The Effects of 2008 Financial Crisis on Turkish Banking Sector Performance and Profitability: Financial Ratios and Accounting Based Approach

Gülay Selvi HANİŞOĞLU & Cevdet KIZIL

Keywords: Financial Crisis, Turkish Banking Sector, Performance, Profitability, Ratio Analysis.

Abstract
There is an inter-relationship between financial crisis and banking performance as prior research and literature suggests. The business world today is more global than ever and financial crisis affect national economies just like dominos. More importantly, financial crisis have several negative impacts such as unemployment, high inflation, decreased investments, low levels of privatization, mergers and acquisitions. Likewise, the role of banking sector in modern economies can never be neglected. This is because banks are the locomotives of markets and they serve significant functions such as enabling investments, lending funds, supporting entrepreneurship and providing liquidity. Thus, revealing the double-sided link between financial crisis and performance of banking sector presents numerous advantages and helps to take corrective measures for the future. However, the tie between financial crisis and banking sector is still not crystal clear and debate continues on this issue without satisfactory explanations. Moreover, research focusing on the emerging markets arena which investigates the correlation between financial crisis and banking sector performance is even more limited. This study concentrates on 2008 financial crisis effects on banking sector performance and profitability of Turkey, that is an emerging economy. For this purpose, the financial period of 2002-2015 is included to the analysis to test both the prior and post crisis effects. Financial ratios as variables and indicators of banking sector performance are utilized as the methodology of study to bring an accounting approach to the research. Furthermore, both state and private banks are integrated to the study to avoid bias and subjectivity as well as ensuring independence.

1. Introduction
The financial sector and the banking sector have an important role in the economy. Theoretical and experimental studies have shown the relationship between financial development and economic development (King and Levine, 1993; Levine, 2003). Like any other modern economy, Turkish economy mostly relies on financial markets and also fund movements through financial markets. Turkish economy had a transformation period starting from 1980’s. Liberal economic
policies began to be implemented in 1980. Turkish economy and financial sector had gained dynamism as a result of the liberal economic policies. Two main characteristics of this period can be defined as liberalization of economic policies including capital movements and high inflation. Rapid expansion of banking sector is another characteristics of this period. (Miller, 2006).

However, the impact of the liberalization policies and other reforms were very weak due to poor financial discipline and it was also inadequate to achieve expected targets. Turkish economy and financial sector had faced crises. Moreover, economic growth was blocked by high inflation. High inflation rate had also deteriorated investment environment, economic growth and financial sector. Interest rates had jumped to three digit-figures and short term foreign debt had increased (Cömert and Çolak, 2014).

Turkish Government had made stand-by agreements with IMF in 1999 and 2000. These programs were unsuccessful due to the poor implementations. Derviş and new economic team had negotiated and initiated a new programme in the May 2001. In this program, the key element of monetary policy was the inflation targeting (Akyüz, 2003).

Turkish banks had mainly invested on government debt, leaving their core financial intermediation function to the private sector. The ratio of government debt instruments in their total assets was around 42% for all banks in the Turkish banking market in 2002. This ratio decreased to 28% in 2008. The regulation and supervision framework of the Turkish banking industry were also traditional, weak, poorly regulated and there was a segmented structure. Due to all these structural problems, Turkish banking sector faced two major crises in 2000 and 2001 (Yayla, Hekimoğlu, Kutlukaya, 2008).

As parallel to the IMF Standby Agreement and The Letter of Intend, Banking Regulation and Supervision Agency of Turkey (BRSA) was established in June 1999 and began to operate in August 2000. BRSA became the primary regulatory body of the financial system and took control of duties which is previously performed by the Treasury and Central Bank. Banking Regulation and Supervision Agency prepared the “Banking Sector Restructuring Program”, which was announced in May 2001. The restructuring program was based on the following main pillars: (BDDK, 2002)

(1) Restructuring state banks
(2) Prompt resolution of Saving Deposit Insurance Funds (SDIF) banks
(3) Strengthening private banks
(4) Strengthening the regulatory and supervisory framework.

BRSA also described the main pillars of the program as financial and operational restructuring of banking sector, and further improvement of banking regulation and supervision was in order to promote efficiency and competition in the banking sector. Banking Sector Restructuring Program had targeted to privatize the state banks, initiate mergers and acquisitions for both private and public banks, and improve capital adequacy as well as introducing new rules and regulations. The
mentioned regulations presented and brought by BDKK are currently in line with international regulations (BDDK, 2002; The Federal Reserve Bank, 2016).

From 1997 to 2003, SDIF seized control of 20 banks under the provisions of banking law. SDIF managed to remove control of these banks through mergers, sales, or liquidation. The total cost of the financial restructuring of banks taken over by the SDIF was $22.5 billion, of which over 75 percent was funded through public sector resources. The remaining cost was covered by SDIF resources including fees paid by registered banks. The crises had brought a huge and considerable financial burden to society (Baum, Çağlayan and Talavera, 2010).

Another main topic of the IMF and banking sector restructuring program was the recapitalization of banking sector. Regulations on capital adequacy had been entered into force gradually. After the proper implementation of the restructuring program, Turkish banking sector became more efficient and competitive. Thus, the impact of 2008 financial turmoil was relatively less harmful to the Turkish financial and banking system compared to other modern economies (Öni and Alper, 2003).

Financial performance indicators of individual banks as well as banking sector are followed closely by depositors, borrowers, investors and competitors. It is also common practice to use ratio analysis for evaluating and comparing financial strength and stability of the banking sector. Transparency and reliable financial information are very crucial elements. Financial performance of banks is affected by many variables. Some of these variables can be defined as follows: The cost of deposits and borrowings, non-performing loans, efficiency of operational processes and profitability (Hughes and Mester, 2008).

In our study, as a core element of economy and financial sector, we analyze the Turkish banking sector financial performance starting from 2002 which also includes the 2007-2009 world financial turmoil period affecting financial and banking system of many countries. In order to evaluate financial performance of banking sector, we use the ratio analysis in our article. There exists 50 banks in Turkey by the end of 2015. This covers 32 deposit banks, 5 participation banks, 13 development and investment banks. The ratio analysis is run firstly on the whole sector and then same ratios are applied to deposit banks and participation banks. Development and investment banks are not evaluated separately.

This study continues with the Literature Review section, which covers and discusses previous research. Then follows the Data and Methodology section, where statistical and quantitative analysis are run based on financial ratios. Finally, the study ends with Conclusion section where findings and results of the research are stated.

2. Literature Review

Increased international nature of markets and financial institutions as well as national central banks have weakened the power to impose sanctions on banks and financial institutions. This has contributed to an increase in the overall fragility in the financial markets and pave the way for crisis. Financial liberalization has played an important role both in the development of crisis and increasing risk.
Economic crisis generally affects the whole economic structure (Şakrak, 1999). Moreover, the whole economic climate partially or completely changes comprehensive issues (Aktaş et al., 2009).

Economic and financial crisis can be sectoral, regional, national or global. Also, it can have a great influence on interest rates, banks, currencies, stocks or debts. Inflation and unemployment can also be observed. These can have deep impacts on the real sector (Özer, 1999).

A recent study has shown that, the financial crisis of 2008-2009 and the problems encountered in Belgium and Iceland also had an effect on Kazakhstan. The global financial crisis had triggered a regional financial crisis in Kazakhstan, and the country experienced most significant bank failures. This study focused on the quality and risk of loan portfolios, which have an influence on financial crisis. It was found that an increase in volume of bad loans lead to undesired outcomes (Glass, Kenjegaliava and Weyman-Jones, 2014).

Another study investigated the effect of 2008-2009 global financial crisis on Turkish banking system. The period of December 2003 - June 2012 was covered in the study to reveal pre-crisis and post-crisis effects. System GMM Estimator was utilized and applied to find the determinants of bank profitability before and after the crisis. It was determined that, global financial crisis of 2008-2009 had affected the profitability of Turkish banking sector. However, the mentioned effect was not significant and sharp (Demirhan, 2013).

Effect of 2007 global financial crisis on Islamic banking sector performance was also tested by a study. The mentioned research paper indicated that, Islamic banking is based on non-interest transactions, but profit and loss sharing is a core element of Islamic banking system. Study consisted 29 Islamic banks from 7 different countries for the period of 2006-2012, and it was found that Islamic banks were not affected by the financial crisis of 2007 (Derbali, 2015).

From another perspective, problems in the banking sector cause financial crisis. Thus, the relationship between financial crisis and banking sector performance is not a one-way, but a two-way relationship. The inter-relationship between financial crisis and banking sector peformance was underlined by a study, which also includes chronic inflation, high exchange rates and heavy fisc dominance to the equation. This study focused on Turkish financial crisis of 2000-2001 and reported that reforms, adaptation of sustainable monetary policy on floating exchange rate and banking sector restructuring helped Turkey to decrease inflation and have an accelerating economy (Arshadi, 2014).

Efficiency, liquidity and profitability ratios are also utilized and applied in the literature to measure performance of banks. One of the latest studies calculated efficiency, liquidity and profitability of selected banks in India. Accordingly, financial performance of mentioned banks were listed and compared based on mentioned financial ratios (Sekar and Gowri, 2015).

Performance of South African commercial banks was also investigated using ratio analysis by a research run in 2010. This study measured profitability, liquidity and credit quality of five large South African commercial banks for the period of 2005-
2009. According to the study, overall performance of banks were higher the first two years (2005 and 2006). However, the other years subject to research (2007, 2008 and 2009) experienced failing profitability, liquidity and credit quality related to global financial crisis (Kumbirai and Webb, 2010).

Financial ratios were used to test performance of commercial banks in Malaysia and China as well. The impact of liquidity, credit, capital, operating expenses and the size of commercial banks on Malaysian and Chinese banks were investigated using financial ratios such as return on average assets (ROAA) and return on average equity (ROAE). According to the results of study, it was found that operating ratios were correlated with performance of Chinese banks, but this was not the case for Malaysian banks. However, it was determined that credit and capital ratios had same effects on bank performances in China and Malaysia (Tumin and Said, 2010).

Financial performance of five Palestinian commercial banks listed on Palestine securities exchange (PEX) was examined with a study run in 2012. Financial performance of Palestinian commercial banks was measured by Return on Assets (ROA), Tobin’s Q and Economic Value Added (EVA). Correlation and multiple regression analysis of annual time series data from 2005-2010 were also run to detect the impact of bank size, credit risk, operational efficiency and asset management on financial performance. Study rejected the hypothesis which indicates that there exist statistically insignificant impact of bank size, credit risk, operational efficiency and asset management on financial performance of Palestinian commercial banks (Alkhatib and Harsheh, 2012).

Determinants of financial performance of commercial banks in Kenya was put under the scope with a research dated 2013. It was found that, financial performance of commercial banks in Kenya was mainly run by board and management decisions. However, macroeconomic factors had insignificant effect on banking performance (Ongore and Kusa, 2013).

Similarly, financial ratios such as operating profit margin, asset turnover and leverage were taken into consideration to evaluate banking performance by another group of scholars. They intended to determine the effect of mentioned ratios on Return on Equity (ROE). In addition, Du-Pont Approach, Pearson Correlation Coefficient Matrix and OLS Regression were included to the study besides financial ratios to calculate banking performance during and post profit declining periods (Kusi, Ansah-Adu, Agyei, 2015).

Excessive risk-taking as well as weakness and lack of transparency are considered among the main reasons causing the failure of the financial markets (TEPAV, 2008). Accounting issues related to the financial crisis are also experienced. They are generally considered to occur due to failure to comply with generally accepted accounting principles (GAAPs), accounting standards and procedures (Türker, 2009).

Following the recent financial crisis, accounting standards and institutions began to be questioned (Yilmaz, 2009). Also, functioning of organizations such as IASB (International Accounting Standards Board) and FASB (Financial Accounting Standards Board) were other major discussion topics (Arnold, 2009). Thus,
accounting rules and global accounting standards were focused as well (Sak, 2008; Sağlam, 2008; Kutlan, 2009).

Adjustments and revisions concerning accounting standards, accounting principles and regulations were also offered (Aysan, 2009). Inefficient accounting systems and non-transparent stock options are also argued to be the causes of financial crisis (Stiglitz, 2008; Daştan, 2009). Thus, accounting based and accounting related crisis are also important. For example, moving away from the concept of accounting standards, implementing creative accounting, ignoring transparency, preparing unreal financial reports, failure in supervision and misleading audit reports can be listed at this point (Can, 2010).

3. Data and Methodology

In this paper, we examine and evaluate the efficiency and profitability conditions of the Turkish banking sector. There are different efficiency definitions and also different methods measuring efficiency. Efficiency is generally defined as getting maximum amount of output from a given fixed amount of input under current technology by maximizing profit. The older literature applies the traditional microeconomic theory of production to banking firms. The recent and up-to-date literature views the bank as a financial intermediary that produces financial services. In the context of banking firm, the role of banks can be defined as an intermediation between borrowers and savers for maximizing profits through creating earning assets. According to “intermediation approach”, higher efficiency may define that banks are able to intermediate more funds and create more income with given resources. The efficiency analysis can include parameters from both asset and liability sides as well as cost minimization and profit maximization side. The intermediation approach emphasizes the bank’s production of intermediation services and the total cost of production, including both interest and operating expenses. Inputs are typically specified as labor, physical capital, deposits and other borrowed funds, and equity capital. While the intermediation approach treats deposits as inputs, there has been some discussion in the literature about whether deposits should be treated as an output since banks provide transaction services for depositors. Outputs are typically accepted as bank assets in various categories. Managerial ability and technological changes are crucial variables which are assumed in our analysis that their effects are reflected in efficiency and profitability ratios. (Hughes and Mester, 2008).

There exists 50 banks in Turkey as end of 2015. Banks can be classified according to their ownership, capital structure or market capitalization. In our analysis, banking sector classification is done according to their functionality and ownership. Based on their functionality, three main groups are deposit banks, participation banks, and investment and development banks. There are 32 deposit banks, 5 participation, and 13 investment and development banks in Turkey. Concerning deposit banks in Turkey for 2015, this covers 3 state deposit banks, 8 private local deposit banks and 21 foreign deposit banks. All ratio analysis are run firstly for the whole sector, and on the second level for deposit and participation banks. Investment and development banks are not included in the second level analysis. Table 1 below summarizes the number of banks in Turkey as of 2015 by
categorizing them as deposit banks, participation banks and development and investment banks.

**Table 1: Number of Banks in Turkey as of 2015**

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<tr>
<th>Sector</th>
<th>No of Banks</th>
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<tr>
<td>Deposit Banks</td>
<td>32.00</td>
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<tr>
<td>Deposit- Local Private Banks</td>
<td>8.00</td>
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<tr>
<td>Deposit - State Public Banks</td>
<td>3.00</td>
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<tr>
<td>Deposit- Foreign Banks</td>
<td>21.00</td>
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<tr>
<td>Participation Banks</td>
<td>5.00</td>
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<tr>
<td>Development and Investment Banks</td>
<td>13.00</td>
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The ratios which are used in our analysis can be divided into two main groups such as efficiency and profitability ratios. The first group ratios are related to the efficiency of banking sector. The concept of efficiency in the banking sector is associated mainly with the following topics:

**3.1. Efficiency Ratios**

1.a) Fees, Commissions and Banking Services Revenues / Operating Expenses (%) -

One of the criteria which evaluates bank efficiency compares non-interest income such as fees, commissions and other banking revenues with non-interest expenses. This ratio shows bank operational income as a percentage of operational expenses both excluding interest income and expenses. It is a very important ratio which is followed closely by banking sector top management.

For instance, empirical links between bank non-interest income and financial performance were examined previously for U.S Commercial Banks as well with theoretical studies. One research paper indicated that, fee-based financial services have become more important and U.S. commercial banks have come to rely to on non-interest income with a higher extent (DeYoung, Rice, 2003).

**Table 2: Efficiency Ratio -Banking Sector - Fees, Commissions and Banking Services Revenues / Operating Expenses (2004-2015)**

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<tbody>
<tr>
<td>Fees , Commissions and Banking Services Revenues</td>
<td>63.42</td>
<td>65.69</td>
<td>63.87</td>
<td>63.96</td>
<td>64.97</td>
<td>60.89</td>
<td>65.93</td>
<td>62.81</td>
<td>64.76</td>
<td>62.56</td>
<td>56.06</td>
<td>55.92</td>
<td>N/A</td>
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<tr>
<td>Operating Expenses (%)</td>
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As it is obvious from the table above (Table 2), operating efficiency of Turkish banking sector has increased drastically. It peaks to 63.42 % as end of 2015 from 55.92 % as end of 2004. There is no important effect of 2008 financial crises on the efficiency of banking sector in terms of fees, commissions, banking services revenues and operating expenses. Furthermore, some differences can be observed
for the whole banking sector. As it can be seen from the table below (Table 3), there is an increasing trend for chosen efficiency indicator of private, public and foreign deposits banks except participation banks. Efficiency rate of deposit banks-private is considerable higher than other groups of banks.

**Table 3:** Efficiency Ratio - Fees, Commissions and Banking Services Revenues / Operating Expenses (2004-2015)

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<tbody>
<tr>
<td>Participation Banks</td>
<td>51.19</td>
<td>54.72</td>
<td>61.21</td>
<td>66.71</td>
<td>68.00</td>
<td>67.13</td>
<td>75.96</td>
<td>83.58</td>
<td>84.37</td>
<td>78.28</td>
<td>77.78</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Deposit Banks-Private</td>
<td>73.36</td>
<td>77.68</td>
<td>75.27</td>
<td>72.28</td>
<td>73.05</td>
<td>70.50</td>
<td>75.58</td>
<td>69.45</td>
<td>71.89</td>
<td>69.40</td>
<td>60.59</td>
<td>63.50</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Deposit Banks-Public</td>
<td>52.76</td>
<td>52.90</td>
<td>50.59</td>
<td>49.84</td>
<td>51.03</td>
<td>47.27</td>
<td>52.97</td>
<td>53.15</td>
<td>56.29</td>
<td>59.00</td>
<td>46.82</td>
<td>41.57</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Deposit Banks-Foreign</td>
<td>65.19</td>
<td>60.35</td>
<td>56.53</td>
<td>51.83</td>
<td>61.39</td>
<td>53.44</td>
<td>57.41</td>
<td>55.13</td>
<td>54.13</td>
<td>48.42</td>
<td>44.56</td>
<td>42.24</td>
<td>N/A</td>
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Significant differences are observed among deposits banks. Deposit Banks-Private generate %73.36 non-interest income compared to their total operating expenses. On the other side, deposits banks-foreign generate 65.19 % and deposit banks-public generate 52.76% non-interest income respectively, compared to their total operating expenses. Contrary to the increasing trend of operational efficiency in deposit banks, operational efficiency of participation banks is determined to go down based on the variable used. Also, we should indicate at this point that, participational banks should take necessary measures and steps to decrease operational costs in order to attain efficiency increase.

When this variable (ratio) is evaluated based on the global financial crisis of 2008, we can underline the fact that there is a decrease for all bank groups in 2010 compared to 2009. In other words, the decrease had become more evident in 2010 after 2009. However, the impact of global financial crisis is not very sharp. After 2010, generally increases, higher trends and improvements are observed for ratios (variables).

1.b)Non-interest income /Non-interest expenses (%)

Ratio of non-interest income to non-interest expenses is another criteria which is commonly used for evaluating bank performance. It is expected that, banks match and meet their operational expenses with revenues excluding incomes from their main operational activity of deposit collecting and interest incomes from credit lending. This variable (ratio) is has become more important in the recent years as a result of lowering interest margin in Turkey. Today, Turkish banks provide a rich portfolio of products and services to increase their non-interest incomes. Online banking and various transactions that can now be completed by using the internet can be shown as a good example at this point. Also, derivative products used to manage exchange rate risks of firms has become diversified and have a more widespread position among services provided by banks. Plus, more common usage of ATM, POS and internet parallel to the improvements in technology has now an important role to increase non-interest incomes of banks. Generally, banks have been offering a larger variety of financial services and have been providing
additional convenience, which may have raised costs, but have also raised revenues. Revenues generated by these actives are sometimes even higher than costs. Non-interest income has become an important component in the bank efficiency and profitability in recent years.

Table 4: Efficiency Ratio - Banking Sector - Non-Interest Income / Non-Interest Expense % (2002-2015)

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<tbody>
<tr>
<td>Noninterest income / Noninterest expenses (%)</td>
<td>99.44</td>
<td>98.49</td>
<td>96.37</td>
<td>95.85</td>
<td>97.72</td>
<td>96.17</td>
<td>94.20</td>
<td>95.26</td>
<td>94.16</td>
<td>93.94</td>
<td>85.18</td>
<td>90.16</td>
<td>N/A</td>
<td>N/A</td>
</tr>
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As can be followed from the table above (Table 4), non-interest income compared to non-interest expenses shows an increasing trend starting from 2005. The ratio reaches to 99.4% in 2015. The general trend is upwards although there are ups and downs between 2004 and 2014.

Table 5: Efficiency Ratio - Non-Interest Income / Non-Interest Expense % (2002-2015)

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<tbody>
<tr>
<td>Noninterest income / Noninterest expenses (%)</td>
<td>95.71</td>
<td>90.38</td>
<td>95.15</td>
<td>92.02</td>
<td>95.76</td>
<td>94.04</td>
<td>91.78</td>
<td>95.51</td>
<td>91.97</td>
<td>92.63</td>
<td>93.34</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Participation Banks</td>
<td>99.77</td>
<td>99.20</td>
<td>97.88</td>
<td>97.83</td>
<td>98.84</td>
<td>98.04</td>
<td>95.92</td>
<td>95.92</td>
<td>93.62</td>
<td>92.94</td>
<td>79.76</td>
<td>90.40</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Deposit Banks-Private</td>
<td>88.69</td>
<td>86.47</td>
<td>83.98</td>
<td>76.82</td>
<td>81.19</td>
<td>85.48</td>
<td>80.46</td>
<td>76.12</td>
<td>81.49</td>
<td>82.77</td>
<td>92.70</td>
<td>75.76</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Deposit Banks-Public</td>
<td>97.54</td>
<td>97.44</td>
<td>95.94</td>
<td>93.98</td>
<td>96.73</td>
<td>93.88</td>
<td>93.99</td>
<td>96.58</td>
<td>96.55</td>
<td>97.21</td>
<td>94.78</td>
<td>98.21</td>
<td>N/A</td>
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Analyzing the percentages for efficiency ratio (Net Interest Income/Net Interest Expense) on the second level by the help of Table 5 is beneficial. Table reflects that, deposit banks-private have a ratio of 99.77%, deposits banks-foreign have a ratio of 97.54%, participation banks have a ratio of 95.71% and deposit banks-public have a ratio of 88.69% in 2015. Non-Interest Income / Non Interest Expense ratio for participation banks could only be gathered for the years 2005-2015. This ratio varies between 90.38% and 95.76% for the mentioned eleven years and a significant improvement is not detected. That is similar to the non-interest income / operational expenses ratio where efficiency was analyzed. This also shows that, studies and research to analyze efficiency of participation banks are significant and necessary. Concerning deposit banks - private, the ratio varies between 92.94% and 99.77% excluding the 79% ratio in 2005. Especially, considering the fact that this ratio is around 99% in the last two years (2014 and 2015) for deposit banks-private, the situation is definitely positive. Non-Interest Incomes are close to match and meet all non-interest expenses of deposit banks-private in 2015, which satisfies expectations. In regards to deposit banks – public, non-interest income / non-interest expense ratio varies between 76.12% and 88.69%, excluding the year of 2005. Generally speaking, the performance of deposit banks-public to meet non-
interest expenses with non-interest incomes is lower than participation banks, deposit banks-private and deposit banks-foreign. This is a strong indicator that, there are still many steps to take to increase efficiency in deposit banks-public, just like participation banks. The effect of 2008 global financial crisis on this variable (ratio) is not evident.

1.c) Non-performing Loans/Total Loans (%)

It is obvious that non-performing loans is a very crucial variable for the banking sector efficiency. There is a two sided relationship between efficiency and non-performing loans. It means higher non-performing loans reduces cost efficiency. Decreasing cost efficiency means higher amount of non-performing loans. Additionally, poor management and decision processes for extending loans increase the level of non-performing loans. The higher sum of non-performing loans is damaging efficiency of banks, because banks have to make additional operating expenses for closely monitoring their customers, following value of collaterals and also handling legal and collection procedures. Furthermore, they should make additional managerial efforts for organizing all these operational problems. Table 6 below shows efficiency ratio (non-performing loans/total loans) for Turkish banking sector between the years 2002 and 2015.

Table 6: Efficiency Ratio -Banking Sector-Nonperforming Loans/Total Loans % (2002-2015)

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<tbody>
<tr>
<td>Nonperforming Loans / Total Loans (%)</td>
<td>3.09</td>
<td>2.85</td>
<td>2.75</td>
<td>2.86</td>
<td>2.70</td>
<td>2.66</td>
<td>2.57</td>
<td>2.68</td>
<td>3.48</td>
<td>3.74</td>
<td>4.72</td>
<td>6.00</td>
<td>11.50</td>
<td>17.52</td>
</tr>
</tbody>
</table>

Sector


In terms of whole Turkish banking sector, the ratio of non-performing loans to total loans peaked in 2002 following the banking system crises in 2000 and 2001. When efficiency ratios (non-performing loans/total loans) are analyzed on a classified level by the help of Table 7 above, it can be seen that maximum impact is valid for deposit banks-public, which have ratios of 44,14% and 28,58% respectively for 2002 and 2003. To avoid misinterpretation of the ratios on a classified level, it should be kept in the mind that, some private banks were subject to initial public offering (IPO) for rehabilitation and liquidation processes.

Table 7: Efficiency Ratio -Nonperforming Loans/Total Loans % (2002-2015)

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</thead>
<tbody>
<tr>
<td>Nonperforming Loans / Total Loans (%)</td>
<td>5.40</td>
<td>4.54</td>
<td>3.42</td>
<td>3.01</td>
<td>3.08</td>
<td>3.47</td>
<td>4.70</td>
<td>4.40</td>
<td>3.37</td>
<td>3.51</td>
<td>4.10</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Participation Banks</td>
<td>2.84</td>
<td>2.41</td>
<td>2.28</td>
<td>2.21</td>
<td>2.38</td>
<td>2.37</td>
<td>3.24</td>
<td>3.40</td>
<td>3.40</td>
<td>3.57</td>
<td>4.05</td>
<td>4.88</td>
<td>6.54</td>
<td>8.94</td>
</tr>
<tr>
<td>Deposit Banks-Private</td>
<td>2.73</td>
<td>2.98</td>
<td>2.89</td>
<td>2.72</td>
<td>2.55</td>
<td>3.31</td>
<td>4.45</td>
<td>3.86</td>
<td>4.16</td>
<td>5.16</td>
<td>7.62</td>
<td>10.23</td>
<td>28.58</td>
<td>44.14</td>
</tr>
<tr>
<td>Deposit Banks-Public</td>
<td>3.87</td>
<td>4.02</td>
<td>4.30</td>
<td>4.73</td>
<td>4.35</td>
<td>5.90</td>
<td>7.46</td>
<td>4.15</td>
<td>3.12</td>
<td>2.73</td>
<td>3.83</td>
<td>3.16</td>
<td>4.35</td>
<td>4.91</td>
</tr>
</tbody>
</table>


After recovering from the effects of 2000 and 2001 crises, the ratio of non-performing loans to total loans for the sector increased again to 5.27% from 3.68%. Later, the mentioned ratio decreased to 2.70%, but then showed an increasing trend starting from 2012. By the end of 2015, the ratio of non-performing loans to total loans for the sector was 3.09%. Although the non-performing loan ratios in Turkey seems to be under control, there are quite large sums of non-performing loans off the balance sheet. These are generally transferred from the balance sheets of banks to asset management companies.

3.2. Profitability Ratios

Profitability, in large extent, is considered to be one of the main criteria for judging the management performance of banks. and It is also an indicator of effective usage of available funds. Profitability measurements usually focus on Return on Assets (ROA) and Return on Equity (ROE).

2.a) Return on Equity (ROE) - Net Profit/Total Equity (%)

Return on Equity (ROE) is an indicator of capital efficiency, which is used by banking institutions as well as other financial institutions and firms. Return on Equity (ROE) may be regarded as the core measure of banking profitability and shows the company profitability through measuring the sum of funds earned from investor’s funds.

As it can be seen from the table below (Table 8), ROE of Turkish banking sector is not stable. Return on Equity of 135.63% observed in 2002 is a strong proof that, balance sheets of banks do not reflect the real situation and problematic credits are still included in financial statements to create such an impression that interests are collected from such credits. ROE varied between 12.14% - 24.77% between the years 2003 and 2008. Starting from 2009, there is a decreasing trend from 22.92%. ROE of Turkish banking sector was around 15% in 2012, 14% in 2013, 12% in 2014 and 11% in 2015. Thus, ROE lowered by approximately 4% in general. At the end of 2015, ROE is around 11% in Turkish banking sector. Deposit income is generally considered to be a riskless investment. Thus, ROE of Turkish banking sector is lower than expected. An ideal ROE is around 15% and above, so the situation is not very favorable as of 2015. However, in regards to the impact of 2008-2009 financial crisis, there is no clear indicator that Turkish banking sector was affected considering ROE.

Table 8: Profitability Ratio – Banking Sector-ROE (Net Profit/Total Equity) (%) (2002-2015)

|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|

Data Source: BDDK (2015), "Montly Reports. Interactive Bulletin".

Detailed analysis on Table 9 shows that, ROE of deposit banks-public is minus as of year 2002. Also, sharp and serious differences are observed among deposit...
banks-private, deposit banks-public and deposit banks-foreign. Although the ROE trend is downward for all bank groups, deposit banks-public have the highest efficiency and most positive result with 15.94%. Deposit banks-public are followed by deposit banks-private with 11.03%. The ROE rate is 9.22% for deposit banks-foreign and 4.08% for participation banks as of year 2015. The ROE of participation banks is seriously low and under sector average. The reasons of lowering ROE in the banking sector can be listed as arrangements and regulations concerning capital adequacy in the context of Basel framework. Also, income losses resulting from credits not included to the problematic credits portfolio and credits transferred to asset management firms are other reasons.

Table 9: Profitability Ratio - ROE (Net Profit/Total Equity) (%) (2002-2015)

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</thead>
<tbody>
<tr>
<td>Participation Banks</td>
<td>4.08</td>
<td>3.98</td>
<td>3.75</td>
<td>4.66</td>
<td>4.84</td>
<td>5.06</td>
<td>5.99</td>
<td>8.01</td>
<td>9.02</td>
<td>10.01</td>
<td>11.02</td>
<td>12.03</td>
<td>13.04</td>
<td>14.05</td>
</tr>
<tr>
<td>Deposit Banks-Private</td>
<td>11.03</td>
<td>12.76</td>
<td>15.44</td>
<td>16.30</td>
<td>16.21</td>
<td>21.90</td>
<td>23.73</td>
<td>19.31</td>
<td>25.00</td>
<td>18.20</td>
<td>5.06</td>
<td>11.75</td>
<td>16.28</td>
<td>191.99</td>
</tr>
<tr>
<td>Deposit Banks-Public</td>
<td>15.94</td>
<td>15.95</td>
<td>19.42</td>
<td>20.19</td>
<td>19.54</td>
<td>29.47</td>
<td>36.54</td>
<td>27.06</td>
<td>34.31</td>
<td>28.97</td>
<td>25.54</td>
<td>29.49</td>
<td>26.62</td>
<td>14.51</td>
</tr>
<tr>
<td>Deposit Banks-Foreign</td>
<td>9.22</td>
<td>8.38</td>
<td>6.56</td>
<td>13.04</td>
<td>14.20</td>
<td>12.32</td>
<td>15.23</td>
<td>12.16</td>
<td>19.62</td>
<td>23.00</td>
<td>16.54</td>
<td>12.95</td>
<td>12.09</td>
<td>72.01</td>
</tr>
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</table>


2-b) Return On Assets - (ROA) Net Profit/Total Assets (%)

Return On Asset Ratio shows the company profitability through measuring how much money is earned from assets. It indicates as to how much profit a bank is able to generate per unit of its assets. Return on Assets (ROA) is calculated by dividing net profit (profit after taxes) to total assets. This ratio is one of the most common indicators measuring a bank’s efficiency, because it reflects the sum of profits attained from total assets. ROA has a fluctuating trend for Turkish banking sector between the years of 2003 and 2009, excluding the percentage in 2002. Generally speaking, ROA lowered for all bank groups between 2009 and 2015, a similar result considering the trend of ROE. ROA was 2.63% at the end of 2009, but it was observed as 1.16% at the end of 2015. Thus, a sharp decrease was realized for ROA covering the whole banking sector. Since it is expected that ROA should be ideally around 1.5% or above, we can stress that ROA rate of Turkish banking sector is not promising. Table 10 below summarizes the mentioned points and statements.

Table 10: Profitability Ratio – Banking Sector-ROA (Net Profit/Total Assets) (%) (2002-2015)

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</thead>
<tbody>
<tr>
<td>Sector</td>
<td>1.16</td>
<td>1.33</td>
<td>1.60</td>
<td>1.83</td>
<td>1.74</td>
<td>2.46</td>
<td>2.63</td>
<td>2.05</td>
<td>2.78</td>
<td>2.60</td>
<td>1.72</td>
<td>2.36</td>
<td>2.53</td>
<td>16.39</td>
</tr>
</tbody>
</table>

Table 11: Profitability Ratio - ROA (Net Profit/Total Assets) (%) (2002-2015)

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</thead>
<tbody>
<tr>
<td>Participation Banks</td>
<td>0.35</td>
<td>0.15</td>
<td>1.26</td>
<td>1.47</td>
<td>1.63</td>
<td>2.02</td>
<td>2.26</td>
<td>2.44</td>
<td>3.14</td>
<td>3.31</td>
<td>3.53</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Deposit Banks- Private</td>
<td>1.12</td>
<td>1.41</td>
<td>1.70</td>
<td>1.88</td>
<td>1.82</td>
<td>2.63</td>
<td>3.26</td>
<td>2.58</td>
<td>2.07</td>
<td>0.70</td>
<td>1.86</td>
<td>2.35</td>
<td>24.67</td>
<td>25.05</td>
</tr>
<tr>
<td>Deposit Banks-Public</td>
<td>1.48</td>
<td>1.54</td>
<td>1.82</td>
<td>1.90</td>
<td>1.64</td>
<td>2.55</td>
<td>2.82</td>
<td>2.18</td>
<td>3.02</td>
<td>3.06</td>
<td>2.75</td>
<td>3.10</td>
<td>2.52</td>
<td>-1.15</td>
</tr>
<tr>
<td>Deposit Banks-Foreign</td>
<td>0.93</td>
<td>0.82</td>
<td>0.70</td>
<td>1.53</td>
<td>1.57</td>
<td>1.64</td>
<td>1.96</td>
<td>1.42</td>
<td>2.42</td>
<td>2.82</td>
<td>2.65</td>
<td>2.70</td>
<td>2.94</td>
<td>15.07</td>
</tr>
</tbody>
</table>


ROA of participation banks has a decreasing trend starting from the year 2005, which reflects a rate of 3.53%. At the end of 2014, ROE for participation banks was lowest with 0.15%. Also, at the end of 2015, ROE for participation banks was 0.35%, a much lower rate compared to whole banking system in Turkey. Low ROE rates of participation banks are parallel to previous findings of low efficiency rates. Thus, correct actions and measures regarding this issue should definitely be taken. Following participation banks, lowest ROE is observed for deposit banks-foreign. The level of ratios and general lowering trend is eye-catching. Although ROE has a decreasing trend for deposit banks-private and deposit banks-public as well, their rates are closer to the accepted standards. Table 11 above proves our findings and determinations.

4. Conclusion

Financial advancement of a country is closely related with regulations and supervisory policies as well as efficiency and profitability of banks and other financial institutions. Role of banking in modern economies is very crucial and banking activities are getting more and more complicated. Liberal policies implemented in Turkish economy starting from 80’s showed their effects in finance and banking sectors. Following the economical and structural reforms of 2000, foreign investments in Turkish banking sector increased tremendously. Despite the pressure coming from foreign banks, efficiency of Turkish Banking sector improved significantly. The most efficient banks in Turkey are deposit banks-private followed by deposits banks-foreign based on different criteria analyzed in this paper.

Considering a total of 37 banks and 14 years analyzed in this study, it is determined that participation banks have the lowest efficiency and profitability in Turkish banking sector based on all ratios (variables) investigated. Thus, we recommend that participation banks evaluate their work processes, activities and organizations again to increase their efficiency levels. Moreover, we have determined that deposit banks-foreign operate with lower efficiency and profitability compared to deposit banks-private and deposit banks-public. Our research shows that, deposit banks-private and deposit banks-public are in a better position in terms of efficiency and profitability compared to other bank groups.

Finally, according to our study, ROE and ROA rates are low for Turkish banking sector. However, continuing foreign investments in the Turkish banking sector
signals that, global expectations are positive for the industry's future. That is also correlated with the stable and reliable Turkish economy in recent years.

References

Aktaş, R. et. al. (2009), Kriz Ortamında İşletme Yönetimi, TEB Yayınları, İstanbul, p.11.


E-ISSN: