THEORETICAL FOUNDATIONS OF THE IMPACT OF REAL ESTATE COLLATERAL VALUE ON FINANCIAL AND MONETARY STABILITY

Abstract. The article examines the theoretical foundations and economic content of collateral, based on the purpose of collateral in credit relations, the macroeconomic functions of collateral and the role of collateral value in ensuring financial stability. The role of collateral in the financial system is examined through the prism of the impact of changes in its value on banking risks, including the systemic risk of banks, financial and monetary stability, and monetary transmission.

It is substantiated that the sharp increase in interest rates has led to an increase in the cost of financing economic projects, deterioration of economic dynamics and changes in market conditions, including the real estate market. The value of real estate pledged as collateral decreased as a result of market conditions. Mortgage lending became less accessible, which caused a number of problems in the construction industry and related markets. These processes have significantly increased banks' credit risk, market risk, and liquidity risk, which has led to a corresponding negative chain reaction in financial and monetary stability.

It is noted that the residential and commercial real estate markets and related credit markets are important for monetary policy and expand the possibilities of monetary transmission channels, and therefore can expand the tools of monetary influence on macroeconomic stability. After all, for most households, housing is the largest component of their wealth and potentially affects consumption. Moreover, investments in commercial and residential real estate are among the most volatile elements of aggregate demand. Nevertheless, the role of real estate in the economy is still neglected in monetary policy research, although after the lessons of the global financial crisis, this is no less relevant in the current crisis.
Баріда Надія Петрівна кандидат економічних наук, доцент, доцент кафедри банківської справи та страхування, Київський національний економічний університет імені Вадима Гетьмана, проспект Берестейський, будинок 54/1, м. Київ, 03057, тел.: (044) 456-31-62, https://orcid.org/0000-0002-0480-5506

ТЕОРЕТИЧНІ ЗАСАДИ ВПЛИВУ ВАРТОСТІ ЗАСТАВИ НЕРУХОМОСТІ НА ФІНАНСОВУ ТА МОНЕТАРНУ СТАБІЛЬНІСТЬ

Анотація. У статті досліджено теоретичні основи та економічний зміст застави, виходячи із призначення застави в кредитних відносинах обґрунтовано, макроекономічні функції застави та роль заставної вартості у забезпеченні фінансової стабільності. Розглядається роль застави у фінансовій системі крізь призму впливу зміни її вартості на банківські ризики, в тому числі на системний ризик банків, на фінансову і монетарну стабільність, на монетарну трансмісію.

Обґрунтовано, що різке підвищення процентних ставок призвело до зростання вартості фінансування економічних проєктів, погіршення економічної динаміки та зміни кон’юнктури ринків, в тому числі ринку нерухомості. Вартість нерухомості, що перебуває у банківській заставі, під впливом ринкової кон’юнктури, знизилась. Іпотечне кредитування - стало менш доступним, що викликало ряд проблем у будівельній галузі та на суміжних ринках. Зазначені процеси суттєво вплинули на підвищення кредитного ризику банків, ринкового ризику та ризику ліквідності, що спричинило відповідну негативну ланцюгову реакцію на фінансову і монетарну стабільність.

Зазначено, що ринки житлової та комерційної нерухомості і пов’язані з ними кредитні ринки, є важливими для монетарної політики та розширюють можливості каналів монетарної трансмісії, а отже можуть розширити інструментарій монетарного впливу на макроекономічну стабілізацію. Адже, для більшості домогосподарств житло є найбільшим компонентом їхнього добробуту і потенційно впливає на рівень споживання. Більше того, інвестиції в комерційну та житлову нерухомість, є одними з найбільш волатильних елементів сукупного попиту. Проте, роль нерухомості в економіці досі залишається поза увагою в дослідженнях монетарної політики, хоча після уроків глобальної фінансової кризи, це є не менш актуальним в умовах поточної кризи.
Key words: collateral, macroeconomic functions of collateral, collateral value, financial stability, monetary stability

Statement of the problem. Changes in economic dynamics and market conditions, structural transformations in the financial and real estate markets, and increased volatility and risks require a theoretical justification of the mechanism of influence of changes in the value of collateral on the bank's risk management and financial and monetary stability, with a view to improving and strengthening the methodological basis for forecasting and minimising systemic financial risks, credit risk, mortgage risks, financial and monetary stability risks.

In addition, an in-depth study of the mechanisms of accumulation of crisis potential and prevention of risks that once caused the global financial and economic crisis is the subject of increased attention by regulators as part of macroprudential supervision in the system of measures to ensure macrofinancial stability.

At the same time, it is an urgent task to improve the methodology for assessing the market value of collateral, determining the collateral value of real estate in the process of credit risk management, in order to objectively assess the level of bank risks and develop appropriate risk management measures to minimise them. A thorough study is also required to reveal the essence of collateral as an economic concept, its functions in credit relations and at the macro level of the banking system.

Analysis of recent research and publications. In the economic literature, the study of the role of collateral and collateral value primarily concerns ways to minimise risks in the process of bank lending and as a tool in the bank's risk management. The theoretical and methodological basis for the study of the problems of the bank's credit risk management system is quite actively researched. Representatives of economic thought whose works have created a solid foundation for further scientific research in the credit and financial sector are: O. Dziublyuk, I. Krasnova, A. Moroz, V. Mishchenko, M. Savluk, I. Ivasiv, I. Okhrimenko, and others. Bank risk management is the subject of research by L. Prymostka, V. Lavreniuk, R. Kornyiuk, and others. The role of collateral in the credit process and in the credit risk management system has been studied by N. Barida: N. Barida, V. Gagauz, D. Hrydzhuk, Di Casola, P., Dieckelmann, D., Grothe, M., Hempell, H., Jarmulska, B., Lang, J. H. & Rusná, M and others. However, recent changes in economic dynamics and market conditions, structural changes in financial markets, increased volatility and rising risks require further theoretical substantiation of the mechanisms of collateral value impact on risks, financial stability and monetary policy.

The purpose of the article is to identify and substantiate the mechanisms of influence of the value of real estate collateral on bank risks and macroeconomic processes, in particular, on financial and monetary stability; to identify relevant areas for improving the methodology for assessing collateral value.
Summary of the main research material. Real estate collateral plays an important role in bank lending and risk management. In developed economies, financial crises often start with overvaluation of assets, especially residential and commercial real estate, most often caused by poor credit quality and excessive growth in lending with high levels of leverage.

Residential and commercial real estate markets and related credit markets are also important for monetary policy, expanding the scope of monetary transmission channels and thus expanding the toolkit of monetary policy to help stabilize the macroeconomy. After all, for most households, housing is the largest component of their wealth and potentially affects consumption. Moreover, investments in commercial and residential real estate are among the most volatile elements of aggregate demand.

However, the role of real estate in the economy has so far been neglected in monetary policy research, although after the lessons of the global financial crisis (GFC), this is no less relevant in the current crisis. The experience of the mortgage crisis has changed the conventional wisdom about the monetary transmission mechanism. One result is a new focus on household balance sheets and how their imbalances affect the spread of crises. Another result is that new attention is being paid to bank balance sheets, the role of banks in lending, and the factors driving changes in lending standards, which are important for financial stability and new challenges for macroprudential regulation. For housing market participants, history shapes their attitudes towards participation in the real estate market and the choice of housing, with expectations about the future value of the property pledged as collateral being a key factor.

Based on the economic foundations of pledge relations, it is advisable to distinguish between the cost and financial approaches to the definition of pledge, which define it as first, according to the cost approach, an instrument (means) of securing an obligation that has the form of a tangible or financial asset, can be sold on the market, and has a value sufficient to cover the creditor's expenses related to the non-repayment of the loan, in preference to other creditors; second, according to the financial approach, a tangible or financial resource that has value, has liquidity and can serve as a powerful financial source of loan repayment.

On the basis of these approaches, it is advisable to theoretically substantiate the economic role of collateral, which, within the framework of credit relations at the macroeconomic level, performs the following main functions:

1) sterilisation of the money supply, which means that by selling the collateral of a problem loan, excess (inflationary) money supply is removed from circulation;

2) preservation of the loan capital, which means that by selling the collateral and compensating for the costs associated with the problem loan, the lender ‘preserves’ the loan capital [2].
The distinguished functions of collateral indicate the role of collateral value in credit relations and in the risk management system, and at the same time the mechanism of influence on financial and monetary stability.

Based on the experience gained after the 2007-2008 mortgage crisis, there is now a greater understanding of how real estate markets, the financial sector and the real economy interacted in the financial accelerator that operated during the GFC. This has helped to change conventional wisdom about the monetary transmission mechanism. One result is a new focus on household balance sheets and how their imbalances affect the spread of crises. Another result is that new attention is being paid to bank balance sheets, the role of banks in lending, and the factors driving changes in lending standards, which are important for financial stability and new challenges for macroprudential regulation.

At the same time, it is advisable to identify the channels through which real estate values influence monetary policy, namely, the expansion of monetary transmission tools. The following main channels of monetary policy’s impact on aggregate demand through the monetary transmission mechanism, which is carried out through the mortgage and real estate markets, should be distinguished.

1) The first channel relates to the transmission of impulses from changes in the key policy rate when the monetary policy regime changes to interest rates charged by lenders to borrowers in the housing markets.

2) The second channel covers the mechanism for determining interest rate-sensitive housing prices.

3) The third channel comprises two composite mechanisms that relate to two important determinants of aggregate demand: the transmission of housing prices through interest rates and returns on housing investment, and the transmission from housing prices and interest rates to consumer spending.

4) The fourth channel is the determination of mortgage debt, which is important both in terms of its impact on consumption and the accumulation of debt burden and subsequent impact on financial stability.

5) The fifth channel concerns NPLs and their impact on the credit cycle, monetary and financial stability.

6) The sixth channel is the impact on rents and inflation. This refers to the transmission of inflationary effects through real estate (i.e., in addition to the effects through the unemployment rate or output gap, which are traditional components of Phillips curve inflation models). An example is rents, which are an important component of the cost of living and are heavily influenced by real estate prices and interest rates [6, 7, 8].

An important role in ensuring financial stability and minimising the level of financial risks of the bank is played by the reliability of the valuation of real estate as a bank collateral in the lending process. Real estate valuation is an important risk management tool. Having correctly and objectively assessed the value of real estate,
The credit manager receives the necessary information to make a decision on granting a loan, determining its amount, and also to form a sufficient level of provision for banking risks. Thus, a reliable assessment of the value of real estate allows the bank to:

- **Reduce credit risk:** if the bank grants a loan for an amount that significantly exceeds the market value of the property, the bank will not be able to repay the entire loan amount in the event of the borrower's insolvency. The valuation of the property allows the bank to assess the likelihood that the borrower will be unable to repay the loan. If the value of the real estate that is the subject of the loan is lower than the loan amount, the probability of the borrower's insolvency increases.

- **Market risk,** the risk of unfavourable changes in the price of real estate pledged as collateral due to external factors arising between the last valuation of the collateral and the sale of the collateral.

- **Increase the liquidity of the loan portfolio,** if the bank has real estate in its portfolio that has a high market value and is highly liquid, it can easily sell it if necessary. The valuation of real estate allows the bank to assess the likelihood that the bank will be able to sell the property quickly and easily if necessary. If the value of the property is low, the bank may face difficulties in selling it [8].

An unprofessional and unbiased assessment of the value of real estate may lead to increased risks for the bank, unprofitability and a decrease in its financial stability. If the market value of real estate falls, the bank may incur losses if the loan amount exceeds the value of the real estate. Therefore, it is important to constantly monitor and revalue the market value of real estate during the term of the mortgage agreement.

In Ukraine, the valuation of real estate as a bank pledge is regulated by the National Bank of Ukraine and the State Property Fund of Ukraine. Banks are obliged to assess the value of real estate that is the subject of lending. In order to mitigate the risks associated with the valuation of real estate, banks must use the services of independent appraisers who have the appropriate qualifications and experience and hold a qualification certificate of ‘Real Estate Appraiser'. The valuation of real estate is carried out using modern methods and approaches that allow taking into account all factors affecting the value of real estate [1].

An urgent task is to improve the methodology for assessing the market value of collateral, determining the collateral value of property in the process of credit risk management, organising the process of assessing the value of collateral by appraisers, and coordinating their cooperation with banking institutions.

National regulations recommend that in the process of collateral valuation, the market value should be determined based on three methodological approaches: income, cost and comparative [1]. At the same time, national standards do not contain recommendations for taking into account the specifics of the valuation of bank loan collateral.
Given that in the event of foreclosure on the pledged collateral, the bank is faced with the process of its sale, it is necessary to determine the value at which the collateral can be sold in a manner that respects the interests of both the bank and the pledgor. Since the pledged property is an object of market relations, it would seem logical to value it and then sell it at its market value. It is clear that a bank, when compensating for losses resulting from a debtor's failure to fulfil its obligations, seeks to minimise the timeframe for the sale of collateral in order to avoid unnecessary losses, since unsold property means funds withdrawn from banking circulation.

Given the specifics of banking, it is natural that non-performing and overdue loans cause significant difficulties for the bank and its customers. After all, a bank is a financial intermediary in the money market that accumulates temporarily available funds (savings) of economic entities on bank deposits on terms of repayment, maturity and payment, and then lends the funds on its own behalf on the same terms and conditions and makes cash settlements on behalf of its customers. Thus, non-performing loans and unrealised collateral are the withdrawal of funds from banking turnover, which causes a number of financial problems for the bank, namely: increased banking risks and the need for increased provisioning to mitigate them, increased banking expenses and losses, insufficient liquidity and solvency, and a number of other problems that threaten the bank's future operations.

Given the specifics of banking activities and the role of collateral in credit risk management, the author substantiates the following specific features of bank collateral valuation: the value of collateral as a credit risk management tool is assessed based on the most likely option for selling the property in a default situation; collateral is valued today, and its sale is carried out in case of default by the borrower at any time during the term of the loan agreement; in case of default by the debtor under the loan, the bank is forced to sell the collateral to the

Thus, it is obvious that it is reasonable to define the collateral value as the most likely amount of money that can be obtained to satisfy the bank's claims as a result of the sale of the collateral. The market value determined by an independent appraiser and recorded in the ‘Property Appraisal Report’ should be used as the basis for calculating the collateral value. The collateral value should be determined on the basis of the projected scenario of foreclosure on the pledged property. In this case, the pledged value is considered to be the amount received from the sale of the pledged property, less losses and damages related to the foreclosure and sale of the pledged property. It is important, especially in the Ukrainian context, to take into account factors that could reduce the credit risk of banks, namely the speculative component in the market price and the forecast of the likely value of the collateral for the entire period of the loan agreement.

To calculate the collateral value, it is proposed to use a functional model of the collateral value, which is based on the market value of the property at the time
of valuation, with further forecasting of its possible changes during the term of the loan agreement and the subsequent debt collection period, as well as taking into account the collateral risk ratio and assessing the impact of non-market conditions of sale on the sale value of the property.

Therefore, based on the above assumptions, the generalised functional model of collateral value will be as follows:

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CV = F (MV, t, KL, CR, C, SSN) \tag{4}
\]

where CV (collateral value) is the collateral value; F is a function; MV (market value) is the market value of the collateral at the time of valuation; t is time; KL is a coefficient characterising the change in the value of the collateral due to non-market conditions of sale; CR is the collateral risk coefficient; C (cost) is the amount of costs (in monetary units) caused by both the foreclosure and sale procedure and the property properties; SCH (schedule) is the estimated loan repayment schedule.

Conclusions and prospects for further research. Real estate collateral plays an important role in bank lending and financial stability. Financial crises in developed countries often begin with speculative overvaluation of assets due to excessive market activity.

A particularly informative precursor to a crisis is a significant increase in prices for residential and commercial real estate pledged by a bank, as well as poor credit quality and excessive growth in lending with a high level of debt burden. In such a situation, the cost of non-performing loans rises sharply, which is a manifestation of a crisis. The growth of NPLs increases the cost of financing for banks, reducing their efficiency and profitability.

In such circumstances, banks apply stricter lending standards to clients, increase interest rates and collateral requirements, which in turn leads to a decrease in lending, higher debt service costs, accumulation of defaults and the development of a credit crunch.

A credit crunch is inevitably accompanied by a decline in market conditions, economic stagnation, lower mortgage lending, lower effective demand and lower property prices. Thus, the interaction of the credit cycle and the real estate market, the increase in market interest rates and the market-driven decline in real estate values, is of great importance for the bank's risk management, as well as for macroprudential regulation and financial and monetary stability.

The interaction between the credit cycle and the real estate market has important implications for financial stability. This paper examines the transmission channels through which monetary policy and credit standards affect lending rates, and through house prices to housing investment and debt, and through house prices to housing investment, debt, wealth, consumption, and NPLs. Although relevant for both monetary and macroprudential policy, most current central bank policy models have inadequate coverage of these channels.
However, recent changes in economic dynamics and market conditions, structural changes in financial markets, their increased volatility and growing risks require further regulatory changes to the theoretical basis of the mechanisms of influence.

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