

REPUBLIC OF AZERBAIJAN

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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

IMPROVEMENT OF MANAGEMENT OF MONETARY POLICY IN AZERBAIJAN

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GENERAL CHARACTERISTICS OF DISSERTATION

Actuality and study degree of the subject. After the impact of the global financial crisis that occurred in 2007-2009, the monetary policy conducted by central banks at the global level became complicated and made it necessary to take complex measures against the changes occurring at the international level. According to the Decree of the President of the Republic of Azerbaijan dated 02.02.2021, the goal of realizing the five National Priorities in "Azerbaijan 2030: National Priorities for socio-economic development" and at the same time the achievement of the goals provided for in the strategic road map necessitated making fundamental changes in the monetary strategy. Creating long-term investment resources in our country, developing the non-oil sector, developing the capital and insurance market, and taking all the necessary measures to accelerate the process of integration into the global financial markets have been set as a strategic goal. In the economic relations system of the globalized world, in a situation where the influence of geo-political power centers on traditional global cooperation conditions is increasing, the implementation of stable monetary policy in the country and ensuring the adequacy of regulatory instruments are of great importance.

The rapid changes occurring in the process of globalization and digitalization are also affecting monetary and economic conditions. As this effect creates a shock effect in the economy, it leads to the emergence of new risks. As risk regulation is an important direction of sustainable economic growth, global trends affecting monetary policy increase the relevance of the topic. Negative trends in the global financial market have shown that countries that have formed a healthy financial system can show a stable position against these shocks. However, exposure to crises weakens the country's economic system, which leads to financial losses, unless a long-term planning and support model is created along with shock prevention measures.

A number of well-known scientists of our country have conducted sufficient research on this topic and obtained important results. The well-known economist-scientists of our country A.A.Alekbarov,

Y.A.Kalbiyev, R.T. Hasanov, Z.F. Mammadov, M.A.Ahmadov, S.M.Mammadov, A.Sh. Shekaraliyev, E.M. Sadygov, V.A. Gasimli and others addressed the mentioned topic on their scientific works.

There are quite enough studies by foreign scientists on topics covering important aspects such as monetary policy instruments, transmission mechanisms, strategy, exchange rate policy and inflation targeting. On this topic, I would like to mention the research works of economists as T. Jovanovski, D. Hofmann, V. Constâncio, A. Antonio, J. Bailliu, P. Hilbers, N. Broten, J. Crowe, S. Frederic, A. Breitenfellner, P. Wolfgang, B. Bernanke, W. Grostal, P. Christian, N. Dincer, J. Sigurdsson, R. Westman et al.

The object and subject of the research. The object of the research work is the organizational economic structures that implement the regulation and management of monetary policy in Azerbaijan. The subject of the study is the monetary regulation mechanism of the economy, prospective development directions according to international experience, the set of economic relations formed in the direction of ensuring price stability and supporting economic development.

The purpose and objectives of the study. The main goal of dissertation is to access the processes of monetary policy regulation in the context of global market relations and the expansion of digitalization, and to reveal the directions for improvement in the legal framework, macroprudential mechanisms, and the directions of monetary instruments' impact on the market in order to create a sustainable financial system that supports economic growth.

Realization the goals of research requires the fulfillment of the mentioned priority tasks:

- Evaluation of the role of monetary instruments in the implementation of regulatory processes, including the study of the impact characteristics of non-traditional monetary instruments
- Studying the role of macroprudential mechanisms on ensuring financial stability, the procedure for issuing loans guided by DTI coefficient
- Studying the main crossing points of coordinated action between fiscal and monetary policy and their characteristics

- Study of factors affecting the choice of exchange rate regime and their characteristics
- Study of transmission mechanisms of monetary policy decisions
- Explore the concept of decarbonized economy, the effect of climate change on monetary policy
- Determining the ways of effective regulation of system risks
- Study of risks and their characteristics arising in monetary regulation under the conditions of development of financial technologies
- Studying ways to ensure business continuity, taking into account the pandemic crisis and its specific impact characteristics
- Researching the adequacy of the regulatory legal framework on management processes

Research methods. While writing the research work, the methods of collecting and analyzing facts, abstraction, generalization, econometric modeling, comparison and systematization were used. The theoretical methodological bases are decrees and orders related to the development of financial services, monetary policy directions and overview reports, digital payment strategy, strategic road map related to the development of financial services, adopted strategies and state programs related to socio-economic development, statistical reports and scientific research works of international financial organizations and central banks of foreign countries, legal rules covering the regulation of monetary policy.

The main provisions defended. The main provisions defended are classified as follows:

- Mitigation of the effects of global economic processes are closely coherent with application of flexible regulatory methods and tools
- Increasing financial stability, healthy lending and responsible borrowing are a necessary condition for financial stability
- In modern monetary regulation direction, the concept of decarbonized economy and climate change emerge as the main directions of strategic approaches.
- The communication of forecast data prepared on the basis of monetary indicators is one of the main directions affecting monetary condition.
- The development of financial technologies and rapid digitalisation enables enhancing of supervisory and regulatory framework.

-Increasing the security level of banking operations is a necessary on the formation of monetary conditions

Scientific novelty of the research. As a result of the research, the following scientific innovations were revealed:

- In the process of flexible decision-making and implementation measures features of the modern technological possibilities were revealed.

- In response to the challenges of increasing financial stability, security of transactions and continuity of activity, the priority directions of monetary regulation were determined.

-According to the Herfindahl-Hirschman Index (HHI) and Four-Firm Concentration Ratio (CR4) methods, the market share concentration level of banks' deposit and loan portfolio indicators were calculated. According to HHI methodology the results obtained for deposits (1589.23) and loans (1145.15) it was found that despite the presence of interbank competition pressures, few banks' high market concentration share has a significant impact on market conditions. Despite the fact that large banks have the opportunity to influence the market, small competitors also have opportunities to develop. According to the CR4 methodology on deposits (71.99%) and on loans (60.41%) there are banks with dominant position in market concentration share.

- Taking into account the impact of climate change, ways of promoting the banking and financial sector in the process of transition to a green economy have been determined.

-Economic indicators affecting granting loans evaluated by applying the VAR model. It was concluded that the discount rate (0.95%), the interest rate of loans (0.86%) does not significantly affect loan volumes. It was determined that impact share of economic indicators such as exchange rate (5.27%), money supply (11.94%) and inflation (1.97%) is greater.

- In the context of the development of financial technologies and rapid digitalization, the importance and prospective possibilities of issuing a central bank digital currency (CBDC) have been assessed.

- An analysis of the legal bases affecting the effectiveness of the monetary regulation policy was carried out, the justification of the parts recommended for additions or changes was presented.

Theoretical and practical significance of research. The results of the dissertation can be used as source in higher education institutions in studying the positive and negative aspects of the comparative analysis of international and local experience, at the same time can be used as a source by the monetary regulatory body. As the decisions of the regulatory body are related to economic development, continuous analysis of economic conditions is of great importance. We think that the research work will be useful in regulation of the risks arising in the conditions of unpredictable and limited time and be applicable to the requirements of the economic conditions.

Approval and application of research results. According to the content of the dissertation, 11 articles were published in local and foreign magazines. The topics covered by the dissertation were discussed in scientific-practical conferences and seminars. In addition, recommendations were given on crises and ways to prevent them, and debates on impact of financial technologies and digitalization on bank assets were organized.

The name of the institution where the dissertation work performed. Dissertation work performed at Azerbaijan State University of Economics.

The scope and structure of the dissertation. Dissertation consists of introduction, chapter III, 9 paragraphs, conclusion, 14 tables and 19 figures. 202 literatures were used while preparing the research work. Excluding pictures, tables, literature list, appendices, the total volume of the dissertation consists of 256855 characters (Introduction 13235 characters; Chapter I 63213; Chapter II 83022 characters; Chapter III 85212 characters; Conclusion 11660 characters; List of Abbreviations 513 characters).

THE STRUCTURE OF THE DISSERTATION

Introduction

Chapter I. Theoretical and methodological bases of monetary policy management

- 1.1. Conceptual foundations of the evolution of monetary policy
- 1.2. Characteristic features of monetary policy instruments and assessment of impact directions of transmission mechanisms
- 1.3. Strategic approaches applied in management of monetary policy in international practice and the possibilities of using them in our country

Chapter II. Analysis and evaluation of monetary policy conducted in Azerbaijan

- 2.1. Characteristic features of monetary regulation policy of the Central Bank of Azerbaijan and assessment of monetary conditions
- 2.2 Inflation targeting regime in monetary strategy and assessment of its characteristics
- 2.3. Economic regulation measures at Covid-19 crisis, their characteristics and assessment

Chapter III. Improvement directions of monetary policy management

- 3.1. Evaluation of economic indicators on the basis of econometric modeling
- 3.2. Monetary strategic approach and improvement directions on digitalization challenges
- 3.3. Improvement of the relevant normative legal framework affecting monetary conditions and assessment of institutional development directions

The result

Reference list

List of abbreviations

Appendix

THE MAIN CONTENT OF THE DISSERTATION

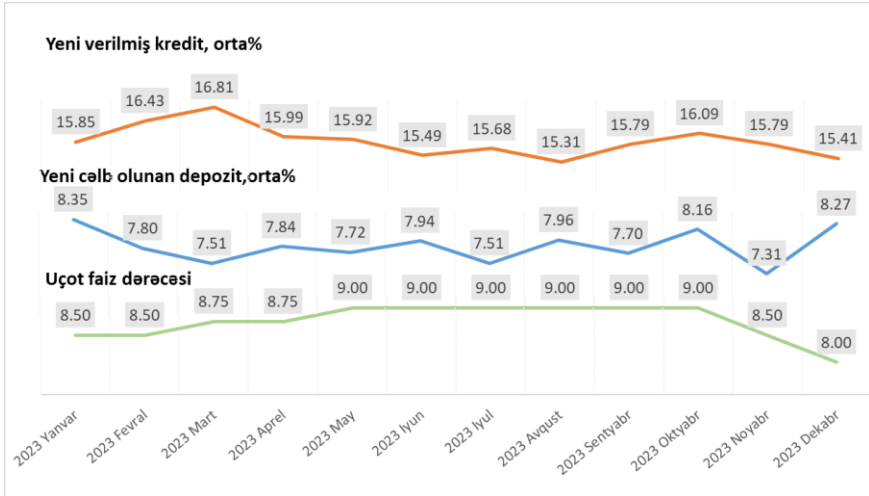
1. Mitigation of the effects of global economic processes are closely coherent with application of flexible regulatory methods and tools

One of the important conditions for ensuring price stability is the availability of a suitable tool for monetary conditions. Through the use of monetary instruments opportunities to influence the financial system arise, where the main goal is to influence the financing conditions of economic subjects and to achieve an acceptable level of inflation. The discount rate policy is used as one of the main instruments, and this instrument is known in international practice as the instrument with the widest possibility of influencing the market by monetary decisions. However, despite the wide use of this tool in our country, the level of influence is very weak. In our econometric research, according to the quantitative assessment model of the dependence of the lending indicator on the influencing factors, the discount rate is 0.95%, the average interest rate on loans granted is 0.86%, the M3 monetary aggregate is 11.94%, the official average exchange rate of the manat against foreign currency is 5.27 %, the inflation rate is 1.97%. As can be seen in the presented figure 1, we can say that the change in the discount rate does not directly affect the change in the average interest rate on new deposits and new loans.

In the absence of a fully floating exchange rate regime that shapes the value of the national currency in Azerbaijan, and under the condition of a fixed exchange rate regime, the interest rate does not have an adequate effect on the nominal exchange rate of the manat. Apart from banks and non-bank credit organizations, the country needs to develop the corporate bond market as an alternative option for resource attraction and resource distribution. For this reason, there is a great demand for continuous reforms, creation of transparent financial indicators, increasing the level of openness to the market, carrying out structural reforms and increasing the professional knowledge of personnel.

In such a situation, it is recommended to determine the maximum limits of the average interest rate depending on the direction of the

given loans as a measure to lower the interest rate until the market regulation mechanisms are formed. In such a case, credit organizations can reduce the interest rate by taking measures to optimize additional costs, which can have a positive effect on the lending opportunities and conditions, and economic growth.



Picture 1. The dynamics of the average interest rate of loans and deposits formed according to discount rate indicator

Source: Prepared by the author based on information of Central Bank of the Republic of Azerbaijan, (<https://cbar.az/page-40/statistical-bulletin>)

We think that another area to be improved is related to the transition of the exchange rate regime to a floating exchange rate regime. The main fundamentals for a successful transition to the "floating exchange rate regime" in Azerbaijan are directly related to the development of the mentioned directions:

- increasing the number of supply channels to the foreign exchange market
- diversification of the economy
- expansion of deals in local currency with countries with a high share in trade
- expansion of the activity of financial markets, implementation of measures of integration into global financial markets

- investment attraction, development of business environment
- creating confidence in the local currency
- export of competitive products

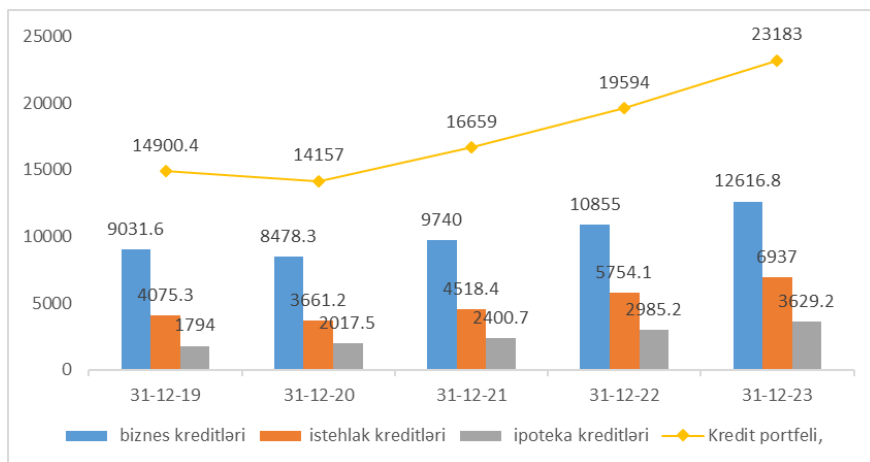
Many factors, ideas and forecasts taken into account in the monetary strategy are built in the conditions of uncertainty of future economic expectations, which creates many difficulties for the regulatory authorities in the implementation of structural and temporary regulations, in the selection of alternative scenarios, in stress tests, and sometimes based on short-term statistical indicators next steps are determined. Thus, monetary regulation strategies no longer fully justify themselves in long-term periods, and accordingly transmission mechanisms, monetary instruments can't show their effect. For this reason, strategic adjustment measures are continued in data-based decision-making practice based on actual results rather than long-term perspective opportunities and forecasts. Agile measures are implemented using innovative technical capabilities such as Data Science and Machine learning.

From the above, we conclude that central banks depend on large data bases, it is recommended to create conditions for purposeful and flexible use of these data, which can increase the effectiveness of regulatory policy measures.

2. The presence of sound lending and responsible borrowing rules in credit institutions is necessary on maintaining financial stability

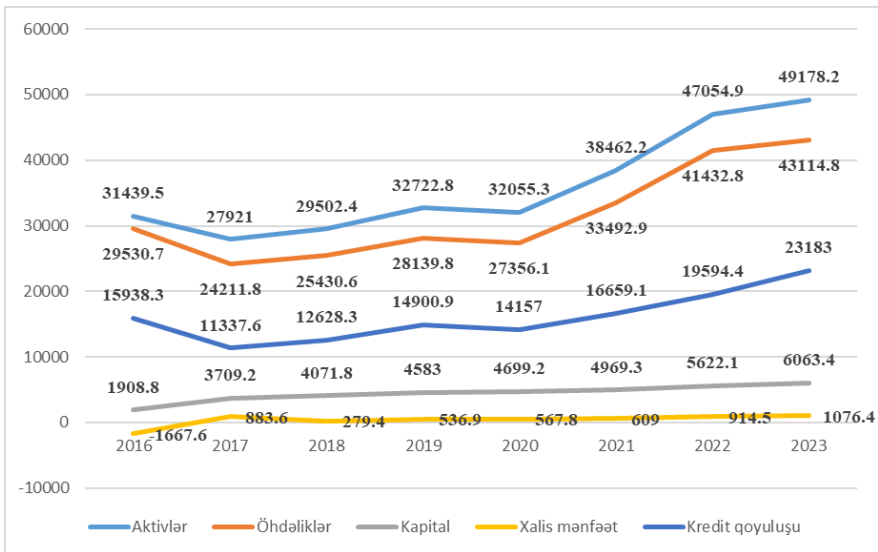
The potential for increasing the credit portfolio in the country is great, the principles of sound lending should be preserved and improved in the formation of the portfolio. As shown in the presented picture 2, in 2020, due to the impact of the pandemic, the loan portfolio decreased by 5%, and in 2021, in the context of the recovery of economic activity, the total volume of the loan portfolio in comparison to the previous year increased by 17.7%, and in 2023 by 18.3% compared to the previous year. As can be seen in the presented picture 3, the assets, capitalization level, liabilities, profitability level of the banking sector indicate that there are opportunities to increase the sustainability. At the same time, the analysis of the currency structure of deposits (Picture 4) shows that the establishment of stability in

national currency accelerated the attraction of deposits in manat. The share of foreign currency deposits in the total deposit portfolio was 65.3% in 2018, 49.4% in 2021, 48.4% in 2022, and 39.8% in 2023. In 2018, the amount of manat deposits in banks was 7581.7 mln. in 2021, this amount increased to 14,681.7 million manats, which means an increase of 93.7%. In 2023, there was an 18.9% increase compared to the previous year.



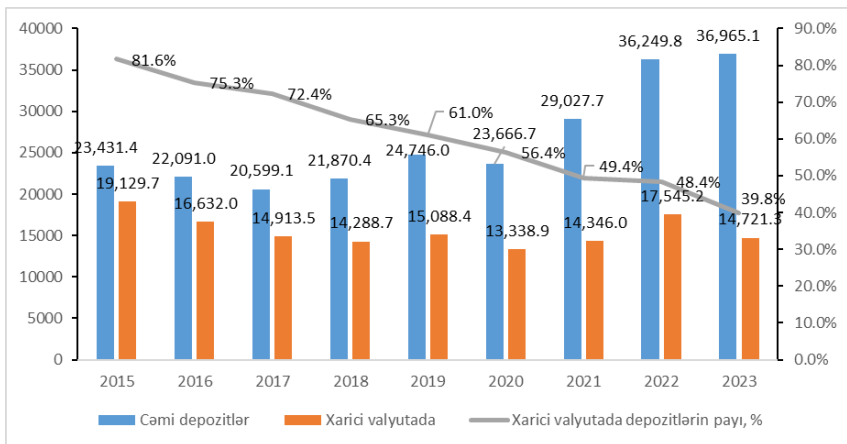
Picture 2. Information on the structure of banks' loan portfolio, mln. manats

Source: Prepared by the author based on information of Central Bank of the Republic of Azerbaijan, (<https://cbar.az/page-40/statistical-bulletin>)



Picture 3. Banking sector assets, liabilities, capital, profitability information about indicators, mln. manats

Source: Prepared by the author based on information of Central Bank of the Republic of Azerbaijan, (<https://cbar.az/page-40/statistical-bulletin>)



Picture 4. Dynamics of deposits in foreign currency, mln. manats

Source: Prepared by the author based on information of Central Bank of the Republic of Azerbaijan, (<https://cbar.az/page-40/statistical-bulletin>)

The potential of increasing the portfolio is high, the healthy formation of this portfolio acts as an important element of a stable financial system." Sound lending and responsible borrowing in credit institutions" principles have contributed to increasing the financial stability of the banking sector¹.

Rapidly changing economic conditions, especially regional and global security issues, have a significant impact on monetary conditions. It is an undeniable fact that the globalization of any political issue and the application of economic sanctions have an impact on world economy where global cooperation is expanding. The mentioned adverse effects may also have their effect on customers with credit debt. According to current regulations, provision of the possibility of allocating loans at a higher rate of the DTI ratio of 45% may cause problems on repayment of loans in condition of continued inflationary pressure. In order to achieve large sales volumes in the competitive environment in banking, it is noticeable that banks tend to increase the volume of loan sales guided by the high ratios of this indicator, which leads to an increase in the debt burden of customers. We recommend the indicator of the ratio of loans granted with BGN violation to the consumer credit portfolio be applied. Applying such an indicator can be important in preventing the risk of deterioration of the quality indicator of the portfolio. In addition, it is recommended to apply the maximum violation limit in order to violate the BGN coefficient, subject to the detailed calculation of the current income and expenditure level of the customers.

Attraction of investment and protection program acts as a necessary element of sustainable economic development at the global level. In presented table 1 we see that the majority of the investment is carried out at the expense of domestic sources, and the share of foreign sources continues to decrease rapidly year by year. At the same time,

¹ Kredit təşkilatlarında sağlam kreditləşmə və məsuliyyətli borclanma Prinsipləri // 04 may 2016-cı ildə qəbul edilmişdir. -Bakı: Qanun, Protokol 7, - 2016, -s.5.; Ağakışiyev Z.İ, Bank sistemində sabitliyin bərpasına yönəldilmiş monetar siyasətin qiymətləndirilməsi // -Bakı: Azərbaycan Milli Elmlər Akademiyasının "Elmi əsərlər" toplusu, Maliyyə, pul-kredit siyasəti seriyası, -2019, №6, - s. 214-221.

the share of the private sector is gradually decreasing. Thus, in 2015, the share of the private sector was 65.3%, and in 2023, this share decreased to 43.9%. Similarly, while the investment due to foreign sources was 44%, in 2023 this rate decreased to 19.1%.

Table 1
Volume of investment in fixed capital, bln. man

İl	Əsas kapitalla investisiyalar	neft-qaz sektoru	qeyri neft-qaz sektoru	%, pay	Daxili mənbə	Xarici mənbə	Dövlət sektoru	Özəl sektoru
2015	15957	7157.0	8800.0	55%	56.00%	44.00%	34.70%	65.30%
2016	14903.4	8603.4	6300.0	42%	40.50%	59.50%	33.80%	66.20%
2017	15550.8	8450.8	7100.0	46%	44.60%	55.40%	37.80%	62.20%
2018	17238.2	5948.9	11289.3	65%	69.70%	31.30%	46.70%	53.30%
2019	17184.3	5489.5	11694.8	68%	69.80%	30.20%	48.30%	51.70%
2020	17226.1	6077.7	11148.4	65%	69.90%	30.10%	41.60%	58.40%
2021	16127.0	5765.5	10361.5	64%	73.10%	26.90%	46.60%	53.40%
2022	18272.3	5400.4	12871.9	70%	80.60%	19.40%	50.70%	49.30%
2023	20296.6	6265.5	14031.1	69%	80.90%	19.10%	56.10%	43.90%

*Source: Prepared by the author based on monetary policy overview of Central Bank of the Republic of Azerbaijan, information of the State Statistics Committee
<https://cbar.az/page-40/statistical-bulletin>*

One of the ways to ensure financial stability also depends on the compliance of the principles and conditions stipulated in the deposit insurance procedure with the requirements of the monetary conditions. Deposits act as the main resource base of crediting activity, its insurance procedure and the insured amount are the main influencing factors for the concentration of resources in banks. The main concern here is that the part of the deposits of entrepreneurs up to 20,000 manats is insured, while the deposits of legal entities are not insured at all. The lack of procedural rules of the insurance system for the deposits of legal entities leads to the concentration of juridical persons in large banks, while other banks are deprived of this opportunity. We recommend that the insurance of the accounts of entrepreneurs and juridical person be insured at least within the limits of physical persons.

In the research process, the level of market share was measured according to the deposit and loan portfolio of the banking sector, and its adequacy, level of development and degree of concentration were

determined. Based on the data in Table 2, an assessment of the deposit portfolio was made. The calculation was made according to the Herfindahl-Hirschman Index (HHI) and Four-Firm Concentration Ratio (CR4) methods. Herfindahl-Hirschman Index (HHI) calculation formula:

$$HHI = \sum_{i=1}^n S_i^2$$

here,

S_i - market share of banks;

n- the number of banks in the market

Table 2. 2023 Deposit portfolio of banks, manat

S/S	Bankın adı	Depozit portfeli	Bankların depozit bazarında xüsusi çəkisi (XÇ), %	Bankların depozit bazarında xüsusi çəkisinin kvadratı, XÇ ²
1	ABB	9,396,185,910	27.20	739.58
2	Pasha Bank	6,935,175,000	20.07	402.90
3	Kapital Bank	6,321,619,000	18.30	334.76
4	Xalq Bank	2,220,971,800	6.43	41.32
5	Bank Respublika	1,443,971,000	4.18	17.47
6	Unibank	1,215,892,000	3.52	12.38
7	Accessbank	1,051,575,000	3.04	9.26
8	ATB	484,586,000	1.40	1.97
9	Yelo Bank	1,292,023,230	3.74	13.98
10	Rabitabank	753,824,000	2.18	4.76
11	Bank of Baku	515,767,850	1.49	2.23
12	Ziraat Bank Azerbaijan	411,422,000	1.19	1.42
13	Turanbank	458,880,000	1.33	1.76
14	ASB	458,647,240	1.33	1.76
15	Premium Bank	426,770,000	1.24	1.53
16	Yapı Kredi Bank	366,695,170	1.06	1.13
17	Expressbank	230,441,000	0.67	0.44
18	Bank BTB	152,905,000	0.44	0.20
19	AFB Bank	168,256,290	0.49	0.24
20	VTB	89,351,000	0.26	0.07
21	Bank Avrasiya	48,484,560	0.14	0.02
22	Naxçıvanbank	63,418,600	0.18	0.03
23	Melli İnan Bankı Bakı filiali	44,027,260	0.13	0.02
CƏMİ : 34,550,888,910			HHI = 1589.23	

Source: Prepared by the author based on information of Central Bank of the Republic of Azerbaijan

The result obtained in the HHI calculation is evaluated based on 3 types of concentration criteria:

1.Low concentration (high competition) <1000. It indicates a highly competitive market with numerous banks competing for market share.

2. Average level of concentration $>1000 \leq 1800$. A few banks have a significant part of the market share, indicating a balanced competitive environment among banks.

3. High concentration (oligopoly or monopoly-like) >1800 . It indicates a highly concentrated market where a small number of banks dominate the market.

The actual result obtained in the HHI calculation was 1589.23, which coincides with the average concentration criterion from the concentration criteria. According to this criterion, several banks have a significant share of the deposit market, and there is a balanced competitive environment among banks.

According to the Four-Firm Concentration Ratio (CR4) methodology, the market concentration share of the deposit portfolio of the top 4 banks was calculated based on the data of Table 2 Four-Firm Concentration Ratio (CR4) calculation formula:

$$CR_4 = s_1 + s_2 + s_3 + s_4$$

Here, $s_1 + s_2 + s_3 + s_4$ - shows the market share of the big 4 banks. Evaluation of the general interpretation range:

1. CR4 $<30\%$: Relatively unconcentrated with potentially good competition
2. CR4 between $>30\% < 50\%$: moderately concentrated market
3. CR4 $>50\%$: market concentrated in a few large banks with a dominant share

The result obtained according to the CR4 methodology was 71.99%, which falls within the CR4 $>50\%$ range of the evaluation criterion, which indicates that deposits are concentrated in a few banks with a dominant share.

Based on the data in Table 3, an assessment of the loan portfolio was also carried out.

Table 3. 2023 Credit portfolio of banks, manat

S/S	Bankın adı	Kredit portfeli	Bankların kredit bazarında xüsusi çəkisi (XÇ), %	Bankların kredit bazarında xüsusi çəkisinin kvadratı, XC^2
1	ABB	5,048,771,910	21.73	472.12
2	Pasha Bank	4,271,823,000	18.38	337.99
3	Kapital Bank	2,835,443,000	12.20	148.91
4	Xalq Bank	1,879,879,000	8.09	65.45
5	Bank Respublika	1,174,229,000	5.05	25.54
6	Unibank	1,047,741,000	4.51	20.33
7	Accessbank	1,013,765,000	4.36	19.04
8	Yelo Bank	764,309,950	3.29	10.82
9	Rabitabank	721,159,000	3.10	9.63
10	ATB	447,399,000	1.93	3.71
11	Bank of Baku	659,043,320	2.84	8.04
12	Turanbank	629,356,000	2.71	7.34
13	Premium Bank	471,886,000	2.03	4.12
14	Expressbank	409,253,000	1.76	3.10
15	Ziraat Bank Azerbaijan	390,942,000	1.68	2.83
16	Yapı Kredi Bank	291,777,800	1.26	1.58
17	Bank BTB	280,902,000	1.21	1.46
18	ASB	256,472,010	1.10	1.22
19	VTB	187,120,000	0.81	0.65
20	AFB Bank	180,050,330	0.77	0.60
21	Bank Avrasiya	137,169,370	0.59	0.35
22	Naxçıvanbank	130,718,950	0.56	0.32
23	Melli İran Bankı Bakı filialı	6,677,880	0.03	0.00
CƏMI : 23,235,888,520				HHI = 1145.15

Source: Prepared by the author based on information of Central Bank of the Republic of Azerbaijan

The actual result obtained in the HHI calculation was 1145.15, which coincides with the average concentration criterion from the concentration criteria. According to this criterion, several banks have a significant share of the loan market, and there is a balanced competitive environment among banks.

According to the Four-Firm Concentration Ratio (CR4) methodology, based on the data in Table 3, the market concentration share of the credit portfolio of the top 4 banks calculated at 60.41%, which indicates that loans with a dominant share are concentrated in a few banks. Banks with a small share of concentration have a risk of not being able to compete in the medium term.

The new development strategy of our country requires strong and healthy banks in the country. One of the ways to create a healthy banking system can be made possible by developing legal and technical methodological procedures and rules for conducting consolidation measures in the banking sector. Since the technical and

step-by-step solutions of the consolidation process are not clearly indicated in the current regulations, we see that there is no activity and real results in this direction. There is a need to have an incentive mechanism in the process. As one of the biggest incentives, exemption from income tax payment for the next 1 year after the consolidation process can have a positive effect on speeding up the processes. Also, taking into account the complexity of the process itself, it is suggested to divide it into stages according to the execution time.

3. In modern monetary regulation direction, the concept of decarbonized economy and climate change emerge as the main directions of strategic approaches.

As a result of the impact of climate change adoption social, technological and political decisions will in turn have an impact on the price level, production, productivity and credit markets. International organizations that have conducted extensive research in this direction, strongly recommend considering such characteristics in monetary regulation policies².

Climate change is obvious in today's reality. So, we can mention as an example the rise in temperature, unseasonal weather conditions, drought, forest fires, and decrease in precipitation. The use of indicators of the level of harmful substances in the atmosphere that cause climate change in countries that apply the inflation targeting regime testifies to the seriousness of the mentioned issue.

According to the forecast of the research carried out jointly by the Potsdam Institute and ECB researchers across 121 countries (developed and developing countries), global warming will cause an annual increase of global food prices 0.92-3.23% and headline inflation of 0.32-1.18 percentage-points per-year by 2035. Here, the

² Breitenfellner, A. The impact of climate change on monetary policy / A. Breitenfellner, P. Wolfgang, -Austria, Monetary policy & the economy, Q3/21, - 2021. -p.22.; Central Banks and supervisors. Network for Greening the Financial System Technical document, Climate Change and Monetary Policy Initial takeaways / -France, This report has been coordinated by the NGFS Secretariat, Banque de France. -2020. -p.19.; Orphanides, A. Options for the ECB's Monetary Policy Strategy Review/A. Orphanides, Y. LEngwiler, Requested by the ECON committee, - 2020, -p.94.

presentation of information with intermediate changes is related to uncertain emission, climate model, empirical characteristics, as well as seasonal dynamics of inflation³. Based on the result of this evaluation, our country should evaluate the prospective possibilities and determine the solutions in order to reduce the possible impact. I would also like to mention that certain works are being done in this direction at the government level. Thus, we can point as an example the creation of green energy zones in Karabakh and Eastern Zangezur and the successful implementation of the smart village projects. Also, the holding of COP29 in Azerbaijan (November 2024) and the declaration of 2024 as the "Year of Solidarity for the Green World" indicate that our country attaches importance to taking an active role in combating climate change and is ambitious in accelerating the processes of transition to a green economy. In 2016, the Republic of Azerbaijan approved the Paris Agreement and undertook measures to combat global climate change (reduce the volume of gas emissions by 35%). If the CB considered demand, supply, and price factors in the construction of macroeconomic models, then it is recommended to consider climate change as an influencing factor and change its economic modeling accordingly⁴.

At the same time, banks should closely participate in the acceleration of transition processes to the green economy, and for this, new financing requirements should be defined for them. We consider that mitigating and encouraging elements in macroprudential requirements are necessary as one of the first conditions for stimulating the green financing process. We also recommend implementation of mentioned measures and incentives: create green capital buffer, to

³ Kotz, M. The impact of global warming on inflation; averages, seasonality and extremes / M.Kotz, F. Kuik, E. Lis, C. Nickel. – German: Working paper series, No 2821, - 2023. -p.50.

⁴ Breitenfellner, A. The impact of climate change on monetary policy / A. Breitenfellner, P. Wolfgang, -Austria, Monetary policy & the economy, Q3/21, - 2021. -p.22.; Central Banks and supervisors. Network for Greening the Financial System Technical document, Climate Change and Monetary Policy Initial takeaways / -France, This report has been coordinated by the NGFS Secretariat, Banque de France. -2020. -p.19.

determine discount-based risk weights in the classification of assets according to the degree of risk, to determine green financing target, to form green bond program.

4. The communication of forecast data prepared on the basis of monetary indicators is one of the main directions affecting monetary condition.

In a contemporary monetary strategy regulation the communication tool acts as the most influential tool for the effective management of market expectations. Rapid changes in the global economic and geo-political situation affects the countries economies. In such a situation, as the action plans of economic entities are based more on prospective opportunities and evaluation results, the presence of guiding information for them acts as an important factor. Because making optimal decisions requires a high level of financial literacy, it is also closely related to the characteristics of the development line of the events taking place in the global market and the setting of goals. In this regard, we should not exclude the fact that the CB is a reliable government institution and conducting an independent policy justifies rationalize confidence. Having this belief changes behavior in business activities, which positively affects the effectiveness of monetary policy.

Another important direction of the communication process is the form of delivering economic evaluations to the public.

In Azerbaijan, the regulatory body periodically provides the public with information about overview of the monetary policy, it's directions and the changes in discount rate. However, we see relatively weak elements of transparency and complex written language, which creates difficulties in unambiguous understanding. Presenting this information in a more transparent and optimal written language can have a positive effect on formation of expectations, and can create applicable conditions on achieving policy goals and objectives⁵.

⁵ AğakışiyevZ.İ, Monetar siyasətdə kommunikasiya kanalı və onun təsir xüsusiyyətləri // -Bakı: Qərbi Kaspi Universitetinin elmi xəbərlər jurnalı, -2024, №1(14), - s. 36-40.

5. The development of financial technologies and rapid digitalisation enables enhancing of supervisory and regulatory framework.

Another factor that necessitates the improvement of monetary strategic approaches is related to rapid development of digitalization in financial markets.

There is no doubt that the expansion of digitalization will lead to a change in theory and practice of monetary policy along with the change in traditional form of credit and money.

According to the "Worldpay" report, the total volume of transactions through electronic wallets was 50% in 2023, and this volume is predicted to reach 61% in 2027.⁶ Digital payments through addition of bank cards to electronic wallet continue to have a large impact on traditional payment and mode of operation in banking sector, which should be considered as an innovative solution.

Integration into digital technological innovations requires serious work on solving infrastructure elements. The development line of economic processes suggests that states that do not create infrastructure and technological solutions for digital currency operations in global trade may experience financial inclusion problems. For this reason, the world's central banks are taking measures to maintain their influence in digital settlements by creating their own digital currency. One of these measures is related to the issuance of digital currency (CBDC).

Unlike other cryptocurrencies, the price of CBDC is set by central banks at the equivalent of a country's fiat currency. We can group the reasons for issuing CBDC as follows:

- Changing the landscape of the global settlement system
- Acceleration of technological innovations in the banking and financial system
- Households and business entities need to have a secure, dynamic, low-cost settlement system
- An important condition of financial inclusion

⁶ The global payment report 2024, -2024, -p.160

-Simplification of monetary and fiscal policy implementation process

-Transparency of operations

-The application and rapid development of cryptocurrency and blockchain technology is creating interest in a cashless society and digital currencies

-Prevention of money laundering and terrorism financing

It is observed that central banks are taking a very cautious approach in CBDC issuance processes. These hesitations are related to the possible adverse effects of digital currency issuance on the monetary transmission mechanism and price stability. Another point of concern is the impact of CBDC on banks' deposit bases and finding alternative sources of resources for lending needs. Maintaining savings bases can lead to higher interest rates, which in turn can have a negative impact on the credit market.

The conversion of assets into digital financial instruments requires the creation of new accounts in the chart of accounts accordingly. The creation of accounting and control capabilities over the type and range of digital financial assets in the current chart of accounts can create fertile conditions for closely monitoring trends in the structure of assets. Particularly, the future expansion of digital currency transactions and their different market shares can lead to shocks in price changes, which can be useful in terms of calculating the impact by asset type.

6. Increasing the security level of banking operations is a necessary on the formation of monetary conditions

As the transformation of financial transactions to digital platforms expands, the security issues of this data are causing certain concerns. Since the introduction of new technology leads to the creation of new risk centers, it is observed that more cautious behavior is demonstrated in the development of processes. Introduction of new technology is accompanied by the emergence of new risk centers, it is observed that more cautious behavior is demonstrated in the development of processes. Due to the fact that the introduction of new technology is accompanied by the emergence of new risk centers, it is observed that more cautious behavior is demonstrated in the

development of processes. In other words, the emergence of multidirectional risks related to cybercrimes and financial fraud necessitates the creation of preventive measures⁷. The main target of cyber-attacks are stock markets, banks and financial institutions. In these institutions It is necessary constantly improve the level of risk regulation and have different solution scenarios against the risks of interference. For this reason inspection measures should be carried out in the form of regular testing and periodic certifications. In this regard, it is necessary to have strategies of central banks enriched with comprehensive measures related to cyber security. Such a strategic approach can be useful in terms of defining the nature of the emerging risk, detection and immediate implementation of prevention measures. Measures taken in time can have a positive effect in terms of preventing damage and informing other financial institutions. Strategic measures should also include complex measures such as risk generation and blocking on related systems and finally, after identification unblocking and notification. It is recommended documentation of each mentioned stage and it's implementation in the authority of the regulatory body, as it is addressed to the general financial system.

As a result of the analysis, we would like to summarize the points that need to be improved:

- Determining the criteria of compliance of information security measures with international standards and applying the rating system.

- Application of the ISO 27001 certification mark (cyber security, information security management), adding it to financial reporting as a requirement of corporate management standards

- Organization of technical support service in applying technological solutions to banks with a weak level of cyber security based on the rating system

We should also note that the realities created by the rapid expansion of digitalization, the rapid spread of technological

⁷ Arauo, D. Machine learning applications in central banking / D. Araujo, G. Bruno, J. Marcucci, - IFC Bulletin, No 57, - October 2021. -p.27.

development, dependence on third-party participants, unplanned changes in the operational framework of central banks, cyber threats, risks arising in the continuity of financial and settlement operations require continuous assessment of business processes⁸. The low level of preparedness in solving the arising problems leads to the emergence of problems in the activity of the financial accounting parties by stopping the business processes. For this reason, the immediate activation of flexible regulatory mechanisms and finding a solution depends on the existence of a business continuity plan (BCP).

THE RESULT

We can summarize the scientific innovations and proposals obtained as a result of the research in the following way:

1. In the conditions of rapid development of financial technologies, it was determined that making flexible decisions and making forecasts depends on the use of innovative solutions. The size of the data, processing, application limitations in discrete econometric modeling is already changing its place to innovative solutions such as Data Science and Machine learning. With the application of this technology, large databases are generated using artificial intelligence and the results are used as an important resource in flexible regulation and decision making processes.

2. The expansion of digitalization necessitates the change of traditional regulatory mechanisms. Implementation of transformation processes in the direction of digitalization is not an option, but a necessity. By issuing its own digital currency, the Central Bank can strengthen its ability to control and intervene in digital financial assets, which is important in terms of fulfilling its commitment to the stability of financial settlements. For this, the solution of infrastructure issues, the selection of the operational model and its application in the pilot project is required.

⁸ Rosenberg, J. Business continuity planning at central banks during and after the pandemic / J. Rosenberg, T. Alexandre. BIS representative office for the Americas, -April 2022. - p.30.

3. The fact that deposits act as the main resource base of lending activities, its insurance procedure and the insured amount part act as the main influencing factor for the concentration of resources in banks. The experience of bankrupt banks showed that the processes of withdrawing deposits of juridical persons and entrepreneurs at the expense of the bank's assets are not convenient, sometimes the sale of the bank's assets is not enough to pay these funds, which causes dissatisfaction. We propose to apply the insurance mechanism for the deposits of juridical persons and entrepreneurs, at least within limits of physical persons, as well as to create a voluntary insurance system.

4. The new development strategy of our country requires strong and healthy banks in the country. In addition, the shocks occurring in the global financial market indicate that the banking sector should have high capitalization to absorb the shocks. One of the ways to create a healthy banking system may be possible through the development of legal and technical methodological procedures and rules for conducting consolidation measures in the banking sector and the creation of an incentive mechanism. Here, as one of the incentives, we propose exemption from income tax payment for the next 1 year after the consolidation process, and considering the complexity of the process, we propose to divide it into stages according to the execution time.

5. Multidirectional risks caused by global climate changes have been revealed. The necessary strategic measures related to the transition to the concept of a decarbonized economy were determined, as well as, in order to speed up the transition process, recommended to create a mechanism for granting loans to companies operating in the field of green economy with more favorable and encouraging terms, provide concessions in the classification of assets, in order to reduce the impact of loans on the adequacy of the total capital on the risk level it was recommended to create a separate preferential risk group.

6. Increasing the level of cyber security of banking operations is one of the important directions of financial stability. Continuous measures should be taken in this direction and intensive stress tests should be applied. In this regard, it is necessary to have a strategy of the Central Bank of AR enriched with comprehensive measures related

to cyber security. It was also recommended to create a criterion for compliance with international standards related to increasing the level of cyber security, apply the ISO 27001 certification mark, and provide technical support services to organizations with a weak level of security.

7. In the strategy of monetary regulation of the modern era the communication tool acts as the most influential tool in the effective management of market expectations. Since the action plans of economic entities are based more on prospective possibilities and assessment results, it is important to have guiding information for them. Presentation of information in a more transparent and optimal written language can have a positive effect on accurate formation of expectations, and can create fertile conditions for achieving the goals and objectives of the regulatory body.

8. One of the important conditions for conducting an independent monetary policy is the transition to a floating exchange rate regime. The basis of the application of this regime is the increase in the share indicator of the real results of the goals set for the diversification of the economy and the development of the non-oil sector in the economy. The main basic conditions for a successful transition to the floating exchange rate regime were defined.

9. The pandemic crisis and the it's risks have revealed an important challenges for central banks. Because the continuation of the uncertain situation related to the pandemic, the mutation of the virus had a negative effect on economic processes. In order to prevent such risks, it was proposed to include a business continuity plan in the risk management system.

10. Effectively regulating system risks, increasing resilience to crisis situations and improving financial stability in the country are considered important challenges. By violation of the BGN 45% ratio and allocation of loans at a higher rate may cause problems in repayments in a situation of continued inflationary pressure. For this reason, it was proposed to apply the indicator of the ratio of loans given in violation of the BGN ratio to the consumer credit portfolio. Also, we propose to issue loans with the rule of BGN violation for borrowers

with high income and to prohibit BGN violation for categories with relatively low income.

11. The effectiveness of the monetary policy and the success in optimal regulation are closely related to the management model and the possibility of applying flexible tools in accordance with the requirements of the monetary and economic conditions during financial crises. The current management model suggests that the experience of protecting against global shocks and preventing risks is justified in the context of weak integration of the country into the global financial markets. However, the influence of geo-political processes, the processes taking place within the framework of traditional global cooperation require the formulation of a new management model and regulatory policy

12. In order to integrate into the global financial market, the concept of capital markets development requires the formation of a financial institution that enables the activities of both local and foreign investors. We recommend to adapt regulatory frameworks and operational processes to new blockchain technologies, and apply measures on creating business environment conducive to the implementation of capital markets integration processes.

The following articles and theses were published on the subject of the dissertation:

1. Monetar siyasətin iqtisadi proseslərə təsiri və effektivliyinin artırılması tədbirləri. Doktorantların və gənc tədqiqatçıların XXII Respublika elmi konfransının materialları, I cild, Azərbaycan Dövlət Pedaqoji Universiteti 22-23 noyabr 2018-ci il, Bakı, 2018.

2. Bank sistemində sabitliyin bərpasına yönəldilmiş monetar siyasətin qiymətləndirilməsi. AMEA İqtisadiyyat İnstitutu, Elmi Əsərlər, Bakı, No.6, 2019, səh 214-220.

3. Monetar siyasətdə inflyasiya hədəflənməsi rejimi və iqtisadi proseslərə təsiri. AMEA İqtisadiyyat İnstitutu, Elmi Əsərlər, Bakı, No.5, 2019, səh 164-170.

4. Ölkənin valyuta siyasətinin iqtisadi proseslərə təsirinin qiymətləndirilməsi. Doktorantların və gənc tədqiqatçıların XXIII Respublika elmi konfransının materialları, I cild, Bakı, 2019.

5. Domestic policy reforms of Azerbaijan in covid 19 situation. ISARC international science and art research center, International Palandoken scientific studies congress 24-25 April 2021, Erzurum / Turkey, 2021, səh 351-359.

6. Economic policy response to the pandemic situation and assessment of economic regulation policy in Azerbaijan. Экономика и Предпринимательство, Moskva, No.2 (127), 2021, səh76-89

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9. İqlim dəyişikliyinə qiymətlərin sabitliyinə təsiri və tənzimləmə tədbirləri. Qərbi Kaspi Universitetinin elmi xəbərlər jurnalı, Bakı, No. IV (13), 2023, səh 95-100.

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11. Monetar siyasətdə kommunikasiya kanalı və onun təsir xüsusiyyətləri. Qərbi Kaspi Universitetinin elmi xəbərlər jurnalı, Bakı, No.1 (14), 2024, səh 36-40.

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