



Stress Tests in Banking – main theoretical and practical aspects

KEYWORDS

stress tests, financial crisis, capital ratio, anti-crisis instrument

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ABSTRACT *The main objective of this paper is to present the essence of the introduction and use of the stress tests on European banks. The stress tests have been introduced due to the current financial crisis, which caused centrifuged in the financial markets, as in many countries. The test results made public by the European Banking Authority indicate how much individual banks may have serious problems with the insolvency. With such a crisis management tool can also specify a particular level of required recapitalization of the bank.*

Introduction

In the recent period, after the international financial crisis caused by the subprime loans, specific interest in the stress tests become, especially in the functioning of the financial institutions. The methods of the stress tests are not new, because for many years have been conducted for example in insurance, and the investment projects. In the financial analysis the stress tests were known as the sensitivity analysis and were used in the evaluation of the business plans, the pre-investment studies and the restructuring or remedial programs of the companies and the banks. In the recommendations of the risk management – the Basel II, the International Committee on Banking Supervision in Basel, has recommended the widespread use of the stress tests on the banks in the area of the credit risk. These recommendations are reiterated by the European Banking Authority.

This article presents the essence of the current stress tests and the experience in applying them. Not so many publications on this topic creates undoubtedly some difficulty for the economic practitioners, concerned the application of these methods for the assessment of the risk in the banks. In the paper authors use the experience of the stress tests conducted on the European financial market and present the results of these tests.

1. The theoretical aspects of the stress tests

There is no clear and uniform definition of the stress tests. The tests can be characterized in terms of the broad sense as a method of quantitative or qualitative analysis, to assess the impact of the future risks to the economic standing of the company or the bank, including the level of the resistance to the risk materialized due to the adverse development of the economic events.

The stress tests were a credit institutions reaction to the increased risk management requirements set out in the New Basel Capital Accord for the banks (Capital Requirements Directive - CRD). The stress tests are also the methods merge the information at the micro and macro which creates a modern tool for the assessing management and the risk control. [Ptak-Chmielewska&Stala, 2010]

The stress tests have the advantage over other methods; first of all the tests try to predict the possible changes in the economic parameters including the parameters of the extreme levels. Unlike the sensitivity analysis or the models of the bankruptcy prediction [Altman, Hotchkiss, 2007], the stress tests focused on the future risks and the possible adverse changes which may cause this risk. The detachment from the historical economic data in the use of the stress tests gives a new value of these methods. [Masiukiewicz, 2011]

It is possible to identify different types of the stress tests, according to the accepted criteria for the classification. The authors propose the following classification:

- according to the criterion for the analysis: the tests of a single company, national, EU and international as well as examining endogenous and exogenous risk (the systemic risk),
- according to the criterion objectives: the assessment of the company point of financial collapse or the resistance to the external (economic) shocks,
- according to the criteria methodology: the sensitivity tests and the scenario analysis, [Łuszczpiska, 2011]
- according to the criterion variables studied: the tests of one or more variables (the multi-criteria analysis),
- the temporal criterion: the strategic tests (annual), operational (1-2 months) and ad hoc (as needed), the tests of the current operations and the investment projects,
- the subjective criteria: the financial institutions, the business development companies, the public (budget) investments, the functioning of the households. [Zajczkowski, Zochowski, 2007]

The main objectives of the stress tests for the banks are: the strategic, planning of the capital policy, assessment of credit risk, portfolio risk and business units.

2. The major recommendations for the stress testing in European banks

The first stress tests were conducted in 2010 in both U.S. banks and in banks in the European Union Member States. In the United States the tests results were made public, and this was considered a turning point in regaining the public confidence in the banking sector. [Zygierewicz, 2011]

In the European Union, the first test was limited to the international banks, then was drawn up a list of the systemically important financial institutions (SIFIs). It was decided to make public the results of the stress tests for the 26 biggest banks and to extend the stress tests on 100 credit institutions.

The recommendations formulated by the international banking supervisors regarding the conducting of the stress tests are as follows:

1) CEBS Recommendations CEBS Guidelines on Stress Testing (GL32)

- Governance aspects of stress testing and use
- Stress testing methodologies:
 - Sensitivity analysis
 - Scenario analysis
- Severity of scenarios

- Reverse stress testing
- Portfolio, individual risk and firm-wide stress testing
- Outputs of stress testing programs and management intervention actions
- Stress tests under ICAAP
- Supervisory review and assessment

2) BCBS (Basel Committee on Banking Supervision) Principles for sound stress testing practices an supervisor (BCBS155)

- Principles for banks:
 - use of stress testing and integration in risk governance
 - stress testing methodology and scenario selection
 - specific areas of focus: risk mitigation techniques, securitization, reputational risk, highly leveraged counterparties
- Principles for supervisors:
 - regular and comprehensive assessment
 - regulatory actions
 - request for specific analysis
 - regulatory stress tests
 - public dialogue.

3. The Basel III and the stress tests

The Basel III rules (to be implemented in some stages) attach a great importance to the stress tests. This is not a novelty, because the requirement to conduct the stress tests have already been included in the Basel II. The Basel III interprets "soft" requirements and recommendations of the Basel II and includes guidelines that have not yet had a character of the strict regulation. Thus, the Basel III reminds banks how to effectively manage the risk. A new measurement will be Stressed VaR for the market risk in the trading book.

The Polish Financial Supervision Authority (PFSA) has already implemented the recommendations and requirements of the stress tests in the domestic sector. The recommendations on the stress tests provide, among others: [KNF, 2008]

- Conducting the stress tests on the bank's risk measurement
- The stress tests are conducted in the bank on the basis of the assumptions to ensure the reliable risk assessment
- Use the different multi-dimensional scenarios, taking into account a period of several years, the macroeconomic developments,
- Must take into account the risk factors associated with the risks not covered in the Pillar 1 minimum capital requirement,
- The bank should take into account the risk of the exposure concentration, the concentration of the security and the protection and the recognition of their value,
- Must take into account all the risks of Pillar 2, which identifies the bank and recognizes the important,
- When applying IRRBB - should take account of sudden and unexpected change in the interest rates by 200 basis points.

The major recommendations the PFSA for the banks using the VaR method for market risk are: [KNF, 2010]

- the internal limits on a risky market activities are determined using the VaR model and the stress tests,
- a series of the sensitivity tests of the variations: the parameters of the price and its volatility, the liquidity of the markets, strength of the correlation changes of the price parameters, structure and size of the original position, and other specific characteristics of a bank's market risk,
- the tests and the scenarios with a concentration risk, the existence of one-way markets, the risk of atypical and precarious events, contrary to the assumptions of the

model price fluctuations, non-linearity of product characteristics, and a significant negative positions of the options, the occurrence of low-priced items, and other components of the risk,

- the frequency of conducting tests at least once a quarter,
- the scope of the analysis: impact on the result of trading and the capital requirements calculated using the VaR method.

Acting on the modern financial markets, even the small banks cannot avoid conducting the stress tests in the risk management.

4. The results of stress tests on European Union

In 2011, the requirements of the European Banking Authority (EBA) on the level of risks examined by the stress tests have been strengthened. The results published by the Authority (ninety banks were tested in twenty-one countries) shows that as many as five banks in Spain, two Greek banks and one Austrian bank has failed miserably in 2011 tests. In total, the banks have not passed the tests need about 2.5 billion Euro recapitalization. It should add up to sixteen EU banks passed the stress tests to a minimum.

Based on the results of the stress tests of 2011, experts from the European Banking Authority found that:

- the end of 2010 no less than twenty banks would be below 5% in terms of value of Core Tier 1 Ratio (CTR1), and the size of deficits in the capital would be a total of 26.8 billion Euro, it did not happen just because EBA encouraged to in the first months of 2011 the banks increased their capital for the upcoming stress tests,
- between January and April 2011 the sum of the increased capital base of banks was around 50 billion Euro,
- despite these measures eight banks received CTR1 rate below 5%, and as many as sixteen banks ranked in the range between 5% and 6%.

The EBA authorities have recommended the supervisory authorities and institutions of the banks in individual countries where banks failed the stress tests, to take immediate and firm action to increase banks' capital. This recommendation also included the banks that passed the stress tests in July 2011, but their results (CTR1) were close to 5%. In these cases, banks should also increase the amount of capital by limiting the payment of dividends to its shareholders (in situations where there is no other way to increase the capital). Subsequent reports on the implementation of these recommendations is scheduled for February and July 2012.

Conclusions

Regular and comprehensive conduct the stress tests of the banks by the European Banking Authority is not only desirable and expected, but also a necessary tool and activity during the new threats to the financial crisis in the world. While the idea of testing the condition of banks in Europe seems to be indisputable, yet its current implementation leaves some doubts and unfulfilled expectations. First of all, is seen not included in the analysis and tests conducted in many other European banks, perhaps smaller, but they certainly play an important role in the individual countries. Range of penalties or (perhaps mildly) some incentives has not been established whether for those banks that do not pass tests and do not take appropriate corrective action. The introduction of cyclical conducting stress tests is worth considering, so it will not need to encourage banks to increase their capital because of approaching a given term of stress test.

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