Validation: Hanna Filatova.
Visualization: Hanna Filatova, Viktoriya Kulyk.
Writing – original draft: Hanna Filatova.
Writing – review & editing: Viktoriya Kulyk, Olena Kravchenko.

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