Stress Testing and Bank Efficiency: Evidence from Europe

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ABSTRACT

This study examines whether and how the stress testing of European banks in 2010, 2011, and 2014 is related to their technical, allocative, and cost efficiency. Using a sample of large commercial banks operating in 20 European countries, and Data Envelopment Analysis (DEA), the authors perform comparisons between banks that were included in one of the three European stress tests and untested banks operating in the same countries. They estimate various specifications as for the inputs and outputs, cross-section and pooled estimations, and they also examine alternative samples as for the ownership of banks. In general, the authors conclude that banks included in the stress-test exercises are more efficient that their counterparts. The differences tend to be statistically significant in the case of allocative efficiency and cost efficiency, but not in the case of technical efficiency. With regards to the latter form of efficiency, the results depend upon the specification and the stress test in question.

Keywords: Banks, Efficiency, Market Discipline, Opaqueness, Stress Testing

1. INTRODUCTION

The efficiency of banking institutions has received considerable attention in the literature.1 Some of the studies provide a comparison of alternative techniques for the estimation of efficiency (e.g. Bauer et al., 1998), whereas others attempt to reveal the driving factors of efficiency.2 A small but growing number of studies that fall into the latter strand of this literature examine the role of market discipline and disclosure requirements. Most of these studies make use of information from the World Bank Database on Bank Regulation and Supervision to develop proxies of disclosure requirements, which they then relate to bank efficiency (e.g. Pasiouras, 2008; Barth et al., 2013). Others examine alternative proxies of transparency like the number of analysts follow-
ing a bank and transparency ratings (e.g. Akhigbe et al., 2013; Farvaque et al., 2012). In general, these studies tend to conclude that enhanced disclosure requirements improve bank efficiency.

In the present study, we follow a different approach. More precisely, we examine whether and how stress testing, as a tool that enhances transparency and market discipline, influences bank efficiency. The main hypothesis according to the private monitoring empowerment view is that improved private governance of banks (i.e. by market participants) will boost their functioning (Barth et al., 2007) and consequently their efficiency.

The idea that stress testing can reduce bank opaqueness is not new. For example, as highlighted in Neretina et al. (2014), Bernake stated in 2013 that “Even outside of a period of crisis, the disclosure of stress test results and assessments provides valuable information to market participants and the public, enhances transparency, and promotes market discipline”. This is possibly why the number of countries publishing bank stress tests has significantly increased, from 0 to over 40 in recent years (Horváth and Vaško, 2013). Within this context, the 2011 stress test of the European Banking Authority led to the release of around 3,400 data points for each of the 90 participating banks. This was followed by an even more remarkable attempt to improve bank transparency during the 2014 stress test, with the disclosed data points increasing to up to 12,000 for each one of the 123 banks involved in this exercise. As a result of the interest in the disclosure of stress testing, various recent studies examined their impact on capital markets, focusing mostly on CDS spreads and equity returns (e.g. Alves et al., 2013; Petrella and Resti, 2013; Ellahie, 2013). These studies tend to conclude that the stress-tests provide valuable information to market participants.

However, as discussed in Goldstein and Sapra (2013) while there is no doubt that stress tests uncover unique information to outsiders, there can also be various costs associated with such disclosures. We focus here at two of the costs highlighted in Goldstein and Sapra (2013), those being the ones most closely related to bank efficiency. The first drawback is that disclosure may harm the operation of the interbank market and the provision of risk sharing achieved in the mark. This would not only influence the flow of funds towards specific banks, but also the cost of short term borrowing, leading to a decrease of bank efficiency. Second, bank managers may respond myopically to disclosure requirements under stress testing, and try to inflate short-term performance at the expense of long-term efficiency. In other words, Goldstein and Sapra (2013) argue that banks may (i) choose sub-optimal portfolios that allow them to pass the stress tests but reduce the long term value of the bank, and/or (ii) engage in window dressing behaviour to pass the test by engaging in inefficient sale assets. Spargoli (2012) also discusses that a proper analysis of information disclosure, should consider market participants’ reactions to the disclosure of capital shortfalls. He highlights that market discipline leads banks to reduce their risk of default, as investors are reluctant to lend to under-capitalized banks; however, reducing the risk of default requires either raising new capital or downsize and cut the supply of credit. Clearly, all the aforementioned bank actions could have an impact on efficiency by influencing either the bank inputs or the outputs.

Our sample consists of large commercial banks from 20 European countries. We perform comparisons between banks that were included in one of the three European stress-test exercises and untested banks operating in the same countries. Using data envelopment analysis (DEA), we estimate various specifications as for the inputs and outputs, we perform cross-section and pooled estimations, and we also examine alternative samples as for the ownership of banks. Our results can be summarized as follows. First, banks included in the stress-test exercises seem to be more efficient that their counterparts. Second, the differences tend to be statistically significant in the case of allocative efficiency and cost efficiency, but not in the case of technical
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