



New evidence on assessing the level of competition in the European Union banking sector: A panel data approach



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ABSTRACT

The goal of this paper is to empirically assess the level of banking competition in the European Union (EU) across three economic blocks (i.e. EU-27, EMU-17 and the remaining EU countries). Furthermore, the paper assesses the impact of the on-going financial crisis (2008–2011) on the competition pattern of the banking sector in the European Monetary Union (EMU) as a whole, where little attention has been paid by the relevant literature. The analysis employs the Panzar and Rosse ((1987). *Journal of Industrial Economics*, 35, 443) methodology and draws upon a panel dataset of EU banks, spanning the period 1996–2011. The empirical findings are robust, providing updated evidence in favour of a monopolistic competition pattern across all EU economic blocks examined. The level of competition in the EMU countries triggered by bank consolidations seems to have undergone a small, albeit a significant decline, after the adoption of the euro currency and the on-going financial crisis.

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1. Introduction

There is no doubt that the banking sector constitutes one of the most important sectors of the EU economy, since it represents over 50% of total EU activity in terms of gross income (EC, 2007). It is stated that in 2004, retail banking activity in the EU generated gross income of 250–275 billion euros, equivalent to approximately 2% of the total EU GDP. The sector is also critical for the competitiveness, economic growth and prosperity of the EU since it has significant spillovers on all other economic activities. However, a number of idiosyncratic characteristics, such as market fragmentation, price rigidity and customer immobility, suggest that competition in the EU retail banking market may be hindered (EC, 2007). Therefore, the investigation of the level of competition in the EU banking sector is a rather crucial issue, with important economic and managerial implications.

Many empirical studies have attempted to examine the competitive conditions in the banking sector and its specific

market structure (i.e., oligopoly, monopolistic competition, monopoly, perfect competition). The majority of these studies consent that banks operate in a monopolistic competitive environment. The theory of the monopolistic competition suggests that firms compete by offering differentiated products (Chamberlin, 1933). In this context, a firm operates as a price-taker since there are many producers in the relevant market and none of them is able to set his own price (Chamberlin, 1933). Consequently, each firm has limited, if any, control over the final price of its offerings. By contrast, consumers perceive that there are non-price differences among the competitors' goods, while there are few barriers to entry and exit the market, at least in the long-run. However, producers have to some extent control over the market price.

It is worth emphasising that many markets are dominated by monopolistic competition characteristics (i.e., advertising, hotel and restaurants, insurance). In terms of the banking sector, the knowledge on the level of monopolistic competition is a crucial and important issue not only from a policy making perspective, but also from a managerial standpoint. This is justified inter alia by two reasons. First, the presence of low entry barriers in tandem with a low level of Significant Market Power (SMP) in the sector might affect managerial decisions towards their engagement into strategic alliances and mergers and acquisitions. Second, the

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presence of differentiated products may induce bank managers to expand their sources of earnings through diversification of assets and liabilities, as well as by reducing the operational cost and/or increasing non-interest revenues (Andries & Capraru, 2014).

From a methodological perspective, over the last decades, two non-structural models of competitive behaviour have been developed within the emerging New Empirical Industrial Organization (NEIO) framework. These models measure competition and focus on the detailed competitive conduct of firms without using explicit information on the structure of the market (Bresnahan, 1982; Panzar & Rosse, 1987). Both models measure competitive conditions by estimating deviations from competitive pricing and can be formally derived from profit maximising equilibrium conditions, which are their main advantage over structural measures (Bikker, Shaffer, & Spierdijk, 2012).

In the empirical banking literature, the widely used Panzar–Rosse model builds a competition indicator, the so-called H -statistic, which provides a quantitative assessment of the competitive nature of a market. The H -statistic is calculated by means of reduced-form revenue equations and measures the elasticity of total revenues with respect to changes in factor input prices (Panzar & Rosse, 1987). This methodology, based on four steps (Fig. 1), makes use of bank level data. It examines the extent to which a change in factor input prices is reflected on (equilibrium) revenues earned by a specific bank. Under perfect competition, an increase in input prices leads to proportional increases of both marginal costs and total revenues. Under monopolistic conditions, an increase in input prices will increase marginal costs and will reduce equilibrium output, thus, consequently, total revenues. A value below zero denotes a collusive (joint monopoly) competition; a value below one denotes the presence of monopolistic competition; and a value equal to one characterizes perfect competition. Furthermore, Shaffer (1982) shows that H is negative for a conjectural variations' oligopolistic market or for a short-run competitive market; it is equal to one for a natural monopoly in a contestable

market; or, it is equal to zero for a firm that maximises sales subject to a breakeven constraint.

The advantage of this methodology is that it uses bank-level data and allows for bank-specific differences in production. However, the methodology does not allow the study of explicit differences across different banks, e.g. large versus small or foreign versus domestic banking institutions, since the H -index cannot be interpreted as an ordinal statistic (Bikker et al., 2012). There is a striking dichotomy between the reduced form of the price/revenue relationship, as estimated in the empirical literature. Some researchers estimate a price or a revenue function that does not include total banking assets as a control variable (Bikker, Spierdijk, & Finnie, 2006, 2012; Polemis, 2014). Others, estimate a price/revenue function in which the dependent variable is either the gross interest revenues or the total banking revenues divided by total assets (Bikker & Haaf, 2002; Claessens & Laeven, 2004; Mamatzakis, Staikouras, & Koutsomanoli-Fillipaki, 2005; Yildirim and Phillipatos, 2007; Yildirim & Phillipatos, 2007). It is noteworthy that Bikker et al. (2006, 2012) show that both the price and the scaled revenue equations lead to a biased estimate of the H -index. The misspecification is due to the use of the bank revenues divided by total assets as a dependent variable instead of the unscaled bank revenues. This finding has important consequences, given that the H -indices cannot be reliably used as a measure of the degree of competition; moreover, various conditions can cause a reverse of the sign of values, regardless the degree of competition (Bikker et al., 2012). In order to overcome these problems and strengthen our findings, this paper makes use of both scaled and unscaled price and revenue equations as a robustness check to assess the degree of competition in the European Union (EU) banking sector.

The contribution of this paper is four-fold. First, it goes beyond the current literature, in a sense that it attempts to assess the level of banking competition across three economic blocks (i.e., EU-27, EMU-17 and the remaining EU countries). Next, our research focuses on the competitive conditions prevailing in the EMU by

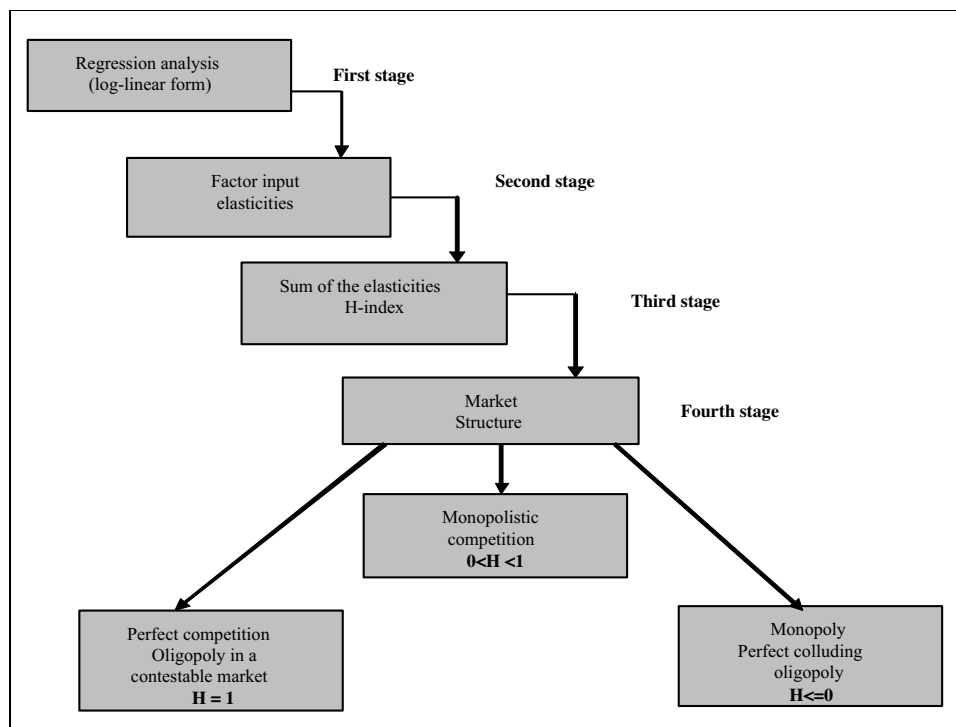


Fig. 1. Extraction and interpretation of the P–R index. Source: Authors' elaboration.

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