
Stress Testing of Banks in the Forward Looking Estimation of Risk

The 1990 crisis and the global financial crisis and the Asian crisis had created severe doubts over the stability of the financial system. The regulators of the financial system wanted to strengthen the financial system in a way such that it can withstand to any adverse impacts. they introduced so many quantitative tools to assess the risk. thus stress testing could serve the purpose with a single range of techniques it possesses. the international monetary fund and Basel committee also highlighted on stress testing. This stress testing can be done at both system level and at bank level. They are designed to measure the changes in the economic factors on financial system at former level. whereas the latter level it provides the method the method to see the impact of change in the risk factors or drivers on both assets and liabilities portfolio of institution.

Thus internationally it became one of the internal tools in the risk management technique and widely used to measure potential vulnerabilities to certain unlikely but plausible movements in financial variables. Stress testing helps banks in the forward looking estimation of risk which is way beyond the statistical models which are based on the historical assumptions. banks have adopted the stress testing as they help management in understanding the condition of the bank. The process helps in the banks by which they can take some actions in mitigating risk, techniques, capital & liquidity management in stressed conditions. as it serves so many purposes it was included as important tool in risk management framework.

It was questioned whether this technique can cope up with fast changing circumstances. The internal capital adequacy assessment process (ICAAP) must include stress testing as one of the integral component which can figure out the severe events that can have impact on the banks in the adverse manner. Thus ICAAP can explain the stress results to management of bank about the risks that it may face in near future. stress testing plays a key role in risk identification, evaluation and controlling risks. The main objectives of stress testing lie in risk identification and controlling, improving both liquidity and capital planning and helps in decision making. Stress testing must be included to promote risk identification in risk management activities of a bank at various levels of complexities and severity. All these aspects should be explained in procedures and policies that are governing the stress testing. The method and features, scenario and objectives of the component should be explained.

The stress testing frequencies varies depending on the method and purpose. The scenario definition and details of methodology of each component should be explained Design: They are

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two types of stress test that are used:

- a. Sensitivity test
- b. Scenario test

Sensitivity test calculates the impact single risk factors on banks financial soundness. Single risk factors: rate of interest and foreign exchange probabilities of default, prices of equity etc.....In this we will not identify the cause of the shock on the factors that is responsible for risk. correlation is not taken into consideration. These tests are easy to run and gives an estimation of the influence of the banks. The first and the foremost things that banks should do is to identify the factors that causes the risk i...e (risk drivers) in particular: Risk that are caused by the rate of interest and foreign exchange etc... are called Macroeconomic risk drivers. Failure of the monsoon and probabilities of defaults are some of the examples for causing the credit risk and they are the drivers of such risk.

The drivers such as natural calamities and terror attack will lead to operational risk. The global cause and the market failure are some of the drivers for operational events. Once we identify the risks drivers using various degrees of severity a sensitivity test will find out the influence of varying decline in the prices of equities by 20% ,40% ,60% or a fall in the interest rates by 50,100,200 basis points. At the individual levels banks can perform the sensitivity test according to the risks that banks are exposed .as it will be having different purpose, the result will be influenced by them. If they want to effect one or more variables sensitivity analyse then we will mix two different happenings of risk without assuming any kind of scenario. Banks have been classified into three groups for conducting the stress testing: Group A: banks which contain Risk weighted assets of more than ? 2000 billions Group B: Risk weighted assets of bank between 500bn and 2000bn.

Group C: The risk weighted assets of banks should be below 500 bn. For Seeing the effect of one or more variables we have multi factor analysis. This analysis can be done by the C-Group banks as an option but it is necessary for both A & B to perform. when we are using this technique we should be very careful of correlation problem as various risk factors are inter connected. Banks should have scenarios and range of events and different degrees of severity levels then it will be containing the effective stress testing programme. Review of stress testing: since banks operate in a quite dynamic environment it is important to review the framework periodically .it has to look both quantitatively and qualitatively to finds its efficiency and to consider the need for change in any elements. The following things are basic requirements that are subjected to annual reviews:- Programme effectiveness in meeting its purposes.-

Having or adapting stress testing as one of the tool in the risk management process.- To see to that stress test is applied at realistic levels.- Management supervision.- Quality of the data - If

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any other assumptions are assumed. Basic thing about the reviewing of the stress testing involves upgradation of process that bank requires. Coverage: Stress testing ranges from a sensitivity to most difficult scenario analysis .it contains qualitative and quantitative techniques. It will have different time ranges bases on the properties of risk. Banks will use numerous viewpoints and techniques and methodologies to have a wide coverage of this stress testing programming. Forward looking scenario: as the general tendency is that when we are conducting stress testing we often take the previous stress episodes and historical stress risk management but most of the things will not be covered by these alone.

Banks need to incorporate forward looking scenarios as it contains the different happenings or probabilities of multi-level stress testing and different rising risk possibilities. but the historical scenarios gives the information on how the drivers of risk behave together in time of crisis hence this is important while we are forming our assumptions of an internal capital model. By using the macro economic and financial model we can design the forward looking scenario for different severity levels and for different purposes. the realistic and imaginative scenarios is the formulation of the following steps:

- a. All the risk factors that bank is exposed to must be stressed. with the output that we get from single factor analyses we can use that for the scenario identification that have high plausible factors. We should not leave the material factors without stressing.
- b. The drivers of risk which are identified in stress should be consistent.
- c. The vulnerabilities identification and analyzation should be done.
- d. Development of technology and highly improved financial products should be taken into consideration.
- e. The assumptions regarding the correlation between financial variables and macroeconomic variables should be realistic when they are made by the banks.
- f. Both on and off the balance sheets banks should be careful of dynamic interactions between the risk drivers.

System wide interactions and feedback effects: since there is strong linkage between the financial economics and real economics there is need for system wide interactions and feedback effects. The linkage should be clearly explained. Quantitaviley analysis should be done for the above one. Levels of severity in scenarios: As we know that stress test must include various severity levels and the most adverse scenarios should also be included which have been there for long-time that are experienced by the risk drivers.

Through the imaginative parameters of risk, we can even build some scenarios. But some or most of the scenarios are created out of historical observation. Reverse stress testing: This is a situation where we assume a worst situation and trace back the for the shocks that were responsible in causing the impact. Single factor stress to be carried out by the banks: Based on

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the Indian bank experience since 2007 and IMF carried out stress tests to strengthen financial stability, guidelines of BCBS and best international practices that are followed internationally have given some of the shocks which should be applied by banks. The stress testing in banks should be applied according to its size and risk perception of the bank. The severity levels of shocks have been divided into three levels they are:

- a. baseline
- b. Medium
- c. Sever banks will also try to measure their soundness to the occurring of one or more shocks occurring simultaneously.

If banks have already recognized the shocks, then those should be inculcated into the stress testing frameworks the baseline ones and give more severe shocks to make meaningful. Banks can embrace advanced technologies who have capabilities to manage.

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