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The eurozone financial crisis and bank efficiency asymmetries: Peripheral versus core economies

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A B S T R A C T

This paper assesses the impact of the financial crisis on the levels of banking efficiency within the Eurozone. We examine if the crisis had asymmetric effects on bank efficiency across different regions of the Eurozone, comparing the banks in the financially stressed European periphery to those in the surplus economies of the core during 2005–2012. We use Data Envelopment Analysis (DEA) to measure bank efficiency and the Brockett and Golany (1996) test to identify group-based differences in efficiency. Our results indicate a gradual convergence process in efficiency between the banks of the core and periphery countries up to 2008. This process is reversed with the escalation of the financial crisis from 2009 to 2012 and the pattern of bank performance becomes asymmetric. Moreover, our findings suggest a more benign impact of the crisis on the core banks, which anyway outperform peripheral banks throughout the period considered.

1. Introduction

After the establishment of the Economic and Monetary Union (EMU) in Europe the level of banking competition increased both in terms of width (Goddard, Molyneux, & Wilson, 2001) and volume (Cetorelli, 2004) on the back of a bold pro-competitive deregulation process. Key elements of this competition and efficiency enhancing process included the removal of entry barriers and the creation of a level-playing-field in banking services provision (Claessen & Laeven, 2004). Along with its obvious economic advantages, however, the process of financial integration within the EMU entailed more pronounced contagion risks, which were not fully perceptible before the burst of the financial crisis. The euro-zone financial crisis emerged against this background with a dual nature, involving both insolvent sovereigns and banks. An extensive empirical literature considers various aspects of the interactions between bank efficiency and economic activity. Limited research exists, however, examining, the potentially asymmetric effects of the euro-zone crisis on bank efficiency and performance. This paper assesses the implications of the euro-area crisis for banking efficiency on a comparative basis. We consider whether significant asymmetries exist in the performance of banks in core and peripheral economies in the run-up and the aftermath of the crisis. We examine if the crisis had unbalanced bank efficiency implications on the banks in the financially stressed European periphery (including Greece, Ireland, Italy, Portugal, and Spain) as compared to those in the surplus economies of the core (including Austria, Belgium, Germany, France, and the Netherlands). Our data spans from 2005 to 2012. We use the Data Envelopment

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Analysis (DEA) approach to obtain measures of bank efficiency and then utilize the Brockett and Golany (1996) test to identify group-based differences in efficiency. Our results indicate a gradual convergence process in efficiency between the banks of the core and periphery countries up to 2008. This process is reversed with the escalation of the financial crisis from 2009 to 2012. Our findings also suggest more benign impact of the crisis on the core banks which anyway outperform peripheral banks throughout the period considered.

The remaining of the paper is organized as follows. Section 2 reviews the relevant literature in the area of the DEA application in measuring banking efficiency. Section 3 discusses data and methodology issues. In Section 4 the results from the empirical analysis are presented and finally Section 5 discusses the results and presents directions for future research.

2. Background and literature review

2.1. Background

From the early years of the EMU, commercial banks engaged in rapid credit growth, taking advantage of the declining interest rates, especially in the peripheral euro-zone economies, which experienced very low, and occasionally, negative rates. The low interest rate environment under the single currency framework founded a false perception that credit risk is similar across the different regions, leading some EMU sovereigns to increased levels of borrowing. The peripheral economies traditionally characterized by structural weakness, an underlying loss of competitiveness, and external imbalances, continued enjoying an overrated credit status, attributed to their EMU membership, and an unobstructed access to capital markets, relying on both domestic and foreign bank's appetite towards sovereign bonds. The Euro-zone bank exposure to both private and sovereign credit risk increased in the wake of the new economic environment. Thus, along with its obvious economic advantages, the process of financial integration within the EMU entailed more pronounced contagion risks, which have not fully perceptible before the burst of the financial crisis.

Increasing risk premia in the sovereign debt and money markets adversely affected the cost and the composition of some euro area banks' funding within the first decade of the euro-zone. Sovereign debt downgrades spilled over to bank's credit ratings, balance sheets weakened due to losses on government debt holdings and collateral values declined imposing restrictions on liquidity provision from the interbank market and the ECB gradually inhibited access to markets. Banks in Greece, Ireland and Portugal experienced severe difficulties in raising wholesale debt and vanishing access to capital markets, becoming increasingly more reliant on central bank liquidity. Risks spread to periphery banks, witnessed a large portion of their customer deposits moving to the EMU core (e.g., Germany, France, Netherlands) banks in a flight to safety. To hinder this trend periphery banks have been compelled to raise the interest rates paid on their deposits, a strategy which weighed on their profitability. On the credit supply side, the awareness of risks related to the euro-zone crisis along with the demand for compliance with the Basel III regulatory framework, restricted peripheral banks' appetite for new lending. In addition to the deepening recession, austerity programs and fiscal adjustment in the peripheral economies resulted in lower investment, lower demand for loans and, more importantly, increased loan delinquencies due to the erosion of the corporate and households' repayment ability (IMF report, 2012). Banks in core economies experienced declining wholesale funding costs which were efficiently transmitted to the implicit required return on their loans portfolio and were reflected on tightening margins in retail banking activities.

The financial crisis generated distortions in the euro-area banking system and the fragmentation between the core and the periphery, highlighted the emerging challenges for financial integration within the EMU. The interbank market was constructed on top of national banking systems with the powers of oversight and supervision of commercial banks being assigned to the national central banks. In the absence of uniform and transnational resolution mechanisms, governments had to back commercial banks 'creditworthiness against default risk and to extend guarantees on their national banks. The last, in turn, started providing liquidity to banks with non-eligible assets for ECB refinancing operations. Thus, while the euro-area banks used to operate in a highly intergraded interbank market their monitoring, creditworthiness, and solvency remained highly country-specific and asymmetric across the eurozone.

2.2. Literature review

In addition to academic concerns, the evaluation of bank performance has direct and practical implications for various stakeholders in the real economy, including investors, bank managers, and regulators. An extensive literature explores the bank incentives for reducing operating costs, utilizing resources more efficiently, and improving management to achieve competitiveness gains (e.g. Hsieh, Shen, & Lee, 2010; Miguel-Dávila, Cabeza-García, Valdunciel, & Flórez, 2010). Two approaches dominate the literature on bank performance, namely the financial ratio approach and the frontier approach. The financial ratio approach is based on the evaluation of financial indices measuring profitability, liquidity and credit quality. One of its key advantages is the ability to effectively distinguish the outperforming banks while providing sufficient controls for size effects (Samad, 2004). Nevertheless, the financial ratio approach suffer from the lack of consensus, at least among academics, about the most representative combination of financial ratios and their respective weightings in the analysis of bank efficiency (Yang, 2012).

The efficient frontier approach is based on both statistical and mathematical programming techniques which produce efficiency frontiers and assess bank performance by assigning relative efficiency scores, with the higher score indicating always higher relative performance. Bauer, Berger, Ferrier, and Humphrey (1998) provide a comprehensive review of frontier approaches including the Data Envelopment Analysis (DEA), the Stochastic Frontier Analysis (SFA), the Distribution Free Analysis (DFA) and the Thick Frontier Analysis (TFA). They apply all competing frontier approach to a data set of 683 US banks for the period from 1977 to 1988, and conclude that there is no single approach dominates is allowing to define an efficient frontier. Instead, each technique seems to react to varying