

The Application of stressTesting in Bank Risk Management

Bing Gong^{1,*}

¹Tsinghua University, Beijing 100084, China;

*Corresponding Author: Bing Gong

Abstract

In recent years, along with bank management become more and more attention to risk management, bank managers by adopt the method of stress tests for Banks manage risk factors in the process of operation, when the bank there was a risk management system, pressure test system will be automatically, which can identify the risk factors at the same time to remind the bank management. This paper mainly through the risk management system in the stress test technology analysis, mainly from the bank stress test to the bank risk management application, the feasibility and necessity of the existence of stress test and the advantages of stress test analysis.

Keywords

Pressure test, Bank risk management, applied.

1. Discussion on the application of stress test in bank risk management

1.1. Theoretical research on pressure test

Pressure test as the name suggests is a method of measuring risk factors exist, the main application in banking, finance and other industries, pressure test in the process of risk management, through in a particular situation, to calculate the content of the evaluation, and record the asset gains and losses, which can effectively control the risk factors. Stress test is not only applied to a certain kind of risk loss, but also can measure the loss caused by various risks. General risk loss belongs to volatility risk with predictability, while unpredictable risk factors are particularly fatal in the operation of the financial industry. We can see from Figure 1 that in the financial industry, all risk factors are normally distributed under normal circumstances. When major fluctuations occur in the financial market, the situation shown in Figure 2 will occur. Unpredictable fluctuations of risk factors will affect the entire financial market.

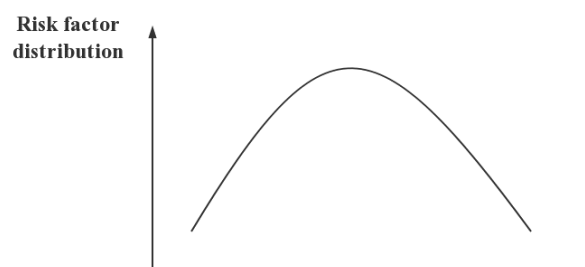


Figure 1. Pressure test diagram under normal situation

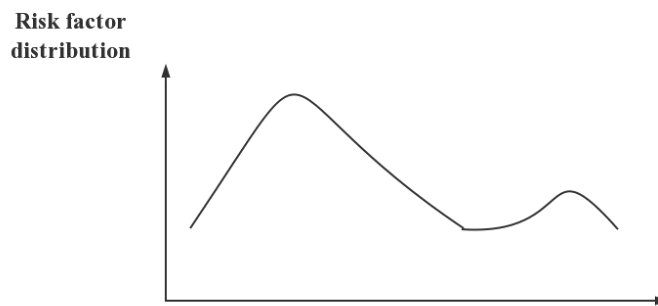


Figure 2. Pressure test diagram of fluctuating risk factors

1.2. Discussion on the application of stress test in bank risk management

In recent years, as bank managers pay particular attention to the security risks in risk management, bank managers analyze and study the potential risk factors in banks through stress tests. Among them, the research shows that when China's banks and enterprises use the stress test, they need to carry out a detailed inspection of each department of the bank and test the sensitivity in the process of bank operation and management, so as to calculate the risk factors existing in financial investment. Stress test combines risk factors with event probability in a specific time and region, and analyzes and studies the characteristics of risk existence. In the process of operation and management, banks set parameters required by economic configuration, and adopt different test methods according to different scenarios. Therefore, the stress test is often used in the bank risk prediction and evaluation, effectively avoid the occurrence of risks in the bank, the bank risk prediction and evaluation^[1].

2. Analyze and study the necessity and feasibility of stress test in bank risk management

2.1. The necessity of stress test in bank risk management

At present, the application in the risk management process through the detection of value at risk, because the value at risk in the process of operation has certain flexibility, can satisfy the requirements of the various financial institutions, business operation mode when design personnel according to financial institutions, to choose different detection scheme, choose good detection, choose good detection time and departments, The probability of the existence of bank risks can be analyzed and studied. In the application process of var, it is necessary to combine with stress-test related technologies to remove the dross and extract the essence, and select the core and most valuable test mode of the two detection methods, so that banks can effectively manage potential risks. Because value at risk is comprehensive and intuitive, the method of value at risk detection has been applied in various financial enterprises and achieved obvious results. Value at risk can be directly to detect the risk in the financial sector, when need to invest in financial companies, value at risk of investment and project operation during the period, there may be problems are studied, and the problem scores, if the score is too high, the system will take alarm mode, the enterprise is not recommended to invest in the project management personnel, So as to realize the effect of investment project prediction^[2].

2.2. Feasibility of stress test in bank risk management

Because the value-at-risk technology has been very perfect and mature, it has been widely used in the operation and management of financial market, and has obtained good praise. With the continuous development and update of the financial industry, there are more and more risk factors. Therefore, the combination of the financial industry and computer technology can effectively improve the risk detection technology and ensure the accuracy, authenticity and rationality of the stress test technology. In addition, financial managers also collect data related to risk factors by referring to previous risk factors, and timely take relevant solutions when risk factors occur, which is conducive to improving the work efficiency and quality of the stress test.

3. Advantages of stress test in bank risk management

The advantages of pressure test in the application process are as follows : (1) real-time feedback of market price changes can be given to evaluate and forecast property losses. (2) Conduct statistical collation of test data according to previous test conditions, and avoid similar financial crises in the future. (3) Stress testing technology has certain assumptions. In the application process, some assumptions may not belong to the market application situation. Therefore, stress testing technology needs to adopt the normal assumption mode to timely predict the fluctuation of stock price return. (4) Stress test can effectively help financial enterprises avoid risk problems, and analyze the risk factors existing between various departments in the operation process of financial enterprises, which is conducive to the future management of financial enterprise managers. (5) The stress test can intuitively and accurately discover problems, solve existing problems and take certain remedial measures when detecting risk factors in financial and banking industries in a timely manner.^[3]

4. Conclusion

In the process of bank operation and management, the stress test can effectively analyze and manage the potential risk factors, and formulate targeted solutions and measures for a series of risk factors to reduce the risk probability of financial banks. At the same time, relevant technical personnel should ensure the stability of the whole test system when taking the stress test to avoid inaccurate test results due to system problems in the test process, which will affect the planning direction and business objectives of the whole financial bank enterprise.^[4]

References

- [1] Drehmann M , Sorensen S , Stringa M . The integrated impact of credit and interest rate risk on banks: A dynamic framework and stress testing application[J]. Journal of Banking & Finance, 2010, 34(4):713-729.
- [2] Vytev Z . Discussion Questions of Stress Testing in the Modern Bank Practice[J]. Dialogue E Journal, 2012(3):22.
- [3] Department M . Republic of Poland; Technical Note on Stress Testing the Banking Sector[C]// International Monetary Fund. International Monetary Fund, 2013.
- [4] Basurto M . Portfolio Credit Risk and Macroeconomic Shocks: Applications to Stress Testing Under Data-Restricted Environments[J]. Imf Working Papers, 2007, 06(283).