

EBA'S STRESS TESTING: A SUBSTANTIATED ANALYSIS OR AN IMAGE EXERCISE

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Abstract. *As stated in opening documentation as a result of financial crisis, the European Commission through the European Central Bank (ECB) enabled the European Banking Authority (EBA) to conduct the stress test in order to assess the European banking system. The aim of the tests is to assess the resilience of financial institutions to adverse market developments, as well as to contribute to the overall assessment of systemic risk in the European Union (EU) financial system. The result will have to ensure comparability of the outcomes across all banks based on a common methodology, scenarios and accompanied by a consistent disclosure exercise. The EBA's EU-wide stress tests are conducted by using methodologies, scenarios and key assumptions developed in cooperation with the ESRB, the European Central Bank and the European Commission. This paper is an exploratory analysis of the methodology, the scenarios used and the aggregate outcomes of the exercise. The article aims to analyze the data collection, quantification of different risk types, projections under the scenarios, starting values for risk parameters, calculation methods, impairments and associated benchmarks. The research is based on analysis of the documentation issued and published by EBA, concerning the methodology and of the consolidated results, addressing issues related to the relevance of the stress test compared with the goals stated by European Commission. As stated by the European Commission, the goals of this stress test could have been a benchmark for a new economic paradigm, starting with the banking system. Since the regulation of banking system was not changed, the research will clarify if the stress test tries to verify only if the banks are compliant with existing regulation or tries to define a model of evaluation of the strength of European banking system. In this respect, the paper will assess if the top down modelling would have been more appropriate for consolidated analysis than bottom up modelling used on the banks' evaluation scenario, if proposed scenarios are valid and based on scientific approaches, if the several types of banking exposures are evaluated according to their specificity. One important assessment is the missing of an explicit forecast of monetary policy in the stress test scenarios, since this may have a significant impact for banks funding and also on their sovereign exposures. Also quality assurance is a major topic for this stress test since the proposed model is bottom up modelling and in the respect of transparency assumed. The research will also reveal the missing of important aspects and will rise questions like: missing of an world economic analysis in form of a modelling approach, the reason that the sovereign is overall assessed instead of dividing on each state according to specific liquidity and debt ratio indicators, the evaluation of credit risk losses which is not made according to the quality of assets and collateral, but divided equally between type of assets, the issue regarding the tax effect and evolution of deferred tax assets which are different in each county because of missing of the fiscal union, the flexibility of proposed criteria for uprising, left to the banks in some cases, the missing of an evaluation regarding the concentration inside European banking system. The stress test doesn't offer a definition of good and defaulted asset and does not propose a common rating system based on new economic reality. Regarding market risk scenario was not considered necessary to capture banks' structural market risk. Instead banks were required to identify the risk factors and specify corresponding moves per risk factor for each of the stress test scenarios. In case of sovereign risk, the risk is reviewed based only of debtor and not on guarantor. Concerning the non-interest income and expenses the stress test didn't proposed a clear methodology or a prudential limit. All mentioned aspects can raise the question if EBA's Stress Test is either a substantiated analysis or an image exercise.*

Keywords: *Stress Testing; economic paradigm; European banking system; evaluation modelling; quality assurance.*

The Comprehensive Assessment result

The ECB published the results of its Comprehensive Assessment (CA) on 26 October 2014. The stress test included 123 banks across the EU and Norway, covering more than 70% of total EU banking assets. The hurdle rate was defined as 5.5% and 8.0% of Common Equity Tier (CET) 1 ratio (as defined in CRR - A measurement of a bank's core equity capital compared with its total risk-weighted assets. This is the measure of a bank's financial strength. The Tier 1 common capital ratio excludes any preferred shares or non-controlling interests when determining the calculation. This differs from the Tier 1 capital ratio which is based on the sum of its equity capital and disclosed reserves, and sometimes non-redeemable, non-cumulative preferred stock. A firm's risk-weighted assets include all assets that the firm holds that are systematically weighted for credit risk. Central banks typically develop the weighting scale for different asset classes, such as cash and coins, which have zero risk, versus a letter or credit, which carries more risk. The risk-weighted assets essentially measure the firm's assets in terms of risk, typically in terms of 0%, 20%, 50% or 100%) for the adverse and the baseline scenario respectively.

There were 24 banks that 'technically' failed the adverse stress-test with a reported shortfall of €24.2 billion for the year-end 2013. Adjusting for capital banks raised during 2014, the shortfall came down to about €9.5 billion. Banks that failed were generally smaller-sized institutions with higher than average Non-Performing Exposure (NPE) domiciled in some of the weakest performing European economies. A number of failed banks are facing on-going deterioration in their balance sheet and/or the weakness of the economies they operate in. They may need to revisit or draw up remediation plans for their own management purposes at this time, in order to address impairments and insufficient provisions and augment capital.

The banks that failed were predominantly mid-tier banks in Italy, Portugal, Cyprus and Greece and reported a gross shortfall of €24.3 billion under the adverse scenario. Of these, 11 had already raised funds in 2014 to address their shortfall, leaving 13 banks with a capital shortfall of €9.52 billion. Adjusting for those banks that already have approved restructuring plans (e.g. Dexia's resolution; restructuring of Slovenian and Greek banks), it leaves just 8 banks in 5 countries that need to raise approximately €6.4 billion. Of these, 4 banks are in Italy (Monte Paschi, Banca Carige, Banca Popolare di Vicenza and Banca Popolare di Milano). All banks that 'failed' the test had two weeks following the ECB announcement to submit plans detailing how their capital shortfalls will be covered.

The banks with the greatest CET1 Ratio (Regulators use the Tier 1 common capital ratio to grade a firm's capital adequacy as one of the following rankings: Well-Capitalized, Adequately Capitalized, Undercapitalized, Significantly Undercapitalized, and Critically Undercapitalized. A firm must have a Tier 1 capital ratio of 6% or greater and not pay any dividends or distributions that would affect its capital to be classified as Well-Capitalized. A firm is Adequately Capitalized with a Tier 1 ratio of 4% or more; Undercapitalized below 4%, Significantly Undercapitalized below 3%, and Critically Undercapitalized at 2% or below. Firms that are ranked Undercapitalized or below are prohibited from) adjustment are shown, with small and medium sized banks from the periphery accounting for the largest ratio changes. The average basis points change was 66bps across all SSM countries.

In terms of gross AQR adjustments, Italian and Greek (€19.6 billion) banks are the largest, however the German, French and Dutch (€16.1 billion) banks also were required to write down the value of their assets substantially.

There are a few cases of 'narrow passes' where the NPL Ratio is around 15% and greater. All of these banks have provisioned for less than 50% of these non-performing loans. Under more stressed scenarios, Caixas Geral de Depositos, HSH Nordbank, Liberbank may have been at risk as their 2016 adverse CET1 Ratios were 6.1%, 6.1% and 5.6% respectively. The remaining 'narrow passes' from Germany appear relatively stable as they have low NPL ratios with sufficient coverage.

AIB despite recapitalisation continues to hold a disproportionately large amount of NPLs on its balance sheet that remains under-provisioned. With a 6.9% CET1 ratio achieved under adverse conditions, this

raises significant questions about its capital management and ability to underwrite new loans and be truly 'normalised'.

CET1 trends show that under baseline conditions, G-SIBs - List of Global Systemically Important Banks - (excluding Deutsche Bank and Unicredit) expect improving capital ratios. However, under stressed conditions, all G-SIBs - with the exception of Nordea - 'fail' the stress test when considering the additional loss absorbency capital requirements under the BCBS methodology.

British banks see the largest shortfall in meeting the additional G-SIB capital requirements - Barclays require a CET1 ratio increase of 2.86% to meet the 10% G-SIB requirement. Similarly, RBS would require a CET1 Ratio increase of 2.82% to meet its 9.5% G-SIB requirement. G-SIBs from Spain have comparatively significantly lower shortfalls.

A number of 39 Eurozone banks have leverage ratios under 4% which is generally expected to be the 'new norm' minimum standard in Europe, above the 3% currently proposed by the BCBS (Basel Committee on Banking Supervision). Of these 39 banks, a substantial number (12) are German banks, half of all the participating German banks in the AQR. The 39 banks include 5 G-SIBs: Deutsche, ING and France's Société Générale, BNP Paribas and Crédit Agricole. However, these results do not capture any of the banks' CET1 capital raising efforts in 2014 which would also benefit their leverage ratios.

A significant number of banks see losses at the end of 2013 which puts pressure at that point in time on their capital levels. There are a substantial number of banks which are barely breaking even which also weakens their ability to build up capital through retained earnings. On a net basis, income was €4.2 billion across all European banks in 2013. At the end of 2013, the capital needs were €24.2 billion, of which banks raised €14.7 billion. Generally, it was some of the smaller banks which did not go to the market in 2014 to raise capital. With the exception of a couple of the larger names (Unicredit, RBS), smaller to mid-tier banks are loss-makers under the baseline scenario in the 3-year forecast window. This raises questions around their capacity to go to market to raise funds and their ongoing market viability.

The Comprehensive Assessment analysis

The assessment starts with the same paradigm related to capital adequacy as before the crisis. The analysis has a purely theoretical assumption, that the activity will be constant in the following three years, without any workout and deferred incomes. It excludes the currency fluctuations and the modification in business structures and different geographical development.

Detailed analysis

Each global economic crisis has generated a new economic paradigm defined by one or more economist, and currently, the economic environment being still confused, such paradigm is needed. Perhaps this was expected and supposed to be one of the objectives of this stress test: that the tests result can be the foundation for a new paradigm in economy. Since the regulation of banking system was not changed, the research result will clarify only that the banks are compliant with existing regulation. But, since before the crisis, all banks were compliant with the regulations stated by their countries, the result can only be positive, with a few exceptions deeply affected by the crisis.

EU-wide stress tests starts with the definition of the methodology presented, consisting in „static balance sheet assumption, which precludes any defensive actions by banks, prescribed approaches to market risk and securitization, and a series of caps and floors on net interest income, risk weighted assets (RWAs) and net trading income” that should be also presented stressed by „a sovereign shock that impacts banks entire balance sheet including exposures held in the available for sale portfolio (AFS) via the internationally agreed gradual phase-out of prudential filters” by „a shock to banks funding costs that pass-through to the asset and liability side in a conservative asymmetric fashion „ and by ”a shock to

banks funding costs that pass-through to the asset and liability side in a conservative asymmetric fashion”.

This definition denotes an unilateral approach to the situation, which instead to aim to determine the underlying assumptions of banks in their budgets, which due to the financial crisis could not be reached, possible by simply comparing budgets with audited financial statements' closing, action that could define with arguments the stress test criteria, preferred randomly defined criteria whose relevance or value has not been substantiated.

Also the analyzed period „the consolidated year-end 2013 figures and the scenarios will be applied over a period of three years (from 2014 to 2016)”, was too narrow, since in 2013 the effects of the financial crisis on bank balance sheets were attenuated.

For an accurate determination for the financial crisis reasons and the correct assessment of assumptions that should have been the base of the stress test, the financial statements that should have been taken into account, should include at least the period from 2008 to 2013.

Concerning the overview of the risk types and their treatment in the EU wide stress test, the considered creditworthiness and adequacy indicators are the ones available before the crisis. Furthermore, because adherence to Basel II they are continually reviewed and corrected by commercial banks and central banks, meaning that the EU stress test measures something that is anyway measured and monitored by the banks and the possibility of negative findings is very small.

The stress test takes into consideration the weighted assets after the risk degree but using the same coefficients as before crisis. Before the crisis the assets were weighted also but it seems not enough. Moreover, some of the risk weights under the standard approach also do not reflect the underlying risks, for example zero risk weights for government debt or strongly reduced weightings for mortgage loans. The repayment capacity of the countries is not taken into consideration disregarding the recent crisis of sovereign debts.

The forecast regarding PD (Probability Distribution), LGD (Loss Given Default) are left to banks instead of proposing a consolidated system, most of the banks being transnationals and with tight connections between themselves, will be confronted in the same time with the same problems.

In case of dividend was considered proper but not prudential, the level of 2013, instead of considering the maximum level allowed by legislation.

The design of the adverse scenario is simplistic based on the following assumptions:” (i) an increase in global bond yields amplified by an abrupt reversal in risk assessment, especially towards emerging market economies (EMEs), and pockets of market liquidity; (ii) a further deterioration of credit quality in countries with feeble demand, with weak fundamentals and still vulnerable banking sectors; (iii) stalling policy reforms jeopardizing confidence in the sustainability of public finances; and (iv) the lack of necessary bank balance sheet repair to maintain affordable market funding. In line with this ranking of risks, the scenario narrative takes as a starting point a rise in investor aversion to long-term fixed income securities which results in a generalized re-pricing of assets and related selloffs. In particular, this causes US long-term interest rates to rise, setting in motion a global increase in long-term bond yields, a steepening of yield curves and an additional market tantrum in emerging markets. This affects particularly the group of countries identified as the ‘Fragile Five’ and other BRICS (Brazil, Russia, India, China and South Africa). These financial disturbances have further important real economy spillover effects, especially for emerging market economies (EMEs). The latter suffer from sizeable capital outflows, in a form which is similar to a ‘Sudden Stop’ episode, in which countries are excluded from international capital markets since they are perceived as too risky. Their internal demand then experiences a sudden fall. Overall, the negative effects, worldwide, of the financial turmoil on the real economy imply a marked deterioration of foreign demand for EU exports, putting significant downward pressure on GDP growth as a result. The global financial shock also acts as a trigger for all three other, EU domestic, vulnerabilities. This leads in particular to a further weakening of EU real economic

activity, re-differentiation of EU sovereign bond yields according to associated perceptions of sovereign risk, with associated funding difficulties for respective banking sectors”.

Looking more like a movie screen play, than as a substantiated analysis, the scenario proposed some general factors, part of an overpricing scenario, excluding the possibility of a deflation scenario, for example. Instead of this, the scenario should have been provided a detailed risk factors for each type of risk, credit risk, market risk, sovereign risk, securitization and cost of funding, which are different and with different relevant risk factors, determined by analyzing the bank balance sheets but also the overall world economy.

Analyzing the assumptions in case of currency depreciations for example, in case of Romania, the decrease took into account, was a 15% shock, while in Romania, the NBR, took into account a depreciation of 35.5% RON/EUR, through 17 Regulation, showing that the scenario suffers from lack of scientific research. A top down modelling would have been more appropriate for consolidated analysis than bottom up modelling used on the banks' evaluation scenario, since de regulation of the banking system is different in euro zone and outside of it.

A complex model of the world economic analysis in form of a modelling approach, is missing and also the sovereign risk is overall assessed instead of dividing on each state according to specific liquidity and debt ratio indicators.

In case of credit risk, banks are required to assess the impact of given macro-economic scenarios (baseline and adverse) on their future credit risk losses and credit quality, estimating values for default and loss rates under the predefined scenarios on the basis of internal models.

But first, the stress test should have been offered a definition of good and defaulted asset and should have been proposed a common rating system based on new economic reality. This way the result would have been more accurate and comparable between banks.

As stated in stress test, the evaluation of credit risk losses is not made according to the quality of assets and collateral, but divided equally between types of assets. „In the case of estimating a relationship between point-in-time parameters and the macroeconomic variables at the rating class level and, consequently, obtaining parameters for each rating class within a portfolio, the aggregate parameters are obtained directly as the exposure weighted average of the respective buckets. The exposure distribution among buckets could incorporate rating migrations linked to the macro-economic scenario and consequently would in this case require the banks to calculate point-in-time migration matrices. The distribution of exposures across buckets (that is used to calculate the corresponding aggregate parameters) would be the result of multiplying the distribution of exposures at the end of the previous year by the point-in-time migration matrix”.

This approach cancels the collateralization of the assets, with values that can evolve separately from the assets are backing. This evolution can modify the assets weighted values, increasing or decreasing provisions.

The different type of collaterals, are not mentioned in the stress test, and no method of selection and evaluation is not proposed, stating only that „banks must take into consideration the possible impact caused by the decrease in the fair value of credit risk mitigates (e.g. shock on real estate prices will impact real estate collateral). Moreover, banks must take into account the portfolio characteristics of the forecasted exposures in default (including - time since default).”

The stress test doesn't mention the necessity of aging to forecast the evolution of the non-defaulted assets but let this aspect to the bank appreciation imposing only the following condition: “In any case, each exposure class' coverage ratio, i.e. the ratio of total impairment provisions to exposure value, for non-defaulted assets cannot be lower than the starting level”.

Regarding the market risk, the proposed scenario doesn't contain provisions banks' structural market risk and only that the "CAs can require banks to report as a separate item any material risk factors that have not been specified in the scenario. These risk factors should be included in the stress test using shocks that are derived from the macro-scenario". If this information are provided, cannot offer a comparable and possible consolidate situation in regard of structural market risk for the entire European Banking system.

In case of sovereign risk, the risk are reviewed based only of debtor and not on guarantor. The banks should only calculate the direct positions that contain exposures to be reported, that include the positions towards sovereign counterparts and indirect positions that contains the positions towards other counterparts (other than sovereign) with sovereign credit risk in all accounting portfolios (on-off balance sheet). This item does not include exposures to counterparts (other than sovereign) with full or partial government guarantees by central, regional and local governments. Consolidation of this features could give a more accurate picture related to the concentration of European Banking system towards sovereign risk and of overpassing the concentration towards other countries. This also raise the question way the sovereign risk is overall assessed instead of dividing on each state according to specific liquidity and debt ratio indicators.

Concerning the non-interest income and expenses the stress test didn't proposed a clear methodology or a prudential limit. "Banks will have to use their own methodology in projecting non-interest income and expense paths, i.e. provide their own perspective on the sensitivity of the respective P&L items to the macro-economic scenario". But the banks can have different approaches and can diminish the value of non-interest expenses and over evaluate the value of non-interest income. This incomes and expenses can be an important part of the banking balance sheet but also an important part of consolidate balance sheet accords the European Banking System. A discipline, in form of a pattern proposed to evaluate and assess this items could provide useful.

The outcomes of the test

The economic scenario is empiric, being based on observation from the crisis period without proposing an integrated economic scenario. The model is not integrated and is made for different types of risk. The assumptions are not substantiated but they look arbitrary established based on one or more financial institution experience than by the measured possibility based on existing facts. The scenario is missing a world economy overall analysis, but takes into consideration only few advanced economies like USA, Japan that represents just a part of economic reality.

The Operational Risk, which seem to be both one of the crisis triggers and cause, wasn't even tackled, being left to the banks appraisals. It would have been a good moment to evaluate de bank procedures in order to assess the possible operational risk, to collect all possible operational gaps. The used system did not allowed and even try to allow the possibility of determination of the main types of concentration within the banking system as a whole. In this way the European Central Bank and European Banking Association are not able to supervise correctly the concentration risk and particularly, the sovereign risk.

The stress test didn't propose a new approach. Since the legislation in banking area has not change radically, as of before crisis, the banking system was compliant with the regulation, the proof being that the banks were allowed to function by supervisory authorities. Without innovation, the stress test is just trying to assess once more if the banking system is compliant with the regulator provisions instead of trying to assess the regulatory provisions by upraising the existing risks.

The stress test doesn't point who is responsible to correct the eventual miss findings that are observed in test results and in which interval of time: local regulator, BCE or banks themselves? It is stated only that for the quality of provisions for 2015 and 2016 banks will be subject to cross-sectional comparisons after the submission of the results and might be asked to revise internal figures if deemed overly optimistic. Most of the criteria are flexible and let to the bank will. In this case, the list of the criteria should have been verified by local regulator.

Proposed approach

Considering that the final goal is a European banking union, the European banks should have considered an integrated system. In this case the bottom-up approach is irrelevant, because the dissimilar characteristics of the banks, the high differences regarding economic performance, the high legislative difference and the fiscal differences.

It would have been more precise the top-down approach, through the consolidation of current banks' balance and off balance data. The consolidation result then could have been stressed with the conditions regarding risk concentration, NPL, provisions and then with an overall custom scenario, based on evaluated threats. This process could had easily be conducted for all year results between 2007 and 2013. The result comparison will have provided the mutation suffered by the banking system during this period but also a model that further should have been applied to each bank individually to assess it towards the European banking system, to evaluate the advantages and the threats and to propose a plan for mitigation of rectification of the risk discovered.

The fiscal differences between countries could be easily managed by combining all taxes related to banking system across European Union, considering always the highest level. The Operational Risk wasn't even tackled, being left to the banks appraisals. It would have been a good moment to evaluate de bank procedures in order to assess the possible operational risk, to collect all possible operational risk and to make a compulsory frame, for the bank internal regulation had to comply with.

One important risk across European banking system, is currency risk that was partially approached within market risk. "While there is no explicit forecast of monetary policy in the stress test scenarios, banks are expected to factor the projected changes in short-term market rates into the costs of central bank funding". For this risk should have been made a separate scenario to stress the banking system with the currency variations not only related to Euro currency but also for all other currency related to Euro and all related to US Dollar, considering that an important part of the banking asset are in local currencies. The concentration related to all European banking asset currency should be determined and should be stressed with different scenarios in order to mitigate, were is the case the best evolution of Euro towards the other local currency but also the evolution of all assets toward USD.

Quality assurance is not at all took into consideration, although it should be an important topic for the stress test, for all banks. Unlike previous balance sheet assessments where the combination of an asset quality review (AQR) and stress test was performed by an independent third party, for the stress test part of the Comprehensive Assessment this has not been the case. As a result, it is possible to assume that there will be a high level of incertitude placed because of the banks' own modelling. For this reason it is possible that the banks' clearly documented translation of the scenarios, including ability to evidence assumptions used and robust governance and controls, wouldn't be enough.

Conclusion

Concluding, it must be said that the EU-wide stress tests lacks the goal, the method and the consistency. The results are inconclusive and instead of giving a new paradigm as many economists expected, it is just an image exercise. The stress test raises the question put by Anat Admati and Martin Hellwig in the paper: "If not now, when? Financial Reform Must Not Wait Another Crisis".

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