



# The nexus between competition and efficiency: The European banking industries experience



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## ABSTRACT

In this paper, we investigate competition in banking systems in the EU27 as a whole for the period 2004–2010, but also for old members' banking systems compared with new members' banking systems and for banking systems from countries member of euro zone compares with banking systems from countries non-member of euro zone. In order to investigate this issue, we estimate a non-structural indicator of banking competition, using the *H*-statistic indicator that is estimated using bank-level data. Also, we apply two tests of convergence,  $\beta$ - and  $\sigma$ -convergence, for assessing competition evolution during the specified period. We want to fill the gap in the banking literature testing the validity of the Competition–Efficiency Hypothesis, analysing the impact of the banking competition measures on two alternative measures of efficiency, cost and profit efficiency, in the European banking systems in a Granger-causality manner. The results confirm us that in the EU the convergence process occur from the banking systems with higher competition level than the mean score of all countries. The evidence for all groups of countries, except non-euro zone group, where results are not statistically significant, confirm the Competition–Efficiency Hypothesis in terms of cost and profit efficiency.

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## 1. Introduction

The study investigates the evolution of banking competition and the impact of banking competition measures on bank efficiency in the EU27 banking systems for the period 2004–2010. Across the region, national governments have implemented liberal financial sector policies in expectation that removing impediments to competition will yield efficiency gains (Carvalho, Paula, & Williams, 2009). European integration has aimed to favor competition in all industries, including bringing about more homogeneous banking systems. In the past two decades, European banking markets have been subjected to structural changes that were caused by modifications in the external environment, especially as a consequence of increasing monetary and financial integration (Allen & Song, 2005). Competition's gains result from price reductions in financial services leading to direct gains for consumers and indirect gains through the reduction of loan rates favoring investment (Weill, 2009). Also, European integration potentially has a positive impact on an industry's efficiency, quality of provision, innovation and international competitiveness (Casu & Girardone, 2009b).

In first part of the paper, for the period for the period 2004–2010, in the context of European Union integration and enlargement, we investigate competition in the banking systems in the EU27. The originality of this study consists in assessing competition not only for the EU27 banking systems as a whole, but also for old members' banking systems compared with new members' banking systems, and for banking systems from members of the Euro zone compared to banking systems from non-members of the Euro zone. Also, we want to fill the gap in the banking literature by providing evidence on the evolution of banking competition in EU during the present international financial crisis. In order to investigate this issue, we estimate a non-structural indicator of banking competition. We measure competition using the *H*-statistic indicator that is estimated using bank-level data. We do this in order to assess whether European integration and enlargement processes have had a positive/negative impact on banking competition.

In the second part of the paper, we apply two tests of convergence,  $\beta$ -convergence and  $\sigma$ -convergence, for measures of banking competition at the European Union level over the 2004–2010 period. The main aim of banking integration is the convergence towards the one-price behavior, according to which, all banks should charge the same price for similar products. However, Gropp and Kashyap (2010) argue that the high degree of heterogeneity in demand for retail bank products that may arise from differences in tax systems, preferences, risk characteristics, or

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other demand-side related factors. Because of this, they further argue that there is neither a sufficient nor necessary conditions for retail banking integration. Therefore, the investigation of convergence of banking competition will provide information on the banking integration in the European Union countries. Thus, the following hypothesis may be formulated:

**H1.** European integration and enlargement processes have not determined the convergence processes of banking competition.

One contribution of our paper is the disaggregation of the  $\beta$ -convergence test in two parts that allow us to estimate where this kind of convergence is predominant: from banking systems with lower level of competition than the EU average level or from banking systems with higher level of competition than the EU average level.

In the third part of the paper, in a Granger-causality manner we analyze the impact of banking-competition measures on two alternative measures of efficiency, cost and profit efficiency, in the European banking systems. We test the validity of the Competition–Efficiency Hypothesis that may be formulated:

**H2.** An increase in banking-competition levels determine an increase in the efficiency level of banks.

The rest of the paper is organized as follows. Section 2 outlines key characteristics of the European regulation reform and the evolution of European Union banking sectors. Section 3 provides an overview of the theoretical and empirical literature on banking competition, and the theoretical and empirical background of the relationship between competition and efficiency in banking systems. Section 4 describes the econometric methodology, while Section 5 presents the results of the empirical analysis. Finally, Section 6 summarizes our findings.

## 2. European banking structure and regulation

One of the major goals of the European Union is to create a single market for financial services. Since the financial system is crucial for the allocation of resources in the economy, a single market for financial services has the potential to significantly improve the efficiency of investment and increase growth (Allen & Song, 2005). The effort to integrate the European banking markets is not a recent phenomenon, as it started as early as 1957. In 1957, the Treaty of Rome set out the main principles for a single banking market in the European Union. In 1973, a preliminary step of European banking reform took place when the EC Council of Ministers adopted the Directive on the Abolition of Restrictions on Freedom of Establishment and Freedom to Provide Services in Respect of Self-employed Activities of Banks and other Financial Institutions, which was established to ensure the equal treatment of banks of member states regarding entry into domestic markets and the conditions under which banks would be allowed to operate. Four years later, in 1977, the First Directive on the Co-ordination of Laws, Regulations and Administrative Provisions Relating to the Taking up and Pursuit of Credit Institutions was adopted, setting the definition of credit institutions and the principle of home-country control. Upon this Directive, the supervision of credit institutions operating in various member countries would be the responsibility of the parent bank's home country. Because being subject to different prudential requirements and the presence of restrictions on capital flows not sustain the process of integration in EC banking markets, the Second Banking Directive was established in 1989. This later legal text introduced the single banking license that authorizes any bank of any EU state to provide banking services in another EU state

without additional authorization, and includes minimum capital requirements. This directive was followed by others in order to improve European integration and aims to harmonize the definition of capital, the solvency ratios for EC credit institutions, regulations on accounting for foreign branches, the reorganization and winding up procedures, and deposit insurance. The 1992 Maastricht Treaty, which consolidated the single-market program, the introduction of the euro in 1999, the Financial Services Action Plan (FSAP) launched in 1999 to be implemented in 2005, the creation of the European Monetary Union (EMU) in 1999, and the introduction of the euro were other steps taken towards the integration of the European banking.

In 2004 and 2007, two waves of EU enlargement took place, 10, 2 states, respectively joining, with the total number of EU members becoming 27.<sup>1</sup> The banking sectors in the new EU member states, beginning in the early 1990s, encountered a remarkable transformation. Throughout the transition from a centralized economy to the market-based economy, they followed a twin process of ample banking liberalization/privatization and re-regulation, the latter especially in the form of safety nets and supervision. The financial structural differences between new and old EU countries, as well as the strong ownership links of credit institutions operating in the new member states and the old EU-15 countries, have profound implications for competition, efficiency and the financial stability and soundness of the new European financial system (Staikouras & Koutsomanoli-Fillipaki, 2006). Foreign banks played a key role in the process of privatization, which resulted in a heavy presence of foreign-owned banks in the region and in facilitating cross-border competition, especially before the moment of accession to EU. Between 2000 and 2004, the total number of subsidiaries from other EU states in new member banking systems grew very fast and remained relative stable after accession.

After the European integration, in new member states' banking systems, the level of concentration measured as the share of total assets of the five largest credit institutions, and the Herfindahl–Hirschmann Index (HHI) recorded an ample decrease.

In the case of old member countries, the number of subsidiaries from other EU states increased before the first wave of enlargement (2000–2004), followed by a decrease in the next period (2004–2010). The trend was a continuum in the case of number of branches; and all old member countries, with the exception of the UK, experienced an increase in the number of branches between 2000 and 2010. This could be because of the European Company Statute that allows banks to form single legal entities that can operate freely across European Union national borders.

In the case of concentration, old members' banking systems recorded an increase for both indicators. The share of total assets of the five largest credit institutions, with the exception of Austria, Belgium, Spain and Finland, grew in all old member states in the period 2000–2010. The largest increase was uncounted by Italy (16.57%), Ireland (15.73%) and UK (14.33%). The HHI generally increased in old member countries, with the exception of Austria, Belgium and Spain.

The removal of the currency barrier by the creation of the single currency enforced the competition among the European banks, forcing banks to reconsider their strategic orientation and has led to increased internationalization and geographical diversification, making banking practices more uniform and pricing more transparent (ECB, 2005). Both indicators that measure concentration remained relatively stable in the euro zone in the 2000s and in the non-euro zone it has encountered a

<sup>1</sup> Croatia joined the European Union as its 28th member state on 1 July 2013. Banks from Croatia are not included in our study because we focus on the 2004–2010 period, and Croatia finished accession negotiations on 30 June 2011 and signed the Treaty of Accession on 9 December 2011.

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