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ASSESSMENT OF THE NBU'S MONETARY POLICY IMPACT ON LENDING TO THE REAL SECTOR OF UKRAINIAN ECONOMY

The article examines the main approaches to determining the essence of monetary policy, which had been analyzed and systematized at great length. It is very important to mention that the use of the concept of "monetary policy" by scientists is common, which is often interpreted as identical to the concept of "money and credit policy". However, recently, given the global trends in the monetary sphere, the NBU Council considers it appropriate to initiate amendments to the legislation of Ukraine in terms of replacing the term "money and credit policy" with the concept of "monetary policy". It is established that monetary instruments are one of the most important tools of state influence on lending to the real sector of the economy. In the practice of implementing monetary policy, it is customary to distinguish the main regimes that ensure the effectiveness of the policy itself, and the essence of each is based on the choice of the nominal indicator chosen by the NBU. We consider that achieving equilibrium in the monetary market and ensuring economic growth depends on the right choice of monetary policy instruments and the mechanism of their implementation. Using the regression analysis, the influence of the dependence of the change in the value of loans in the national currency on the change in the NBU's discount rate was determined. The indicators of banks' activity in the lending market of the real sector of the domestic economy are analyzed. The influence of the NBU's main monetary instruments on lending to the real sector of the economy is determined and substantiated.

Keywords: bank, banking system, credit, loan portfolio, non-performing loans (NPL), monetary policy, NBU's discount rate, key rate, real sector lending, monetary policy instruments, exchange rate targeting, inflation targeting, monetary targeting.

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ОЦІНКА ВПЛИВУ ГРОШОВО-КРЕДИТНОЇ ПОЛІТИКИ НБУ НА КРЕДИТУВАННЯ РЕАЛЬНОГО СЕКТОРУ ЕКОНОМІКИ

Проаналізовано та систематизовано основні підходи до визначення сутності грошово-кредитної політики. Встановлено, що монетарний інструментарій є одним із найважливіших знарядь впливу держави на кредитування реального сектору економіки. Визначено вплив залежності зміни вартості кредитів у національній валюті від зміни облікової ставки НБУ за допомогою проведеного регресійного аналізу. Проаналізовано показники діяльності банків на ринку кредитування реального сектору вітчизняної економіки. Визначено та обґрунтовано вплив основних монетарних інструментів НБУ на кредитування реального сектору економіки.

Ключові слова: банк, банківська система, кредит, кредитний портфель, непрацюючі кредити, монетарна політика, облікова ставка НБУ, ключова ставка, кредитування реального сектору, інструменти монетарної політики, таргетування обмінного курсу, інфляційне таргетування, монетарне таргетування.

Problem statement. Considering the market economy we can determine monetary policy as one of the most important factors of investment activity and economic growth. According to world experience, the greatest impact on the tempo of economic development has the regulation of money and credit markets, which is achieved through the effective application of monetary policy instruments. The NBU regulates economic processes per the defined monetary policy; after all, exactly this policy determines the dynamics of the national currency stability, inflation control and has an impact on the lending of the real sector of the economy.

Nowadays, monetary regulation of Ukraine's banking system development is becoming important, because the activity of the National Bank acts as a guarantor of financial stability and can significantly influence the socio-economic development of the country through lending to the real sector of the economy. Adequate to market requirements monetary policy of the NBU should create the necessary preconditions for effective banking in order to stimulate the development of the domestic economy.

The NBU has a modern arsenal of monetary regulation tools, which allows achieving the goals given the peculiarities of the national economy and the degree of development of the financial market. The key to effective regulation of the banking system and the domestic economy as a whole is the correctness of priorities in determining the objectives of monetary policy and ways to achieve them. The change of the NBU's monetary policy strategy and the introduction of a new regime – inflation targeting necessitates a comprehensive study of the effectiveness of such processes and their impact on lending to the real sector of the economy. Concurrently, the change in the monetary policy regime is accompanied by a change in the main monetary tool – the discount rate, which creates an additional need to study the impact of these processes on lending to the real sector of the economy. Therefore, the research and assessment of the monetary policy impact on lending to the real sector is relevant and requires the development of proposals for its improvement.

Recent research. Questions of the economic essence of monetary policy have been studied in the works of various scientists, for instance: O.O. Avramenko, K.S. Bazylevych, L.A. Bondarenko, M. Burda, I.V. Vietrova, Ch. Vyplosh, Yu.V. Kornieieva, A.V. Kulinska, S.O. Mysak, A.A. Ponomarenko, V.Yu. Svitlychna, V.S. Stelmakh, and others. Also should be mentioned, that problematic issues of monetary regulation tools and methods are thoroughly considered in the works of scientists and practitioners, among which are: O.O. Avramenko, L.A. Bondarenko, A.P. Kulinets, A.V. Kulinska, S.O. Mysak, V.Yu. Svitlychna, V.S. Stelmakh, M.L. Shvaiko and

others. The functioning of the transmission mechanism of monetary policy has been studied by P.H. Ilchuk, O.O. Kots, S.V. Mishchenko. The basic principles of monetary policy have been studied by such Ukrainian scientists as O.V. Dziubliuk and V.Ya. Rudan. Many scientists have been engaged in research of the bank lending market functioning and development, in particular: O.I. Baranovskiy, O.D. Vovchak, A.I. Danylenko, H.T. Karcheva, N.M. Sheludko and others.

Despite thorough research on monetary policy instruments, many issues still need to be clarified and further researched, in particular, given the latest trends in the functioning of the banking system, there is a requirement for a comprehensive study of assessment of factors that directly affected the development of lending to the real sector of the economy and were under the influence of the NBU's monetary regulation and the formed macroeconomic environment, and also the recommendations to enhance the effectiveness of monetary regulation instruments should be proposed. For today, there are no thorough studies to assess the impact of monetary policy instruments on lending to the real sector of the economy, so this necessitates additional research to evaluate the impact of the NBU's monetary policy on the development of the credit market in Ukraine's banking system.

Therefore, **the purpose** of this article is to assess the impact of the NBU's monetary policy on lending to the real sector of the domestic economy and to develop proposals for improving the processes of monetary regulation in the banking system of Ukraine.

Materials and results. Maintenance of a consistently low level of inflation is a necessary condition for economic growth. It should be ensured by monetary policy, which is conducted with the help of the NBU's monetary instruments and has an impact on the money market in order to achieve set goals. The choice of an acceptable regime of monetary regulation plays an important role in the development and implementation of an anti-inflation strategy. The banking system occupies a central place in the economy of each country, it connects money circulation and the sphere of production, ensures the interaction of important areas of social production, exchange, and consumption through monetary and credit relations. This confirms the high socio-economic importance of the banking system, which is the core of the economic system. The implementation of the NBU's monetary policy is an active tool of regulation of the banking system and is aimed at forming demand for funds and their supply, revenue, and expenditure of budgets at various levels, anti-inflationary measures, and more.

Thus, the banking system implements a number of measures to harmonize monetary policy with the real sector of the economy and should provide a positive effect in the form of macroeconomic equilibrium. An important characteristic of the NBU's monetary policy has always been and remains its social nature because its strategic task is to ensure employment, economic growth, the stability of the national currency and to curb inflation. All this should ensure economic growth, which is not possible without lending to the economy's real sector and its investment. In Ukraine, a set of measures to regulate monetary policy, control the success of its implementation, as well as the regulation of the monetary sphere is carried out by the National Bank. The NBU forms the legislation by adopting the relevant regulations that clearly establish relations in the field of implementation of all steps of monetary policy. As our analysis of the scientific literature shows, nowadays there is no unambiguous definition of the essence of monetary policy. We have systematized the approaches of scientists to define the concept of monetary policy, which are shown in table 1.

Table 1

Systematization of approaches to the etymology of the concept of "monetary policy"*

Author, source	Definition, the content of the concept
A set of measures in the field of money circulation and credit	
V.S. Stelmakh, [1, p. 103]	Monetary policy is a set of measures in the field of money circulation and credit, aimed at regulating economic growth, curbing inflation and ensuring the stability of the currency of Ukraine, ensuring employment and balance of payments alignment, which is carried out by the state through its central bank
O.O. Avramenko, [2, p. 41]	Monetary policy is a set of measures in the field of money circulation and credit aimed at ensuring the stability of the currency of Ukraine by using the means and methods specified by the Law of Ukraine "On the National Bank of Ukraine"
The system of measures to regulate the money supply by its number, structure, level of interest rates, price, and volume of loans	
I.V. Vietrova, [3, p. 7]	Monetary policy is a system of measures to regulate the money supply by its number, structure, level of interest rates, price, and volume of loans aimed at economic growth, curbing inflation, ensuring the stability of the currency of Ukraine, employment, regulation of the balance of payments for meeting the public demand for money
Measures are aimed at increasing the liquidity and creditworthiness of banking institutions	
S.O. Mysak, [4, p. 32]	Monetary policy is a set of measures of the legislature and the executive aimed at achieving the stabilization of the national currency, increasing liquidity and creditworthiness of banking institutions through the regulation of the money market
The State's set of interconnected and coordinated measures of regulatory nature	
A.V. Kulinska, [5, p. 191]	Monetary policy is the State's set of interconnected and coordinated measures of regulatory nature, which are carried out directly by the NBU or with its participation and implemented through the components of the fiscal policy mechanism through operational levers, while adhering to medium-term benchmarks, ensuring transparency, combining independence in the performance of the main constitutional function with the coordination of actions of other public authorities
A type of government policy aimed at influencing interest rates and exchange rates	
M. Burda, Ch. Vyplosh [6, p. 89]	Monetary policy is one of the alternative types of government policy aimed at influencing interest rates and exchange rates, more generally – the conditions of financial markets and their links with the real economy
A set of measures to regulate the money market to achieve macroeconomic equilibrium	
K.S. Bazylevych, [7, p. 554]	Monetary policy is an integral part of economic policy, which is represented by a set of measures to regulate the money market to achieve macroeconomic equilibrium
A set of various administrative, economic, legal, and information levers, measures, methods, techniques, models, algorithms	
V.Yu. Svitlychna, [8, p. 73–74]	Monetary policy is a set of various administrative, economic, legal, and information levers, measures, methods, techniques, models, algorithms used by the NBU to perform the tasks of this policy

*compiled from [1-8]

It is very important to mention that the use of the concept of “monetary policy” by scientists is common, which is often interpreted as identical to the concept of “money and credit policy”. For example, such approaches can be found in the works of Yu.V. Kornieieva, A.A. Ponomarenko, and others [9; 10].

Traditionally, the term “money and credit policy” is used in Ukraine. However, recently, given the global trends in the monetary sphere, the NBU Council considers it appropriate to initiate amendments to the legislation of Ukraine in terms of replacing the term “money and credit policy” with the concept of “monetary policy” [11]. The term “monetary policy” is more common and logical because it reflects the internal unity of the regulatory mechanism, which includes three components: emission-monetary, credit, and currency policy.

In order to clarify the content of the monetary policy, we analyzed the work of domestic scientists and identified key points regarding the purpose, object, and subject of monetary policy (table 2).

Table 2

Approaches to determining the purpose, object, and subject of monetary policy*

Purpose, object, subject	The meaning of the concept
The purpose of monetary policy	Achieving certain social, socio-economic goals [1, p. 103]
	Achieving stabilization of the national currency, increasing liquidity and creditworthiness of banking institutions [4, p. 32]
	Transparency of the country's policy, the combination of independence in the performance of the main constitutional function with the coordination of actions of other public authorities [12]
	The economic growth of the country, restraining inflation, ensuring the stability of the currency of Ukraine, ensuring employment, regulating the balance of payments to meet public demand for money [3]
The object of monetary policy	Money supply [3]
	Money circulation and credit relations [1; 11]
	Money market [4; 7]
	Interest rates and exchange rates [6]
The subject of monetary policy	Central Bank [1]
	State [7; 11; 12]
	Government [6]

*compiled from [1; 3; 4; 6; 7; 11; 12]

Nowadays, monetary instruments are one of the most important tools of state influence on economic processes in a developed market economy. The degree of the financial and credit system development of the country, its infrastructural elements determines the tools of monetary policy, on which largely depends the effectiveness of monetary regulation. Monetary tools are an arsenal of levers through which the central bank influences the money supply and thus the stabilization of the money market and the national economy as a whole.

Monetary policy affects the state of the money market (both money supply and money demand), and hence the economy through the use of appropriate instruments. The latter include administrative and economic, legal, and informational levers used by the National Bank of Ukraine to maintain equilibrium in the money market and ensure economic growth. In the practice of implementing monetary policy, it is customary to distinguish the main regimes that ensure the effectiveness of the policy itself, and the essence of each is based on the choice of the nominal indicator chosen by the NBU. Each of the regimes is used in the practice of monetary policy in different countries. We consider that achieving equilibrium in the monetary market and ensuring economic growth depends on the right choice of monetary policy instruments and the mechanism of their implementation.

It should be noted that the success of the choice of a particular regime of monetary policy ensures the effectiveness, validity, and success of the policy itself. Each of the monetary policy regimes is based on the choice of the nominal indicator selected by the NBU.

Thus, the main regimes of monetary policy are:

– exchange rate targeting (exchange rate, currency regulation): establishment by the NBU of the nominal exchange rate as an intermediate goal of monetary policy; efforts to ensure its stability against the currency of the so-called “anchor country” through changes in interest rates and direct foreign exchange interventions, thus importing price stability from this country;

– monetary targeting (targeting of monetary aggregates): achieving price stability by ensuring control over the growth of the amount of money compared to the previously announced target. The target benchmark is determined annually, which can be measured by the change in the money supply (aggregates M1, M2 or M3) or the general level of liquidity, or defined as the interval of the dynamics of the money supply;

– inflation targeting: the use of two operational objectives (inflation and exchange rate), as well as two key monetary instruments of the NBU (foreign exchange interventions and interest rates) [1; 5; 12].

Thus, O.O. Avramenko mentions the strengths of monetary policy regimes, but the weaknesses, respectively, include:

– monetary targeting regime: insufficient awareness for society; ineffectiveness in case of significant fluctuations in money demand; the uncertainty of future price dynamics; the unstable relationship between monetary aggregates and inflation target;

– exchange rate targeting regime: high level of dependence of monetary policy on foreign economic factors; insufficient connection with the priority goal of monetary policy – price stability;

– inflation targeting regime: weakening the flexibility of monetary policy; influence on the dynamics of inflation of factors that are not controlled by the central bank, which limits its ability to influence the level of inflation [2, p. 41–42].

Resolution of the Board of the NBU of August 18, 2015, № 541 “On the basic principles of monetary policy for 2016–2020” defines the main directions of monetary policy of Ukraine for this period [13]:

- adherence to quantitative inflation targets;
- changes in the key interest rate of monetary policy;
- the interest rate on operations of the National Bank of Ukraine that have the greatest impact on the state of the money market;
- the undisputed priority of achieving and maintaining price stability compared to other goals and objectives of monetary policy;
- floating exchange rate mode. The exchange rate will be largely determined by market conditions without first setting a desired or forecast value;
- prospective nature of decision-making based on a macroeconomic basis. Decisions on monetary policy parameters are based on a comprehensive macroeconomic analysis and forecast;
- transparency of the NBU’s activity;
- institutional, financial, and operational independence of the National Bank of Ukraine.

Undoubtedly, the success of the proclaimed strategic directions of achieving the goal of monetary policy will be provided by justified and effective monetary instruments, such as further liberalization of currency legislation, effective public debt management policy, effective implementation of inflation targeting policy, increase public confidence in the banking system and stimulate savings by maintaining low inflation and setting attractive interest rates.

Credit and deposit operations are an important instrument of central banks’ monetary policy because they are monetary transactions and are used to regulate the liquidity of the banking system in order to maintain balance in the money market. Credit and deposit operations are flexible and operative market instruments, their application leads to changes in the volume of the monetary base, i.e. the supply of money.

The essence of the open market policy is to change the volume of purchases and sales of securities by the central bank. Such operations cause a change in the reserves of commercial banks, which affects the volume and value of bank loans. Thus, the central bank affects the amount of money in circulation and the level of market interest rates, i.e. achieves a predetermined goal.

The central bank sells securities from its portfolio when it needs to stabilize or reduce the amount of money in circulation, curb the growth of effective demand, and thus help raise interest rates and ultimately reduce inflation. When the central bank sells securities directly to commercial banks, the excess reserves of banks decrease, and the deposit base remains unchanged. The decrease in bank reserves generates a multiplicative reduction in the money supply. In the case when the central bank sells securities to non-bank participants (dealers) of the stock market, the reserves of commercial banks that serve non-bank dealers are reduced and at the same time, the deposit base of these commercial banks is reduced.

If the central bank aims to increase the money supply and reduce the value of money, i.e. to reduce the market interest rate, it buys securities on the open market. As a result of such operations, business activity is intensified and market conditions are revived.

Frederic S. Mishkin, comparing operations on the open market with other monetary instruments, identified the following advantages [14, p. 515]:

- operations on the open market are carried out on the initiative of the central bank, which can control their volume;
- operations on the open market are flexible and fairly accurate, they can be carried out in any amount, depending on the needs of the central bank concerning the amount of change in the size of reserves or monetary base;
- operations on the open market have a reversible effect, i.e. if an error is made in their implementation, the central bank can easily correct it by conducting the opposite operation;
- operations on the open market are carried out quickly because they do not depend on administrative delays.

Export and import of capital are accompanied by inflows and outflows of foreign capital. Foreign financial investments in national securities for speculative purposes have a significant impact on the state of money circulation in the country, for instance, the foreign investments in government debt. The decreased attractiveness of government securities causes the outflow of foreign capital from the country, which provokes a depreciation of the national currency. The situation requires certain measures from the central bank and the government, including an increase in the interest rate and the level of profitability of securities issued by the State.

At the same time, the central bank should not allow the outflow of national currency abroad, which may occur due to the relatively low deposit interest rate in the country.

In general, the central bank usually has a sufficient set of monetary instruments to stabilize the national economy. They are conditionally classified according to certain criteria, but the three main ones are operations on the open market, changes in the discount rate, and changes in the reserve ratio. Thus, through effective combination

and application of these instruments by the central bank given specific crisis conditions it is possible to successfully bring the economy out of a crisis, and often to avoid the potential destabilization of the national economy.

For a long time, the main monetary instrument in Ukraine was the monetary targeting regime, through which the NBU achieved monetary goals, in particular, price and financial stability. In 2016, the NBU officially changed the monetary targeting regime to the inflation targeting regime, the main elements of which are the public announcement of quantitative inflation targets (setting an interest rate corridor) and the use of the discount rate as a key rate of inflation targeting. This change testified to a radical change in operational approaches to the implementation of the NBU's monetary policy in order to increase its effectiveness for market participants.

The key rate is the rate on the main operations of the central bank to provide or withdraw liquidity. The NBU's discount rate is used in Ukraine as a key rate. In turn, the interest rate corridor limits fluctuations of interest rates around the key rate in the interbank credit market. Such a change in the monetary policy regime became possible as a result of the approval of the Monetary Policy Strategy for 2016–2020 [15].

Therefore, the recognition of the discount rate as the main monetary instrument and a key element of the main monetary policy regime allows asserting exceptional relevance of modern research on the impact of the discount rate on the monetary sphere in general and on the main financial market price indicators – credit and deposit rates – in particular.

The discount rate of the NBU is one of the monetary instruments through which the NBU sets a benchmark for money market entities on the cost of raising and placing funds for the relevant period and also it is the main interest rate, which depends on the processes occurring in macroeconomic and budget areas and the money market. The discount rate is the main NBU's interest rate [16].

The size of the discount rate is determined per the following basic principles:

– the discount rate is used by the NBU both as a means of implementing monetary policy and a benchmark for the price of money;

– the discount rate is one of the factors that characterize the main directions of changes in monetary regulation;

– the discount rate is the lowest among the interest rates at which the NBU can support the liquidity of banks.

Determining the level and nature of changes in the NBU's discount rate depends on the general trends of economic development, macroeconomic and budgetary processes, and the state of the money market. The size of the discount rate is considered by the NBU Monetary Committee, approved by the decision of the NBU Board, and is valid until it is changed.

The study's attention to the dynamics of market lending rates and their regulation due to changes in the discount rate of the NBU is also relevant because it is the low nominal interest rates that ensure investment activity and economic growth. Therefore, it is also expedient to study the dynamics of nominal credit and deposit interest rates.

It should be noted that the operational goal of the NBU's monetary policy is to keep interbank interest rates at the level of the established key rate and within the interest rate corridor. Such tasks are performed by the NBU to achieve inflation targets. The indicator of the level of hryvnia interbank interest rates for monetary policy purposes is the Ukrainian index of interbank interest rates on overnight loans and deposits in the national currency.

By adjusting the discount rate, the NBU affects the level of short-term interest rates in the interbank money market, which in turn are indicators of changes in banks' interest rates on loans and deposits, and changes in interest rates on other financial assets, such as government securities. In turn, the value of both hryvnia and foreign currency loans and deposits is influenced by decisions of households and enterprises on consumption and investment, and this has a direct impact on inflation. Therefore, the NBU actively uses such an element of inflation targeting as inflation expectations. Adoption of the most transparent and understandable for the population decisions that consistently meet the stated goals and inflation targets helps to increase the efficiency of the transmission mechanism. Therefore the level of impact of changes in the discount rate on market credit and deposit rates and the speed of such a reaction reflects the effectiveness of the transmission mechanism.

The first stage of the transmission mechanism is the impact of the key rate on short-term market rates. The key interest rate is the base for forming the value of bank liquidity instruments. Banks have two options for liquidity-providing operations: appeal to other banks on the interbank market or to the NBU. Therefore, short-term interest rates almost immediately respond to changes in the NBU's discount rate. Thus, a change in the key rate almost immediately changes the value of funds raised by banks, which in turn causes a change in short-term market rates.

However, the most important for achieving monetary policy goals is the impact of the NBU on medium- and long-term market interest rates. Temporarily free funds are accumulated by the banking system at medium and long-term market interest rates, and then they are used primarily to finance the operating and investment activities of economic entities and long-term consumer needs. Such rates are formed both under the influence of short-term rates and under the influence of a wide range of market conditions (demand and supply of loans in the economy as a whole, inflation expectations, global financial markets, etc.). However, banks, focusing on the dynamics of short-term rates and having constant access to liquidity instruments, the value of which is set based on the discount rate, determine the level of medium and long-term rates based on such a base. That is why the impact of the NBU's discount rate on raising market interest rates causes an increase in savings and reduces investment and consumption costs, primarily through the interest rate channel.

The reverse effect of the NBU discount rate will cause reverse processes in the economy (Figure 1).

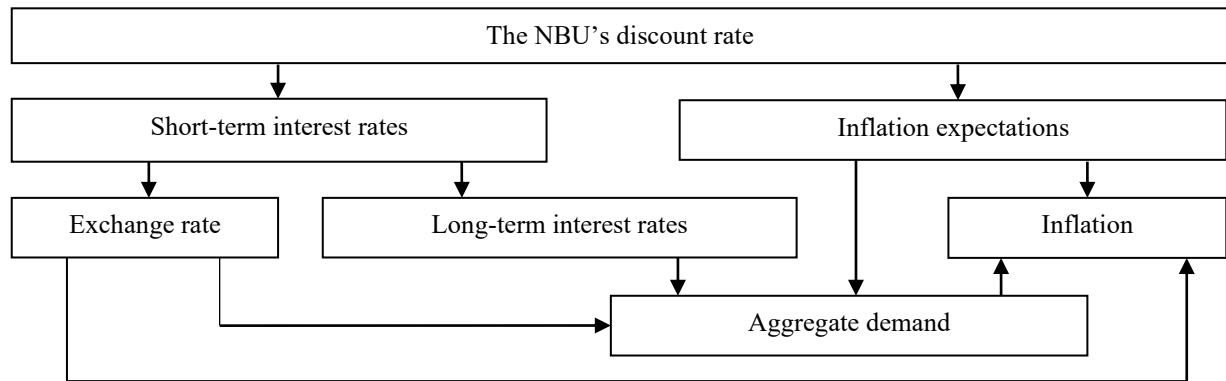


Figure 1. The impact of the discount rate on market interest rates and the effect of the monetary transmission mechanism in the mode of inflation targeting (compiled from [17])

The impact of the discount rate on the economy through the currency channel is more complex. The impact of the NBU's discount rate on raising market interest rates will cause an increase in foreign currency amount in the country. Such processes occur due to the desire of foreign investors to purchase domestic securities (denominated in hryvnia) by increasing their profitability and thus increasing the attractiveness of such securities. Such acquisition of domestic securities by foreign investors causes an increase in demand for the national currency, which increases its exchange rate. Also, the increase in interest rates on deposits in the national currency (provided that interest rates on deposits in foreign currency remain unchanged) causes similar processes and increases the exchange rate of the national currency.

According to NBU research, the impact of changes in discount rates on inflation and other economic indicators occurs with a significant time lag (9-18 months) [18]. Therefore, the NBU may reduce the discount rate in cases where current inflation, by contrast, increases. The NBU primarily focuses on the planned response of interest rates and inflation targets.

Note that until 2015, the NBU's discount rate was not an important instrument of monetary policy, because the discount rate was not used as a key rate for pricing for most monetary instruments. And only after the introduction of inflation targeting, the discount rate acquired the status of the main monetary instrument. However, for a long time and constantly, the NBU's discount rate is used as a key rate in the regulation of bank liquidity in such transactions as overnight loans; weekly tenders (quantitative tender; interest rate tender); repo transactions, etc.

Table 3

Dynamics of the impact of the NBU's discount rate on the value of loans of Ukrainian banks during 2016-2020*

Date	the NBU's discount rate, %	The cost of loans, %					
		In the national currency			In foreign currency		
		Total	Short-term	Long-term	Total	Short-term	Long-term
01.01.2016	22.0	21.5	20.9	29.7	6.9	6.8	9.2
22.04.2016	19.0	20.9	20.4	25.6	7.6	7.4	10.7
27.05.2016	18.0	17.7	20.7	9.0	6.3	6.2	11.0
24.06.2016	16.5	21.5	21.1	26.8	7.7	7.6	9.3
29.07.2016	15.5	18.6	17.8	24.1	7.0	7.0	10.0
16.09.2016	15.0	15.9	15.8	16.6	8.3	8.3	8.3
28.10.2016	14.0	12.0	14.7	11.0	9.6	9.6	7.8
31.12.2016	14.0	22.1	20.2	26.0	9.7	0.1	9.7
01.01.2017	14.0	17.7	16.4	26.9	8.2	8.2	8.3
14.04.2017	13.0	14.6	13.6	22.7	5.7	5.5	6.6
26.05.2017	12.5	13.9	12.5	24.4	7.3	7.1	8.7
27.10.2017	13.5	15.0	14.2	21.5	7.0	6.5	8.3
15.12.2017	14.5	16.8	15.8	21.4	6.2	5.5	8.8
31.12.2017	14.5	21.2	23.2	20.3	7.3	8.5	7.3
01.01.2018	14.5	16.7	15.4	24.7	6.4	6.2	7.8
26.01.2018	16.0	16.6	15.7	24.1	6.5	6.1	8.0
02.03.2018	17.0	17.4	16.8	21.4	5.4	4.8	6.4
13.07.2018	17.5	17.4	16.8	23.9	5.2	5.2	5.6
07.09.2018	18.0	19.6	19.1	22.7	6.4	6.3	7.5
31.12.2018	18.0	12.2	26.9	9.2	5.3	4.5	7.4
01.01.2019	18.0	21.9	22.0	21.3	5.8	5.5	9.6
26.04.2019	17.5	17.1	16.2	23.5	5.1	5.2	5.5
19.07.2019	17.0	17.3	16.8	21.2	5.1	4.6	6.1
06.09.2019	16.5	16.3	15.4	23.1	6.2	5.1	5.9
25.10.2019	15.5	15.2	14.9	22.5	6.2	6.1	6.8
13.12.2019	13.5	15.0	14.2	21.5	5.3	5.7	6.3
31.01.2020	11.0	14.1	12.6	18.1	5.9	5.7	7.5
13.03.2020	10.0	13.2	12.1	17.3	4.5	4.3	6.1
24.04.2020	8.0	11.1	11.9	15.2	3.9	4.1	5.8
12.06.2020	6.0	-	-	-	-	-	-

*based on [18; 19]

It is necessary to analyze the impact of the NBU's discount rate on the cost of loans according to statistical reports of the NBU. There was a cycle of mitigation and strengthening of monetary policy during 2016–2020. The cycle of mitigation monetary policy lasted until May 26, 2017. During this period, the NBU's discount rate was reduced from 22.0 % to 6.0 %. Then the rate was raised, and the next cycle of mitigation continues to this day (Table 3). According to Table 3, we see that during the mitigation of monetary policy, the NBU lowered the discount rate by 3%. Such actions of the NBU did not have a significant impact on the value of hryvnia and foreign currency loans: the interest rate on hryvnia loans decreased by 0.6 %, while the value of foreign currency loans increased by 0.7 %.

Significant changes are observed in the period of further mitigation of the NBU's monetary policy. The reduction of the discount rate on May 27, 2016, from 19 % to 18 % led to a decrease in the cost of long-term loans in the national currency from 25.6 % to 9 % (by 16.6 %). In turn, another reduction of the key NBU's rate on June 24, 2016, by 1.5 % led to an increase in the interest rate on long-term loans by 17.8 % (from 9 % to 26.8 %).

No significant changes in the value of hryvnia and foreign currency loans were observed after all subsequent changes in the NBU's discount rate. The mitigation of monetary policy (reduction of the NBU's discount rate to 8.0 %) was characterized by a decrease in the interest rate on loans in the national currency to 11.1 % and a decrease in the interest rate on loans in foreign currency to 3.9 %.

Therefore, we can conclude that during the analyzed period, rates on short-term loans have been actively changing and that the strengthening of monetary policy mainly affects the cost of loans to legal entities.

Thus, since 2015, the NBU discount rate has acquired the status of the main monetary instrument and a key element of the main monetary policy regime. First of all, the influence of the NBU discount rate in the transmission mechanism is manifested through the regulation (strong influence and quick reaction) of short-term market interest rates, which, in turn, causes a change in long-term interest rates.

Therefore, the study of the impact of the NBU's discount rate on market interest rates is one of the most important aspects of assessing the effectiveness of the transmission mechanism. It is also possible to draw a conclusion about the high level of efficiency of the monetary transmission mechanism in Ukraine in 2016-2020 in the inflation targeting regime, which is proved by confirming the existence of a strong direct correlation between the NBU's discount rate and the cost of loans in national currency.

To determine the dependence of changes in the value of loans in the national currency on the change in the NBU's discount rate, we conducted a regression analysis based on 29 observations. According to the regression analysis results for 2016-2020, the following conclusions can be drawn: the value of the multiple R indicates that there is a strong direct relationship between the value of loans in the national currency and the NBU's discount rate, and the variation in the value of loans in the national currency is due to a variation in the NBU's discount rate by 0.6898. The value of the Y-intersection indicates 4.403% of the value of the loan in national currency at a zero discount rate of the NBU. In turn, the value of variable X1 indicates a high level of dependence of changes in the value of loans in national currency on changes in the NBU's discount rate.

The results of calculations of regression coefficients show that the linear regression model has such form:

$$y = 0.8115x + 4.403, \quad (1)$$

Figure 2 graphically shows the impact of the dependence of changes in the value of loans in the national currency on changes in the NBU's discount rate, forecast data (regression) and the trend line.

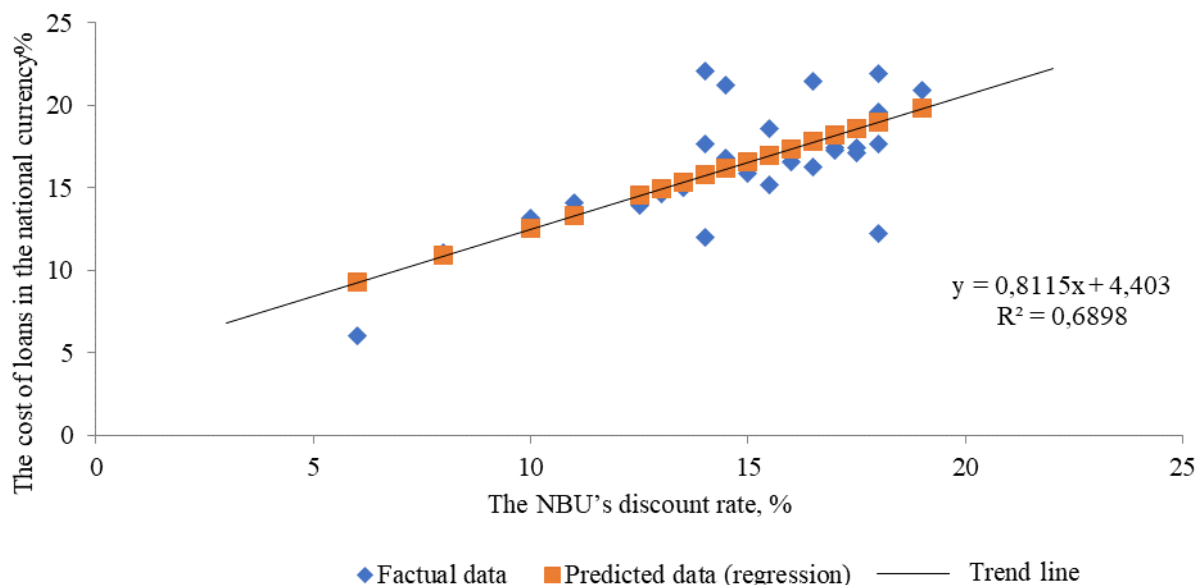


Figure 2. Forecasting the impact of the NBU's discount rate on the value of loans in national currency

The effectiveness of monetary policy should help increase lending to the real sector of the economy. The analysis showed that the cost of loans gradually decreased in accordance with the action of regulatory instruments. Therefore, we will analyze the main indicators of lending to the real sector of the economy in the banking system of Ukraine. The main indicators of bank lending to the real sector of the economy according to the statistical reporting of Ukraine are shown in Table 4.

Analyzing the indicators of lending to the real sector of the Ukrainian economy (Table 4), we conclude that in the post-crisis period of 2012–2014 there was a tendency to a gradual dynamic growth of lending from UAH 815 billion to UAH 1006.4 billion with a growth rate of 98.8%–110.4 %.

Table 4

Dynamics of indicators of lending to the real sector of the Ukrainian economy during 2012–2019*

Indicators	As of the year's end							
	2012	2013	2014	2015	2016	2017	2018	2019
Bank assets, UAH billion	1127.2	1278.1	1316.9	1254.4	1256.3	1333.8	1359.7	1494.5
Growth rate, %	106.9	113.4	103.0	95.3	100.2	106.2	101.9	109.9
Loans provided, UAH billion	815.3	911.4	1006.4	965.1	1005.9	1042.8	1118.9	1033.5
Ratio to GDP, %	57.9	62.7	74.8	48.7	42.2	44.7	38.2	37.6
Growth rate, %	98.8	111.8	110.4	95.9	104.2	103.7	107.3	92.4
Share in assets, %	72.3	71.3	76.4	79.9	80.0	78.0	82.3	69.1
of them:								
loans to economic entities, UAH billion	609.2	698.8	802.6	785.9	847.1	864.4	919.1	822.0
Growth rate, %	104.9	114.7	114.9	97.9	107.8	102.0	106.3	89.4
Share in assets, %	54.1	54.7	61.0	62.7	67.4	64.8	67.6	55.0
loans to individuals, UAH billion	161.8	167.8	179.0	152.4	157.4	170.8	196.9	206.8
Growth rate, %	92.6	103.7	106.7	85.1	103.3	108.5	115.3	105.0
Share in assets, %	14.4	13.1	13.6	12.2	12.5	8.1	8.5	13.8
Share of overdue debt on loans in the total amount of loans, %	8.9	7.7	13.5	22.1	53.9	54.5	52.9	48.4
Reserves for active operations of banks, UAH billion	141.3	131.3	204.9	321.3	484.4	511.1	556.5	492.1

*calculated based on [18–20]

These changes took place at a record high NBU's discount rate of 30 % –22 %. Loans were too expensive and remained available to a small number of business entities. The growth rate of loans to economic entities was higher than that of individuals.

During and after the global financial and economic crisis, traditional monetary instruments in Ukraine proved to be generally ineffective. The discount rate peaked over long periods (22 %–30 %) and remained unchanged. This gave grounds to use it as an indicator of the intentions of the NBU. The crisis of 2009–2010 complicated the process of forming an effective monetary transmission mechanism in Ukraine, as a result of which, in particular, there was a shift of priorities from external (exchange rate) to internal (price) component of the stability of the national currency [21].

The effectiveness and specificity of the monetary instruments using by the central bank may be partly determined by political factors. According to the logic of the political business cycle, the alternation of periods of stimulating and restraining stabilization policy depends on the electoral cycle. Over the last ten years, Ukraine has used expansionary monetary policy to pursue certain political goals.

In our opinion, the system of anti-crisis measures to stabilize the situation in the money market during the period of intensification of the crisis partially restrained the negative trends, but did not have a significant impact on eliminating the causes of such trends. It is obvious that anti-crisis measures have actually undermined the foundations of banks' lending activities in key segments of lending to the real sector of the economy.

There is a dilemma in monetary policy, the essence of which is the need to support the real sector of the economy by lowering interest rates on loans and the need to pursue prudent policies in terms of controlling future inflation (in this case, it is necessary to keep the rates on active transactions at a positive level in real terms). Global experience in overcoming the economic crisis shows that central banks in such conditions prefer to support the real sector and high growth rates of loans to businesses, going to a certain increase in inflation risks in the future.

During 2015–2016, the banks' loan portfolio decreased to UAH 965.1 billion. This is the result of the crisis that began after the annexation of Crimea and the occupation of Donbas. In 2016, the loan portfolio of domestic banks increased almost to the level of 2014 – UAH 1005.9 billion with a growth rate of 104.2 %. In 2016–2018, banks increased lending volumes, which at the end of the period reached the level of UAH 1118.9 billion. It should be noted that at this time, loans to economic entities and individuals grew dynamically. This was facilitated by a gradual reduction of the NBU's discount rate from 22 % to 14.5 %.

The ratio of loans to GDP in 2012–2014 tended to increase from 57.9 % to 74.8 %, but during 2015–2016 decreased to 48.7 % and 42.2 %, respectively. The downward trend is observed during 2018–2019 from 38.2% to 37.6 %. At the same time, this figure did not fall below 30%, i.e. was in a safe zone.

During 2014–2016, the banking system of Ukraine in a difficult political and economic situation was exposed to significant risks, including credit risk. As a result of external unpredictable shocks, the solvency of borrowers deteriorated and the volume of bad loans increased. Banks lost mortgaged property and other collateral for loans, which affected the quality of the loan portfolio and required a set of stabilizing measures.

Problematic debt on credit operations since the financial crisis has had a clear upward trend. This process has intensified especially since 2014 in the conditions of carrying out warfare in the anti-terrorist operation zone in the East. Thus, overdue credit indebtedness in 2014 increased to 13.5 % in the total loan portfolio of domestic banks and began to exceed the safe level of 10 %. During 2015–2017, it increased from 22.1 % to 54.5 %, which led to a gradual increase in the NBU's discount rate to 18 % during 2018.

Due to the large share of non-performing loans (NPL), banks are forced to form huge reserves for loans, i.e. to freeze in the account from 20 % to 100 % of their amount. Thus, in 2014 alone, the number of required reserves of banks increased from UAH 131.3 billion to UAH 204.9 billion (20.4 % of the volume of loans). During 2015–2018, the process of forming reserves for active operations of banks became even larger. In 2015, the number of formed reserves was UAH 321.3 billion, and in 2018 – UAH 565.5 billion. During 2019, there was a tendency to reduce reserves for active operations of banks to UAH 492.1 billion.

In 2019–2020, there is a gradual decrease in the NBU's discount rate from 18 % to 6 % as of 06.12.2020. Lending to the real sector of Ukraine's economy in 2019 decreased to UAH 1033.5 billion. The rate of decline was 92.4%, and the share in assets was 69.1 %. Banks began to increase assets by intensifying their activities in the stock market. In conditions of excess liquidity and expensive loans, banks have found just such a way out. This was the main reason why the regulator reduced the discount rate to a record low in 2020.

Therefore, among the instruments of monetary regulation the development of the banking system is most influenced by liquidity management operations and securities transactions, which, despite their significant profitability, will further affect the banking system negatively by ignoring its main role – lending to the real sector.

Conclusions. Thus, the study of the impact of the NBU's monetary policy on lending to the real sector of the economy allows us to identify the following negative aspects that necessitate the improvement of its effectiveness:

- the effect of the transfer mechanism of the key interest rate on other interest rates does not always have a significant effect on the performance of the banking system;

- among the instruments of monetary regulation, the development of the banking system is most influenced by liquidity regulation operations and securities operations. However, despite their significant profitability, it negatively affects the banking system by ignoring its main role – lending to Ukraine's economy.

The main direction of development of Ukraine's banking system, in the long run, is lending to the real sector of the economy. Analyzing and modeling the stimulation of lending to the economy helps to determine the degree of monetary factors influence on lending to the real sector of Ukraine's economy. Activation of lending to the economy is possible due to a decrease in the ratio of non-performing loans to loans, lower interest rates on mobilization operations of the NBU and, accordingly, on loans to the economy.

The development of Ukraine's banking system, taking into account changes in approaches to improving monetary policy and monetary regulation, should be aimed at stimulating lending to the economy. The implementation of this direction involves the realization of a number of measures in the field of monetary regulation: adjustment of monetary policy goals; the appropriateness of using monetary policy instruments; reduction of excess liquidity; improving banking regulation by amending current legislation and regulations of the NBU.

To overcome these problems and create monetary preconditions for ensuring the resumption of lending to the real sector of the economy, it would be appropriate to improve the development and implementation of monetary policy of the NBU in such areas:

- in the conditions of insufficient crediting of the real sector of the economy as a key rate it is expedient to choose the target rate of the interbank market or the rate on certain active operations of NBU;

- consider the possibility of introducing monetary policy instruments and operations to stimulate bank lending to the real sector of the economy. It is advisable to develop medium-term instruments and models of refinancing of transparent and stable banks to increase their loan portfolios provided to real sector enterprises, including high-tech, as well as small and medium-sized businesses. The main principle of such structural refinancing may be the dependence of its size and the interest rate on the volume and quality of the bank loan portfolio for real sector enterprises.

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