FINANCIAL INSTABILITY AND RISK AS KEY FACTORS SHAPING THE EFFICIENCY OF INVESTMENT BANKING

ФІНАНСОВА НЕСТАБІЛЬНІСТЬ І РИЗИК ЯК ЧИННИКИ ЕФЕКТИВНОСТІ ІНВЕСТИЦІЙНОЇ ДІЯЛЬНОСТІ БАНКУ

The study examines the link between banks' investment efficiency and financial risk under rising economic uncertainty. Risk-based asset management is identified as essential for investment resilience. The analysis reveals that macro- and microeconomic volatility significantly affects investment decisions, with volatility acting as a key indicator of both risk and performance. Internal and external factors such as changes in funding structures, rising capital costs, interest rate fluctuations, and declining returns are shown to intensify investment risks. A strong correlation is established between growing risk and reduced investment efficiency, with implications for financial performance. The study emphasizes the need for advanced risk assessment tools and offers recommendations for adapting asset management strategies to improve banking sector resilience in volatile environments.
Key words: *investment banking, risk, financial instability, volatility, asset management, banking efficiency, macroeconomic indicators, risk indicators.*

У статті розглядається складна взаємозалежність між ефективністю інвестиційної діяльності банківських установ та рівнем фінансових ризиків, що формують нестабільність функціонування банківської системи в умовах зростаючої економічної невизначеності. Обґрунтовано актуальність застосування ризик-орієнтованих підходів до управління банківськими активами як ключового чинника підвищення стійкості інвестиційних процесів. Метою дослідження є глибоке вивчення взаємозв'язку між ефективністю інвестиційної діяльності банку та ризиками, що призводять до системної нестабільності банківської системи. Окрему увагу приділено оцінці впливу волатильності макро- та мікроекономічних показників на прийняття інвестиційних рішень банків, зокрема у контексті структурних трансформацій, що відбуваються в економіці. Результати аналізу свідчать, що волатильність є важливим індикатором ризику, який визначає як стабільність, так і ефективність інвестиційної діяльності банку, а також сприяє виявленню несприятливих трендів на ринку. Стаття також досліджує вплив внутрішніх та зовнішніх факторів, які впливають на рівень інвестиційних ризиків: зміни в структурі ресурсної бази, зростання вартості залучених коштів, коливання процентних ставок та зниження прибутковості активів. Визначено взаємозв'язок між зростанням фінансових ризиків, зниженням прибутковості та посиленням фінансової нестабільності в умовах макроекономічної невизначеності. Результати дослідження підтверджують, що збільшення інвестиційних ризиків веде до зниження ефективності інвестиційної діяльності та може суттєво погіршити фінансові показники банків. У дослідженні зроблено акцент на необхідності застосування новітніх методів для оцінки ризиків, зокрема для визначення рівня волатильності в ринкових умовах. Запропоновано рекомендації щодо адаптації інструментів управління банківськими активами з метою зниження рівня нестабільності та підвищення стійкості банківської системи. Це дозволить банківським установам краще адаптуватися до змін, забезпечуючи таким чином стійкий розвиток у динамічному фінансовому середовищі.
Ключові слова: *інвестиційна діяльність, ризик, фінансова нестабільність, волатильність, управління активами, ефективність діяльності банку, макроекономічні показники, індикатори ризику.*

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Formulation of the problem. The history of banking activities in the financial market demonstrates that risk is an inherent aspect of the industry. Consequently, the credit-investment activities of banks are closely linked to various financial risks, which can result in substantial losses. It is widely recognized that the uncertainty stemming from these risks contributes to instability in bank operations. Effectively minimizing and assessing the level of banking risks is crucial for the tactics and strategies of banking institutions, as these factors significantly influence the efficiency of investment banking (IB).

Analysis of recent studies ad publications. The issue of evaluating the effectiveness of investment banking has been widely explored in both domestic and international research. Foreign scholars such as I. Ansoff, M. Porter, D. Strickland, and M. Frost have thoroughly examined the theoretical aspects of managing the investment process. Meanwhile, practical aspects of IB have been addressed by researchers like E. Altman, Nicholas Apergis, A. Damodaran, Arthur H. Gilbert, Estelle Brack, Ramona Jimborean, Fred H. Hays, H. Markowitz, and W. Sharpe [5; 6; 7; 8]. Domestic scholars, including Andriychuk V., A. Krykliy, N. Maslak, O. Pozhar, O. Bezrodna, O. Vovchak, O. Dzyblyuk, T. Maiorova [9; 10; 11], have contributed to the development of theoretical foundations for IB, provided practical recommendations for its effective implementation, and proposed strategies for managing investment risks. Despite the extensive body of work in this area, several issues remain unresolved,

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particularly the need for a deeper investigation into the theoretical and methodological foundations for improving IB effectiveness and refining its conceptual framework. The ongoing relevance of these issues has shaped the focus, objectives, and tasks of the current research.

Formulating the purposes. The study aims to explore the relationship between the effectiveness of banking institutions' investment activities and the financial risks that drive instability within the banking system. The increasing significance of risk-oriented approaches to asset management in the face of economic uncertainty highlights the relevance of this topic, as these risks directly influence investment performance.

The main objectives of the study are:

1. To examine the nature of investment risk in banking activities and identify its primary sources and contributing factors.

2. To assess the role of macroeconomic and microeconomic volatility as an indicator of financial instability, influencing investment decisions by banks.

3. To analyze the manifestations of instability within the banking system, particularly those linked to transformational processes in the resource base structure and asset profitability.

4. To establish the connection between the escalation of risk, increased volatility, and the deterioration of the bank's investment performance.

5. To systematize both internal and external factors that impact banking investment activities in times of heightened instability.

Achieving these objectives will enhance the scientific understanding of how risk and instability shape the transformation processes in the banking sector and provide practical recommendations for improving investment management tools amidst dynamic shifts in the financial market.

Presentation of the main research material. It is worth noting that various risks are closely correlated with each other. At the same time, they differ in terms of the timing, geographical, and economic conditions under which they arise, as well as in their analytical approaches.

Investment risks in banking activities have certain specific features that distinguish them from general economic risks. The bank's transformational function ensures the creation of a unified cash flow from several smaller streams. By analyzing the typical characteristics of cash flows, it becomes clear that by transforming the initial values of such indicators as the amount and term of a deposit, interest rate, etc., the bank creates a foundation for the emergence of liquidity risk and others. When funds are directed to another sector of the economy, the overall risk level changes in accordance with the magnitude of the industry risk premium. These particularities of investment activity risks in banks are presented in Table 1.

The authors of the monograph Bank *Risk Management,* A. Yepifanov, T. Vasilieva, and S. Kozmenko, emphasize the stimulating role of risks in banking, which encourage banks to optimize their operations and utilize management tools to mitigate the impact of risks while maintaining income levels. The authors define banking risks as the quantitatively assessed probability of discrepancies in the volume, spatial, and temporal parameters of a bank's financial flows compared to expected values. These discrepancies arise from intentional actions or inactions by economic stakeholders, affecting the bank's financial condition and development dynamics [1, c. 25]. This definition adopts a generalized approach to banking risks, encompassing both general economic risks and those specific to banking activities.

Taking into account the work of scholars and the foundations of risk emergence theory, we can form our own view on the essence of risk in banking activities, its connection to the instability factor, and its impact on the efficiency of IB:

1. **Uncertainty and Economic Indicators:** The bank operates in an environment characterized by uncertainty, primarily due to fluctuations in economic indicators. To measure the instability of the economic situation, the volatility indicator "sigma" (δ) is used. Volatility is defined as the deviation of the studied indicator from its historical value, and this change can be either positive or negative.

2. **Volatility and Market Dynamics:** From a mathematical perspective, volatility represents the standardized deviation of a parameter from its average value. Each new value included in

Table 1

The emergence of IB risks due to Cash flow transformation

Initial Characteristics of Cash Flow	Transformed Characteristics of Cash Flow	IB risk stemming from Transformation process
Deposit maturity	Maturity date of the investment asset	Liquidity risk
Deposit amount	Value of the investment asset	Liquidity risk
Funds cost (i, %)	Funds cost (Δi, %)	Interest rate risk
Currency type No1	Currency type No2	Currency risk
Economy branch No1	Economy branch No2	Sector risk
"Beta" ratio of Equity owner	"Beta" ratio of total bank's Equity	Interest rate risk, Liquidity risk

Source: developed by the author

the population for research alters the basis for calculations (standardization indicator), thereby changing the deviation values of indicators over the previous period. From an economic standpoint, the inclusion of new parameters in response to changes in the market indicates a shift in the fundamental characteristics of the risk indicator. This shift signals a change in market trends and investor priorities. If the value of a new variable increases, it suggests that investors are becoming more sensitive to risk, thereby making the previous risk-tolerance levels obsolete. Consequently, deviations calculated on this basis will decrease. These deviation indicators, which form the basis of the volatility calculation, are closely correlated with the desired risk premium that banks receive as compensation for potential losses.

3. **Risk as an Investment Expectation:** In their market operations, banks are guided by their investment expectations, with future outcomes being uncertain. Risk is understood as the probability of obtaining a result that deviates from the expected one. By investing in an asset, a bank accepts a certain level of risk and prepares for potential losses caused by volatility.

Given the above arguments, we believe that risk is the probability of a negative event occurring, i.e., the deviation of an economic indicator from the expected value. The same economic event may have different economic consequences for banks depending on their investment priorities. Consequently, the risk for one bank can be evaluated as an expected positive outcome for another. Therefore, the assessment of a probable situation and the classification of the event depend on individual investment priorities and the level of risk tolerance.

Based on the expected level of risk and the positive outcome, the “Expected Value” indicator is calculated (formula 1):

$$EV = \sum px_i, \quad (1)$$

where EV – expected value (average total outcome); p – probability of event (outcome); x_i – event (outcome).

The sum of the probabilities of possible outcomes must be equal to “1” meaning that all results are consequences of market fluctuations, regardless of their nature.

The volatility indicator, which assesses the uncertainty of economic indicators in the market, is closely connected to the instability factor. The banking system, as part of the broader financial and credit system, operates within the larger economic system of the country. The market serves as the primary arena for interaction between both the general economic and banking systems. Consequently, the instability factors present in the market also affect the banking system. These factors are driven by the activities of banking institutions as well as other economic actors such as investors, brokers, traders, securities issuers, enterprises, and households.

Scholars note that one sign of instability is the presence of uncertainty in market participants’ activities. Another contributing factor is the interdependence of market participants’ actions. In other words, the uncertainty in one participant’s activity can influence others, thereby escalating the overall market uncertainty. Therefore, the collective behavior of market participants under conditions of uncertainty is a clear sign of instability [2, c. 274–276].

Based on the theoretical and empirical research of scholars regarding the development of instability factors, we identify two main signs of instability:

1. The activities of one participant under uncertain conditions create a foundation for other participants' activities in the same uncertain environment.

2. The financial outcomes of a group of participants' activities in uncertain conditions increase overall market uncertainty.

Scholars also highlight several criteria associated with the instability factor:

- **Complexity criterion** – defines the number of factors contributing to market instability;
- **Interconnection criterion** – describes the strength and direction of relationships among environmental factors;
- **Volatility criterion** – outlines the nature and spontaneity of trends in factors;
- **Uncertainty criterion** – reflects the level of uncertainty regarding the behavior of environmental factors [2, c. 275–276].

In our opinion, the instability of the banking system is characterized by changes in its key indicators over a given research period, compared to a period during which the system adhered to established norms. It cannot be claimed that instability is a static state, as it involves dynamic changes in the system. The instability of the banking system is primarily characterized by the magnitude and pace of changes, which can only be quantified when comparing the system’s state during the research period with its prior states. Without such a comparison, it is impossible to determine whether changes have occurred, or if the system remains unchanged.

We assert that instability has the following statistical characteristics:

- A change in the state of the banking system during the research period.
- The magnitude of the change during the research period is significantly greater than that within the norms.
- The nature of the change is volatile, with both negative and positive directions.
- The rate of change is not uniform over the research period.

Upon analyzing these characteristics, we believe they resemble those assessed by calculating the

volatility indicator (standard deviation). This metric allows for the evaluation of the magnitude of change relative to the average value of the studied indicator. It is worth noting that the volatility indicator is used to calculate the level of risk. Thus, we believe that both instability and risk are characterized by the calculation of the volatility indicator. Given this identified feature, we argue that the escalation of risk levels is the foundation of the emergence of the instability factor in the banking system.

Considering the identified characteristics and features of the instability factor's emergence, we propose the following definition: "The instability of the banking system is excessive volatility of the banking system's indicators over a certain period, caused by the additive influence of the interdependent activities of its participants in conditions of uncertainty and the fluctuating state of the economic system's indicators, provoked by the irrational actions of its participants".

The state of indicators in both the banking and economic systems is entirely determined by the activities of their participants. We believe that any change in an economic indicator is a result of specific factors influenced by the collective actions of one or a group of participants within the economic system. This concept involves the criterion of interdependent activities, which supports the validity of this assertion.

The functioning of the banking system is highly dependent on the condition and performance of the country's economic system. We believe that irrational collective actions by economic participants contribute to instability in the banking system. In turn, such irrational activities within the banking system can exacerbate the instability factor within the broader economic system. However, given the number of participants, available regulatory mechanisms, and the role of regulators, we believe that the degree of the economic system's stability being influenced by the banking system is much lower than the reverse effect. These aspects are considered in the definition of banking system instability.

Taking into account the contributions of scholars, we recommend assessing the impact of instability based on the outlined characteristics and adherence to the established criteria. The approach for evaluating the impact of instability on bank operations is visually represented (figure 1):

Volatility and uncertainty are central to assessing risk within the banking system, especially as crisis phenomena unfold, leading to an increase in both the magnitude of volatility and the probability of negative outcomes. Risk forecasting is conducted based on the probability and magnitude of deviations from expected values, while the level of realized risk is determined through historical data that reflects outcomes of events that have already occurred.

In evaluating the instability factor, it is critical to recognize that the activities of market participants are interdependent. The bank's operations in the market are influenced by the actions of other participants, and the consequences of the bank's operations impact these participants in turn. For instance, an increase in the bank's demand for securities raises their market price, which in turn stimulates greater supply and reduced demand. Moreover, it is essential to consider that besides the bank's demand, other participants also influence market dynamics, intensifying uncertainty regarding price levels. This interdependence is critical in understanding the complex nature of risk and instability.

The proposed approach incorporates the criteria of complexity and interconnection, allowing for a comprehensive evaluation of the combined effect of various factors. For example, the volatility of securities prices is influenced by both demand and supply factors in the market and the current price level. This framework enables the assessment of the variability and uncertainty of the studied factors, assuming sufficient data availability.

In our opinion, the evaluation of risk should be based on historical data, which reflects the outcomes of events that have already occurred. Such an approach allows for a detailed assessment of market deviations and their comparison with the bank's expectations. Additionally, calculating the risk level facilitates the understanding of how these deviations impact the effectiveness of the bank's investment activities.

To further evaluate the bank's investment risk, we recommend utilizing a set of economic coefficients that capture the relationships between the growth rates of various economic variables. Disruptions in the balance between these growth rates such as excessive growth in assets relative to equity capital indicate risk escalation. Conversely, a balanced growth rate between these variables reflects a positive outcome for the bank's risk-management system, indicating balanced operations. The overall level of investment risk should be calculated as an integrated indicator, considering the impact of different types of risk.

This integrated approach allows for a more nuanced understanding of risk dynamics, enabling banks to effectively assess and manage the potential risks associated with their investment activities.

The relationship between the risk level and the instability factor in the economic environment impacts the efficiency of investment activities of banks. In our opinion, mismatches between the economic situation or projected income and actual outcomes lead to deviations in investment activities, which ultimately cause instability in the bank's operations. Instability, in this context, refers to the lack of consistent economic norms used to assess performance. Discrepancies between expected and actual market conditions prompt the bank to adapt its investment activities

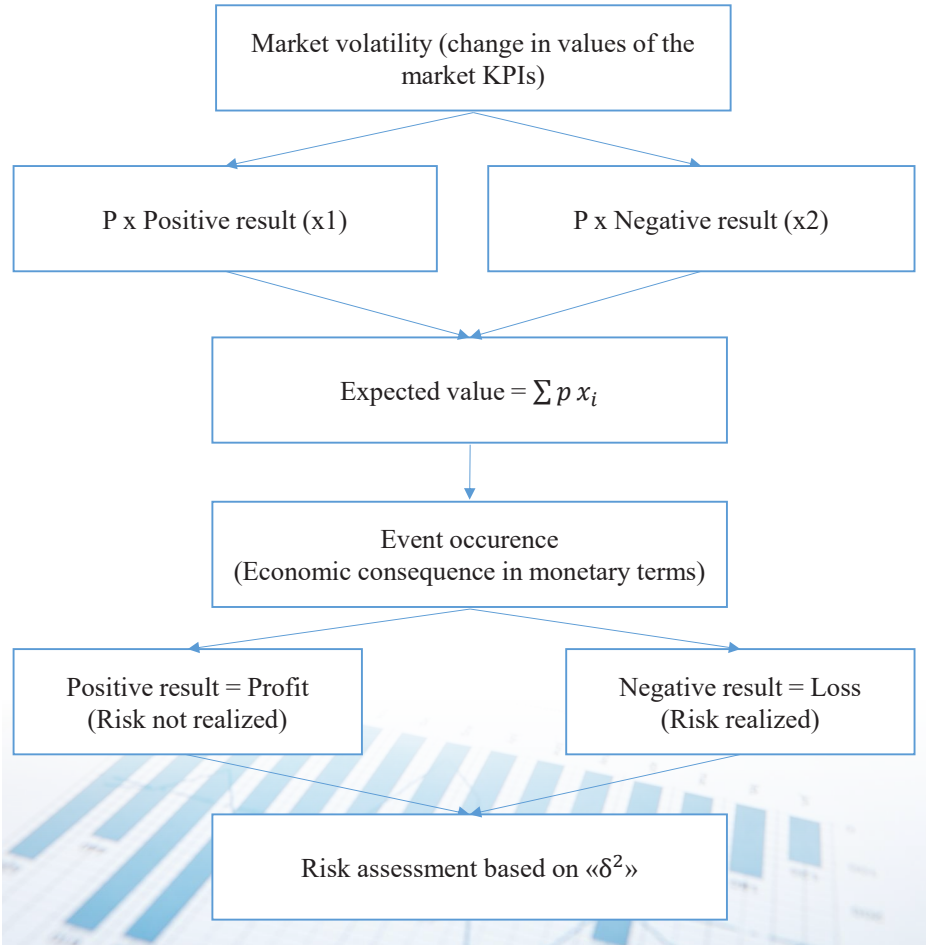

Figure 1. The Essence of risk and the approach to its definition

Source: developed by the author

and adjust performance indicators accordingly. This adaptation often results in changes to the growth rate of economic indicators, frequently accompanied by higher costs. Excessive costs are incurred as the bank adjusts to short-term unfavorable conditions, engaging in transactions less favorable than the market average or those accepted under normal conditions.

The primary consequences of the investment risk (IR) faced by the bank include:

1. Unpredictable changes in economic performance indicators;
2. Excessive costs;
3. The inability to implement parts of the investment strategy and the need for short-term adjustments;
4. An increase in problematic assets;
5. Losses from active operations initially deemed profitable, and an excessive growth rate of reserves for these operations.

These outcomes can occur in various combinations when assessing the bank's investment activities.

It is important to note that the emergence of instability in the economic environment is driven by deviations from expectations, which is a key characteristic of risk.

Operating in the market as financial intermediaries, banks are constantly influenced by both internal and external factors. The first group of factors arises within the market and impacts IB operations depending on the degree of penetration into the structure and operations of the institution. This occurs through changes in the qualitative characteristics of incoming cash flows, the use of market indicators as a basis for calculating internal rates and indicators, as well as through interactions with counterparties and the joint use of resources originating from a single source. For instance, the issuance of a loan to a borrower through the transformation of deposits from the public, where the deposit circulates outside the bank in the form of a loan while remaining on the bank's account. The second group of factors is more regulated and is caused by internal stages of the bank's investment activities. By focusing on forecasting and adjusting internal indicators, bank managers regulate the risk level of operations. This division of factors forms the basis for classifying risks into internal and external categories.

External risks are those that are not directly related to the bank's investment activities or its clients. The impact of external risks on the bank's performance

is significant, and the process of managing these risks is difficult to regulate. Based on the area of occurrence, external risks can be divided into systemic, reputational, and force majeure risks.

Internal risks, on the other hand, arise directly in connection with the investment activities of a specific bank. The bank's management is tasked with identifying, evaluating, minimizing, and constantly monitoring internal risks using appropriate methods. The probability of banking risks increases in cases of irrational strategy selection, inefficient internal audit practices, or incompetent management decisions [4, c. 248].

It is important to note that the emergence and escalation of risks are caused by fluctuations in market indicators and internal economic standards. One type of deviation is an increase in the costs of forming the bank's resource base. This can be attributed to two factors:

1. **Early withdrawal of funds by borrowers:** This uncertainty factor leads to the inefficient execution of the bank's transformation function. To compensate for the loss of resources without reducing the asset portfolio, the bank must attract additional resources from other sources in the short term. These transactions are carried out under less favorable conditions for the bank, resulting in an increased cost of forming the bank's resource base.

2. **Increased cost of capital in the market:** A rise in the market interest rate encourages banks to raise deposit rates. Consequently, income from investment operations changes at a slower pace, leading to losses from active operations.

Thus, the study reveals the complex and multifaceted relationship between the efficiency of banks' investment activities and the risks that serve as a key factor in instability. An analysis of theoretical foundations and empirical data has allowed for the identification of essential characteristics of banking system instability, its close connection with the volatility of key economic indicators, and the escalation of risks. Special attention was given to the quantitative assessment of risk as a determining factor directly affecting the effectiveness of investment operations.

The results of the study are significant for further understanding the processes occurring in the banking system amidst growing uncertainty. The conclusions drawn can serve as the basis for developing practical recommendations for minimizing the negative impact of instability and risks on the effectiveness of banks' investment activities. Further research in this area could focus on the search for new tools and approaches to ensure the sustainable development of the banking sector in a dynamic and changing economic environment.

Conclusion. The research provides a thorough analysis of the interplay between risk, instability, and the effectiveness of bank investment activities, a crucial factor for the sustainable development of the financial system. The theoretical and empirical analysis leads to several significant conclusions with both scientific and practical implications for the banking sector.

1. **The Role of Risk in Investment Activity.** Risk, in the context of investment activities of banks, is defined as the probability of deviation between actual outcomes and preset goals. This deviation results from both endogenous (internal) and exogenous (external) factors. The research emphasizes the importance of cash flow transformation as part of investment activities and the behavioral aspects of market participants, which can significantly affect risk levels.

2. **Volatility as an Indicator of Instability.** Volatility is highlighted as a critical measure of risk. It reflects fluctuations in macroeconomic and microeconomic indicators and serves as an essential tool for quantitatively assessing financial instability. Increased volatility signals higher uncertainty and potential risks for bank investments.

3. **Instability of the Banking System.** Banking system instability is defined as the deviation of key operational parameters from equilibrium. This instability manifests in shifts in the bank's resource base, changes in capital costs, and fluctuations in asset profitability. Such imbalances negatively affect the bank's ability to manage investment activities and maintain overall stability.

4. **Integration of Risk, Volatility, and Instability.** The study demonstrates the interdependence between risk, volatility, and instability. It is established that rising investment risks lead to increased volatility of key economic indicators, which destabilizes the banking system as a whole. This complex relationship hampers the effectiveness of investment processes and diminishes the overall stability of the banking sector.

5. **Instability and Risk Escalation.** The research confirms the close relationship between banking system instability and rising risk levels, particularly investment risk. Volatility, as a key indicator of instability, reflects the variability of economic indicators due to uncertainty and irrational behavior by market participants. Banking system instability is defined as excessive volatility of critical indicators resulting from the interactions among financial environment participants amid economic fluctuations.

6. **Quantitative Risk Assessment and Effectiveness Impact.** The need for using historical data to objectively assess realized risks in investment activities is emphasized. The study proposes an integrated approach to risk measurement based on economic coefficients that reflect dynamic key operational indicators of banks. An increase in risk levels directly leads to a decline in investment effectiveness, increased operational costs, growing

problematic assets, and challenges in achieving the bank's strategic objectives.

7. **Internal and External Risk Factors.** A systematic categorization of internal and external risks impacting bank investment activities is provided. Key factors contributing to the rise in resource base costs include early withdrawals by clients and rising market interest rates. Understanding these factors is crucial for developing effective risk management strategies.

The research results lay a strong foundation for further scientific investigation into adaptive management tools for banking investment activities in unstable financial environments. Future research may focus on studying the impact of new financial technologies on risk and volatility levels, developing predictive models to assess banking system instability, and analyzing international practices for managing investment risks in the context of global economic uncertainty.

In conclusion, the study underscores the need for a comprehensive approach to managing risks in bank investment activities, taking into account instability and volatility. The findings can guide bank management, regulators, and academics in improving investment strategies and strengthening the stability of Ukraine's financial system.

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