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BANKING REGULATION IN CONDITIONS OF FINANCIAL INSTABILITY: NEW CHALLENGES, ANTI-CRISIS MEASURES, PROMISING VECTORS

Summary

The article deals with modern problems of the influence of banking regulation on financial stability in the context of global turbulence. New challenges affecting this process are revealed. The role of banking regulatory tools in the likelihood of a banking crisis has been established. The relevance of the influence of banking regulation on green investments is determined. A bibliometric analysis was implemented using VOSviewer based on Scopus publications on relevant topics, which made it possible to identify contextual, geographical and temporal models for studying the relationship between banking regulation and green investment. The main directions of the impact of digitalization on the transformation of the banking regulation process are presented, a comprehensive study of which will allow developing fundamentally new approaches to its improvement. The expediency of implementing innovative practical measures to improve the efficiency of the banking regulation system has been substantiated. In the conclusion, the main findings are formulated, which, from the author's point of view, will contribute to the improvement of the banking regulation system in the context of digitalization.

Introduction

Banking regulation is intended to minimize the probability of financial instability, including banking crises, which have long-lasting and destructive consequences for the economy. Despite a large and growing body of literature that has investigated the role of banking regulation in ensuring financial stability, only a few of them explored the impact of banking regulation instruments on the banking crisis probability.

To improve the reliability and competitiveness of the banking system, it seems extremely important and necessary to enrich the process of regulating banking activities with positive innovative experience. The study and theoretical understanding of the developed innovative approaches to the

organization of banking regulation, combined with the scientific generalization of the accumulated domestic experience in this area, can become the basis for ensuring its high productivity. The relevance of the generalization of positive experience gained in countries with an established banking regulation mechanism is especially growing in the context of globalization and digitalization of the world economy, which has a noticeable impact on the convergence of the legislative framework and the conditions for its implementation by transforming international norms and rules in this area into a national economic and legal system.

Under the current conditions, the manifestations and systems of banking regulation are becoming more complex and acquiring modern features. At the same time, in the ocean, completely new, original forms of it, which had no production in world practice. New financial technologies and the digital transformation of the banking sector are especially pronounced, which affect the change in its modern look. Thus, it is necessary to modify the paradigm of banking regulation in the field, which in recent years has been widely adapted to the changing economic, social and technological environment.

As a driver of the transition to a new model of growth and development, the concept of green economy, which is the basis for the implementation of the concept of sustainable development, plays an important role today. The concept of green economic development is based on green finance, which links economic growth, environmental action and financial institutions. In this regard, in recent decades, researchers have paid more and more attention to the study of the fundamental principles, patterns and architecture of the green economy, green finance and green investments. At the same time, much less attention has been paid to identifying the regulatory factors that determine their effectiveness. This statement is especially relevant from the point of view of revealing the connection of the above processes with banking regulation. In this regard, an empirical analysis of the impact of regulatory aspects (including banking regulation) on green investments and the transition from a «gray» to a «green» economy is of particular relevance.

Part 1. New challenges and opportunities

The global financial crisis, as well as the subsequent sovereign debt crisis, revealed significant shortcomings of the current banking regulatory framework in the world economy: the presence of regulatory arbitration, insufficient attention to systemically important institutions, the absence of special monitoring mechanisms to prevent the emergence of endogenous and systemic risks, lack of coordination between various supervisory authorities, etc. The monetary authorities have responded by introducing far-reaching regulatory reforms, most of which, while not without flaws, are considered very

successful solutions to the problems of weak banks. The focus of the regulatory agenda was on reaching consensus on all currently contentious issues.

On the eve of the global financial crisis, financial markets and global banking groups flourished and grew in size and scope. At the same time, along with an increase in the systemic importance of leading multinational banks, their solvency and liquidity indicators decreased, and they became more exposed to risks. The creation by large financial institutions of significant reserves of assets for participation in various types of banking services led to a noticeable intensification of their investment and retail activities [1, p. 12–15], which, in turn, resulted in the further growth of balance sheets and the development of links between traditional banking structures and the shadow banking segment [2, p. 9–11]. Securitization, financial derivatives and other forms of shadow banking have allowed banks to enter wholesale markets and institutional investors to grow faster than possible, relying solely on slowly growing insured deposits [3, p. 499–513]. Capacity building of key financial institutions and the financial sector also contributed to the general underestimation of risk in the financial markets, inadequate regulation and supervision, as well as over-reliance on self-regulation [4, p. 446–449].

A study of the pre-crisis financial boom and subsequent recession identified a number of major problems associated with the deficiencies of the banking regulation system, which were subsequently addressed through reforms. These include:

- inadequate macro- and microprudential regulation and supervision [5, p. 8–13];
- leverage and limited ability to absorb losses [6, p. 10–13];
- inability to absorb liquidity shocks [7, p. 48–49];
- lack of special mechanisms to streamline the regulatory issues of cross-border financial institutions [8, p. 36–40];
- too big to fail problem [9, p. 358–360];
- weak corporate governance and risk management [10, p. 239–247];
- deficiencies in derivatives markets [11, p. 407–409];
- systemic risk arising in the shadow banking sector [12, p. 4–8].

The listed above regulatory deficiencies were largely global, which later in some regions (in particular in the EU) turned the financial crisis into a wider sovereign debt crisis. Thus, the crisis phenomena observed in the European Monetary Union testify to the many shortcomings in the structure and functioning of this system, the nonviability of the pre-crisis mechanism of financial regulation and supervision that has developed here. This was the harbinger of a full-scale program of regulatory reform.

The global financial collapse and the sovereign debt crisis triggered a series of regulatory reforms in the banking sector. In response, at the international level – within the framework of the commitments of the G-20 and the Financial

Stability Board – a set of measures was agreed to create a stable, efficient and sustainable banking sector. To improve the stability and resilience of the banking sector and reduce the likelihood of future failures in the banking system, regulators in developed (for example, the EU) and developing countries have implemented a number of important reforms in the banking regulation sector aimed at [13, p. 3–5]:

- increasing the ability of banks to absorb losses by increasing the level and quality of bank capital, as well as outflow of liquidity and ensuring an adequate match of assets and liabilities;
- improving risk management and corporate governance in banks;
- solving the problem “too big to fail”;
- assistance in crisis management and bank settlement.

Taking into account the above, in order to improve the safety and transparency of financial markets, it was recognized the need to strengthen consumer protection from upcoming crises, eliminate the shortcomings of the current regulatory framework for banking activities and create special mechanisms to timely counter future crises. The reform vectors were mainly supposed to be directed at correcting the shortcomings in the institutional structure supporting the single market.

Different countries have developed their own approaches to organizing regulation of banking activities and supervision, which depend on the structure of the national financial system and are determined by a combination of factors, the diversity of which gives each of them a unique national specificity. Several alternative systems of organization of regulation and supervision of the financial market have been formed in the world, differentiated among themselves by the degree and nature of the participation of central banks in this process. One of them involves the concentration of regulatory powers in the central bank, the second is the existence of an independent special body in close connection with the central bank and the Ministry of Finance, the third model of regulation is that the regulatory and supervisory functions are carried out by the EU supranational supervisory bodies – the European Systemic Risk Board and the Joint Committee of European Supervisory Authorities, and the fourth model provides for the creation of a mega-regulator.

The most famous and authoritative international organization in the field of banking supervision and regulation is the Basel Committee on Banking Supervision. Its goal is to strengthen mutual understanding on key issues of banking supervision and improve its quality around the world, the introduction of uniform standards in the field of regulation of banking activities [14, p. 32–34]. One of the main tasks of the Basel Committee was the harmonization of the global practice of regulation of banking activities, which would level the differences between national practices, thereby eliminating the main reason for regulatory arbitration. The global financial crisis has highlighted the need to

rethink the principles of regulation of banking activities, establishing certain requirements for capital adequacy, methods for assessing systemic risks, and creating reserves to cover possible loan losses during periods of economic ups and downs. As a result, the Basel Committee on September 12, 2010 approved a global reform of the world banking sector, called Basel III. The main purpose of the changes that have occurred in it is to improve the quality, transparency and improve the structure of bank capital, expand the practice of covering risks with capital and stimulate measures to create its reserve stocks.

Part 2. Global financial collapse and anti-crisis measures

Global financial crisis – one of the recent large-scale banking crises – has demonstrated extensive negative effects in the form of falling production and significant social costs. Compared to other financial crises (currency and debt), banking crises are the costliest for a country in terms of total output losses [15–18]. According to calculations, done for 49 developing countries, the currency crisis causes a 4% drop in GDP, while the cost of banking crises is 6–7% of GDP [19].

Results of empirical research show that the stability of the banking system ensures the economic sustainability of the country in view of the reduced volatility of value added in the real economy [20]. For example, in countries with more developed financial and institutional systems, bank stability reduces the volatility of value added to a greater extent in sectors of the real economy that have significant external financial dependence. Bank sustainability in countries with weak competition in the banking sector is particularly important to mitigate economic instability. In this regard, theme identification the probability of a system banking crisis is very relevant from the point of view of regulatory policy. Detection of crisis situations, assessment of the effectiveness of regulatory interventions, including actions of central banks aimed at changes in capital adequacy and liquidity standards, give regulators more time to develop new or amend existing preventive measures.

In order to avoid or minimize the devastating effects of further banking crises, financial conditions have been tightened in many countries through banking regulation. Several empirical studies have shown that weak regulation and supervision of banking activities are the factors leading to the crisis [21–26]. Therefore, the countries were significantly affected by the global financial crisis had weaker banking regulation and supervision than those that did manage better the situation during the turbulence crisis [27–29]. For this reason, the issue of the effectiveness of regulatory and supervisory approaches applied in the banking sector in the run-up to the crisis was actively studied in the world scientific literature. Thus, a statistical analysis conducted by M. Cihak et al. [30] showed that the crisis countries had a lower actual capital adequacy ratio, less strict regulation of non-performing loans, and regulators in

these countries were unable to require banks to recapitalize, increase their reserves, modify compensation schemes and/or suspend (cancel) management bonuses.

Significant research was also conducted in the area of forecasting banking crises, including in Russia [18; 31]. E.P. Davis and D. Karim [32] has been established Early Warning Systems (EWS) to calculate the probability of bank crises. According to these developments, a significant increase in borrowed financial resources and GDP are predictors of the banking crisis in the country. Based on machine learning, J. Buetel et al. [33] also proposed a mechanism for forecasting bank crises, according to which credit expansion, asset price boom and external imbalances are the key warning indicators, require continuous monitoring by financial regulators.

Most existing empirical studies focused on the predictability and spread of financial crises estimate the probability that the banking system will go into crisis based on traditional probit/logit-models.

One of the first research to study the determinants of the occurrence of currency shocks in developing countries based on probit-modeling was conducted by J.A., Frankel and A.K. Rose [34] and make a decisive contribution to the development of the scientific literature on the development of early warning systems for crises. Most subsequent researches examine country-specific causes of financial market turbulence and the resulting financial crisis. Using a multi-dimensional regression logit-model, P. Laina et al. [35] developed a system crisis early warning system for eleven European Union (EU) countries according to which its best precursors are the ratio of loans to deposits and property prices. In later works use alternative modifications of binary estimation methods (logit-model with fixed effects, probit-model with random effects). Thus, the work of B. Gaies et al. [36] shows that the number of banking crises in developing countries decreases as the exchange rate stabilizes, real GDP grows, human capital improves and political institutions improve. Despite research increase, devoted to the study of the determinants of the banking crisis, only a few of them analyze the impact of regulatory policy on the probability of its occurrence [25; 37]. In particular, using data from 65 countries in the period 2000–2016, R. Nakatani [38] found that changes in the loan-to-value ratio (LTV) have a positive impact on the probability of a bank crisis in countries with inflation targeting, floating exchange rate regimes and/or lack of capital controls.

Following the 2008 financial crisis, BCBS started discussing new regulatory approaches to address systemic risk and reduce the probability of further financial crises. New set of standards released by BCBS in 2010–2011, introduced a separate set of banking regulation tools. Since then, financial regulators in the EU and around the world have been actively working on its implementation. However, although bank regulation tools have become an

accepted part of the financial regulation system, there is still a lack of systematic data that would allow them to study their effectiveness. As a result, assessment of effects of bank regulation measures on the probability of a banking crisis has become one of the most difficult challenges currently facing regulators.

Theoretical bases of revealing regularities in development of the theory of banking regulation and system banking crisis were developed on the basis of bibliometric analysis (VOSviewer v.1.6.10). This analysis allowed to identify and describe content and contextual (causes and periods of change of interest in banking regulation, dominant directions of scientific research in this area and cross-sectoral research), as well as evolutionary-temporal (in the coordinate system “period of research – contextual orientation – spatial geography”) regularities, to carry out the clustering of research works regarding the affiliation of scientists [39; 40].

The following conclusions can be done from the analysis. Bank regulation tools are important in predicting the probability of a systemic banking crisis in European countries. However, a model containing only indicators that characterize government interventions in banking is able to correctly classify stability times with an accuracy of 95.65%, and a systemic banking crisis – with an accuracy of only 10.87%. Ratio of bank capital to total assets, equity to total assets weighted for risk and Z-score of bank default probability, the results of binary modelling of logistic regression are significant with negative coefficients. This indicates that trend of an increase in these indicators reduces the probability of a systemic banking crisis by providing a buffer to protect the banking system from peak losses that exceed the possible level of credit losses.

In this context, the role of the Basel agreements in stabilizing the entire financial system and increasing bank capital is clearly evident. At the same time, the deterioration in the asset quality of the European banking system as the ratio of non-performing loans to total loans increases the probability of a systemic banking crisis. This fact confirms the hypothesis that aggressive credit policy and inadequate risk assessment, expressed by increasing the share of non-performing loans, not only worsen the profitability of banking activities, but also negatively affect the financial sustainability of the banking system as a whole.

Results of logit-modeling also emphasize the importance of macroeconomic and monetary factors, neglect of which leads to vulnerability of banking institutions and, as a consequence, to banking crises. The inclusion of additional macroeconomic and monetary factors in the model improved not only the predictive quality of the model of the probability of a system banking crisis, but also the accuracy of the classification of the model (accuracy of classification of stability of the banking system and crisis periods increased, respectively, by 1.46 and 44.65%).

Real GDP growth and falling inflation contribute to the economic stability of European countries and are adequately reflected in the growth of the financial well-being of all economic agents and the liquidity of the banking system, and reducing the number and volume of non-performing loans, which reduces the probability of systemic banking crises in European countries also. At the same time, tightening of monetary policy by regulating the real interest rate minimizes the risk of a credit bubble, which often leads to banking crises.

Part 3. Perspective directions of improvement

The intensification of industrial and technological development in the late XX – early XXI centuries led not only to a number of positive economic consequences, but also to the aggravation of a set of environmental problems. Thus, the destructive anthropogenic impact on the environment goes far beyond the threats to the national security of a particular state, and is rapidly becoming global scale. These environmental threats are associated with rapid depletion of natural resources, soil degradation, drinking water shortages, air pollution, food security damage, etc. Therefore, the concept of the «green economy» plays an important role today as the driving force behind the transition to a new model of growth and development. The «green economy» is the basis for the implementation of the concept of sustainable development based on more efficient resource and energy consumption, reduction of CO₂ emissions, reduction of harmful effects on the environment and development of a socially integrated society.

In turn, the concept of green economic development is based on green finance, which links economic growth, environmental action and financial institutions. Developing countries expect expansion of green investment volumes from being included in greening processes, while increasing resource efficiency, creating new jobs and increasing opportunities for access to new markets. The effectiveness of the return on green investment depends on a number of prerequisites. Thus, an important prerequisite is the creation of appropriate regulatory support for these processes, formalization of incentives for businesses that are actively involved in green initiatives (including green investments), as well as punishment of those enterprises that engage in environmentally harmful activities. It is also worth noting that over the last decades, researchers have paid more and more attention to the study of fundamental principles, patterns and architecture of the green economy, green finance and green investment, while much less attention has been paid to identifying regulatory determinants of their effectiveness. This statement is especially relevant in terms of identification of the linkage of the above-mentioned processes with banking and financial regulation. Due to this fact this research aimed at empirical analysis of the impact of regulatory aspects

(including banking regulation) on green investment and the transition from «grey» to «green» economy become very crucial.

Based on the results of theoretical and empirical analysis it can be concluded that green economy, green finance and specifically green investment became in focus of scientific interest several decades ago and is triggered by worsening of global environmental problems. Considering analysis of 229 Scopus publications from 1993–2022 on “green investment” and “regulation” it was identified three stages of scientific interest to this research field: germinal stage (1993–2008) – partial study of green investment, lack of comprehensiveness and scale of such researches, focus on micro-level perspective; moderate development stage (2009–2017) – increasing scientific attention to green investment, studying their role in supply chains, identifying industry specifics; dynamic development stage (2018-present) – boost of research interest to green investment and its role for national and global environment security, multidimensional and cross-sectoral studies.

Bibliometric analysis of 229 Scopus publications from 1993–2022 on «green investment» and «regulation» using VOSviewer tool allow identifying:

1) contextual clusters of scientific research in the field (environmental – focused on green investment role in carbon emission reduction and ensuring national energy security; financial – consists of papers on identification of financial and commercial preconditions of green investments, cap-and-trade initiative; technological – includes publications aimed at clarification of green investment role in company technological transformation, supply chains, manufacturing process and clients loyalty; institutional – combine papers focused on underlining market and competition drivers and inhibitors of green investment; stakeholder – clarify economic, environmental and innovative benefits of green investment; specifically investment – covers publications focused on investment efficiency of green investment);

2) temporal patterns (most of papers are published in 2017–2022, recent priority topics – green investment efficiency, green credit, green innovation, capital constraints);

3) geographical clusters of scientists residence (5 clusters, China is a country with the most amount of papers in this research field).

Empirical block of the research allow concluded that:

1) government effectiveness and rule of law are considered as drivers of carbon productivity increase, while improvement of control of corruption, voice and accountability, financial development and financial freedom might result to decrease of carbon productivity;

2) control of corruption and financial development index are considered as inhibitors of comparative advantage in environmental goods, while political stability has significant positive impact on it;

3) regulatory measures (including banking and financial regulation) do not influence significantly on environmental goods trade balance;

4) research and development expenditures inhibits government green investment (expenditures on environmental protection) because of substitution effect, while rule of law, financial intermediary development and effective banking regulation help to boost it.

The obtained empirical results can be useful for both scientists and practitioners and government officials to improve the regulatory policy of the state based on environmental friendliness and sustainability.

Today, experts from many countries agree on the establishment of the so-called “new reality” in the emerging economy, characterized by revolutionary transformations in the markets of informatics and telecommunications, on the one hand, and in financial markets, on the other [41, p. 811; 42, p. 28–33; 43, p. 3, 44; 45, p. 150–154; 46; 47, p. 116, 124, 127]. Under the prevailing conditions, the existing methods and systems of banking regulation are becoming more complex and acquire modern features. At the same time, completely new, original forms of it appear that had no analogues in world practice and became possible due to a complex combination of a number of reasons (financial crisis, technological revolution, coronavirus outbreak, etc.) [48–51]. New financial technologies and the digital transformation of the banking sector under their influence, which have a noticeable impact on changes in its modern appearance, are especially vividly discussed. Along with highlighting the positive aspects of the digital scenario for the development of this sector of the economy, close attention is paid to the risks that appear during its implementation [52, p. 55–56; 53; 54, p. 70–71; 55].

Control over the progressive development of digital technologies and adequate regulatory action is on the regulatory agenda of many countries because:

– firstly, the activity of new players in the financial market, on the one hand, increases the financial involvement of the population due to the provision of simple and affordable financial services, accelerates the entry of new banking products to the market, but, on the other hand, can create threats to the integrity of the financial system if is not included in the regulatory perimeter;

– secondly, transformational processes can negatively to influence the stability of traditional financial institutions, accordingly, it is important to manage the process of orderly transformation of the financial sector.

At the same time, the vector of transformational transformations of the financial sector depends, in our opinion, on the following factors:

a) the vision of digital transformers represented by non-banking institutions and their ability to transform;

b) the reaction of traditional banks to transformational challenges and the ability to respond quickly and flexibly to them;

c) the role of regulators and supervisors as driving forces or constraints of transformation.

Taking this into account, it can be stated that at the present stage of the digital transformation of the financial industry, the regulatory paradigm is changing: changing the objects of regulation requires updating the regulatory perimeter, transforming the role of the regulator and developing fundamentally new approaches to regulation of both traditional and new participants whose activities go beyond borders financial services, as current approaches do not fully meet market needs. Such processes also create a demand for closer interaction between the regulator and supervised organizations, as well as increasing the manufacturability and “predictability” of regulation. From a regulatory perspective, effectively managing the digital transformation of the financial sector requires refining approaches to regulation, taking into account the challenges faced by regulators and traditional financial institutions.

To achieve the named goal and the set tasks, it seems necessary to introduce and use the following financial regulation mechanisms, which will contribute to improving the efficiency of the banking system. First, it is advisable to carry out work to identify duplicating or excessive norms in banking regulation, which, among other things, create a technical burden on market participants, and to eliminate them if necessary. Secondly, it is important to develop approaches to ensuring the development of partnership forms of interaction by banks and expanding the list of operations available for banks to carry out, which, in our opinion, is critically important from the standpoint of ensuring a level playing field between banks and non-banking institutions, as well as increasing strategic stability. banks and financial involvement of the population. Thirdly, the digital transformation of the banking services market, which is also expressed in the variability of the regulatory environment, creates a demand for improving the technological effectiveness of regulation and implies the use of regulatory and supervisory technologies by the regulators themselves. Fourth, meeting the challenges of ensuring a level playing field and increasing the availability of digital banking services urgently requires the provision of effective incentives for the development of non-bank financial intermediation. Fifthly, the goals of increasing financial involvement and accessibility of banking services are achieved with a comprehensive consideration of consumers’ interests, in connection with which it seems appropriate to increase the expertise of the banking regulator on in-depth study of the needs and consumer habits of users of financial services.

Thus, the mechanisms proposed by the author will improve the system of banking regulation in the context of digitalization, will contribute to the objective perception of digital realities by regulators and the development of adequate responses to them, which, in turn, will allow achieving a balance

between stimulating innovation, protecting the rights of consumers of banking services and ensuring financial stability.

Conclusion

The global financial crisis has highlighted the need to rethink the principles of RBA, establishing certain requirements for capital adequacy, methods for assessing systemic risks, and creating reserves to cover possible loan losses during periods of economic ups and downs. As a result, the Basel Committee on September 12, 2010 approved a global reform of the world banking sector, called Basel III. The main purpose of the changes that have occurred in it is to improve the quality, transparency and improve the structure of bank capital, expand the practice of covering risks with capital and stimulate measures to create its reserve stocks.

The results confirm the effectiveness of banking regulation in predicting periods of stability in banking systems. The conducted empirical analysis declared the need to tighten banking regulations in the field of non-performing loan control since it leads to an increase in the banking crisis probability. In order to minimize systemic banking crises, it is necessary to ensure the achievement of the target parameters of the main macroeconomic indicators, expressed in terms of the optimal level of inflation and annual GDP growth.

Large-scale destructive anthropogenic impact on the environment has led not only to exacerbation of national environmental problems, but also to the intensification of global threats. It determines the search for the most effective mechanisms for solving environmental problems such as green investment, in connection with which the article determines the relevance of the influence of banking regulation on them. The obtained empirical results can be useful for both scientists and practitioners and government officials to improve the regulatory policy of the state based on environmental friendliness and sustainability.

At the current stage of digitalization of the banking industry, the role of the regulator is being transformed and fundamentally new approaches are being developed to regulate the activities of financial market participants (both traditional and new, whose activities go beyond the boundaries of the banking sector). At the same time, closer interaction between the regulator and supervised organizations is required, as well as increasing the adaptability and predictability of regulation, clarifying approaches to the banking regulation process, taking into account industry and digital challenges.

Further research should, in our view, be directed to an in-depth study of additional instruments of bank regulation, in particular, in the direction of the impact of capital preservation buffers, systemic risk protection, systemic importance buffer and countercyclical buffer, the probability of a systemic banking crisis, including the “lag” of some indicators. Another direction of

promising development could be to address the issue of complementary impact of different types of financial policies in order to minimize potential threats in the financial sector of the economy and, reducing the probability of a banking crisis in European countries.

References:

1. Global Financial Markets Liquidity Study. PricewaterhouseCoopers, August 2015. 152 p.
2. Gola, C. et al. (2017) Shadow Banking out of the Shadows: Non-bank Intermediation and the Italian Regulatory Framework. *Bank of Italy Occasional Papers*, no. 372, 53 p.
3. Nijs, L. (2020) Taxing (Shadow) Banks: A Pigovian Model. In: *The Handbook of Global Shadow Banking, Volume I*. Cham: Palgrave Macmillan, xxv, 800 p.
4. De Haan, J. et al. (2020) *Financial Markets and Institutions: A European Perspective*. Fourth Edition. Cambridge: Cambridge University Press, xxviii, 490 p.
5. Acharya, S. (2020) Regulation and Supervision of Banks and Financial Institutions. March 30, 2020. 14 p.
6. Economic Crisis in Europe. Causes, Consequences, and Responses. *European Economy*. Ed. by P. Noord, I. Székely. London: Routledge. 2011. 112 p.
7. Armstrong, J. & Caldwell, G. (2008) Liquidity Risk at Banks: Trends and Lessons Learned from the Recent Turmoil. Ottawa: Bank of Canada Financial System Review. December 2008, pp. 47–52.
8. Report and Recommendations of the Cross-border Bank Resolution Group. Basel: Bank for International Settlements. March 2010. 44 p.
9. Barth, A. & Schnabel, I. (2013) Why Banks are Not Too Big to Fail: Evidence from the CDS Market. *Economic Policy*, vol. 28, issue 74, pp. 335–369.
10. Perrut, D. (2013) Global and European Financial Reforms: Assessment and Perspectives. *Revue de l'OFCE*. 2013/1, no. 127, pp. 235–273.
11. Bullard, J. et al. Systemic Risk and the Financial Crisis: A Primer. Federal Reserve Bank of St. Louis Review. 2009. September/October. No. 91 (5, Part 1), pp. 403–418.
12. Wymeersch, E. (2017) Shadow Banking and Systemic Risk. *European Banking Institute Working Paper Series*, no. 1, 24 p.
13. Rakic, J. (2020) The Causes and the Consequences of the 2008 Financial Crisis: An overview with an analysis of the post-crisis banking regulation. Thessaloniki: International Hellenic University. January 2020. iii, 42 p.
14. Ferreira, C. et al. (2019) From Basel I to Basel III: Sequencing Implementation in Developing Economies. IMF Working Paper. WP/19/127. June 2019, 42 p.
15. Babecký, J. et al. (2014) Banking, debt, and currency crises in developed countries: Stylized facts and early warning indicators. *Journal of Financial Stability*, 15:1–17.
16. Boyd, J. et al. (2019) Banking Crises and Crisis Dating: Theory and Evidence. *IMF Working Paper*, no. 141.
17. Vinogradov, S.K. (2009) Banking crises: a practical guide. Moscow: Laboratorija knigi, 121 p.
18. World financial system after the crisis: Estimates and forecasts. Ed. by V.R. Evstigneev. Moscow: Marosejka, 2008. 220 p.
19. Nakatani, R. (2019) Output costs of currency crisis and banking crisis: Shocks, policies and cycles. *Comparative Economic Studies*, 61(1):83–102.
20. Fernández, A.I. et al. (2016) Banking stability, competition, and economic volatility. *Journal of Financial Stability*, 22:101–120.

21. Kremen, V.M. et al. (2018) Scientific approach to assessing the independence of financial supervision. *Financial and Credit Activity: Problems of Theory and Practice*, 1(2):383-391.
22. Lau, L.J. (2010) Financial regulation and supervision post the global financial crisis. *SSRN Electronic Journal*. DOI: 10.2139/SSRN.2537169.
23. Levine, R. (2010) An autopsy of the US financial system: Accident, suicide, or negligent homicide. *Journal of Financial Economic Policy*, 2(3):196–213.
24. Merrouche, O. & Nier, E. What caused the global financial crisis? Evidence on the drivers of financial imbalances 1999-2007. IMF Working Paper. 2010;(265).
25. Macroprudential regulation of the banking system as a factor in financial stability. Moscow: Yurait; 2019. 215 p.
26. Panova, G. S. et al. Banks and banking business in the global economy. Moscow: MGIMO-University; 2020. 879 p.
27. Kovzanadze, I.K. (2003) Systemic banking crises in the conditions of financial globalization. Tbilisi: Tbilisi University Press; 311 p.
28. Lavrushin, O.I. et al. (2019) Regulatory innovations in the banking sector and their development in the interests of the national economy. Moscow: KnoRus, 170 p.
29. Golodnikova, A.E. et al. (2018) Regulatory policy in Russia: Main trends and architecture of the future. Moscow: Center for Strategic Research, 192 p.
30. Cihak, M. et al. (2013) Bank regulation and supervision in the context of the global crisis. *Journal of Financial Stability*, 9(4):733–746.
31. Mau, V.A. (2016) Crises and lessons: Russian economy in the era of turbulence. Moscow: Gaidar Institute Publ, 488 p.
32. Davis, E.P. & Karim, D. (2008) Comparing early warning systems for banking crises. *Journal of Financial Stability*, 4(2):89–120.
33. Beutel, J. et al. (2019) Does machine learning help us predict banking crises? *Journal of Financial Stability*, 45:100693.
34. Frankel, J.A. & Rose A.K. (1996) Currency crashes in emerging markets: An empirical treatment. *Journal of International Economics*, 41(3–4):351–366.
35. Lainà, P. et al. (2015) Leading indicators of systemic banking crises: Finland in a panel of EU countries. *Review of Financial Economics*, 24:18–35.
36. Gaies, B. et al. (2019) Banking crises in developing countries – what crucial role of exchange rate stability and external liabilities? *Finance Research Letters*, 31.
37. Dyba, M. I., Zvonova, E. A. et al. (2013) Banking regulation in Ukraine and Russia in the context of globalization. Kiev: KNEU, 380 p.
38. Nakatani, R. (2020) Macroprudential policy and the probability of a banking crisis. *Journal of Policy Modeling*, 42(6):1169–1186.
39. Ianchuk, S. (2021) Bibliometric analysis and visualization of funding social housing: Connection of sociological and economic research. *SocioEconomic Challenges*, 5(1):144-153.
40. Mursalov, M.M. (2022) Banking regulation and banking crises probability in European countries. *Finance: Theory and Practice*, 26(5):90–105.
41. Panova, G.S. et al. (2020) Banks and banking business in the global economy: monograph. Moscow: MGIMO-University, 879 p.
42. Teteryatnikov, K.S. (2017) New reality / normality in the global economy and finance. *International Economics*, no. 12, pp. 28–36.
43. Yudaeva, K. (2013) New Normal for Russia. Moscow: Publishing house "Delo" RANEPА, 20 p.

44. Nikitina, T.V. (2013) Harmonization of banking supervision in the conditions of globalization of financial markets. *Banking sector of Russia: from stabilization to efficiency*, vol. 1.
45. Flower, G. et al. (2012) *Banking: In Search of Relevance: A New Model for a New Reality*. Leicestershire: Troubador Publishing Ltd, 256 p.
46. Le Boulay, G. et al. (2019) *The New Reality for Wholesale Banks*. Boston: Boston Consulting Group, 13 p.
47. Medvedev, D.A. (2015) New Reality: Russia and Global Challenges. *Journal of Economics*, vol. 1, no. 2, p. 109129.
48. Adarkar, A. et al. (2020) *Transforming the US consumer bank for the next normal*. McKinsey Company, 10 p.
49. Asif, C. et al. (2020) *Reshaping retail banking for the next normal*. McKinsey Company, 13 p.
50. Buehler, K. et al. (2020) *Stability in the storm: US banks in the pandemic and the next normal*. McKinsey Company, 12 p.
51. Lubkova, E.M. et al. (2020) New Reality of the Banking Market: E-Banking and M-Banking. *Journal of Advanced Research in Law and Economics*, vol. 10, no. 2 (40), pp. 574–582.
52. Ganchar, L.S. (2019) Banking sector regulation risks. *Financial markets and banks*, no. 2, pp. 50-57.
53. Constâncio, M. & Wyman, O. (2017) *The future of finance and the outlook for regulation*, 22 p.
54. Kryvtsun I.M. (2019). Digitalization Risks: Classification and Protection (on an Example of Banks Activity). *Economic studies*, no. 3 (25), pp. 69–71.
55. Mahajan, R. et al. (2018). *Managing Risk in Digital Transformation*. Deloitte, India, 14 p.