Information Insights into Effective Monetary Influence on the Economy as a Basis for Sustainable Development

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***Abstract*—This article examines the impact of monetary policy on Ukraine's economy and its role in ensuring sustainable development, re-evaluating the priorities of the last decade. Based on statistical data from the National Bank of Ukraine (NBU) and correlation-regression analysis of the links between the hryvnia exchange rate and key macroeconomic indicators (inflation, export/import, money market indicators), a critical assessment of monetary policy was conducted. The study reveals that the NBU's policy during 2014-2024, particularly the transition to inflation targeting and currency liberalization, not only failed to achieve stabilization goals but, at times, triggered destructive processes. It is argued that exchange rate stability is not merely an indicator but a fundamental basis for confidence in the national currency and the banking system. Maintaining a stable exchange rate is proposed as a priority goal for the central bank, especially under wartime conditions, to mitigate devaluation expectations, support macro-financial stability, stimulate lending activity, and promote post-war economic recovery, which is a prerequisite for sustainable development.**

Keywords—monetary policy, exchange rate, sustainable development, National Bank of Ukraine, correlation-regression analysis, inflation, financial stability, inflation targeting, confidence in the currency

I. Introduction

Monetary policy is a key instrument of the state (via the central bank) for guiding economic development. Its effectiveness depends on the correct choice of strategic orientations, especially amidst globalization, technological changes, financial crises, and vulnerability to shocks, which complicates setting adequate goals. Globalization has increased the dependence of national financial systems on global processes, influencing monetary policy. In Ukraine, these problems are significantly compounded by full-scale military aggression, which comprehensively affects the economy, the banking system, and the National Bank's capacity to implement monetary policy.

Under such circumstances, selecting the correct strategy for monetary influence is critically important for Ukraine's financial stability and economic development. This strategy must consider global trends, internal problems for sustainable development, and the unprecedented challenges of martial law (occupation, destruction, population displacement). Effective monetary influence becomes the foundation for the country's economic survival, ensuring macro-financial stability, the functioning of the banking sector, and the state's execution of its functions.

II. Literature Review

Research on the effectiveness of monetary influence on the economy is a key element of the contemporary scientific discourse on the fundamentals of monetary theory, especially in the context of financial globalization. This analysis is primarily based on works that examine the objectives, instruments, and consequences of monetary policy in the context of ensuring sustainable economic development [1, 2, 3, 4]. However, a growing interest in the effectiveness of monetary policy is demonstrated by studies on its impact on the economy under conditions of global financial crises, military conflicts, and structural economic changes. Researchers pay particular attention to the specifics of monetary regulation in Ukraine, where the economy and the banking sector face additional challenges associated with the state of martial law [5].

Such a comprehensive vision of current trends in monetary policy involves defining the key characteristics of Ukraine's wartime economy, forecasting the policy rate and exchange rate during the war [6] studying monetary policy strategy, administrative restrictions, and money market indicators in Ukraine under military [7] and analyzing the impact of monetary policy during martial law on the labor market and population welfare in Ukraine [8]. Some studies focus on analyzing the characteristic features of monetary policy instrument application during martial law [9] on the priority tasks of the National Bank of Ukraine in wartime to ensure the uninterrupted operation of the banking system and overall economic financial stability [10] and also on the analysis of the inflation targeting regime under martial law, pointing to the need to balance between ensuring price stability and supporting economic recovery [11].

Meanwhile, despite the fact that many scientific studies have formed a comprehensive vision of current trends in monetary policy, the expediency of a flexible and targeted NBU strategy for stimulating economic development, activating the credit process, and ensuring macro-financial and exchange rate stability under conditions of war and global challenges still requires more profound substantiation, which is the aim of this research.

III. METHODS AND MATERIALS

To study the monetary influence on Ukraine's economy, correlation-regression analysis methods were applied, which are an appropriate tool for identifying trends and specifics of monetary influence on economic processes in Ukraine. In particular, correlation-regression analysis revealed the presence of a correlation between the hryvnia exchange rate and various macroeconomic indicators (e.g., inflation, export/import volumes, money market indicators, etc.). This made it possible to conduct a critical analysis of the state's monetary policy over the last ten years, identify cluster characteristics defining the state of the economy based on correlation fields, and formulate key priority directions for effective monetary influence to ensure sustainable development.

For a comprehensive and in-depth study of the effective monetary influence on Ukraine's economy as a basis for its sustainable development, a chosen set of statistical data and analytical materials from the NBU, which are critically important from the perspective of our research, was used. Inflation and devaluation are key indicators of macroeconomic stability and direct objects of monetary policy influence. Analysis of the dynamics of these processes allows for an assessment of the effectiveness of the National Bank of Ukraine (NBU) measures in achieving price stability – a fundamental prerequisite for sustainable economic development (Table 1).

TABLE I. DYNAMICS OF INFLATIONARY AND DEVALUATION PROCESSES IN UKRAINE [12]

Year	Consumer Price Index, % to December of the previous year	Producer Price Index for industrial products, % to December of the prev. year	Hryvnia devaluation rate against the US dollar, %
2014	124.9	131.7	197.3
2015	143.3	125.5	152.2
2016	112.4	135.8	113.3
2017	113.7	116.6	103.2
2018	109.8	114.3	98.7
2019	104.1	92.5	85.5
2020	105	114.7	119.4
2021	110	162.2	96.5
2022	126.6	147.3	134.1
2023	105.1	124.2	103.9
2024	112	119.7	110.7

Sustainable development requires a balanced foreign trade sector; therefore, analyzing this relationship in the context of monetary measures is important for assessing their impact on the country's external economic stability. Indicators of this sector reflect the degree of openness of Ukraine's economy and its integration into world markets, as well as its export potential and import dependence (Table 2).

Also, the exchange rate is one of the most important channels for the transmission of monetary policy, influencing inflation, foreign trade, and confidence in the national currency. The stability and predictability of the exchange rate are important factors for sustainable development. The functioning of the banking system, its stability, and its capacity to lend to the real sector of the economy are key elements in the transmission of monetary impulses. Analysis of the relationship between exchange rate dynamics and the state of the banking system will allow an assessment of the effectiveness of monetary influence on financial stability and economic growth (Table 3).

TABLE II. FOREIGN TRADE TURNOVER VOLUMES COMPARED TO UKRAINE'S GDP [13]

Year	Export of goods and services		Import of goods and services		GDP, USD million	Foreign trade turnover, as % of GDP
	USD million	as % of GDP	USD million	as % of GDP		
2013	81719	44.6	97353	53.1	183310	97.7
2014	65436	49.6	70042	53.1	131805	102.7
2015	47862	52.8	50224	55.4	90615	108.2
2016	46008	49.3	52461	56.2	93270	105.5
2017	53944	48.1	62688	55.9	112154	104.0
2018	59177	45.2	70555	53.9	130832	99.1
2019	63556	41.3	76067	49.5	153781	90.8
2020	60707	39.0	63085	40.5	155582	79.5
2021	81504	40.8	84175	42.1	199770	82.9
2022	57517	35.5	83254	51.4	161990	86.9
2023	51280	28.7	89159	49.9	178760	78.6
2024	56114	30.8	92025	50.5	182221	81.3

Indicators of the foreign exchange market and money market in Ukraine provide a detailed picture of the state of financial market segments through which the NBU directly implements its monetary policy. Analysis of the dynamics of money market interest rates, foreign exchange market transaction volumes, and demand and supply for foreign currency allows for an assessment of the effectiveness of monetary policy instruments, the state of the transmission mechanism, and the level of confidence among economic agents (Table 4).

TABLE III. DYNAMICS OF THE HRYVNIA EXCHANGE RATE AND INDICATORS OF UKRAINE'S BANKING SYSTEM FUNCTIONING [13,1 4,15]

Year	Official hryvnia to US dollar exchange rate, UAH per 100 USD	Official international reserves, USD million	Loans granted by commercial banks, UAH million	Share of overdue loans in total loans (NPL ratio), %	Number of operating banks	Return on Assets (ROA), %,	Return on Equity (ROE), %
2013	799.3	20415.71	910782	7.7	180	0.12	0.81
2014	1576.86	7533.33	1020667	13.5	163	-4.24	-31.95
2015	2400.07	13299.99	981627	22.1	117	-5.46	-51.91
2016	2719.09	15539.33	998682	24.1	96	-12.6	-116.74
2017	2806.72	18808.45	1016657	54.54	86	-1.93	-15.84
2018	2768.83	20820.43	1073131	52.85	77	1.69	14.67
2019	2368.62	25302.16	971871	48.36	75	4.26	33.45
2020	2827.46	29132.89	948386	41	73	2.44	19.22
2021	2727.82	30940.95	1044049	30.02	71	4.09	35.08
2022	3656.86	28494.46	1007648	38.12	67	1.04	9.68
2023	3798.24	40514.43	997877	37.35	63	3.23	30.2
2024	4202.95	43795.35	1106844	30.29	62	3.35	29.07

Active operations, primarily lending, reflect the role of the banking system in financing economic growth. The structure and dynamics of banks' loan portfolios show how effectively monetary policy stimulates (or restrains) investment and consumer activity in areas prioritized for sustainable development. Analysis of these operations will allow an assessment of the availability of credit resources for enterprises and the population, as well as the quality of banking assets, which is important for financial stability (Table 5).

The use of NBU data ensures a high level of reliability, timeliness, and comparability of indicators. Utilizing this set of data allowed for a systematic analysis of various aspects of monetary influence on Ukraine's economy. This provided the opportunity to identify key channels of monetary policy transmission, assess its effectiveness in achieving price and financial stability, and its contribution to creating conditions for the country's sustainable economic development.

TABLE IV. DYNAMICS OF SELECTED INDICATORS OF THE FOREIGN EXCHANGE MARKET AND MONEY MARKET IN UKRAINE [16]

Year	Hryvnia exchange rate volatility	Total household deposits, UAH million	Household deposits in national currency, UAH million	Household deposits in foreign currency, UAH million	Total corporate deposits, UAH million
2014	-97.3	418135	200859	217275	218724
2015	-52.2	410895	198876	212019	265448
2016	-13.3	444876	209601	235075	310559
2017	-3.2	495313	252439	242874	343758
2018	1.3	530250	289416	240833	342503
2019	14.5	576126	339168	236958	433731
2020	-19.4	730317	433417	296901	549488
2021	3.5	794152	506980	287172	633806
2022	-34.1	1045731	653343	392388	703538
2023	-3.9	1228546	795493	433053	1031122
2024	-10.7	1381875	896811	485064	1227642

IV. RESULTS AND DISCUSSION

In Ukraine, the implementation of monetary policy is significantly complicated by the peculiarities of the economy under martial law, as military actions, as a fundamental factor influencing various aspects of society's economic life, have affected the organization of economic relations in all sectors of the economy. The result has been a deterioration in the operating conditions of the monetary policy transmission mechanism, limiting the central bank's ability to exert monetary influence on the economy through monetary regulation tools. This has exacerbated previous problems and led to the emergence of new ones, requiring the National Bank of Ukraine, under conditions of military aggression, to make significant efforts to avoid disruptions in the banking system's operation, ensure data and information protection, enhance the reliability of non-cash payment infrastructure, maintain the financial stability of the banking sector, and also ensure financial, price, and exchange rate stability in the economy.

However, even before the onset of large-scale military aggression, the NBU's capacity for effective monetary influence on the economy was characterized by a significant level of complexity. This was due to a number of objective factors, the main one being the incorrect choice of monetary policy regime through its corresponding targeting mechanism. For instance, in developed countries, inflation targeting prevails as such a regime. Countries with high inflation and underdeveloped financial sectors prefer monetary targeting, while countries with a high degree of national economy openness, like Ukraine, where exports-imports and capital flows determine the state of the domestic market, typically use exchange rate targeting. Nevertheless, in Ukraine, the National Bank, despite objective contradictions, has been applying an inflation targeting regime as its monetary policy strategy from 2014 to the present day.

Thus, in the “Monetary Policy Guidelines for the Medium Term” approved by the NBU Council on September 11, 2024, it is stated: “To maintain price stability, the National Bank will apply a flexible inflation targeting regime” [11]. According to this approach, the NBU will direct monetary policy towards bringing inflation, measured by the year-on-year Consumer Price Index, to a target of 5%. However, despite the declared transition to an inflation targeting regime, the actual dynamics of inflationary processes in Ukraine over the last ten years indicate that they are largely beyond the National Bank's control, concerning both the Consumer Price Index and the Producer Price Index. Furthermore, the National Bank's unjustified and groundless refusal to regulate the exchange rate, which was presented as a prerequisite for transitioning to the inflation targeting regime, led to significant devaluation of the national currency's exchange rate, negatively affecting overall macro-financial stability (Fig. 1).

TABLE V. ACTIVE OPERATIONS OF COMMERCIAL BANKS IN UKRAINE [17]

As of the date	01.01.2018	01.01.2019	01.01.2020	01.01.2021	01.01.2022	01.01.2023	01.01.2024	01.01.2025
Credits to the corporate sector	892900	959601	847259	795405	835658	847586	828444	891619
Credits to individuals (including individual entrepreneurs)	174448	202202	214252	208383	256291	224260	240825	295563
Interbank credits and deposits (excluding correspondent accounts)	22046	28888	31368	34057	30581	36917	43144	97918
Credits to state authorities and local self-government bodies	1519	2867	4717	11734	27037	24800	18361	13151
All credits	1090914	1193558	1097595	1049579	1149567	1133563	1130774	1298250
Accounts receivable for which credit risk is assessed	20274	21879	18097	17942	18457	21331	19978	22293
Securities and other financial investments	458403	517679	564674	819719	861246	1075304	1508504	1714126
Funds in correspondent accounts for which credit risk is not assessed	37357	35708	76144	47385	54466	84898	216416	232630
Funds in correspondent accounts for which credit risk is assessed	102734	91359	121830	182626	182890	326775	359133	369546
Derivative financial assets	56269	317	894	631	1580	4105	1204	256
Other assets	110086	74687	103305	92765	90776	70908	72613	139043
Total assets	1876037	1935188	1982628	2210647	2358982	2716883	3308621	3776145
Non-performing assets (NPAs)	613863	649852	546722	447663	352367	442564	430414	402440
hare of non-performing assets (NPA ratio), %	32.72	33.58	27.58	20.25	14.94	16.29	13.01	10.66

As the data in Table 1 indicate, starting from 2014, immediately after the National Bank began applying the inflation targeting regime during this period, price growth rates in Ukraine reached extremely high levels in 2014-2015, reflected in Consumer Price Indices of 124.9% and 143.3%, respectively. Producer Price Index figures also indicated chronic inflationary pressure in the industry, with peak values in 2016, 2021, and 2022.

This development of inflationary processes essentially coincided with a sharp devaluation of the hryvnia – over 197% in 2014 and 152% in 2015 – which ultimately triggered an inflationary-devaluation spiral that undermined the purchasing power of market participants and confidence in the hryvnia as the national currency, and caused powerful consumer and investment shocks. At the same time, the abandonment of strict currency regulation in favor of supposed inflation targeting was in practice accompanied not only by a sharp fall in the hryvnia exchange rate but also by significant inflation.

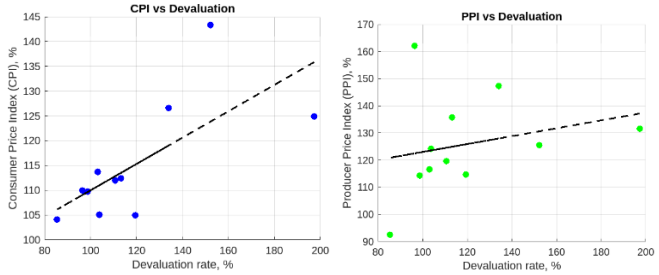

Fig. 1.Trends in the impact of hryvnia devaluation on macro-financial stability

However, it is clear that such inflation dynamics cannot be reconciled with the 5% target declared by the National Bank in the "Monetary Policy Guidelines," and one of the main miscalculations by the regulator was the refusal to maintain a stable hryvnia exchange rate, as a result of which the national currency has depreciated multiple times over the last ten years. And considering the high degree of openness of Ukraine's economy, manifested in the comparability of foreign trade turnover volumes (i.e., the sum of export-import operations) with GDP, such a direction of monetary regulation is extremely vulnerable to external shocks. This could not have had positive consequences for economic development, as these same inflationary processes are directly influenced by the dynamics of monetary and commodity flows in the foreign economic sphere (Fig. 2).

Furthermore, as the data in Table 2 show, specifically after 2015 (i.e., the first full year of the National Bank of Ukraine's application of the inflation targeting regime), the share of foreign trade turnover in GDP has shown a downward trend from 108.2% in 2015 to 81.3% in 2024, despite the growth of absolute GDP in dollar terms. This indicates a decrease in the economy's openness level, meaning that processes characterizing a reduction in Ukraine's participation in global trade chains are taking place in the foreign economic sector.

Among the main reasons causing these trends, one should primarily consider the increased volatility of the hryvnia exchange rate against leading foreign currencies and the decline in confidence in the NBU's exchange rate policy among economic agents, which reduced their foreign trade activity volumes. This is explained by increased currency risks, exchange rate instability, and limited opportunities for forecasting contract values in the future. In other words, the exchange rate instability provoked by the regulator created additional risks for international trade and limited the integration of Ukraine's economy into the global market.

Therefore, considering these exchange rate risks and the still significant impact of foreign trade turnover on macro-financial stability in Ukraine, the NBU's choice of an approach where inflation containment is the priority goal of monetary regulation should be considered erroneous, also considering that inflationary processes in our country are largely non-monetary in nature. Under such circumstances, exchange rate stability should primarily be the focus of the regulator's attention, considering the impact of hryvnia exchange rate volatility on domestic price dynamics. Consequently, the issue of the national currency's exchange rate stability should evidently have been given priority attention by the regulator, considering the negative consequences of devaluation and foreign exchange market destabilization observed over the past ten years, during which inadequate attention from the central bank to exchange rate stability jeopardized the effective functioning of the country's banking system and the national economy as a whole. As shown in Figure 3, the fivefold devaluation of the national currency over the past ten years demonstrates both the destabilization of the foreign exchange market and that sharp exchange rate fluctuations caused a large-scale crisis in the country's banking sector itself. Consequently, according to the data in Table 3, in 2016, banks' return on equity and return on assets reached record lows of -116.7% and -12.6%, respectively, and the share of overdue loans increased fourfold, reaching 54.5%.

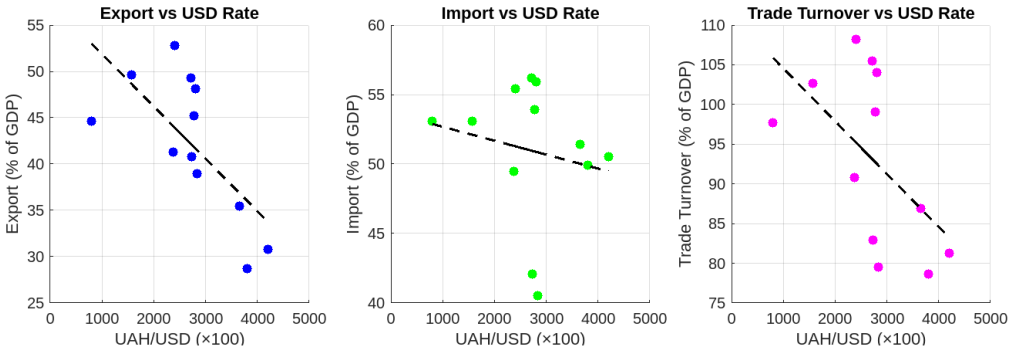

Fig. 2.Negative Trends in the Impact of Inflationary Processes on the Foreign Trade Sector

The number of banks decreased threefold – from 180 in 2013 to 62 in 2024 – which shows a high correlation specifically with the exchange rate. It is quite evident that with such a large-scale loss of value by the national currency, it became difficult for commercial banks to forecast clients'

income and solvency, service their own foreign currency liabilities, and consequently, to maintain financial stability.

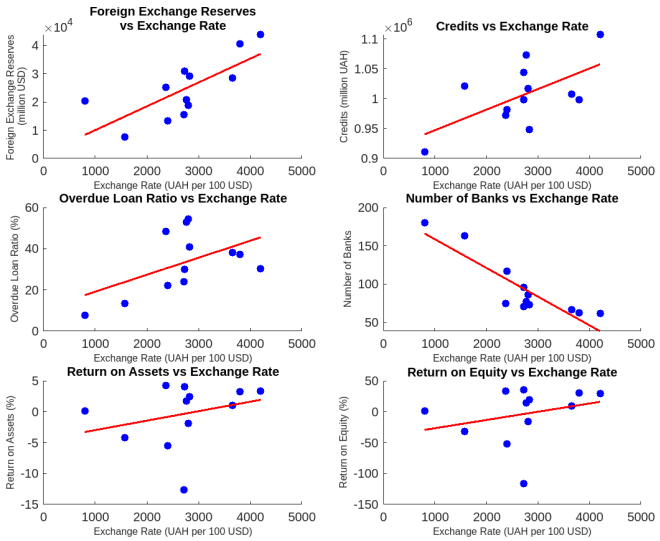

Fig. 3. Banking Sector Development Trends Amidst Foreign Exchange Market Destabilization

Thus, this data indicates that exchange rate instability is not only a factor reflecting foreign trade imbalances, manifested by significant current account deficits in the balance of payments, but also undermines banking sector stability, slowing down the development of lending as the main type of active operations for banking institutions and leading to negative financial results for banking activities, as reflected in the dynamics of banks' return on assets and equity.

Furthermore, fulfilling the requirements for transitioning to a flexible exchange rate regime became the basis for the central bank's actual withdrawal from the country's foreign exchange market, as the main prerequisite for transitioning to an inflation targeting regime. Under such circumstances, the introduction of market-based exchange rate formation essentially turned into an uncontrolled fall of the national currency's exchange rate, fueled by panic among market participants and speculative attacks on the hryvnia. This is manifested in the dynamics of money market indicators regarding the accumulation of funds in bank deposits, characterized by a slowdown in the growth rate of household deposits in banks and their outflow as the pace of hryvnia devaluation accelerated.

As can be seen from the data in Table 4, the catastrophic devaluation of the national currency and subsequent exchange rate volatility became a catalyst for the growth of the foreign currency component in household bank deposits; consequently, in 2024, individuals' foreign currency deposits amounted to UAH 485 billion compared to UAH 217 billion in 2014. It should be emphasized that even the growth trends in national currency deposits largely depend on periods of temporary stability in the foreign exchange market, which is well traced by the formation of clusters on the correlation field of deposit dependence on the exchange rate (Fig. 4). The same can be said about corporate deposits, which primarily hold funds in the national currency, but their activity clearly decreases under threats of devaluation.

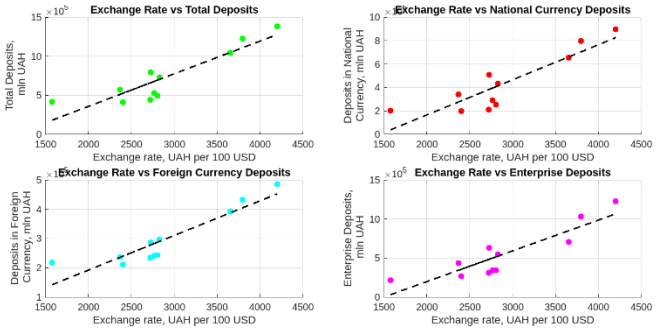

Fig. 4. Trends in Deposit Dynamics Amidst Foreign Exchange Market Destabilization

Rapid, uncontrolled devaluation by the National Bank of Ukraine (NBU) prompts market participants to protect savings by withdrawing bank deposits and converting them into foreign currency, which exacerbates devaluation pressure; conversely, exchange rate stabilization can reverse deposit outflows. The NBU's shift to inflation targeting without maintaining exchange rate stability failed to anchor public expectations, leading to significant dollarization of savings, diminished confidence in the hryvnia, and destabilized foreign exchange and money markets, thereby limiting banks' stable funding.

Consequently, these exchange rate policy changes, intended for stabilization, instead triggered widespread economic and banking sector destabilization. The exchange rate, more than inflation data, is pivotal for public confidence in the national currency and in banks as safe repositories for savings.

The broader negative consequences of devaluation are significant, as exchange rate volatility and money market instability impair commercial banks' ability to perform their primary function: lending to the real sector of the economy. Instead, banks have increasingly invested in government securities and NBU deposit certificates. The author attributes this shift away from real sector lending to what is termed the NBU's "irresponsible policy" of raising the policy rate and establishing excessively high yields on NBU deposit certificates. This has resulted in stagnant bank lending to the corporate sector, with 2024 volumes (as indicated in Figure 5) remaining practically at the 2018 level.

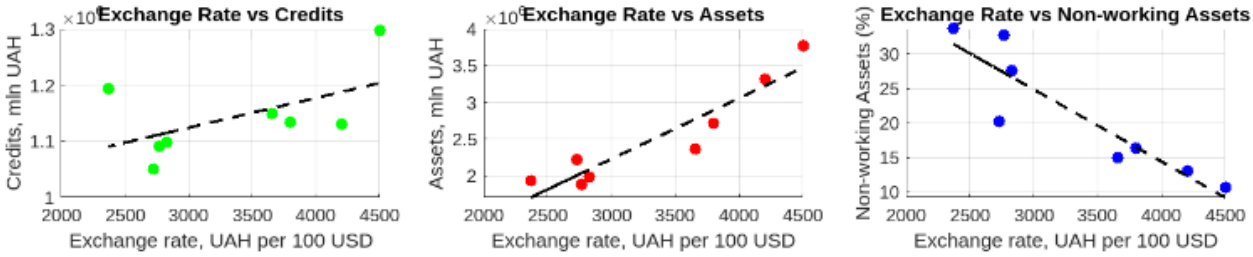

Fig. 5. Trends in the Dynamics of Active Operations of Commercial Banks in Ukraine Amidst Foreign Exchange Market Destabilization

Moreover, the fact that the volumes of bank lending do not have a clear correlation with economic development should be viewed extremely negatively, and a significant share of non-performing assets, which amounted to 10.66% in 2024, represents a critically high level for a fully-fledged lending process.

The result of such monetary policy by the National Bank of Ukraine and the credit policy of commercial banks has been a distorted structure of banking sector assets, where the share of the loan portfolio in the form of loans provided to businesses and individuals constitutes no more than one-third of the total volume of bank assets (31.4%). At the same time, bank funds invested in NBU deposit certificates, placed in accounts with the NBU and other banks, as well as invested in government securities, currently total as much as 62% of the banking system's total assets. This may indicate the nullification of the fundamental function of banks regarding the organization of credit relations in society through financial intermediation and the transformation of savings into investments.

The increase in banks' investments in government securities and NBU deposit certificates, rather than in the real sector, indicates a shifting of risks by commercial banks from the economy to the state and a significant reduction in their overall risk appetite, which is actively supported by the actions of the National Bank. In other words, due to the unstable exchange rate and macroeconomic uncertainty, commercial banks in the recent period have preferred passive investment in debt instruments instead of actively lending to the economy. Consequently, over the past decade, the scale of credit support for the real sector of the economy has significantly decreased.

Conclusions

Thus, the optimal choice of strategic objectives for monetary regulation under martial law must ensure adherence to benchmarks aimed at achieving the exchange rate stability of the national currency, serving as a signal from the central bank to all market participants of its readiness to limit exchange rate fluctuations and thereby contribute to the post-war recovery of the domestic economy. However, an analysis of the dynamics of key macroeconomic indicators shows that the NBU's exchange rate and monetary policy from 2014-2024 did not achieve stabilization goals but, on the contrary, in certain periods, became a trigger for destructive processes in the financial market and the banking sector. The National Bank's refusal to support a stable exchange rate, in the absence of adequate compensatory mechanisms, provoked inflation, capital outflow, a fall in confidence in the hryvnia, worsened the solvency of enterprises and households, and led to banks reorienting towards passive risk management and a contraction of bank lending.

Thus, instead of supporting economic stability, the NBU's transition to an inflation targeting regime, accompanied by currency liberalization, became a trigger for financial crisis and an impediment to the banking system's development. In this context, it is important to rethink the role of the exchange rate not only as a macroeconomic indicator but also as a foundation of confidence among economic agents in the national currency. This means that exchange rate stability must be maintained henceforth as a priority goal of the central bank, as it is also the main factor of confidence in the banking sector. It also serves as a means of mitigating devaluation expectations and supporting macro-financial stability, which, in turn, is a prerequisite for the activation of banks' lending operations, a necessary condition for sustainable economic development.

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