

APPROACHES TO ASSESSING THE EFFECTIVENESS OF THE MACRO-PRUDENTIAL POLICY OF THE BANKING SECTOR IN THE REPUBLIC OF MOLDOVA

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Abstract:

Determination of the effectiveness of measures in relation to the instruments of macroprudential policy for regulating the credit market is associated with the need to assess the countercyclical nature of macroprudential policy, timely revision of measures in relation to its instruments and determine the side effects of its implementation. Currently, in the world practice, the effectiveness of measures in relation to instruments affecting bank assets is mainly assessed, and the study of the effectiveness of measures in relation to instruments that affect the capital and liquidity of banks is limited to a small number of studies.

Keywords: macroprudential policy, instruments of macroprudential policy, banking effectiveness

JEL Classification: G21

Introduction

According to BIS experts, the macro-prudential policy aims to limit systemic risks and would be countercyclical, namely designed to counteract the underestimation of risks by participants from the banking sector during the period of economic expansion and, consequently, their overestimation in times of economic recession.

Macroprudential policy can be defined as a policy which aims to eliminate financial instability, in other words, preventing the accumulation and spread of systemic banking risks. The most controversial issue in the field of macroprudential policy is the evaluation of the effectiveness of the measures in relation to the implemented instruments. Efficiency in the broadest sense refers to the financial implications of activating or deactivating instruments for the banking sector. In the international practice of macroprudential policy, there are two main criteria for assessing effectiveness:

- contribution to preventing the increase of systemic banking risks;
- contribution to consolidation the financial stability of the banking sector by creating an additional capital buffer by banks [4, pp. 477-503, 2017].

In addition to these criteria, the banking regulator also classifies the criteria for the effectiveness of the measures in relation to the implemented macro-prudential policy instruments:

- the balance of benefits and costs after the implementation of the measures related to the instruments of the macroprudential policy;
- the timeliness of the application of the measures by the banking regulatory authority.

As a result of the adoption of macroprudential policy measures, both positive and negative financial implications on the results of the banking system can be identified. The positive results are:

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- increasing the financial stability of banks;
- countercyclical regulation of the credit market;
- reducing the procyclical behavior of the participants in the banking sector;

The negative ones include:

- loss of debtors by banks;
- migration of credit activity (so-called transfers to non-bank financial institutions, etc.);
- slowing economic growth by reducing the credit cycle;
- narrowing the financial services market;
- additional expenses of banks.

Results and discussion

The indicators of the efficiency of the macroprudential policy, distinguished in the external banking practice, include indicators of the state of the financial cycles as a result of the application of certain macroprudential policy measures, namely:

- changing the growth rate of loans;
- changes in loan growth rates to the corporate and retail sectors;
- changing the growth rate of mortgage loans;
- the share of foreign currency loans in the total loan portfolio;
- the share of corporate loans (retail) in the total loan portfolio;
- the share of outstanding loans in the total retail loan portfolio;
- the share of loans to non-financial organizations from quality categories IV-V;
- the growth rate of prices for residential buildings;
- the growth rate of prices for commercial buildings;
- the ratio between the prices of residential buildings and the disposable income of the population [5].

The key indicator, when reaching a certain trigger by which the regulators decide to activate macroprudential policy measures, is the ratio between the total loan portfolio and the GDP.

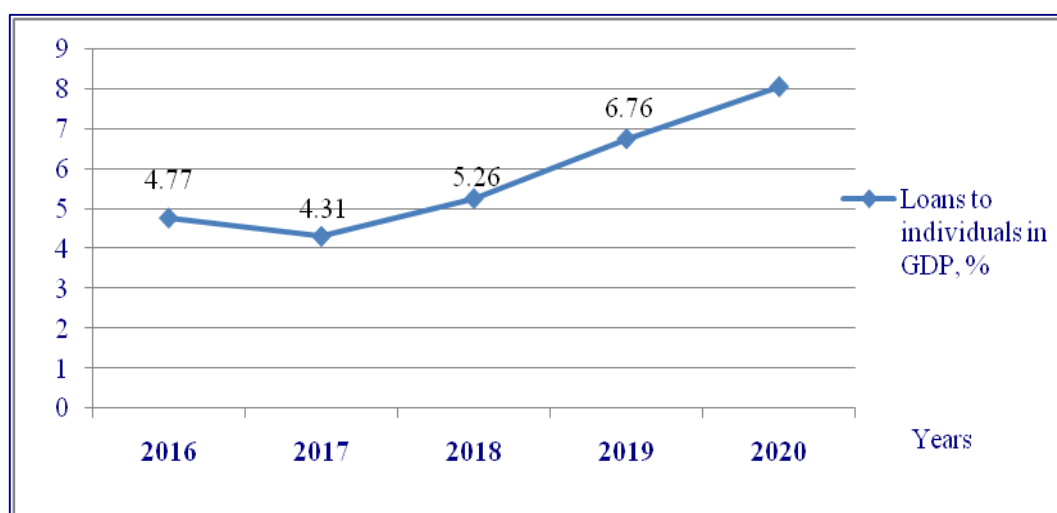


Figure 1: Changing the ratio between the loan portfolio and GDP

Source: elaborated by the author based on data from <https://www.bnm.md/bdi/pages/reports/drsb/DRSB1.xhtml?id=0&lang=ro>

Loans to individuals relative to GDP reflect a declining trend in 2016-2017 due to excessive interest rates on bank loans and only for 2018-2020 the situation improves due to the "First Home" program implemented at the country level and subsidy interest payments on some categories of loans, as can be seen from the data in Figure 1.

In addition to the analyzed indicator, we come up with the suggestion to consider other indicators that describe the credit cycle:

- performance indicators of the banking sector;
- credit risk indicators;
- the conditions for granting loans.

However, there is no single approach to the composition of macro-prudential policy performance indicators, as it is necessary to construct macroprudential policy indices (as well as cumulative indices), which are used as an explanatory variable to assess the impact of macroprudential policy measures on increase the rate of volume of loans (including mortgages) and the rate of increase of property prices. Macroprudential policy indices can be constructed cumulatively for each instrument separately, for each country, to identify their general nature (mitigating or restrictive) in the selected period. For each period, the index can take three values:

- a) 1: the measure using this instrument is of a restrictive nature;
- b) -1: the measure using this instrument is mitigating;
- c) 0: the instrument was not used during this period t or there is no information about its use during this period t.

The national banking system does not calculate the macroprudential policy index, therefore in order to assess the efficiency of the macroprudential policy of the banking sector in the Republic of Moldova we consider appropriate the analysis of banking performance indicators in the post-billion theft period and including the Covid 19 pandemic. in Table 1.

Table 1

The evolution of banking performance indicators in the period 2016 – 2020, %

Financial indicators	Analyzed period				
	2016	2017	2018	2019	2020
Return on assets	1.83	1.91	1.90	2.47	1.66
Return on capital	11.12	11.42	11.60	14.63	9.60
Net profit rate	15.85	21.01	20.95	30.29	21.15

*Source: elaborated by the author based on data from
<https://www.bnm.md/bdi/pages/reports/drsb/DRSB1.xhtml?id=0&lang=ro>*

Analyzing the rate of economic profitability of the banking system in the Republic of Moldova we identify a decrease in this indicator in 2016-2018 and 2020. The highest value was recorded in 2019, of 2.47%, which is 0.57% more than in 2018, which indicates that the banks in the system use efficiently the means at their disposal, which subsequently generate a higher profit. The declining values are generated by the problems that the banking sector faced after the theft of the billion and the Covid pandemic 19.

We also identify a positive change in the rate of financial profitability, where the indicator increases from 11.12% in 2016 to 14.63% in 2019, which invokes a maximum capacity use of own funds

available to banks. Such a change is due to the efficient use of both own and attracted resources. We observe the lowest value of the indicator in 2020, when the indicator registers only 9.60%, which is even lower than at the beginning of the analyzed period.

Based on the data in Table 1, we conclude that during the years 2016 - 2017 the net profit rate shows an increase of 5.16 pp, in the following year it shows an insignificant decrease of 0.06 pp. The year 2019 is characterized by an increase sudden up to 30.29 pp, which is 9.34% more compared to the previous year. This fact shows us how efficient the total activity of the banking system is. A sharp decrease is observed in 2020, with 9.14 pp. compared to the previous year, but does not fall below the indicator of 2018. So, the banking sector of the Republic of Moldova improves its situation every year, becoming more stable in terms of profitability.

The net profit obtained in the banking system of the Republic of Moldova in the last three years increases from 1,144.23 million lei in 2015 to 1,480.73 million lei in 2017. The increase by 2.02% in 2016 indicates the efficiency of the efforts of bank staff.

While the net profit of the banking system is not stable, the best moment is the constant increase of interest income and also of net income. It should be noted that the profit does not provide enough information about the level of performance of the banking system, as well as about the capacity of the instruments that have been passed or invested by it in order to generate profit.

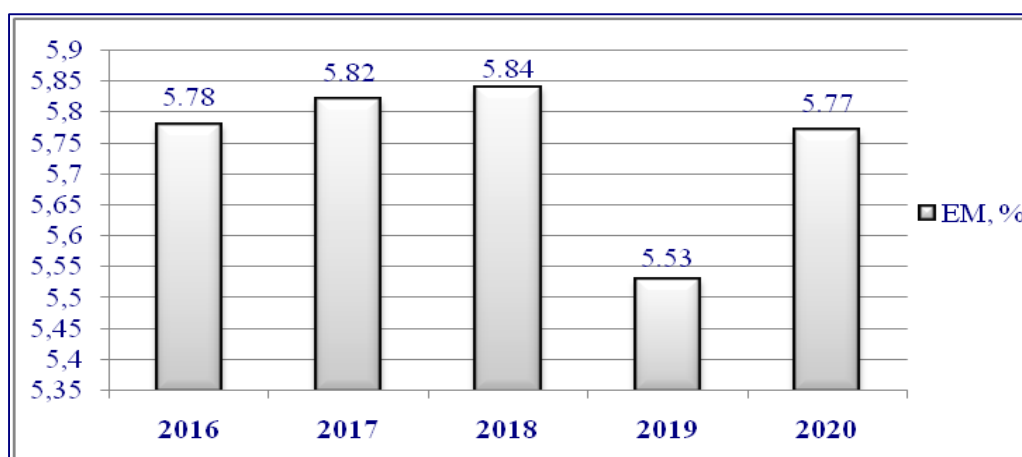


Figure 2: Modification of the capital multiplier of the banking sector of the Republic of Moldova

Source: elaborated by the author based on data from
<https://www.bnm.md/bdi/pages/reports/drsb/DRSB1.xhtml?id=0&lang=ro>

According to the data presented in Figure 2, we identify that in the banking sector of the Republic of Moldova the attraction and use of new resources is constantly in motion. The changes are not so significant, respectively, we notice an increase of only 0.04 percentage points in 2017 compared to 2016 and 0.02 percentage points in the following year compared to 2017. A sharp decrease is recorded in the banking system for the year 2019, where the indicator reaches the value of 5.53%, which is 0.31% less than in the previous year, but in the following year EM returns to the value of 5.77%.

Therefore, the capital multiplier is the one that refers to the value of the units of assets to be provided by each unit of the share capital. This, in turn, should cover losses on bank assets. Thus, the higher the level of multiplication, the higher the risk of bankruptcy, but at the same time, the higher the potential of the bank to pay more to its shareholders.

In order to establish how efficiently are available the available assets of the banking system of the Republic of Moldova we use the indicator “degree of use of assets”, which represents the ratio between revenues and the total annual amount of banking assets.

Thus, analyzing the results from Figure 3, we conclude that in the period 2016 - 2020 the asset utilization rate supports a permanent decrease reaching from 11.82% to 7.51%, which is due to the rapid increase of assets from 72830.42 million lei in 2016 to 103923.79 million lei in 2020, compared to the decrease of revenues from 16426.16 million lei in 2016 to 11165.04 million lei in 2020.

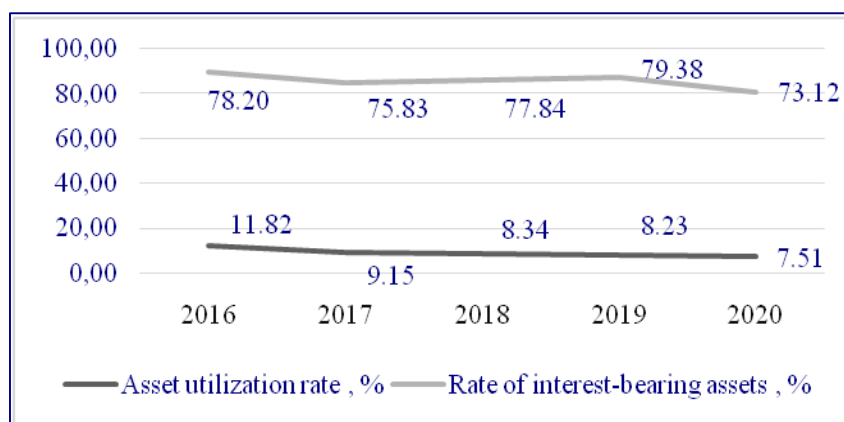


Figure 3: Evolution of the asset utilization rate of the banking system of the Republic of Moldova

Source: elaborated by the author based on data from
<https://www.bnm.md/bdi/pages/reports/drsb/DRSB1.xhtml?id=0&lang=ro>

During the analyzed period, the rate of interest bearing assets changes from year to year. Thus, at the beginning of the analyzed period, the indicator registers the value of 78.20%, which indicates that the banking sector has the ability to generate income in the future. The following year this indicator decreases insignificantly by 2.37%, but in 2018 the indicator starts to increase again, reaching a value of 77.84%, which is 2.81% higher than in the previous year. We find the highest value of RA_{gd} in 2019 when it reaches the value of 79.38%. The year 2020 is characterized by the lowest value of the indicator, which is 73.12%, which is 6.26% less compared to the previous year.

Another indicator that reveals performance in the banking sector is the net interest margin, which reflects how efficiently the management fulfills the main function of the financial intermediation bank, the data being included in Figure 4.

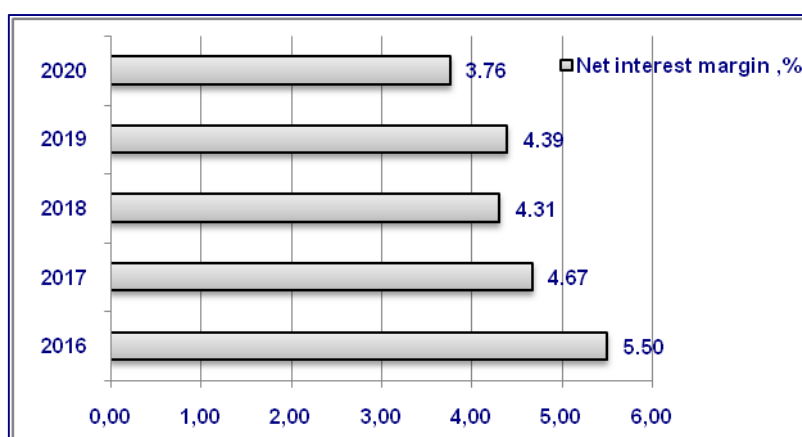


Figure 4: Evolution of the net interest margin

Source: elaborated by the author based on data from
<https://www.bnm.md/bdi/pages/reports/drsb/DRSB1.xhtml?id=0&lang=ro>

The banking system of the Republic of Moldova every year shows a negative trend of the net interest rate, except for 2019, when it suffered an increase of 0.08 percentage points compared to the previous year. The decrease of this indicator shows us that the banking activity for the past year is becoming less and less profitable. In the period 2017 - 2020 this indicator, in general, is below the standard level of this indicator of 5-7%. Respectively, we can see that the assets, depending on the value of the resources raised by the bank, are not used so efficiently.

At the next stage of analysis we will evaluate the dynamics of the indicators attributed to credit risk, the reference data being included in Figure 5.

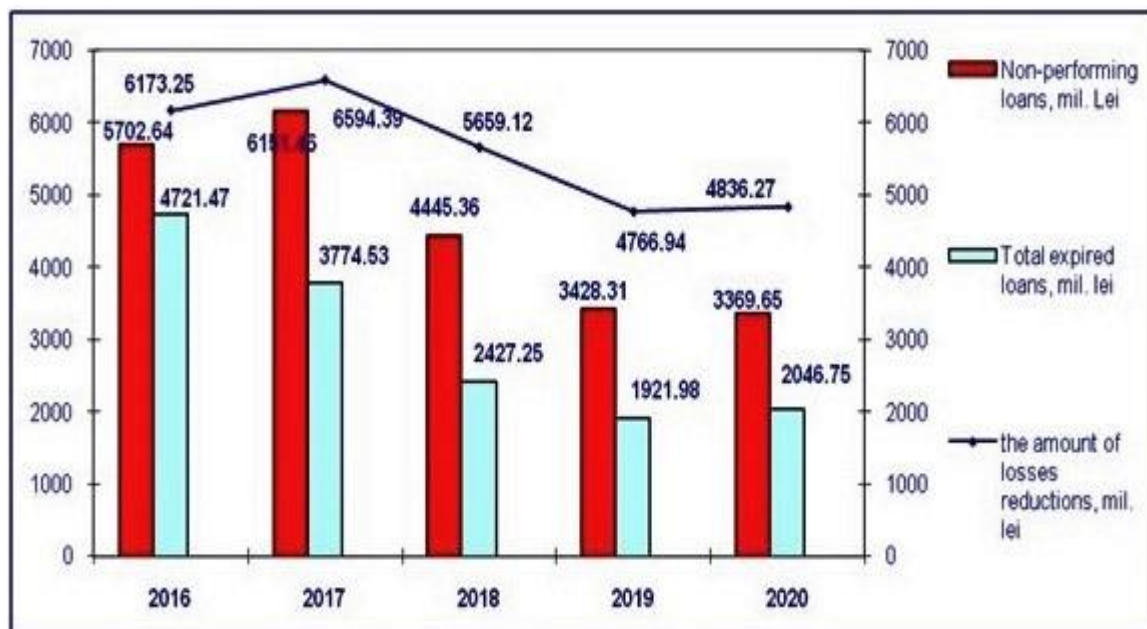


Figure 5: Dynamics of non-performing loans

Source: elaborated by the author based on data from <https://www.bnm.md/bdi/pages/reports/drsb/DRSB1.xhtml?id=0&lang=ro>

According to the data presented in Figure 5, we notice that the amount of non-performing loans increases in 2017 compared to 2016 by 448.82 million lei, ie from 5702.64 million lei to a maximum of 6151.46 million lei. For the rest of the period, the amount of non-performing loans is decreasing, which highlights the successes of the bank's management in terms of remedying the quality of the loan portfolio. Thus, in 2018, their volume decreases by 1706.1 million lei (up to 4445.36 million lei), and in 2019 it decreases by another 1017.05 million lei (up to 3428.31 million lei). For 2020, the reduction has a smaller volume, amounting to only 58.66 million lei.

Expired loans have a positive decreasing trend throughout the analyzed period, except for 2020. They decrease in 2017 from 4721.47 million lei to 3774.53 million lei, by 946.94 million lei. In 2018, the reduction is the most pronounced, amounting to 1347.28 million lei (up to 2427.25 million lei). In 2019, they already reach the minimum of 1921.98 million lei, following the decrease by another 505.27 million lei, but in the following year they increase by 124.77 million lei, up to 2046.75 million lei.

For 2016, the amount of discounts calculated for losses on assets and contingent liabilities represents 6173.25 million lei, in order to increase in 2017 to 6594.39 million lei (by 421.14 million lei). The increase is caused by the increase in the volume of the debt balance for non-performing loans, because the amount of reductions for losses is directly dependent on the volume of non-performing assets, being meant to cover possible losses. Thus, the reduction of non-performing loans for the following years also leads to a decrease in the amount of reductions for losses. It decreases in 2018 by 935.27 million lei (up to 5659.12 million lei), and in 2019 by 892.19 million lei (up to 4766.94 million lei). In 2020, the indicator increases by 69.34 million lei due to the increase of other categories of non-performing assets.

Table 2

Analysis of credit risk indicators

Credit risk indicators	Analyzed period				
	2016	2017	2018	2019	2020
Debt balance on non-performing loans / Own funds (CNT), %	59.08	58.11	41.06	29.81	24.85
Debt balance on non-performing loans / Debt balance on loans, %	16.41	18.38	12.54	8.49	7.38
Amount of reductions calculated for credit debt balance (basic amount) / Credit debt balance (basic amount)	13.42	14.81	10.86	7.96	7.46
Amount of "large" exposures / Own funds (≤ 5)	0.43	0.33	0.22	0.00	0.00

Source: elaborated by the author based on data from
<https://www.bnm.md/bdi/pages/reports/drsb/DRSB1.xhtml?id=0&lang=ro>

Analyzing the data in Table 2, we attest the following:

1. The balance of debt on non-performing loans relative to own funds during the analyzed period is progressively decreasing. The indicator reduces in total practically more than twice (from 59.08% in 2016 to 24.85% in 2020). The indicator has a positive trend, with a favorable impact for the bank, and its dynamics are generated by the decrease in the volume of non-performing loans.
2. Unlike the previous indicator, the balance of debt on non-performing loans compared to the balance of debt on loans shows an increase of 1.97 pp in the period 2016 - 2017 (from 16.41% to 18.38%). For the rest of the analyzed period, the indicator decreases initially to 12.54%, then to 8.49%, reaching 2020. The reduction in this period has a positive signal, attested against the background of the decrease of non-performing loans.
3. The ratio between the amount of reductions calculated for the credit debt balance and the credit debt balance attests a similar evolution to the previously analyzed indicator. The increase from 13.42% to 14.81% in 2017 is due both to the increase in the amount of reductions following the increase in non-performing loans this year, and to the reduction in the total volume of loans. Furthermore, the value of the indicator decreases, initially by 3.95 pp in 2018, then by 2.9 pp in 2019 and by 0.5 pp in 2020.
4. The total amount of "large" exposures to own funds shows a positive decreasing trend throughout the analyzed period, generated both by the increase of own funds and by the progressive decrease of the amount of "large" exposures. The value of the indicator decreases from 0.43 to 0.33 in 2017, then to 0.22 in 2018, so that in the end it becomes zero for the years 2019 and 2020. As we mentioned before, the dynamics of this indicator shows a positive trend, contributing to improving the quality of the loan portfolio.

During the analysis of the concentration of the banking sector of the Republic of Moldova, conducted by the NBM, the Herfindahl-Hirschmann index was calculated, based on the share of banks' assets in total assets in the banking sector. This indicator is calculated as the sum of the squares of the market shares of all banks in the sector. The Herfindahl-Hirschmann index is used as a possible indicator for assessing market power or competition between economic entities.

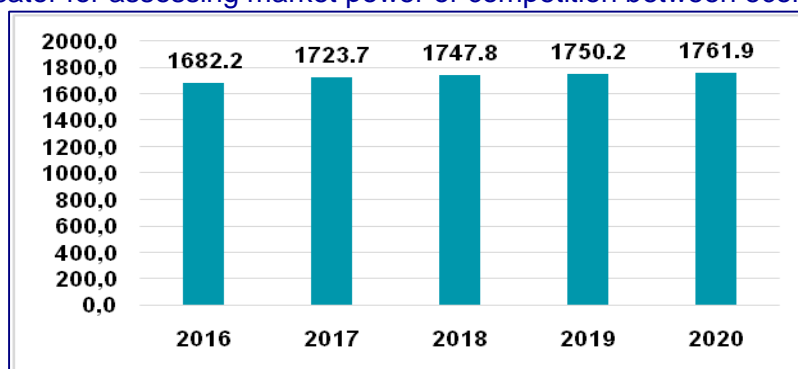


Figure 3: Dynamics of the Herfindahl-Hirschmann indicator

Source: elaborated by the author

In international practice the results of this indicator are divided into four categories:

- The HH indicator below 100 suggests the existence of a market with perfect competition;
- The HH indicator between 100 and 1500 means a non-concentrated market;
- The HH indicator between 1500 and 2500 shows a moderate market concentration;
- The HH indicator above 2500 indicates a high concentration.

Thus, following the calculations performed, that the Herfindahl-Hirschmann index is constantly increasing throughout the analyzed period. Thus, for 2020 it is equal to 1761.9 points, so we conclude that the banking sector of the Republic of Moldova is characterized by moderate concentration.

Based on international research, several problems can be identified that prevent the implementation of an effective macroprudential policy. Thus, H. Bengui and H. Bianchi [1] notes as the main threats regulatory arbitrage, which involves either the withdrawal of banks' activities in the dark zone or in other jurisdictions. In his paper, M. Obstfeld notes that financial globalization also negatively affects the effectiveness of macroprudential policy. K.M. Bukh and L. Goldberg [3] identifies areas for further analysis of the effectiveness of macro-prudential policy instruments:

- what is the difference between the reactions of banks operating on the national financial market and on the external financial markets after the application of macroprudential policy measures;
- if the reaction of the banks is different depending on their type, geographical coverage and financing model;
- if banks react in the same way to the introduction of alternative macroprudential policies;
- whether the banks' response to the introduction of instruments differs depending on the phase of the financial cycle;
- what influences the chosen strategy of the banks after the application of the macroprudential policy instruments on them.

Despite the fact that the instruments of macroprudential policy serve to minimize the level of systemic banking risk and eliminate financial instability, the use of some of them can, on the contrary, aggravate the crisis phenomena. Moreover, their effectiveness depends on the phase of the economic cycle to which certain measures are applied and on the simultaneity of their implementation with the monetary policy measures [6]. Thus, K. Kuttner and I. Shim [8] note in their study that maximum restrictions on instruments affecting debtors (LTV, DTI, DSTI) are more effective than raising the upper limit in times of recession. B. Gadanets and K. Khayram [7] notes that it is preferable to use the tools of different influence groups rather sequentially than simultaneously. Experts also point to the consequences of a premature reaction or, on the contrary, a late reaction of regulators to tighten / relax the instruments of macroprudential policy, which determine their effectiveness (Table 3).

Table 3

Consequences of late activation / deactivation of macroprudential policy instruments

	Prematurely	Late
Deactivating the instrument	A false signal for the banking sector	Promoting pro-cyclical activity of banks
Tool activation	Over-regulation of the market, leading to a weakening of the effectiveness of the instrument	Contributing to the build-up of imbalances

Source: elaborated by the author

Efficiency assessment is especially relevant due to the lack of uniform rules for choosing a particular measure for each situation and for each phase of the economic cycle. Studies by foreign experts in the field of assessing the effectiveness of macroprudential policy measures are limited, which is explained by the relatively modest experience of using macroprudential policy instruments

with a growing number of them. The overwhelming majority of the few studies are devoted to assessing measures aimed at regulating banking assets.

Conclusions

A study by IMF experts in the field of international experience in the application of macroprudential policy instruments showed that most countries use instruments (except for restrictions on an open foreign exchange position and restrictions on gaps in the duration of assets and liabilities) together with other restrictions, and also use them in a targeted manner (mainly instruments aimed at restraining the growth of lending rates) with the establishment of flexible parameters for their revision over time (except for restrictions on profit distribution, restrictions on LTV / DTI and restrictions regulating systemic liquidity risk and systemic currency risk). It is also important to note that most countries are implementing tools based not on the calculation of their values for each period, but on expert judgment. A different approach is appropriate in the context of a rapid build-up of systemic risk, when it is important to avoid regulatory uncertainty [2].

At present, the macroprudential policy toolkit implemented by the NBM consists of capital buffers introduced on the basis of the Regulation on Capital Buffers adopted by the decision of the NBM Executive Committee no. 110 dated May 24, 2018 [9]. They are intended to increase additional reserves in order to reduce and prevent excessive accumulation of systemic risks of a cyclical or structural nature, which could lead to significant disruptions in the functioning of the banking sector.

The historical and economic analysis of the concept of macroprudential policy shows that the roots of the phenomena that have now led to the global crisis were described in economic science 50 years ago. However, the practice of macroeconomic regulation, which has not yet responded to the challenges formulated half a century ago, reflects those institutional conflicts and contradictions that impede the effective prevention of systemic risks. In this regard, despite the steps taken, one of the most acute international problems of financial regulation remains the problem of the correct institutional support for the development and implementation of macroprudential policy.

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