SUPERVISORY STRESS TESTING AS A RISK MANAGEMENT TOOL

Mikhail N. Kulapov, Doctor of Economics
Oksana Yu. Kirillova, Doctor of Economics
Ellina S. Emelyanova, Candidate of Economic Sciences

ABSTRACT

The present paper examines the international and Russian experience in conducting supervisory stress testing and using the results obtained to increase the resilience of the banking sector and individual banks to possible shocks, as well as increase the transparency of banks and market confidence. The analysis aimed to develop recommendations on using the results of stress testing in the Bank of Russia's supervisory activities in relation to the banking sector. To achieve this goal, it was necessary to analyze the best practices of regulators in jurisdictions with a developed supervisory stress testing system, as well as the existing Russian regulatory framework and the current practice of using stress testing as a supervisory tool for non-state pension funds. The paper also discusses the possibility of establishing an additional capital markup, defined as the difference between the required capital and the regulatory minimum, taking into account Basel III markups, in the Russian jurisdiction based on the results of supervisory stress testing. In addition, to determine the future prospects for the development of supervisory stress testing, advantages and disadvantages of public disclosure of the results of supervisory stress testing are considered, as well as their impact on excess returns on bank shares within the perimeter of supervisory stress testing. In conclusion, possible directions for further phased development of supervisory stress testing of the Russian banking sector are formulated.

Keywords: Supervisory Stress Testing, P2g, Publication of Stress Test Results, Financial Regulators, Preventive Supervision.

INTRODUCTION

Stress testing is a procedure for analyzing the financial condition of companies, groups of companies or economy sectors in the context of exceptional but realistic events that have a negative impact on their financial position. Supervisory stress testing in this paper is seen as the procedure for stress testing the capital adequacy of banks (banking groups), which is carried out by the regulator for the purposes of banking supervision.

As a supervisory procedure, stress testing was introduced by the regulators of the United States and the European Union in response to the global financial crisis of 2007-2008 to check the stability of the financial system to possible shocks and restore the market and society's confidence in it (1, 2, 4, 10, 11, 12, 13).

In line with international best practice, supervisory stress testing is performed with the following purposes:

- Firstly, to identify and assess the risks of individual banks and/or portfolios. This information can be used to focus the attention of supervisory departments in the framework of ongoing supervision and dialogue with banks, as well as to stimulate the development of risk management procedures in banks
- Second, adopting targeted measures to recapitalize or limit the use of capital in relation to banks (banking groups) with unsatisfactory results of stress testing allows increasing the stability of the banking sector

- Third, public disclosure of the results of supervisory stress testing allows increasing investor

And market confidence in the banking sector by increasing its transparency and, as a result, increasing confidence in the stability of individual banks (banking groups) during a crisis.

The Bank of Russia has experience in stress testing procedures for banks (banking groups) (25), in particular, macro prudential stress testing is carried out on a regular basis, and supervisory stress testing is carried out for information and advisory purposes, within which:

a) The practice of annual development of supervisory scenarios is formed.
b) Sectorial models are applied and improved.
c) Individual behavioral models are developed at the level of large banks and banking groups.

1) Large banks annually participate in the bottom-up stress testing procedure,
2) The results of supervisory stress testing are used within the framework of ongoing supervision for information and consulting purposes.

At present, the Russian regulator is interested in improving the procedures for stress testing of banks (banking groups) and expanding the possibilities for applying its results in supervisory activities.

The paper aims to develop recommendations on using the results of stress testing in the supervisory activities of the Bank of Russia in relation to the banking sector.

US Surveillance Stress Testing

In the United States, the authority of the regulator to annually stress test all banks is enshrined in the federal law: "Every year, the regulator conducts an analysis of the capital of each reporting company on a consolidated basis, taking into account all the relevant risks and actions of this company, in order to assess the company's stability in certain economic and financial conditions" (16).

Separately, the federal law stipulates the requirement for banks to conduct their own stress test, including on the basis of supervisory scenarios, and report to the regulator on its results: "The Company must conduct an annual stress test... When conducting stress testing in accordance with this section, the company must at least use the scenarios provided by the regulator... The company must inform the regulator about the results of stress testing... in the manner and form prescribed by the regulator"(17).

Thus, both types of stress testing are enshrined in US legislation: top-down assessments of the regulator and bottom-up assessments by banks. The American regulator does not apply to banks (banking groups) requirements for capital adequacy ratios based on the results of stress testing: instead, restrictions on the disposal of equity capital are imposed on the bank as a supervisory instrument.

The requirement to take into account the results of stress testing when planning capital levels is enshrined in the federal law. The capital plan must at least contain the following elements:

a) An assessment of the expected use and expected sources of capital raising over the planning horizon, which reflects the size, complexity, risk profile and volume of the banking group's operations, taking into account both expected and stressful conditions, including an assessment of the results of any supervisory stress testing required by law or regulation, and an explanation of how the capital plan accounts for these results;
b) A detailed description of the process for assessing the capital adequacy of the banking group, including a description of how the banking group will, in anticipated and stressful conditions, maintain capital in a volume commensurate with its risks, which will exceed the minimum capital adequacy ratios and serve as a source of support for its subsidiaries, and a description of how the banking group, in anticipated and stressful conditions, will maintain capital adequacy to continue

> its activities, maintaining available sources of funding, fulfilling its obligations to creditors and other counterparties and continuing its activities as a credit intermediary (15).

Thus, the US legislation introduced the concept of stress testing and consolidated the authority of the regulator to conduct supervisory stress testing of banks and the obligation of banks to provide their own assessments based on supervisory scenarios. Moreover, the law stipulates the obligation of banks to take into account the results of supervisory stress testing when planning equity capital.

Supervisory stress testing in the United States is one of the main instruments of banking supervision. The regulator conducts stress testing of banks and influences the ability of banks to manage capital in order to increase their stability. It is the regulator's assessment rather than the banks' assessment that is used as a basis for introducing restrictions on the disposal of capital. The recommended supervisory stress testing methodology is disclosed to the market; however, it implies freedom for banks to choose possible approaches and instruments. In case of a discrepancy in the assessments of banks and the regulator, a dialogue is held with the banks to establish the reasons for the discrepancy; however, the regulator reserves the last word when making the final decision. Banks have the right to challenge the regulator's decision, including in court, but such cases are extremely rare due to the strong position of the regulator in the United States.

Supervisory Stress Testing in the EU

In the EU, the power of regulators to conduct supervisory stress testing of banks is also enshrined in the regulatory framework. Supervisors should conduct supervisory stress testing of supervised organizations as needed (but at least once a year) to ensure the oversight process and assess their risks (7). Supervisors should analyze the design, strategy, processes and mechanisms implemented by organizations and the risks of organizations identified during the stress testing process, taking into account the nature, scale and complexity of the organization's activities (6).

Besides, a separate directive stipulates the requirement for banks to conduct their own stress tests based on internal models: the organization must have reliable stress testing processes to use in assessing the adequacy of its capital. Stress testing should include identifying possible events or future changes in economic conditions that may adversely affect the organization's credit risk, and assessment of the resilience to such changes (9).

Unlike the US practice, in the EU, based on the results of supervisory stress testing, the regulator sets requirements for capital adequacy ratios. The powers of the regulator to set requirements for capital adequacy ratios are also enshrined in legislation. The supervisory authorities have the following powers: to require organizations to have capital in excess of the requirements set out in Regulation (EU) No 575/2013 (Directive 575/2013/EU); to demand a review of the structure, processes, mechanisms and strategies (8).

Thus, the EU legislation provides for the powers of regulators to conduct supervisory stress testing of banks and, based on results, establish requirements for capital adequacy ratios. The recommended stress testing methodology is disclosed to the market yet does not define an unambiguous approach to calculations, leaving room for different interpretation and choice of modeling approaches. In the EU, there are fewer opportunities for different application of the supervisory stress testing methodology than in the USA, due to its greater detail and simplification of some elements, for example, using the assumption of a static balance when forecasting a bank's financial performance. When applying supervisory measures, the regulator focuses on the calculations of banks but reserves the right to adjust these results if it detects a discrepancy with the recommended methodology or considers that the calculations are incorrect. Banks can challenge the regulator's decision in court, however, like in the US; such cases are rare due to the strong position of regulators in the EU.

Russian Legal Framework for Supervisory Stress Testing of the Banking Sector

In Russian practice, it is advisable to consider the requirements for the Internal Capital Adequacy Assessment Process (ICAAP) and the procedure for assessing the quality of ICAAP as an example of a supervisory tool for the banking sector, supported by the necessary legislative and regulatory framework.

The powers of the Bank of Russia to assess the quality of the risk and capital management system are enshrined in legislation. The law also enshrines the powers of the Bank of Russia to establish individual limit values of mandatory standards based on the results of assessing the quality of ICAAP (20): “The Bank of Russia, in accordance with the procedure established by a regulatory act of the Bank of Russia, assesses the quality of risk and capital management systems, internal control of a credit institution, a banking group, the adequacy of own funds (capital) and liquidity of the credit institution (banking group), their compliance with the nature and scale of operations performed by the credit institution (in the banking group), the level and combination of risks assumed, including the determination of the volume and structure of transactions as criteria for such an assessment. Based on the results of the assessment, in case of a discrepancy between the risk and capital management systems, internal control, the adequacy of equity (capital) and liquidity of the credit institution (banking group), the requirements established by the Bank of Russia and (or) the nature and scale of the credit institution (in the banking group) operations, the level and combination of risks assumed, the Bank of Russia, in accordance with the procedure established by it, is obliged to send to the credit institution (the head credit institution of the banking group) an order to bring the risk and capital management systems and internal control systems of the credit institution (banking group) in line with the requirements of the Bank of Russia, and with the scale of operations performed by the credit institution (in the banking group), the level and combination of risks assumed and (or) on the establishment of individual limit values of mandatory ratios for the credit institution (banking group)".

In Russia, the legal framework in relation to the Bank of Russia and in relation to commercial banks is formed by various federal laws. The obligation of banks to comply with the requirements of the Bank of Russia for the risk and capital management system is described in a separate law (21): "A credit institution (parent credit institution of a banking group) is obliged to comply with the requirements established by the Bank of Russia for risk and capital management systems, internal control, including requirements for activities the head of the internal control service and the head of the internal audit service of the credit institution, in banking groups".

Detailed requirements for the risk and capital management system of a credit institution (banking group) within the ICAAP and the criteria for assessing the quality of the risk and capital management system within the ICAAP are enshrined in separate regulatory acts, the development of which is stipulated, among other things, by the relevant articles of the Federal Law.

Thus, the Federal Law establishes the powers of the Bank of Russia to assess the quality of ICAAP and establish an ICAAP markup based on the results of an audit, as well as instruct credit institutions (parent credit institutions of banking groups) to correct ICAAP. The ICAAP requirements and ICAAP assessment criteria are set out in the relevant regulations.

The practice of establishing an ICAAP markup for banks (banking groups) is limited. This fact, among other things, may be associated with the ‘rigidity’ of the mechanism for establishing the ICAAP markup, which provides for requirements for the actual values of the capital adequacy ratios of a bank (banking group).

Stress Testing as a Supervisory Tool for Russian Non-State Pension Funds

The practice of using stress testing as a supervisory tool for financial institutions in Russia is already in place: supervisory stress testing is used for non-state pension funds (hereinafter - NPF). For these purposes, an amendment was made to the legislation obliging NPFs to undergo stress testing (18): "The Fund is obliged... to undergo stress testing of financial stability using stress testing scenarios approved by the order of the Bank of Russia and posted on the official website of the Bank of Russia in the information- telecommunication Internet network. The requirements for the procedure for passing stress testing and the criteria for passing stress testing are established by the Bank of Russia".

In contrast to the examples discussed above, supervisory stress testing is formally carried out by non-state pension funds, and not by the regulator. The estimates of NPFs are checked by the Bank of Russia; however, it is these estimates that are the basis for taking measures against NPFs. If the NPF does not pass stress testing, then it discusses and agrees with the Bank of Russia upon a plan for ensuring capital adequacy. However, the Bank of Russia does not have direct instruments to influence capital adequacy, such as capital adequacy requirements. The obligation of NPFs to ensure capital adequacy in a stress scenario is enshrined at the legislative level (23): "The fund must ensure the adequacy of the fund's assets based on the results of stress testing. If the results of stress testing reveal a lack of assets, the fund is obliged (not later than the day following the day of detection of the lack of assets) to send a notification to the Bank of Russia with information and documents used in stress testing".

The Bank of Russia controls the fulfillment of this obligation by NPFs. However, NPFs have a choice in terms of how to meet the minimum capital adequacy requirements in a stress scenario. If these requirements are not met, the Bank of Russia has the right to send an appropriate order and set the timeframe for its execution (19): "Detecting violations of the requirements of federal laws or violations of other regulatory legal acts of the Russian Federation and of the Bank of Russia, in accordance with which the fund operates based on a license, the Bank of Russia has the right to send an order to eliminate the violation, to prohibit the fund to carry out all or part of the operations, to apply other measures of responsibility established by federal laws, and in cases provided for by this Federal law, to revoke its license and assign temporary administration".

Thus, the requirements for NPFs to undergo stress testing and comply with minimum capital adequacy ratios are enshrined in law, but the Bank of Russia does not have the authority to set capital adequacy requirements, and the NPF independently forms a plan to increase capital adequacy in a stress scenario upon agreement with the Bank of Russia.

Clause 1.1 of Bank of Russia Directive No. 4060-U (23) provides for the identification by NPFs of all risks that may lead to their default on obligations. Clause 4.3 of Bank of Russia Directive No. 4060-U (23) speaks of the need to measure all risks identified in Clause 1.1 by conducting stress testing. Clause 4.8 of Bank of Russia Directive No. 4060-U (23) allows the development and use of internal scenarios by NPFs for stress testing. Thus, if not all the risks identified by the NPF are adequately covered by the scenario of the Bank of Russia, the NPF is obliged to develop its own scenarios and ensure the adequacy of assets based on the results of stress testing.

At the same time, at present, there have been no precedents when the Bank of Russia demanded that NPFs develop individual scenarios. In practice, there have been cases when NPFs did not meet the minimum capital adequacy requirements in a stress scenario and developed individual plans to increase capital adequacy together with the Bank of Russia.

The practice of applying measures based on the results of supervisory stress testing for NPFs is more transparent than for banks in the US and EU, due to the lesser freedom of choice of approaches to forecasting risks and the possibility of discrepancies in the results of stress testing.

Prospects for Using the Results of Supervisory Stress Testing in Russia

Currently, supervisory stress testing conducted by the Bank of Russia is an information and advisory tool. At the same time, the functionality of this tool is planned to be expanded to ensure the stability of the banking sector. Two areas exist of potential application of the results: measures in relation to banks (Banking Groups), e.g. individual limit values of capital adequacy ratios, and disclosure of the results of supervisory stress testing to the market.

It is advisable to introduce measures in relation to banks (banking groups) gradually. To synchronize with the existing practice of internal procedures for assessing capital adequacy, it is permissible to apply measures based on the results of supervisory stress testing in the form of individual limit values for capital adequacy ratios by establishing additional requirements for regulatory values of ratios (hereinafter referred to as the SST markup).

A similar approach is already used in the practice of the ECB and the European Banking Supervision Service. Figure 1 illustrates the structure of regulatory capital adequacy requirements in the EU.

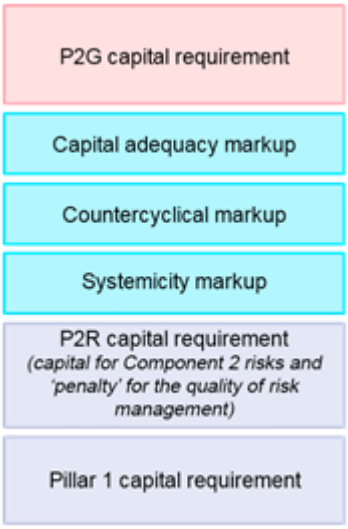

FIGURE 1
STRUCTURE OF REGULATORY CAPITAL ADEQUACY REQUIREMENTS IN THE EU

The structure of regulatory requirements for capital adequacy consists of six blocks (12). The first block is the Pillar 1 capital requirement (Pillar 1 in accordance with Basel II) – the minimum capital requirements for credit, market and operational risks. At present, the Basel Committee recommends setting this norm at the level of 4.5% for capital of the CET 1 level (an analogue of the base capital for Russian banks) (1).

Pillar 1 capital requirements are subject to P2R (1) capital requirement (Component 2 in accordance with Basel II) – an assessment of risk management procedures and processes and an assessment of risks not accounted for in Pillar 1. Together, the Pillar 1 and P2R capital requirements form a regulatory minimum; violation of this regulation gives legal grounds for the regulator to revoke the banking license.

Basel III markups are set to the regulatory minimum:

- Markup for systemic importance,
- Countercyclical markup,
- Capital adequacy maintenance markup.

The regulatory minimum and the systemic importance markup form the minimum required capital in a stress scenario. In case of violation of the requirements for the minimum required capital in a stress scenario, the bank is obliged to provide the regulator with a plan for

restoring capital adequacy. Capital adequacy and countercyclical capital buffers are not taken into account when determining the minimum required capital in a stress scenario, since they are intended to cover the bank's losses in a stress situation. However, if the countercyclical markup is intended to cover the risks not accounted for in the stress scenario, then it, like the markup for systemic significance, should be performed in the stress scenario. For example, if the countercyclical markup is based on the results of macro prudential stress testing, which takes into account the same risks as supervisory stress testing, it is advisable not to take the countercyclical markup into account when determining the minimum required capital in a stress scenario. If the approach to calculating the countercyclical markup is changed, it can be taken into account when determining the minimum required capital in a stress scenario.

If the bank does not maintain a level of capital adequacy sufficient to meet the amount of capital requirements of Component 1, P2R markups and Basel III markups, then the regulator applies measures related to limiting the bank's activities: restriction on the capital plan, growth of risk-weighted assets, strategy, etc.

The last block of the structure is the P2G capital requirement (Pillar 2 Guidance in accordance with Basel II) – an assessment of capital adequacy in supervisory stress scenarios. Violation of this requirement alone does not lead to automatic supervisory consequences. However, the bank is required to provide a plan to restore capital adequacy. A bank that violates the P2G capital requirement falls under the active control of the regulator. If the bank is unable and/or unwilling to comply with the P2G capital requirement, the regulator has the authority to take measures, including restrictions on the disposal of capital.

Based on the results of supervisory stress testing, the size of the P2G capital requirement (NST markup) is determined. Figure 2 illustrates the approach to determining the size of the P2G markup.

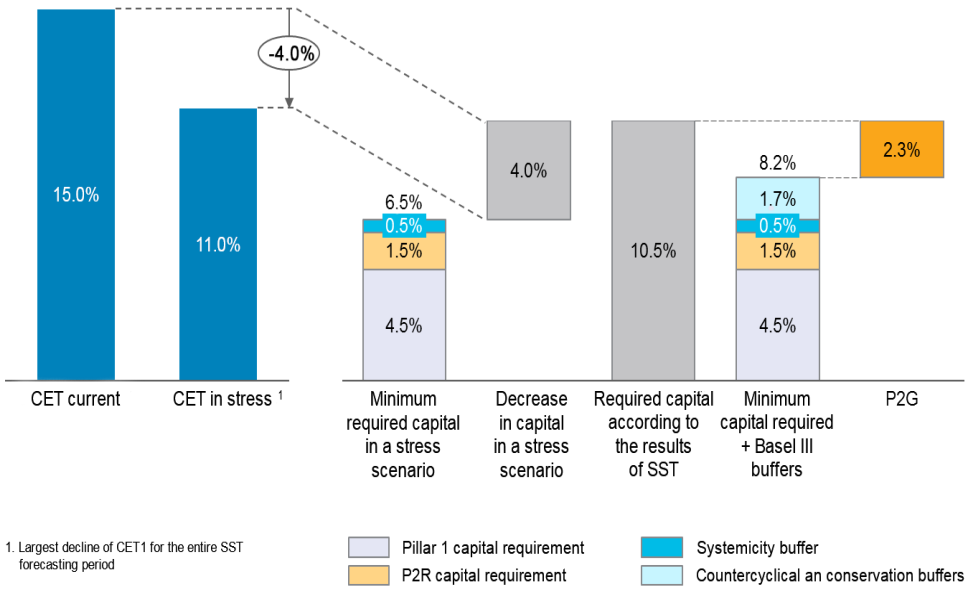

FIGURE 2
ILLUSTRATIVE APPROACH TO DETERMINING THE SIZE OF THE P2G MARKUP – CAPITAL REQUIREMENT BASED ON EU SUPERVISORY STRESS TESTING

The SST markup is defined as the positive difference between the required capital based on the results of supervisory stress testing and the regulatory minimum (Pillar 1 and P2R), taking into account the Basel III markups. The required capital based on the results of supervisory stress testing is determined as the sum of the minimum required capital in a stress

scenario (Pillar 1, P2R and systemic importance markup) and changes in capital adequacy as a result of the stress scenario. This ensures that in the event of a stress scenario, capital adequacy will not fall below the minimum required capital in a stress scenario.

The Bank of Russia is likely to use an approach to calculating the SST markup similar to that used by European regulators, taking into account the specifics of Russian banking regulation.

The SST markup will be determined based on bank calculations. At the same time, the Bank of Russia should have the authority to require banks, if necessary, to correct their calculations. If the bank does not adjust its calculations, then the Bank of Russia can use its own calculations according to individual models to determine the SST markup.

With the development of relevant methods and competencies in banks and the Bank of Russia, with the accumulated communication experience and the formed appropriate legislative and regulatory framework, it is advisable to introduce a separate, unlimited SST markup for banks within the perimeter of supervisory stress testing measures.

The approach to setting the SST markup depends on the structure of other regulatory requirements. In Russian regulatory practice, the approach to setting the ICAAP markup has features that must be taken into account when establishing the SST markup:

- ICAAP markup is limited in size and is applied to the actual level of capital adequacy (24),
- The capital intended to fulfill the ICAAP markup can be used to absorb losses in a stress scenario.
- This approach to the application of the ICAAP markup by the Bank of Russia is focused on assessing the bank's procedures and does not allow for sufficiently flexible consideration of the risks for Component 2 in accordance with Basel standards (3) but has a number of advantages that justify its application by the Bank of Russia at present:
- There is no need to publicly disclose the amount of the ICAAP markup since the Bank of Russia requires disclosing information only on violations of Basel III markups and the regulatory minimum,
- It is possible to use the ICAAP markup as a disciplining tool stimulating the development of risk management procedures in banks,
- The procedure for calculating the ICAAP markup on the basis of a point-weight mechanism in accordance with the Bank of Russia Ordinance No. 3883-U (24) is transparent for banks.

Thus, the approach to setting the SST markup should take into account the specifics of setting the ICAAP markup and other regulatory requirements for capital adequacy.

When the bank's capital adequacy decreases, the capital intended to fulfill the SST markup should be used in the first place, since it is an additional ‘buffer’ in a worsening economic situation. Therefore, taking into account the mechanism for establishing the ICAAP markup, it is recommended to apply the following approach to establishing the SST markup:

- If the ICAAP markup is set, then the SST markup is set in addition.
- If the ICAAP markup is not set, then the SST markup is set in addition to Basel III markups.

The Bank of Russia may also consider the option of applying the ECB's approach to establishing the relationship between regulatory requirements for capital adequacy. Figure 3 illustrates a regulatory framework for capital adequacy similar to that adopted by the ECB.

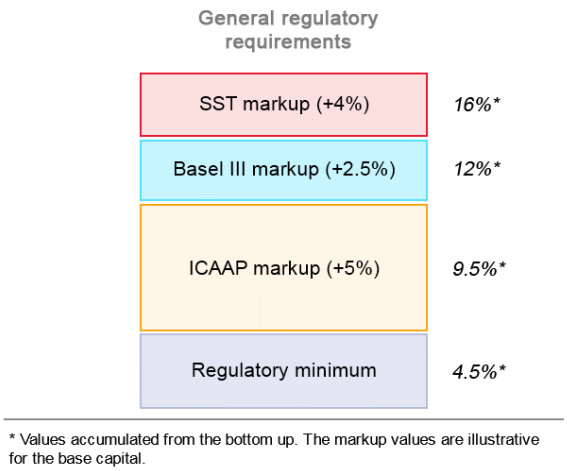

FIGURE 3
REGULATORY FRAMEWORK FOR CAPITAL ADEQUACY SIMILAR TO THAT ADOPTED BY THE ECB

In this approach, the ICAAP markup is set to the regulatory minimum and is not limited in size. The SST markup is set in addition to Basel III markups. This approach has advantages in terms of correct accounting of bank risks:

- ICAAP markup allows to take into account all risks not considered in Component 1 (regulatory minimum), since it is not limited in size,
- ICAAP markup reflects the minimum required level of capital adequacy to cover risks even in a stress scenario, which is a more conservative approach.
- However, this approach has limitations for the Bank of Russia:
- The need to significantly change the regulatory framework and verification tools in terms of internal procedures for assessing capital adequacy,
- The less transparent procedure for calculating the ICAAP markup not limited in size;
- The need to disclose the size of the ICAAP markup, since banks are obliged to publish the capital adequacy level at which Basel III markups are violated, established in addition to the ICAAP markup (22);
- Limited ability to use the ICAAP markup as a disciplining tool, since a bank (banking group) with a high capital adequacy level and low ICAAP quality will not need to increase its own funds to fulfill the ICAAP markup.

Disclosure of information based on the results of supervisory stress testing can be considered in two main directions: communication of the regulator with banks participating in supervisory stress testing and disclosure of information to the public.

The main purpose of communicating the results of supervisory stress testing is to increase the transparency of the banking sector and increase public confidence in it.

The extent to which information is disclosed to the public varies from jurisdiction to jurisdiction. Fig. 4 shows the results of a survey of regulators on the practice of disclosing the results of supervisory stress testing to the market, conducted by the Basel Committee (5). Moreover, Fig. 4 shows the proportion of surveyed supervisors that publish relevant information on stress testing.

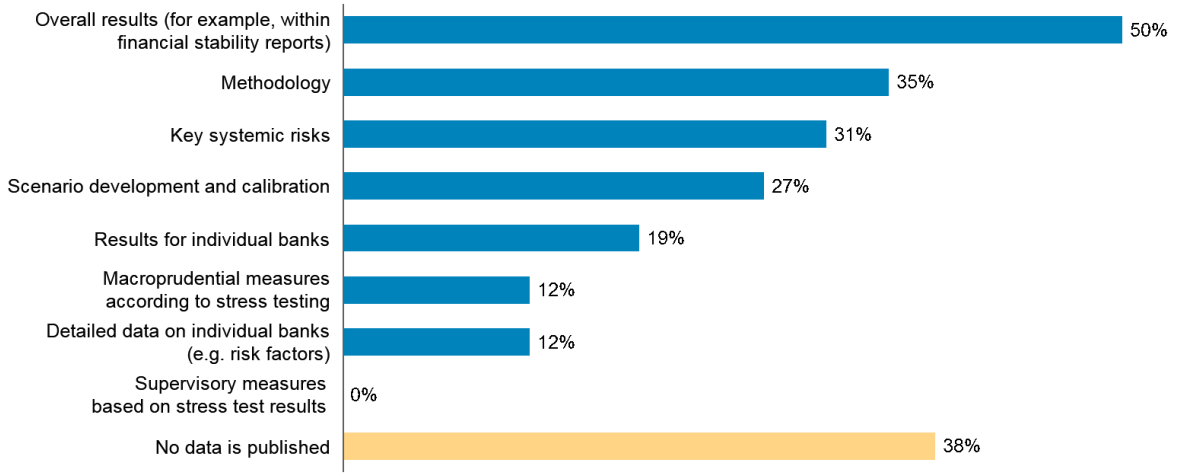

FIGURE: 4
DISCLOSURE OF THE RESULTS OF SUPERVISORY STRESS TESTING TO THE MARKET BY REGULATORS

In this survey, the regulators were given the opportunity to choose several answer options. The survey results indicate that most regulators disclose only the general results of stress testing, such as, for example, the share of banks that did not pass stress testing and the share of their assets in the assets of the entire banking sector. A similar approach is used by the Bank of Russia in relation to the stress testing procedure: the generalized results of stress testing are published in the annual Report on the Development of the Banking Sector and Banking Supervision. A significant number of regulators do not publish the results of supervisory stress testing, including general, aggregated results.

At the same time, regulators in jurisdictions with a developed supervisory stress testing system, such as the US Federal Reserve, the Bank of England and the ECB together with the European Banking Supervision Service, publish detailed data on the results of stress tests for individual banks (banking groups). These regulators publish detailed reports for each bank (banking group) which show the financial condition of the bank (banking group) in a stress scenario.

The high degree of disclosure of supervisory stress testing results has its advantages and disadvantages. Key benefits of greater disclosure include:

1. Increased market and public confidence in the supervisory stress testing procedure and, as a result, in the banking sector. The publication of the overall results partially increases confidence in the banking sector but not in individual banks (banking groups). The publication of results for individual banks (banking groups) significantly increases the degree of public confidence in these banks (banking groups) and in the sector as a whole. This advantage, as a rule, is realized provided that the majority of banks meet the minimum capital adequacy requirements in a stress scenario.
2. An additional incentive for banks to increase resilience to shocks. If for a number of banks the result of supervisory stress testing may not be a sufficient incentive (for example, due to the absence of specific time frames or measures based on the results of supervisory stress testing, supported by an appropriate legislative and regulatory framework), the risk of publishing the results of supervisory stress testing and a subsequent decline in the share price or a possible outflow of depositors can be an additional incentive for the bank to increase capital adequacy. Thus, stress testing can serve more as a preventive tool and reduce the need for measures.
3. Increased transparency of the banking sector. In countries where regulators disclose detailed results of supervisory stress tests, the market is awaiting their publication to conduct their own research and forecasts based on the available data, including for assessing the credit risks of counterparties, which generally makes the sector more transparent.
4. The main disadvantages of greater disclosure are:

5. If there is a capital deficit for a significant number of banks in a stress scenario, the publication may have a negative impact on the banking sector. In this case, the publication of the results may be advisable only after improving the financial stability of the banking sector.
6. If it is impossible to make accurate calculations as part of supervisory stress testing (for example, due to lack of data of the required quality) or there is no market confidence in the reported asset valuation, the publication of the results may give an incorrect signal to the market.

The decision to disclose the results of supervisory stress testing should be made based on the expectations of such results and advisable if positive results are expected (in particular, more banks are undergoing stress testing). US and European regulators have introduced supervisory stress testing primarily as a response to the 2007-2008 global economic crisis and began to disclose detailed results for banks almost since the introduction of supervisory stress testing. This step was due to the need to restore market and public confidence in the regulator and the banking sector. As seen in Fig. 5, the market reacted positively to the first publications of the results of supervisory stress testing (14). The abnormal return in Fig. 5 means the excess of the actual profitability of the bank's shares over the profitability calculated according to the Capital Asset Pricing Model model (CAPM). The analysis was carried out on the basis of the cumulative excess return obtained as the sum of the bank's excess returns on the day of publication of the stress testing results, as well as 2 days before and after publication. Subsequent publications of the results of supervisory stress testing (Fig. 5) had a less significant effect.

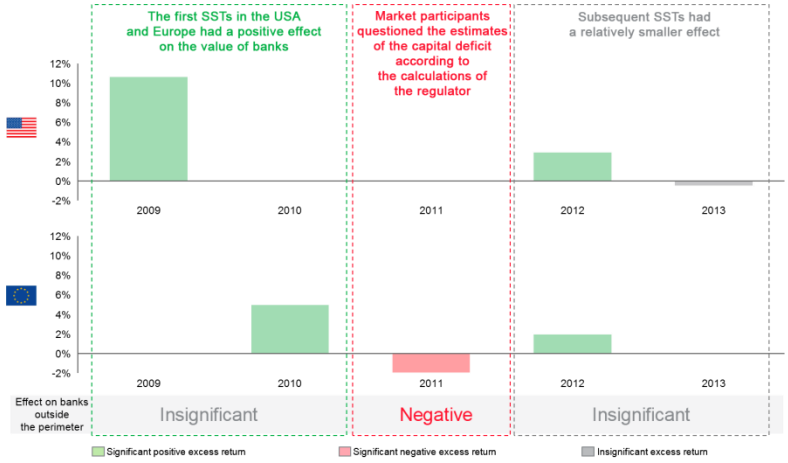

FIGURE: 5
IMPACT OF THE PUBLICATION OF THE RESULTS OF SUPERVISORY STRESS TESTING ON THE EXCESS RETURN ON SHARES OF BANKS WITHIN THE PERIMETER OF SUPERVISORY STRESS TESTING

There are examples in foreign practice when publishing the results of supervisory stress testing had a negative effect. In the EU, detailed data on banks were published in 2011 (3,400 fields instead of 149 in 2010), which allowed the market to independently assess the size of the banks' capital deficit. The results were 40 times higher than the estimates of the European Banking Supervision Service. Thus, the negative effect of the publication is not due to disclosing information contained in the report but to the fact that the regulator and the market assessment results differed significantly. It is important to note that the study was conducted only on the basis of information disclosure results in the United States and Europe – countries with relatively high asset quality and a relatively high degree of resilience to external shocks. The investigated effects of the disclosure of the results of supervisory stress testing on the profitability of banks' shares in jurisdictions with unsatisfactory stress testing results for most banks were not found.

To ensure the stability of the Russian banking sector at the time of publication of the results of supervisory stress testing, a number of conditions must be met:

- The level of capital of the banking sector is sufficient to meet the minimum capital requirements under stress by most large banks (banking groups).
- Bank of Russia models provide accurate estimates, including at the level of individual banks (banking groups) according to individual models.
- The Bank of Russia is confident in correct assessment of the fair value of the banking sector assets.
- The public is prepared to correctly interpret the results of supervisory stress testing.

Disclosure of the results of supervisory stress testing will increase the transparency of the risk profile and the level of stability of individual banks and increase market and public confidence in the banking sector.

CONCLUSION

In the practice of leading foreign regulators, supervisory stress testing is an important tool to ensure the stability of the banking sector and is used to inform supervisory departments about the risks of individual organizations and/or portfolios, to take targeted measures to recapitalize or restrict the use of capital in relation to organizations with unsatisfactory stress testing results, as well as to increase the confidence of investors and the financial market in the banking sector through greater transparency of banks' activities. In the short term, the use of supervisory stress testing in Russia for all these purposes is inappropriate due to the insufficient level of competence development among banks, the unwillingness of the public and investors to assess the financial position of banks based on the results of stress testing, as well as the potentially low real level of capital adequacy and limited sources of additional capitalization. In this regard, a phased development of supervisory stress testing is recommended.

As part of the first stage, it is proposed to use supervisory stress testing for information and advisory purposes without direct supervisory consequences and without disclosing the results of supervisory stress testing at the level of individual banks to the market. At the same time, to increase the significance of supervisory stress testing, it is proposed to take into account the results of stress testing when assessing the quality of ICAAP or the economic situation of a bank. Through the ICAAP quality assessment category or classification group, the results of the supervisory stress testing will influence the capital adequacy assessment group, and, accordingly, the capital requirements. This approach will contribute to the development of a risk management culture in banks and planning practice taking into account possible crises when making strategic and operational decisions by bank management. This approach will also enable the regulator and banks to carry out the preparation needed to implement the second phase of improved supervisory stress testing.

The second stage of improving supervisory stress testing involves introducing individual limit values for capital adequacy ratios by establishing additional margins to the regulatory values of ratios based on the results of supervisory stress testing and disclosing the results to the market at the level of individual banks (banking groups). At this stage, supervisory stress testing is used not only to inform supervisory units about the state of the banking sector and individual banks and to develop banks' risk management within the framework of supervisory interaction but also directly to increase the sector and individual banks' resilience to possible shocks, as well as to increase transparency of banks and market confidence.

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