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Competitive conditions in the Central and Eastern European banking systems

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ABSTRACT

The aim of this study is to conduct an empirical analysis of the competitive conditions in the banking systems of Central and Eastern European countries. The well-known model of Panzar and Rosse [1] is implemented on bank-level data over the period 1999–2006. The estimates based on the separate country panels suggest a wide variation in the competitive conditions of the banking systems examined, with some being characterized as (monopolistically) competitive and other as non-competitive. Finally, the results from the full sample indicate that bank revenue is substantially influenced by structural and macroeconomic conditions.

1. Introduction

The purpose of this study is to analyze the competitive conditions in the banking sectors of Central and Eastern European (CEE) countries, in light of the reforms implemented in these countries and the immense changes in their banking systems (see [2]). Besides the decisive shifts in the political regime, the transition in these countries occurred as a consequence of increasing monetary and financial integration as well as deregulation of the domestic financial system and liberalization of capital flows [3]. The vital role of banks in these economies encompasses their participation in the payment system, the transmission of monetary policy, and the provision of credit. Thus, any market failure, inefficiency, or anticompetitive conduct among banks, is likely to impose more severe costs throughout the economy—in terms of both allocative efficiency and distributional fairness—than would similar defects in other industries [4].

In the academic literature of the banking industry, several authors have assessed the level of competition in banking markets, at different levels of aggregation (for a recent review of the literature, see [5]). Most of these studies employ the so-called non-structural approaches to the evaluation of competitive conditions, which have emerged under the impulse of the New Empirical Industrial Organisation (NEIO) literature. Specifically, empirical models like the ones proposed by Appelbaum [6], Bresnahan [7] and Panzar and Rosse [1] attempt the identification of competitive conduct of firms at the industry level by estimating deviations from competitive pricing (without explicitly using information on the structure of the market). A major advantage of these approaches is their formal grounding in explicit optimization models and equilibrium conditions.[1]

The Panzar and Rosse [1] approach (PR hereafter), which is the one employed here, has been extensively applied to the European banking sector, both on regional and single-country studies (see e.g. [8–11]). In addition, a growing body of recent literature has focused on emerging and/or transition markets. Among these studies, Yildirim and Philippatos [3] analyzed the competitive conditions in the banking industries of fourteen CEE countries for the period 1993–2000. Their results suggest that most of the banking sectors examined are characterized by monopolistic competition (notable exceptions are FYROM and Slovenia). Similar findings are reported by Gelos and Roldos [12]. Finally, Mamatzakis et al. [13] measure the degree of competition in the banking sector of the South Eastern European region over the period 1998–2002, and reach the conclusion that banks also earn their interest and total revenue under conditions of monopolistic competition.

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[1] There has also been some critique of the NEIO literature, especially as regards the models of Appelbaum [6], Bresnahan [7] and Lau [23]. The main elements of critique are the use of a single functional form to describe all firms and the failure of these models to incorporate dynamics (see e.g. [24,25,5]). The fact that the Panzar and Rosse [1] approach offers a long-run equilibrium test, probably makes it more suitable in the context of the present study.

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Table 1
Evolution of banking-system and macroeconomic characteristics in CEE countries over the period 1999–2006.

Year	*rtr*	*roa*	w_1	w_2	w_3	*ea*	*la*	*ebrd*	*conc3*	*state*	*foreign*	*gdpcap*	*inf*	*gdpgr*
1999	47027.6	0.015	0.084	1.475	0.025	0.187	0.429	2.706	64.894	30.691	32.948	2868.2	21.456	2.895
2000	45790.2	0.015	0.079	2.306	0.024	0.186	0.436	2.767	65.114	22.678	46.729	2964	18.825	5.315
2001	41493.8	0.011	0.074	2.336	0.022	0.183	0.442	2.848	66.687	18.796	49.962	3049.4	10.254	6.058
2002	41270.9	0.01	0.053	2.064	0.022	0.192	0.483	2.983	62.6	17.484	51.228	3195.2	5.793	5.676
2003	43909.5	0.013	0.048	1.864	0.021	0.181	0.513	3.004	59.992	15.538	55.073	3379	5.105	7.013
2004	52569.4	0.015	0.054	1.843	0.022	0.172	0.515	3.118	59.93	12.136	52.298	3605.5	6.391	7.942
2005	55941.1	0.017	0.053	1.866	0.02	0.155	0.543	3.25	58.949	12.399	55.502	3857.5	6.066	7.416
2006	67968.6	0.018	0.052	1.872	0.018	0.141	0.558	3.288	61.148	11.934	59.97	4182.5	5.429	9.119
Average	49504.9	0.014	0.123	2.183	0.021	0.167	0.491	2.996	62.664	17.703	50.469	3387.8	9.912	6.43

Note: The variables displayed on the table are as follows. *rtr*: total revenue of banks in real terms; *roa*: return on assets (total profits before tax/total assets); w_1: price of funds (interest expenses/total deposits); w_2: price of physical capital [(overheads-personnel expenses)/fixed assets]; w_3: price of labor (personnel expenses/total assets); *ea*: capital ratio (equity/total assets); *la*: loans ratio (value of loans/total assets); *ebrd*: the EBRD index of banking sector reform; *conc3*: the 3-bank concentration ratio obtained from the World Bank; *state*: share of majority state-owned banks' assets in total banking sector assets (obtained from EBRD); *foreign*: share of total banking sector assets in banks with foreign ownership exceeding 50% (obtained from EBRD); *gdpcap*: GDP per capita in US dollars (obtained from EBRD); *inf*: the inflation rate (obtained from EBRD); *gdpgr*: annual GDP growth (obtained from EBRD). All bank-level variables are obtained from BankScope.

In this paper, the scale of analysis is extended to 22 CEE countries for the last eight years of available data (1999–2006). Therefore, this paper augments previous studies by using (i) the entire set of CEE countries covered by the European Bank for Reconstruction and Development (EBRD) and (ii) very recent data. Providing a rigorous consensus on the level of competition in CEE banking markets may be quite important if one considers the fact that in many of these countries the deregulation and liberalization process has been completed during the 2000s, while in other countries this process is still underway. Moreover, as integration facilitates the actual or potential market entry of foreign institutions to the financially less developed CEE markets, existing banks will find themselves exposed to increased competitive pressure, which may lead to financial turbulence. A good a priori knowledge of the level of competition is, thus, of considerable importance. In a second step, the full sample is used to examine the impact of the significant structural and macroeconomic developments (that took place during the sample period) on bank revenue, the latter being an important element in the identification of market power in the PR framework. Enhancement of bank revenue, as a condition for enabling banking sectors to survive in a consolidated market by affording competitive interest rates, requires new standards in the forecasting of macroeconomic conditions, thus making the understanding of the relationships in hand essential.

The rest of the paper is organized as follows. Section 2 presents some characteristics of the banking systems and macroeconomic environments of the CEE countries. Section 3 discusses the PR methodology and the estimation procedure. Section 4 presents and analyzes the empirical results. Finally, Section 5 concludes the paper.

2. The CEE banking industry

Since the mid-1990s, the CEE financial and banking landscape has changed rapidly. The environment that emerged gave impetus to the establishment and operation of new credit institutions, either domestic ones or branches of foreign banks. A specific structural feature of CEE financial systems was that they were characterized by significant levels of state intervention, which for a long time hindered competition and created a distorted market environment (see [2]). Indeed, even by 1999 state commercial banks controlled around 31% of total commercial banking assets (albeit a substantial decline compared to that of the early 1990s). During the early 2000s several banks controlled by the state were further enhanced and, as a result, the percentage of directly or indirectly state-controlled banks throughout the CEE countries fell to around 12% by 2006 (see Table 1).

In addition, a number of new, mainly foreign, commercial banks opened during the 1999–2006 period and a series of mergers and acquisitions were undertaken, altering the level of bank concentration and substantially changing the structure of the CEE banking systems. These mergers and acquisitions have reversed the downward trend in bank concentration observed in many CEE banking systems during the 1990s. Note, however, that differences in concentration between countries are significant, with countries like Azerbaijan and Lithuania presenting the most concentrated banking systems and Bulgaria and Ukraine the least (see Table 2).

To compete in the new financial landscape and strengthen their position in the market, CEE commercial banks have been transforming themselves into financial groups mainly by adding subsidiaries—such as insurance companies, brokerages, credit card companies, mutual fund firms, factoring companies and finance houses—so as to offer additional services. These developments resulted in significant modifications in the balance sheet and profit and loss accounts of banks. Most notably, the ratio of equity to total assets (*ea*) fell significantly from an average of 19% in 1999 to an average of 14% in 2006 (see Table 1), being much closer with average European levels. In addition, the proportion of loans to total assets (*la*) reached 59% in 2006 (compared to 43% in 1999), also catching up with the average European levels.[2]

Last but not least, the CEE credit institutions took important steps towards improving their efficiency by deploying modern information technology systems, cutting down on their operating costs and improving their organizational structure (see [14]), while extending their scope of business by offering new products and services. Taking into account these developments, the indications of an upward trend in profitability towards the last years of our sample (see Table 1) are not surprising, a fact that may have important implications for the market power of CEE commercial banks.

The progress of the CEE banking systems in areas such as (i) the adoption of regulations according to international standards and practices, (ii) the more efficient supervision, (iii) the privatization of state-owned banks and (iv) the write-off of

[2] Several factors have been responsible for the high rates of growth of bank lending, including the relatively-high rate of growth of the CEE economies, the gradual convergence of CEE lending rates to those of the rest of the euro area and the release of commercial bank funds from the national central banks due to the harmonization of reserve requirements with the EMU. For detailed information on EU banking structures, see [4].