16th Annual Conference on Finance and Accounting, ACFA Prague 2015, 29th May 2015

Performance Evaluation and Ranking of Turkish Banking Sector

Efehan Ulas[a]* Burak Keskin[b]

a Cankiri Karatekin University;Department of Statistics, Uluyazi Campus, Cankiri,Turkey
b Cankiri Karatekin University;Department of Business Administration, Uluyazi Campus, Cankiri,Turkey

Abstract

In this paper, Data Envelopment Analysis (DEA) is applied to a dataset of commercial banks operated in Turkey for a period 2005-2013 in order to measure technical efficiency of banks. Firstly, we calculated the technical, pure technical and scale efficiency scores for individual banks and highlighted the highest and lowest efficiency scores. Then, we divided banks into three categories for analytical purposes: state owned banks, privately owned banks and all banks. We found that state owned banks are the most efficient. Moreover, it is found that pure technical efficiency contributes more in compared to technical efficiency. The scale efficiency is found to be main source of overall technical efficiency. We observed that decreasing trend in pure technical efficiency whereas an opposite trend is found in scale efficiency.

Keywords: Data Envelopment Analysis; Technical Efficiency; Scale efficiency; Performance Analysis; Banking Sector

1. Introduction

In developing and developed countries, banks contribute to economic growth by their important part in financial intermediation role. There is a strong relation between financial sector and economic growth. In Turkey, banking sector is divided into three categories which are commercial banks, investment and development banks, and interest free banks.

* Corresponding author.
   E-mail address: ef_ulas@hotmail.com

In 1985, international supervision and international banking standards have been introduced to the Turkish banking system. All persons and entities resident in Turkey were allowed to hold foreign currencies and open foreign exchange deposit accounts.

The Central Bank of Turkey started to open market operations in 1987. Foreign exchange transactions and capital movements became free in 1989. After this period, significant increase in the banking sector is appeared. Istanbul Stock Exchange started trading in 1986. Between the years 2002-2007, state-owned banks were restructured, and collected under a joint management. In recent years, competition in Turkish banking is significantly increased. By the 2015, there are 47 banks active in the market (3 state owned, 11 domestic private, 19 foreign banks, 13 development and investment banks, 1 bank under the deposit insurance fund).

The performance of banks is calculated with the "efficiency" scores. Efficiency is the way of to show the increase in the production and performance. In our study, the bank is called to be efficient when it cannot enhance its output without increasing inputs or cannot produce the same quantity of output by using less quantity of inputs. It is possible to measure efficiency of firms for the current year or different years. In this study, efficiency of banks is calculated for the years between 2005-2013.

The aim of this study is to apply Data Envelopment Analysis (DEA) to a dataset of commercial banks operating in Turkey for a period 2005-2013 in order to measure technical efficiency of banks. The study provides an insight into the performance of commercial banks operating in Turkey**. The paper employed non-parametric DEA approach for the assessment of commercial banks in Turkey. It is based on panel data for the years 2005-2013. The output oriented model to measure banking efficiency is used in this paper and we used technical efficiency which is then separated to pure technical efficiency and scale efficiency to evaluate the extent scale inefficiency in commercial banks in Turkey. Furthermore, the commercial banks are divided into two groups which are public banks and privately-owned deposit banks. The content of this paper is as follows, the next section presents a brief review of literature. The methodology which is used to calculate for efficiency scores is introduced in section 3. The data, selected outputs-inputs and findings are discussed in section 4. Finally the last section gives the conclusion of the study.

2. Literature review

There are many studies in literature related to banking industry. Some studies had focused to the efficiency of private banks and some of them had focused to efficiency of private-and public banks. Some studies which were carried out in banking sector are showed as follow:

Pastor et al. (1997) compared the productivity and efficiency in the European and U.S. banking systems for the year 1992. The efficiency level is calculated via DEA and non-parametric method in their paper. Three outputs (loans, other productive assets, and deposits) and two inputs (non-interest expenses and personal expenses) are chosen to estimate the efficiency level. They found that there was a difference in the efficiency level of the banking systems among the countries in the sample. They found that the most efficient banks were in France, Spain, and Belgium, in construct the lowest efficient banks were from the U.K., Austria, and Germany.

Casu and Girardone (2002) used the data envelopment approach to study the efficiency of the Italian banking system. They compared banking groups and parent companies (the institutions leading the groups, taken individually). They found that the banking groups had a lower mean efficiency level than parent companies and subsidiaries taken individually. They also found that there was no evidence of scale economies either in the sample of groups or in the one composed by the parent and subsidiaries taken individually.

Yıldırım (2002) studied the efficiency of the Turkish commercial banks during the period 1988-1999. This study looked at the technical and scale efficiencies of the banks using the DEA methodology. Scale efficiency, which was the main source of inefficiency, and pure technical efficiency were found out to be very volatile during the period when there was instability in the Turkish economy. Moreover, efficient banks were found to be more profitable, and bank size is positively related to pure technical and scale efficiencies.

Usman et al. (2010) employed DEA to a panel of commercial banks operating in Pakistan for the years 2001-2008 in order to measure to technical efficiency of banks. Then, they broke down technical efficiency into pure technical and scale components. They found that pure technical efficiency contributed more towards technical efficiency and banks are faced with serious scale problems.