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Supervisors as information producers: Do stress tests reduce bank opaqueness?

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ABSTRACT

Supervisory stress tests assess the impact of an adverse macroeconomic scenario on the profitability and capitalisation of a large number of banks. The results of such stress test exercises have recently been disclosed to the public in an attempt to restore confidence and to curb bank opaqueness by helping investors distinguish between sound and fragile institutions. In an unprecedented effort for transparency, the 2011 European Union stress test lead to the release of some 3400 data points for each of the 90 participating banks. This makes it an ideal setting to investigate a number of hypotheses on the information role of the stress tests.

In this paper we examine the 2011 European stress test exercise to assess whether and how it affected bank stock prices. Our event study analysis shows that the test's results were considered relevant by investors. The market did not simply look at the detailed historical data which was released after the tests, but also attached considerable importance to variables measuring each bank's vulnerability to the simulated downturn scenario. The latter include proxies for liquidity risk and model risk. Information on sovereign debt holdings, while affecting market reaction on a univariate basis, is not statistically significant in a multivariate setting. We also find that the market is not able to anticipate the test results and this is consistent with the idea of greater bank opaqueness prior to the disclosure of the stress test results. Overall, our analysis shows that stress tests produce valuable information for market participants and can play a role in mitigating bank opacity.

1. Introduction

Supervisory stress tests assess the impact of an adverse macroeconomic scenario on the profitability and capitalisation of a large number of banks accounting for a significant share of the overall loans and deposits.

Unlike in the internal stress tests used by individual banks for risk management and capital planning purposes required by the so-called "Pillar Two" in the 2004 Basel Accord, supervisory stress tests are run by all involved institutions based on a common scenario[1] and covering an identical forecast window (typically 2 years). This makes results highly comparable across banks.

Supervisors may keep the outcome of the test confidential, or make it public in an attempt to curb bank opaqueness, help investors distinguish between sound and weak institutions and restore confidence.[2]

In order to assess whether stress tests produce valuable information to market participants, this paper investigates the price changes experienced by European banks after the release of the 2011 stress test results.

Our research is motivated by the following.

First, we address the issue of whether stress test results should be disclosed at all (Goldstein and Sapra, 2011). In fact, it has been argued (Das, 2011) that publicly-disclosed stress tests are inherently flawed. This follows from the fact that supervisors cannot test adverse scenarios which are extreme enough to provide a truly "stressed" environment (e.g., scenarios involving the default of one or more sovereign entities), as they might scare investors or simply be politically unpalatable; but if downturn scenarios are perceived as too mild by investors, the stress test results may simply be ignored by the market. Furthermore, if macroeconomic conditions in the following months deteriorate more than anticipated by the "stressed" assumptions (possibly leading to the failure of

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[1] E.g. a 2% decrease in GDP, a 3% surge in the unemployment rate, a 20% drop in stock prices, etc. See Section 3.1 for further examples.

[2] Especially if weaker banks are forced to recapitalise when the results are announced.

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one or more banks which had passed the test), this dents the supervisors' credibility and may lead to greater market uncertainty.[3]

Following such concerns, some supervisors have decided not to disclose the results.[4] Other supervisors kept making results public, but instead of releasing a simple, "binary" signal ("pass" vs. "fail") considerably increased the depth and width of the data they release to the market. This is the case of the 2011 European stress tests, which enabled investors to "do the modeling themselves", simulating their own downturn scenarios based on an up-to-date, comprehensive, reliable information set.

This leads us to our second motivation: the 2011 European Union stress test (carried out by the European Banking Authority, EBA) involved a relevant role of the supervisor in the information production process. In fact, EBA released up to 3,400 data points for each of the 90 participating banks.[5] This represents an unprecedented database to study stress tests effects and makes possible to investigate the determinants of market reaction by looking at a uniquely rich set of financial indicators.[6] Also, in the EBA stress test the data template used to release results was the same across all banks and was shared with the public ahead of the publication date. Market participants were therefore able to quickly digest the news and adjust market prices.

A third and somewhat minor motivation is the fact that the 2011 EU stress test was openly criticised by some analysts as ineffective, as it failed to reverse the downward trend experienced by bank stock prices in late 2010 and 2011 (Jenkins, 2011a). However, in assessing the market reaction to the 2011 stress tests one must take into account that they took place amidst market jitters caused by the Euro sovereign debt crisis. Accordingly, a rigorous econometric analysis is needed, controlling for confounding effects (e.g., bailout plans for Greece) and focusing on the days immediately following the release of stress test results.

Our paper tests several hypotheses. Did the stress tests produce relevant information for market participants ("irrelevance hypothesis")? If the test's results triggered a market reaction, was this reaction caused by the release of more granular historical data ("zoom hypothesis") or by the resiliency indicators generated by the stress test exercise ("stress hypothesis")?

Our findings lead us to reject the irrelevance hypothesis: the market significantly reacted upon disclosure of the results. This implies that the stress test revealed new information to the stock market. Additionally, the abnormal returns of tested banks are strongly related to some stress test outputs. These include indicators based on detailed historical information, as well as several ratios expressing the banks' vulnerability to the downturn scenario. Our evidence provides support for both the "zoom" and the "stress hypothesis", and shows that stress tests have provided investors with relevant information and are an effective tool to mitigate bank opacity.

Our paper contributes to the existing literature in the following dimensions.

First, it enters the debate on transparency in bank supervision (Jordan, 2000; Dudley, 2009; GAO, 2010) by empirically showing that more disclosure about banks' assets and losses can help investors gain a better understanding of the risks and value of banks. This in turn reinforces market discipline (Flannery, 2001) and facilitates the macro-prudential oversight of financial institutions (Acharya et al., 2009). Our paper also directly contributes to the debate on whether to disclose stress test results. Second, it indirectly contributes to research on bank opaqueness (Morgan, 2002; Flannery et al., 2010), as the fact that stress tests results enhance the market's information set and trigger a price adjustment can be seen as a proof that banks are not fully transparent.

The paper unfolds as follows: Section 2 summarises previous research results on bank opaqueness and stress tests; Section 3 presents the main features of the 2011 European stress test; Section 4 states our testable hypotheses; Section 5 describes our sample, methodology and key variables; Section 6 shows our main results, while some robustness checks are discussed in Section 7; Section 8 concludes.

2. Literature review

Relative to non-financial companies, banks have a higher share of assets which suffer from a strong degree of opaqueness: loans are informationally-sensitive and hard to evaluate for outsiders, while liquid assets can easily be sold, and this makes the information in the financial statements rapidly obsolete. As a result, banks may be harder to assess, for outsiders, than firms from other industries.

A proof of bank opacity is the fact that market prices react to supervisory announcements and inspections (Berger and Davies, 1998; Flannery and Houston, 1999; Jordan, 2000), meaning that investors were not able to anticipate all relevant information. Also, split ratings tend to occur more often for banks than for non-bank companies (Morgan, 2002; Iannotta, 2006), suggesting that the latter are harder to assess, due to stronger opaqueness. Regressions of bank stock returns on market indices show higher R-squares (Haggard and Howe, 2007); this means that firm-specific information plays a less significant role for bank stock prices because it is harder to extract than for non-banks.

Several supervisory tools are put in place, including deposit insurance and risk-based capital requirements, to prevent lenders and depositors from being scared away by bank opacity. As opacity tends to increase in times of crisis (Flannery et al., 2010), additional mechanisms are needed to reassure the market during a financial turmoil.

This was possibly the main motivation behind the supervisory stress tests carried out in the US[7] (2009, 2012) and the European Union[8] (2010 and 2011). By disclosing information on each bank's strengths and vulnerabilities, the supervisors aimed at reducing market uncertainty, stabilise stock prices and prevent panic.[9] The idea was that investors, when presented with a rich flow of data (comparable across banks and somewhat "certified" by the supervisors' intervention), would consider banks less opaque, and therefore

[3] Also, some banks have argued that, if too many details on balance-sheet composition are made public, this could damage business confidentiality and give rise to legal risks. Also, other market participants could gain insights into one bank's risk profile, e.g. by estimating the amount of needed financial hedges and using this information to carry out arbitrage strategies on the CDS market (Bryant, 2011).

[4] This is the case of the 2010-11 US Comprehensive Capital Assessment Review ("CCAR"). Unlike in the 2009 US stress tests, in the CCAR there was no disclosure by the Fed of individual stress test results (Dudley, 2011).

[5] This compares with 28 data points and 19 banks in the US 2009 stress tests. See Section 3.1 below for further details.

[6] Besides the unprecedented breadth of the data disseminated, another feature of the European stress test makes it appropriate for an empirical analysis of the supervisors' role as information providers. As noted by Bischof and Daske (2012), the US stress test directly resulted in mandatory governmental capital injections; thus the simultaneous announcement of these regulatory measures makes it more difficult to isolate pure disclosure effects.

[7] Federal Reserve (2009a, 2012). As mentioned in Footnote 4, a stress test exercise was carried out by the FED also in 2011, but results were not publicly disclosed.

[8] Committee of European Banking Supervisors (2010) and European Banking Authority (2011a).

[9] To quote the Federal Reserve report whereby the 2009 stress test results were released, "the decision to depart from the standard practice of keeping examination information confidential stemmed from the belief that greater clarity [...] will make the exercise more effective at reducing uncertainty and restoring confidence in our financial institutions" (Federal Reserve, 2009b).