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INTERNATIONAL STANDARDS OF SUSTAINABLE DEVELOPMENT OF THE BANKING SECTOR

Summary

Ensuring financial sustainability of the banking sector is connected with effective system development of crisis management and regulation at the micro-, macro- and mega-levels. The aim is to systematize the basic concepts of the provision of anti-crisis financial sustainability of banking systems in accordance with international standards. The main reasons for the development of crisis management systems for ensuring sustainable development of the banking sector are: the extreme complexity of the mechanism of the international banking system and the use of a significant number of new financial instruments; variety of operations and the movement rate of financial capital; financial globalization and integration, that enhance the effects of systemic risks on the process of extrapolation from the banking sector to capital and derivative markets; the availability of information asymmetry in the financial market; the process of introducing common standards in the field of bank management; improving the management of banking activities, particularly anti-crisis management, based on the harmonization of international and national regulatory systems. It was outlined the purpose of crisis management of financial stability of the banking sector system, which is to recognize the full extent of the impact of the crisis factors; to identify ways and methods of crisis management, measures to overcome future crisis with the least losses. The levels of crisis management of financial stability of the banking sector are: mega-level (international regulators), macro-level (national regulators) and micro-level (credit institutions). The conclusion is that the transformation of international standards for providing sustainable development of the banking sector contributes to the recognition of the scale of the impact of the

crisis factors on the solvency, liquidity and capital adequacy of banks; there were identified preventive measures to avoid crisis situations, crisis management techniques and measures to overcome the threat of a crisis with the least losses for the banking sector.

Introduction

Ensuring financial stability of the banking sector is connected with development of an effective system of crisis management and control at the micro-, macro- and mega-levels. The world central banks are responsible for the implementation of an effective monetary and credit policy, which implies the application of effective anti-crisis regulatory instruments affecting the financial stability of the banking system.

Assuming that the crisis management at the mega-level is associated with the development and transformation of international standards of banking business, besides the central banks, other state structures should be involved in these activities which have the authority to do in this sphere.

Scientific works of many domestic and foreign researchers are dedicated to the issues of implementation of international standards for the functioning of national banking systems. Among them are: Keller R. (1999) [1], Juglar C. (1962) [2], Piet C. (2010) [3], Eichengreen B. (2003) [4], Dovgan G. [5], Mischenko V. [6], Naumenkova S. [7] Osadchyi I. [8], and many other scientists.

But issues of the formation of anti-crisis systems relating to the financial stability of the banking sector remain unresolved both in global and national economies. The main reasons of these issues are:

- the extreme complexity of the mechanism of the international banking system and the use of a significant number of new financial instruments;
- variety of operations and the movement rate of financial capital that increases the banking risks and the uncertainty of the impact of their implementation;
- financial globalization and integration, reinforcing the impact of systemic risks on the process of extrapolation from the banking sector to capital markets and derivatives markets;
- availability of information asymmetry on the financial market, which requires improving the explication of information processes and ensuring transparency through the use of macro-prudential indicators that reflect the

functioning of the interbank money market, repo markets, shares, bonds, derivative financial instruments;

- process of introducing common standards in sphere of bank management;

- improving supervision over the banking activities (particularly in the conditions of crisis), based on harmonization of international and national regulatory systems;

- providing technical compatibility of infrastructure, transparent price policy for the appropriate banking and financial services [9,10].

The aim of the work is to systematize the basic concepts of the provision of anti-crisis financial sustainability of banking systems in accordance with international standards.

Part 1. Formation of the principles of anti-crisis financial stability of banks management

Formation of the anti-crisis principles of financial sustainability of the banking system requires taking into account the factors which should be considered at the mega, macro and micro levels: *mega-level factors* (global financial imbalances, the cyclical economic development, the problem of ensuring international financial stability and liquidity); *macro-level factors* (disproportions in the financial market development, the formation and spread processes of systemic risk, disintermediation, financial innovations and communications, information asymmetry on the financial market); *micro-level factors* (systemic nature of the financial banking instability).

The purpose of crisis management of financial stability of the banking sector system is to recognize the full extent of the impact of the crisis factors; to identify ways and methods of crisis management, measures to overcome future crisis with the least losses (table 1).

There are a lot of organizations engaged in improving the regulation and supervision over financial institutions in the international area (table 2).

One of the main instruments of anti-recession regulation of financial stability in banking sector is increase of requirements to the capital of financial institutions not only depending on quality of their assets, but also the size of the company, its structure and a business model.

Table 1

**Levels of anti-crisis management of financial stability
in the banking sector**

Elements of level system	Mega-level the leading system	Macro-level the leading and led system	Micro-level the led system
Managing the realization process	stress testing; macro-prudential regulation; forecasting, corrective measures	monitoring, methodical approaches to the assessment and formation of financial stability reports; corrective measures	choice of management strategy, development and implementation of anti-crisis programs for financial stability
Agents of management	international regulators	internal system regulators	banks
The object of influence	destabilizing external environment factors	the formation and spread processes of systemic risk	internal banking risks
The aim of influence	recognizing the full extent of the impact of the crisis factors; identifying ways of anti-crisis regulation and levelling crisis leverages	timely identification and minimization of crisis factors	timely identification and minimization of crisis factors
Instruments of influence	standardization and unification of the anti-crisis laws around the world; the development of financial stability indicators; a common system of financial reporting standards and transparency of banking activities	the implementation of preventive measures over the bank supervision; early diagnostics of the bank financial problems; improvement of banks and deposit insurance system; setting standards of banking activity, taking into account the specifics of state	stress testing; establishing internal limits and regulations; reorganization of the banks on their own initiative; special measures: benchmarking, outsourcing

Table 2

**Institutions and instruments of crisis management
at the international, national, regional levels [5; 11; 12]**

Anticrisis regulation at the international and regional levels	Institutions	Instruments
	<i>International regulatory organizations:</i> - International Monetary Fund; - The World Bank; - Basel Committee on Banking Supervision; - Financial Stability Board; - The United Nations. <i>Regional regulatory organizations:</i> - regional development banks; - EU regulators; - multilateral regional organizations; - Forum of Banking Supervisors SEANSA; - GCC; - Caribbean Group; - Arabic Committee.	- standardization and unification of anti-crisis legislation around the world; - the development of financial stability indicators; - the allocation of general standards of financial stability in banking sector; - the financial, informational and professional assistance during the financial crisis.
Anticrisis regulation at the national level	<i>Central banks and national regulators:</i> - Federal Reserve System (USA); - Office of the Superintendent of Financial Institutions (Canada); - Financial Market Authority (Austria, the Netherlands); - Financial Supervisory/Services Authority (Denmark, Estonia, Hungary, Sweden); - Financial and Capital Market Commission (Latvia); - Financial Sector Supervisory Commission (Luxembourg); - Financial Service Centre (Malta); - Kredittilsynet (Norway); - The Interministerial Committee for Credit and Savings (Italy); - Bank of England. Prudential Regulation Authority (Great Britain). <i>National megaregulators:</i> - Central Bank of Ireland (Ireland); - Banque de France, Prudential Control Authority (France); - Bank of Greece Capital Market Commission (Greece); - Bank of Lithuania (Lithuania).	- the implementation of preventive measures over the bank supervision; - early diagnostics of the bank financial problems; - cooperation with the «problem» banks; - improvement of banks (provision of additional financial resources, changes in the organizational bank structure, the personnel policy optimization); - the formation of a deposit insurance system; - setting standards of banking activity

At the end of 2010 the Basel committee on bank supervision has published the document “Basel III” in which the directions for increase of stability of banks and banking systems are defined [13]. “Basel III”, as well as «Basel II», includes structure of three basis and makes changes in structure of the basic (the first level) and additional (the second level) bank capital. We will note that necessity of creation of opportunities for counteraction to possible negative processes and systemic bank crises is the reason for adoption of this document.

At the beginning of 2013 the Basel committee on bank supervision declared transfer of terms of introduction of the determined standards of «Basel III» from 2015 to 2019. Nongovernmental regulatory institutes recognized that credit institutions need more time for creation of reserves to meet the requirements of the introduced standards. In particular, full introduction of the rule on the indicator of short-term liquidity is postponed until 2019 (Liquidity Coverage Ratio, LCR).

The rule on LCR has to provide a sufficient stock of liquidity so that banks could endure short-term crisis, including sharp outflow of deposits or sudden inaccessibility of credits. However it can limit bank crediting and reduce profit from bank activity.

One more concession from Basel committee is weakening of the requirement to bank assets. In particular, it is authorized to banks to include less reliable tools in the structure of assets, including, mortgage securities, shares and bonds of the small companies [14].

Part 2. Characteristics of international standards to ensure the anti-crisis financial stability of banks

Innovation of “Basel III” is recapitalization which has to take place till 2019 and during which the sum of fixed bank capital has to increase almost three times (table 3).

Institutes of financial regulation of the European Union have defined that in case of the next bank crisis, it will be authorized to banks to use since 2016 money from their customers accounts which exceed 100 thousand euros. Creation of the all-European fund, contributions to which will be done by financial institutions, [15, p. 21] will become one more instrument of fight against consequences of possible imbalances in banking development.

Table 3

Comparative table of minimum capital requirements under “Basel II” and “Basel III” [6, p. 16]

№	The indicator (as a percentage of risk-weighted assets)	Basel II	Basel III						
			years						
			2013	2014	2015	2016	2017	2018	2019
I	Core Tier 1 Capital	2	3,5	4	4,5	4,5	4,5	4,5	4,5
II	Tier 1 Capital	4	4,5	5,5	6	6	6	6	6
III	Conservation Buffer	0	0	0	0	0,625	1,25	1,875	2,5
IV	Total Capital	8	8	8	8	8	8	8	8
V	Result (II + III)	8	8	8	8	8,625	9,25	9,875	10,5
VI	Countercyclical reserve buffer	0	0	0	0	0,625	1,25	1,875	2,5
VII	Result (V + VI)	8	8	8	8	9,25	10,5	11,75	13

Capitalization of banks will entail rise in price for services in the banking market, first of all, for crediting. In its turn, it will affect a possibility of real sector to receive loans from the sources of financing. According to the Organization for Economic Cooperation and Development, in connection with the introduction of the international standards of «Basel III» decline of growth rates of world GDP is possible within 0,05 – 0,15% [16]. Such consequences will test, most likely, the countries with bank-centric type of financial mediation, where the role of banks in the financial market is rather considerable; mainly these are countries of Europe, CIS. As it is market-focused model of financial mediation which is characteristic for the USA, where bank activity is a little limited (in the total amount of assets of financial intermediaries in the USA assets of banks make about 27%) changes won't be so perceptible.

As the main advantages of Basel III it is possible to consider: improvement of quality, a harmony and transparency of bank capital on condition of strict requirements application to financial instruments entering its structure, in particular, the capital of the first level; management of risk through minimization of requirements to operations with derivatives; rationing of an indicator of leverage; reduction of pro-cyclic and introduction of the countercyclical reserves of the capital directed to covering losses in future; formation of approaches to an assessment and management of systemic risk (table 4).

Table 4

**Status of implementing of Basel 3 in different countries
in November 2015 [17]**

Country	Requirements	Degree of realization	Published date of realization
Japan	Risk-based capital* LCR**	Realized Planning	October2012 December 2016
Singapore	Risk-based capital LCR	Realized Planning	March 2013 December 2016
Switzerland	Risk-based capital LCR	Realized Planning	June 2013 June 2017
China	Risk-based capital LCR	Realized Planning	September 2017 June 2017
Australia	Risk-based capital LCR	Realized Planning	Март 2014 г. Сентябрь 2017 г.
Canada	Risk-based capital LCR	Realized Planning	June 2014 September 2017
European Union	Risk-based capital LCR	Realized Planning	December 2014 March 2017 г.
The USA	Risk-based capital LCR	Realized Planning	June 2014 September 2017
Russia	Risk-based capital LCR	In process	December 2015
Turkey	Risk-based capital LCR	In process	March 2016
Argentina	Risk-based capital LCR	In process	June 2016
Korea	Risk-based capital LCR	In process	June 2016
Indonesia	Risk-based capital LCR	In process	September 2016

Risk-based capital -risk-oriented approach to capital ; LCR** – liquidity requirement*

Impact of Basel III requirements is a manifestation primarily on multinational banks (table 5).

Table 5

Multinational banks of the world is the highest for the period 2008-2015 years [17]

2008			2010			2015		
Bank	Country	Capital, billions of dollars	Bank	Country	Capital, billions of dollars	Bank	Country	Capital, billions of dollars
Bank of America	USA	195,3	Bank of America	USA	160,4	Industrial and Commercial Bank of China	China	248,6
HSBC	United Kingdom	176,8	J.P. Morgan & Co.	USA	133,1	China Construction Bank	China	202,1
Citigroup	USA	140,7	Citigroup	USA	127,1	J.P. Morgan & Co.	USA	186,6
Royal Bank of Scotland Group	United Kingdom	101,8	Royal Bank of Scotland Group	United Kingdom	123,9	Bank of China	China	184,2
Credit Agricole	France	81,7	HSBC	United Kingdom	122,2	Bank of America	USA	169
UBS	Switzerland	70,9	BNP Paribas	France	90,6	Agricultural Bank of China	China	167,7
BNP Paribas	France	58,7	Bardays	United Kingdom	80,6	Citigroup	USA	166,5
Bardays	United Kingdom	54,3	Mitsubishi UFJ	Japan	77,2	Wells Fargo & Co.	USA	154,7
Deutsche Bank	Germany	43,3	Credit Agricole	France	75,5	HSBC Holdings	United Kingdom	152,7
Societe Generale	France	42,2	Deutsche Bank	Germany	49,6	Mitsubishi UFJ	Japan	117,6

Bank of China is led by ten largest banks in the world. The profitability of the banking of China business has a level higher than in the US and Eurozone. Chinese banks occupy first place in the ranking of Top 1000 World Banks first time. The activities of multinational banks are risky and therefore it can be analyzed, which banks in 2015 were robust. The study analyzed the performance of 500 largest banks in the world, as well as their long-term foreign currency rating according rating agencies Fitch, S & P's and Moody's (table 6).

Table 6

Reliability rating of banks in the world by 2015 year [19]

№	Bank	Country	Rating Fitch	Rating Moody's	Rating S&P	Rating Global Finance
1	KfW	Germany	AAA	Aaa	AAA	30
2	Zürcher Kantonalbank	Switzerland	AAA	Aaa	AAA	30
3	Landwirtschaftliche Rentenbank	Germany	AAA	Aaa	AAA	30
4	L-Bank	Germany	AAA	Aaa	AA+	29
5	Raiffeisen Bank International	Austria	AAA	Aaa	AA+	29
6	Nederlandse Waterschapsbank	Netherlands	X	Aaa	AA+	27
7	NRW.BAN	Germany	AAA	Aa1	AA-	26
8	BNP Paribas	France	AA+	Aa1	AA	26
9	TD Bank Group	Canada	AA-	Aa1	AA-	23
10	CityGroup	USA	AA-	Aa1	AA-	23

World's safest banks are mostly banks from Europe. There is a risk rating of companies and organizations. Able to create systemic risks have been recognized by banks Goldman Sachs, JPMorgan Chase, Morgan Stanley, Bank of America, Merrill Lynch, Citigroup, UBS, Credit Suisse, HSBC, Barclays, Royal Bank of Scotland, Deutsche Bank, Societe Generale. They are subject to international supervision of regulators, to develop action plans in case of personal bankruptcy. The scale of the bank is not the main indicator of potential risk during the financial crisis, so regulators should be careful implementing rules aimed at the scale of the bank.

Table 7

Requirements LCR [20, p. 224-229]

Description of key changes	Consequences
• The 30-day rate Liquidity Coverage Ratio (LCR) aimed at providing short-term resilience to potential liquidity gaps. LCR determining a sufficient number of high-quality liquid assets of international banks, they are able to withstand a stress scenario funding, defined by regulatory authorities. • The value of high-quality liquid assets compared with expected cash expenditures during the 30-day stress scenario. Expected cash outflows must be covered liquid, high-quality assets. • Assets have weight depending on liquidity, which range from 100% to government bonds and cash, 0-50% for corporate bonds.	• The risk of withdrawal of deposits should were lowered, which in turn will improve the stability of the financial sector. • LCR introduction requires banks to maintain more liquid low-earning assets for to cover the requirements of liquidity, which will the negative impact on profitability. • Banks change their funding profile, which will lead to increased demand for long-term financing. Adding such financing may be not available from institutional investors. Investors are trying to reduce investments in the financial sector. • Interpretation of “right” run-off rates national regulators can lead to many discussions.

Table 8

Increasing sustainable long-term funding (NSFR) [20, p. 224-229]

Description of key changes	Consequences
• NSFR compared to available sources of funding financing needs of the balance sheet assets. • It is available stable funding. • Financing amounts are based on weighted factors that reflect the «stability» of available funding and duration of the asset. • Weighing factors are characteristics for assets: between 0% and 5% in cash and government bonds, 65% for mortgage loans, 85% for retail loans and 100% for other assets. • Affordable sustainable funding obligations determined by weighing factors: 100% of Tier 1 capital, 90% of retail deposits and 50% for secured funding. Funding from the European Central Bank weighted at 0%.	• NSFR encourages banks to reduce their dependence on short-term funding and increase the stability of mixed financing. • Banks will need to increase the proportion of interbank deposits and corporate with a term of more than 1 year. • Most banks will be difficult to increase the share of interbank deposits with a term of more than 1 year, which will lead to higher financing costs. • Management NSFR by changing the composition of assets will increase the share till short-term assets and reduced profitability. • Stronger banks with high NSFR will be able to influence then market pricing of assets. The competitiveness of weaker banks decrease

Basel III sets new requirements for bank liquidity. Short-term liquidity (LCR) were calculated as the ratio of the value of liquid assets and the net value of the expected cash outflow on all bank transactions over the next 30 calendar days from the settlement date LCR. Table 6 will describe key changes and the impact of higher short-term liquidity coverage.

Net Stable Funding Ratio designed to increase flexibility in the long term by creating additional incentives for banks. Monitoring liquidity carried out terms agreed the concentration of funding and liquidity is not encumbered assets (table 8).

Part 3. Place of macro-prudential regulation to ensure financial stability of the banking sector

It is necessary to refer to the implementation of the concept of macroprudential policy to measures for ensuring financial stability to the banking sector. The main features of macroprudential regulation are the following:

- *macroprudential regulation* – a complex of the preventive measures directed to minimization of systemic financial crisis;
- *the purpose* – management of systemic risk, that is the risk connected with the terms of providing financial services caused by the deterioration in terms of all financial system or its part having potentially negative consequences on real economy;
- *objects of regulation* – relationship between financial intermediaries, the markets, infrastructure of the financial market, and also between a financial system and real sector of economy;
- *problems of regulation* – support of resistance of the financial system to aggregate shocks; restriction of excessive financial risks which are assumed by a financial system in general; smoothing of a financial cycle [21; 22].

Macroprudential regulation is concentrated on systemic stability of financial sector, but not on insolvency of separate banks. At the same time special attention is paid to systemically important banks and their interrelations in the financial market as the risk of systemic stability depends on collective behaviour of participants of the financial market therefore risks in a financial system for regulation will gain endogenous character.

Thus, process of transformation of the international standards to ensure financial stability in banking system is directed, first of all, to development of crisis responding measures of systemic risk, involving sharp growth of

interest rates, increase of banks problem and debts, essential reduction of crediting, chain bankruptcies, transition to unprofitable model of banking activity, a prevalence of speculative activity over investment financial activity, large-scale fall of price of securities, a delay of calculations, bank panic.

Macroprudential tools are a wide range of tools that are used to prevent the occurrence and spread of systemic risk in the financial sector in order to minimize losses from irregularities in financial services.

Table 9

Systematization of macro prudential measures

№	Problem	Tools
1.	Macroeconomic risk and risk of «financial bubbles»	• taxes on consumer crediting (tax on the main amount of debt) • reserve requirements;
2.	Credit risk and market risk	• limits of crediting volumes; • standards of a ratio of credit volume and cost of pledge (loan-to-value ratio – LTV ratio); • standards of a ratio of the sum of debt and the income (debt-to-income ratio – DTI ratio); • creation of counter cyclic / dynamic reserves (countercyclical/dynamic provisioning), formation of reserves for possible losses according to loans; • change of coefficients of risk on different types of crediting; • restrictions for «short sales»; • restrictions for operations with CDS (credit default swap).
3.	Currency risk and risk of flows of the capital	• taxes on operations with the capital; • restrictions for open currency positions of banks; • restrictions for investments of assets in foreign currency; • restrictions for loans in foreign currency; • restrictions for investments for non-residents in national assets; • special requirements for licensing; • administrative measures;
4.	Documents BKBN; realization of banks monitoring by «Basel III», realization of Basel reforms in member countries of BKBN; stress testing	

Table 10

Tools for identification and measurement of systemic risk [24; 25]

№	tools	coverage	Information requirements			
		Institutions	Markets	Sectors	Periodicity	Type of data
1.	Conditional Value at Risk, <i>CoVaR</i>	+		financial	high	these bank balance sheets and asset prices
2.	Joint Distress Indicators	+		financial	high	asset prices
3.	Returns Spillovers	+		financial	high	asset prices
4.	Distress Spillovers	+	+	financial	high	asset prices
5.	Market-Based Probabilist of Default	+		financial and corporate	high	these bank balance sheets and asset prices
6.	Debt Sustainability Analysis			external and state	low	these payments balance and tax information
7.	Indicators of Fiscal Stress			fiscal	low	tax information
8.	Sovereign Funding Shock Scenarios		+	financial and state	average	the investment framework and data bank assets
9.	Asset Price Models		+		average	prices of assets and data of cash funds
10.	Balance Sheet Approach			key sectors	low	these intersectoral balance
11.	Systemic Contingent Claims Analysis	+		financial	high	these bank balance sheets and asset prices
12.	Cross-Border Interconnectedness	+		bank	low	cross-border transfers and data balances

Ending of Table 10

13.	Cross-Border Network Contagion	+		bank	low	cross-border transfers and data balances
14.	Systemic Liquidity Risk Indicator	+		financial	high	these balances and prices asset
15.	Regime Switching		+	financial	high	asset prices
16.	Financial Soundness Indicators	+	+	financial, corporate and households	low	the data bank balance and movement funds
17.	Bank Health Assessment Tool, HEAT	+		financial	low	these balances
18.	Thresholds Model			financial	low	macroeconomic data
19.	Macro Stress Tests	+		financial		these balances and prices asset
20.	GDP at Risk			real, financial	low	prices of assets and macroeconomic data
21.	Credit to GDP Based Crisis Prediction Model			financial	low	macroeconomic data
22.	Crisis Prediction Model			financial and state	low	macroeconomic data
23.	DSGE Model			corporate and households	low	macroeconomic data

The global financial crisis led to review approaches to supervision of systemic their relationships and their regulation, and the need for introduction, sophisticated tools of identification and limiting systemic distribution:

First, provide to regulators and oversight a special mandate to monitor systemic risk;

Second, the nomination additional requirements for financial institutions with regard to their “contribution” in the generation of systemic risk [23].

International regulatory practices identified tools for identifying systemic risk (table 9).

Conclusions

Transformation of the international standards of a sustainable development of the banking sector are possible through formation of system of anti-recession financial stability which main goal is recognition of influence of crisis factors on solvency, liquidity and capital adequacy of banks; definition of preventive measures for prevention of crisis situations, methods of crisis management and measures for overcoming the threat of crisis with the minimum losses for banks.

The main requirement to a banking capital is its use for compensation of financial losses. «Basel III» provides an exceptional structure of own capital with not enough liquid assets which can't be used for covering losses.

According to the results of empirical researches which are carried out by western experts, measures for increase of standards of banking capital, introduction of coefficients of liquidity, adoption of more tough standards of the capital provided by the Basel III program for large international banks will lead to decrease in growth rates of GDP. But at the same time new rules can promote increase of stability in world economy and decrease in probability of bank crises.

At the present stage of development of the financial market great attention is paid to the question of development and realization of the macroprudential policy providing stability of development in banking sector. In this regard special attention deserves identification of tools of macroprudential policy, in particular, defined by «Basel III» as creation of the buffer and countercyclical capitals.

Realization of macroprudential policy provides the solution of the following tasks.

First, definition of institutional bases of macroprudential regulation.

Secondly, measurement of systemic risk. For measurement of systemic risk the macroprudential body traces credit risks, risks of liquidity, market risks, and also concentration of these risks with the purpose of making decisions on the most effective measures for their overcoming.

Thirdly, in terms of globalization of the financial market it is necessary to coordinate macroprudential regulation that can be promoted by universal tools and the international agreements on uniform use of such tools.

In our opinion, each commercial bank needs to develop organizational and economic mechanism of the analysis and an assessment of future tendencies of capital sufficiency while introducing new regulatory requirements according to requirements of «Basel II» and «Basel III». The algorithm of the similar mechanism can include four main stages: choice of scenarios of testing, payment under this scenario, analysis of results of calculation, development of recommendations taking into account the received results.

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