Enterprise and the Competitive Environment 2014 conference, ECE 2014, 6–7 March 2014, Brno, Czech Republic

Comparison and evaluation of bank efficiency in selected countries in EU

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Abstract

The aim of this paper is to measure and compare the efficiency of bank system in selected countries in the EU (Czech Republic, Slovakia, Austria, Poland, Hungary, Slovenia). It is important to know the real state of the bank system and whether there is a place for improvement, or whether banks are already on the production possibility frontier. Detailed knowledge about financial conditions and the economic situation of banks helps to strengthen the financial system and enables better decision making for responsible persons. In this article are used DEA models with undesirable outputs and the result is expressed as a percentage of inefficiency in one indicator (compared in a group of estimated banks).

1. Introduction

Each country should try to build the most advanced banking system, because the better bank system the state has, the more competitive the state is. In current strong competitive financial environment is necessary to work as efficient as possible and do not have unnecessary extra costs. Unfortunately, it can also happen that (in an effort to increase profits) managers can use strategies where the risk is high. Market regulators should therefore try to define rules to control or even decrease the risk.

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Measuring the level of efficiency of the banking system can help to identify the performance of measured units and if there is some way for the eventual improvement. These measurements may provide valuable information to market regulators and also bank managers for their decision making.

Inefficient banks have, in accordance to the article from Fioderlisi, Marques-Ibanez and Molyneux (2010), the tendency to make risky steps, which are dangerous for the entire financial system.

Furthermore, the authors found, that banks, reaching the high productivity, operate with lower costs and do not tend to do operations that include moral hazard. Banks with balanced capital structure can afford to make business with higher risk.

There exist standard performance indicators, for example ROA (Return of asset), ROE (Return of equity), ROI (Return of investment) and other finance analysis indicators. All these indicators have a big disadvantage. To evaluate the bank efficiency it is necessary to compare a lot of results.

Recently there are two basic methods of efficiency estimation – parametric (econometric) and nonparametric (mathematical programming). In both cases is the measured efficiency compared with the 'best practice frontier' in the group of investigated DMUs (Decision making units, in this study is one DMU one bank).

The most frequently used parametric method is SFA (Stochastic Frontier Analysis). This method has a big disadvantage, that the model must be exactly defined. The DEA (Data Envelopment Analysis) model is a nonparametric method which allows quantification of the efficiency in one number and is formed as a piecewise linear combination of best-practice observations. Nonparametric approach is more suitable for bank efficiency ranking (Kamecka 2010, Apergis 2011, Holod a Lewis 2011, Ševčovič, Halická, Brunovský 2001). Advantage of the DEA model is the identification of sources and level of inefficiency for inefficient DMUs (Stavárek, Řepková 2011). One more advantage is that the technique works without the need for standardization.

Classical DEA models, described in Charnes, Cooper, Rhodes (1978) rely on assumption that inputs have to be minimized and outputs maximized (or conversely minimization of outputs and maximization of inputs in the models oriented of inputs). A lot of authors applied this methodology in their articles. Casu, Molyneux (2000) envistigated the bank efficiency in the EU after joining in the EU. Fioderlisy Marques (2010) examined the bank risk and efficiency. Ševčovič, Halická, Brunovský (2001) investigated the level of performance of bank branches in Slovakia, Stavárek, Řepková (2011) estimated the efficiency of Czech banking industry. All these papers used the simply DEA CCR (constant returns to scale) and BCR (variable returns to scale, in other literature also VRS) model. As an undesirable output is in bank accounting considered 'loan loss provision'. It is the money a bank sets aside to cover potential losses on loans. Because the changes in bank risk may temporary precede a decline in cost efficiency related to higher costs of dealing with non-performing loans, Fioderlisi (2010)

The term input- and output-oriented models relates to the way in which inefficient DMUs are projected onto the efficient frontier. There are three possibilities: input-oriented models try to reduce the input amounts by as much as possible without reducing present output levels. Output-oriented models maximize output levels without increasing inputs. The choice of an input-oriented model implies that banks cannot set their outputs independently and rather respecting the given level of demand for their products. They cannot set the price of their outputs freely: many legislators in the region set strict upper/lower bounds for pricing bank products, particularly those offered to consumers. In the model banks cannot also completely decide the price of inputs independently, Kamecka (2010).

In the article are explored 6 states of European Union: Czech Republic, Slovak Republic, Hungary, Poland, Slovenia and Austria. These states are historically and economical close connected and cooperate together in a lot of fields (culture, trade, internal security, defence, science and education, strengthening the region).

These chosen CEE counties had similar problems due to communist past: inherited ban loans from this time, lack of experience in commercial banking, rapidly growing number of banks, privatization of state-owned banks, entry of foreign banks, freeing of interest rates, changes in legislation, establishing of prudential legislation and supervision, Pančurová, Lyocsa (2013). Despite of these difficulties have in this time rather developed universal banking system. In Austria exist a lot of small banks and Austria has one of the densest bank networks in the world. This fact lead Austrian banks in the last years to the establishment the bank branches and subsidiaries in other states, especially in CEE countries so the bank systems in CEE countries and Austria are very close connected. The main joining is made by Erste Group, Raiffeisen Bank and Bank Austria. Austrian banks business strategies concentrate on a sustainable business model in Central and Eastern Europe with the overall goal to create value for shareholders, Winkler, Haiss (2011).