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A Performance Evaluation of the Turkish Banking Sector after the Global Crisis via CAMELS Ratios

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Abstract

After the crisis in November 2000 and February 2001, an important structural change occurred in financial sector especially in terms of banking in Turkey. It was tried to revise flaws with structural regulations of banking and financial supervision in the banking sector. Besides performance of banking field in the respective change process, the reactions of banking sector have become a significant analysis issue as a result of regulations and 2008 global economic crisis. Despite the fact that there are a lot of studies on the banking performance evaluation, CAMELS ratios which are one of the important analysis types for performance assessment in banking sector comprise important parameters reflecting results of banking sector performance.

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1. Introduction

Financial markets are defined as a system which brings economic actors together that need funds and have overmuch sources. In this structure, “it is necessary for the third parties called as financial intermediates to reduce the risks and to provide effective fund transfer” (Dinçer and Hacıoğlu, 2009, p. 33-35). Especially, effects of the financial intermediates on the financial system are gradually understood after the globalization. Despite being small scale and superficial when compared to the developed countries, the financial sector in Turkey is in the stage of development. On the other hand, the financial sector has been above the average size compared to the emerging markets. That is to say, Turkish financial sector growing continually increases in size according to the previous years. In terms of the size of assets, financial sector comprises of banks (79%), insurance companies (3%), personal retirement and life companies (1%), assets of Central Bank of the Turkish Republic (11%), financial leasing, factoring, stocks and bonds etc. (6%).

As seen above, “the banking sector as a financial intermediate has the largest total asset size in financial sector” (BRSA, 2010, p. iii-iv). Banks play crucial role in the economic life of the nation. Even if banks seem to create no new wealth, the transactions such as borrowing and lending actually expedite the process of production, distribution, exchange and consumption of wealth. By this way, their efficiency is inevitable in terms of partners in the process of economic development. Having such an importance, the banking sector’s changes should be firstly undermined to perceive the reason of the financial sector’s volatility.

At this point, performance appraisals related to global markets could be important in terms of probable results in Turkish Banking sector. The purpose of the study is to measure the performance of Turkish Banking sector after the global crisis. To do this, “CAMELS” analysis will be used and thus the effects of the global crisis on the banking sector will be seen clearly. “CAMELS” is a supervisory rating system used “for evaluating banks’ overall financial condition. It was first introduced in the USA for on-site monitoring. Now, it is used both on-site and off-site monitoring purposes” (Kaya 2001, p.2). “CAMELS” consists of six components; capital adequacy, asset quality, management, earnings, liquidity and sensitivity to market risk.

The article proceeds in the following structure. In the first part, we give a brief review literature regarding the role of banking system in the financial sector, the emergence of the global crisis and its effects on the economy and finally the condition of Turkish Banking sector after the global crisis. The CAMELS ratios will be used concerning the effects of global crisis on the performance of Turkish banking sector. In the second part, we apply the CAMELS system to the Turkish banking sector and discuss the trends realized between pre-crises and post crises terms in Turkish economy. Next, we analyze the ratios between 2002 and 2009 using data from The Banks Association of Turkey. Then we give details for the data collection method and analytical procedures. Finally, we provide the research findings discussing their supervisory and theoretical implications and conclude the paper.

2. Literature Review

The developments in recent years show that everything can change swiftly owing to the several factors in today’s dynamic environment. One of the most effective factors is inarguably the global crisis that started before but its effects emerged in the middle of 2007 and late 2008. It affected not only developed countries but also developing ones. As it has had serious effects on the financial sector, various analysis have been done and published in the de Larosiere Report (2009), the Turner Review (2009), the Geneva Report (2009), the Group of Thirty Report (2008) and the IMF Lessons paper (2009 to find out the causes of the crisis for “both immediate and long-term solutions” (Mohan 2009). According to these studies, the global crisis has had a critical impact on “countries’ trade volumes and investment plans”. In relation to these, the “world stock markets have fallen, large financial institutions have collapsed or been bought out,
and governments in even the wealthiest nations have had to come up with rescue packages to bail out their financial systems” (Shah 2010).

On the other hand, the financial data after the global crisis show that the efficiency of the banking sector in the financial markets has increased in parallel to economic changing. According to the sixth annual edition of the World Retail Banking report in 2009, the geographic scope of that year’s edition covers 26 countries, including Europe Eurozone countries, Europe Non-Eurozone countries with a new one, Russia, North America and Asia-Pacific countries. The number of retail banks rose “from 194 to 203”. This increase depicts the expansion of banks in the financial sector day by day.

Okonjo depicts the obvious effect of global crisis as inflation, unemployment and banks (2009). Generally, the emerging markets including Turkey have been affected from the global economic crisis less than developed markets. The main reason of that in terms of Turkey is the regulation done especially in the Turkish banking sector after the crisis in 2001. Under the effects of those regulations, the growth in Turkish banking sector has started after the crisis in 2001 especially by the merging and acquisition transactions. That’s why, the need for performance evaluation of the Turkish banking sector has occurred in the period of pre-crisis and post-crisis.

Some of current academic studies regarding the performance evaluation have been done whether extent private supervisory information is useful in the supervisory monitoring of banks or not. Barker and Holdsworth (1993) found the evidence that CAMELS ratings are useful with regard to estimating bank failure, even after controlling for a wide range of publicly available information about the condition and performance of banks. According to some studies, viability of information of CAMELS ratings is short-lived. Cole and Gunther (1996, 1998) analyzed a similar question and found that even if CAMELS ratings contain useful information, they depreciate quickly. Moreover CAMELS can be used for past ratings. Hirtle and Lopez (1999) examined the utility of past CAMELS ratings for evaluating banks’ current conditions. They boasted that the private supervisory information contained in past CAMELS ratings provides further insight into banks’ current conditions. In the light of these academic studies, it is proven that private supervisory information, as summarized by CAMELS ratings, is an effective way of supervisory monitoring of banks’ conditions.

3. Methods

The study presented various analyses constituted through CAMELS rating system developed for Turkish banking sector and it was used to investigate foreign, state and privately-owned deposit banks’ general situations and to envisage the success of the banks in the future time. As Sarker states the CAMELS approach is a type of financial analysis used to evaluate the managerial and financial performance of banks to determine their soundness and safeness (Sarker 2006). In this way, it will be easier to measure the performance of banks in Turkey, and thus strict measures can be taken to increase the performance. Base years for observation are determined as 2002-2009. According to study results, the overall progress of components in the CAMELS system would be demonstrated depending on observation years. As mentioned above, it consists of six components; capital adequacy, asset quality, management, earnings, liquidity and sensitivity to market risk.

*Capital adequacy* indicates the measurement of the financial strength of a bank. As for the Capital adequacy ratio it is the ratio which determines the capacity of a bank in terms of meeting time liabilities and other risk such as credit risk, market risk, operational risk, and others. It is a measure of how much capital is used to support the banks’ risk assets. While this ratio has positive relation with the financial soundness of the bank, it is negatively related to a possible failure.

*Asset quality* shows the risk level of assets and rate of financial strength within a bank. In addition, it has a crucial role in the assessment of the current condition and financial capacity in the future. For
instance, to measure the asset quality, the ratio of total loans to the total assets (Loans/Assets) can be used. If the value of the non-performing loans is higher, asset quality will be lower. Thus, it becomes a threat to the bank’s profitability and future viability.

Management Quality is not just dependent on the current financial performance. This component consists of a large range of issues such as the education level and expertise of the management. Thus, it is the hardest one to measure when compared to others. For example, total income as a share of total expense and deposit interest expenses as a share of total expense can be used to predict the management quality. While these measures are both negatively related to the management quality, they are positively related to a possible failure as a result of mismanagement of the bank.

In this part, the earnings ability of banks is assessed through two ratios. The first ratio is the net profit as a share of total assets. As for the second measure, it is the net profit as a share of total shareholders’ Equity. Both measures are positively related to the financial performance of the bank and negatively related to the failure of possibility.

In this model, the liquidity level of the banks is assessed through employing three ratios. The first one is total liquid assets to total assets. This indicates the ability of the bank to payoff its liabilities. The second ratio which was used to appraise liquidity is total liquid assets as a share of total deposits. This ratio depicts the capacity of the bank to cover unanticipated deposit drains. The ratio of liquid assets to short term liabilities is the last ratio used to determine the liquidity. All three ratios are positively related to the liquidity level of the bank, but can be both negatively and positively related to the performance or the risk of failure.

In this model, there is an indirect relationship between the size of a bank and its sensitivity to market risk which is the risk of a failure due to bad market conditions. While one of them increases, other decreases. As a result, when a bank has a larger asset size relative to the sector, it is less sensitive to the market risk and therefore it prevents failure.

4. Results of the CAMELS Ratios

CAMELS analysis of state-owned, privately-owned and foreign banks that accept deposits formed between years of 2002-2009 and representative ratios are expressed in the following graphics.

4.1. Capital Adequacy

Within Capital Adequacy, 3 basic ratios were included in the analysis. Shareholder’s Equity/(Loan + Market + Principle Amount Subject to Operational Risk; Shareholder’s Equity /Total Assets; Shareholder’s Equity /(Deposit + Non-deposit Sources).
The banking system entered in a fierce construction process after 2001 crisis. In the consideration of regulations done in the banking system after the crisis, the requirement for the adequate capital stock against current loan, market and operational risks of banks provided more flotation for the potential risks of banks in the post crisis period as also seen in the graphic. Even though shareholder’s equity was provided against risks in state-owned, privately-owned and foreign money deposit banks until the end of 2003, capital adequacy started to decrease gradually in each banking groups because of the decrease of risk tendencies after 2003.

It is clearly seen that the same capital adequacy was allotted against risks in almost all bank groups associated with the year 2008. This situation shows that cautious tendencies continued equally in all banking groups accepting deposits against risks within and after 2008 global economic crisis.

In parallel to the increase of shareholder’s equity allocated against risks after 2001 crisis in Turkish Banking sector, it is seen that the percentage of shareholder’s equity within total assets increased in each bank groups until 2003. By the year 2003, the percentage of shareholder’s equity within total assets decreased with the reduction of risk perception. As for parallel ratios between years of 2006-2008, the
increase need of shareholder’s equity within and after 2008 global economic crisis procured those ratios to escalate within total assets. Foreign deposit money banks had the shareholder’s equity rate in the highest assets from 2002 to 2009. As for state-owned banks, it is seen that their shareholder’s equity percentage was in the lowest level because of their size of assets.

Fig.3. Shareholders’ Equity/(Deposits+Non-Deposit Funds)

In Turkish banking sector, the highest shareholder’s equity ratio within non-deposit sources such as payable to money market, credits obtained, funds and securities issued was seen in foreign deposit money banks. After 2001 crisis, while banks’ requirement for the shareholder’s equity increased, this increase was within downward tendency after 2003. It is ascertained that the respective ratio realizing almost in the same level with state-owned, privately-owned and foreign deposit money banks in 2006 was increasing gradually after global crisis in each banking groups.

4.2. Assets Quality

Fig.4. Financial Assets (Net)/Total Assets
The highest percentage of financial assets in terms of total assets was seen in public deposit money banks. While the percentage of securities available for sale, investments to be held until maturity within total assets increased in private equity deposit banks after 2001 crisis; the financial asset ratio within total assets by private capital banks started to be close to state-owned banks after 2008 crisis. In the respective analysis period, foreign banks had the lowest financial assets within total assets.

Fig. 5. Total Loans and Receivables/Total Assets

The highest loan transformation providers were foreign banks in terms of total assets. While the percentage of loan and debts within total assets increased in all bank groups after 2001 crisis; this rate of increase decreased by 2008. In this sense, state-owned banks were at the forefront in terms of investment rate for stocks and bonds within assets. As for foreign banks, they were more active in terms of loans’ rate within total assets.

Fig. 6. Permanent Assets/Total Assets
The ratio of banks’ affiliates, affiliated companies and tangible assets within total assets decreased day by day after 2001 crisis. In this process, as the biggest decrease was seen in private capital banks, the respective ratio was nearly close to each banking groups after 2007 crisis.

4.3. Management Adequacy

Management Adequacy is quantified by those ratios; interest expenses/total expenses, interest incomes/total incomes, total incomes/total expenses.

Fig.7. Interest Expense/Total Expense
The highest interest expenses within total expenses were seen in state-owned banks. In this sense, the highest ratio of interest payments for deposits within total expenses was seen in state-owned banks. While the respective ratio in privately-owned banks decreased until the end of 2005, this ratio has increased in foreign banks since 2003. As a result of effects of global crisis after 2008, the percentage of interest expenses of banks decreased.

![Graph](image1)

**Fig. 8. Interest Income/Total Income**

When compared to foreign and privately-owned deposit banks, state-owned banks’ percentage of interest incomes within total incomes was the highest in parallel to present percentage within interest expenses. The percentage of interest incomes within total incomes was nearly the same with expenses in foreign banks. As a matter of the fact that a fierce change was not seen in terms of the percentage of interest incomes in each banking groups within global crisis period. This situation can be a sign that effects of global crisis had relatively weak effect on loan demand on Turkish Banking system.

![Graph](image2)

**Fig. 9. Total Income/Total Expense**
Despite recoveries in state-owned and privately-owned banks after 2001 crisis, ratio of total incomes to expenses declined in foreign deposit money banks between the years of 2002-2009. By 2004, there were important similarities among banking groups. To sum up, total incomes have been affected positively as a result of decline in interest expenses and increase in interest incomes since 2008.

4.4. Earnings

Profitability Ratios are expressed with Net Profit(Losses)/Total Assets and Net Profit(Losses)/Total Shareholders’ Equity.

Fig. 10. Net Profit (Losses)/Total Assets

During analysis period, Net Profit/Return on Assets shows changes on the basis of banking groups. Although return on assets of state banks and foreign banks transformed the process into an opportunity by the crisis in 2001, return on assets of private equity banks showed a decrease until the end of 2005. After 2005, net profit margin of private equity banks increasingly raised but upward profitability trend in 2009 for each three banking group pointed out limited global economic crisis effects.

Fig. 11. Net Profit (Losses)/Total Shareholders’ Equity
Between the years of 2002-2009, when return on equity was assessed in terms of state-owned, privately-owned and foreign deposit banks, there was equality between state-owned and private equity banks in 2002; after this period upward trend was dominated in state banks and also until the end of 2005 profit capital of private deposit banks exhibited decrease. By 2008, despite the fact that financial effects of economic crisis has been experienced intensively; it has been revealed itself with decrease of profit capital in Turkish banking sector.

4.5. Liquidity

Liquidity; liquid assets/total assets, liquid assets/short term liabilities, liquid assets/deposit and non-deposit sources are some of the most important signs.

![Liquid Assets/Total Assets](image)

Fig.12. Liquid Assets/Total Assets

After 2001 crisis, Turkish banking sector has entered into a crucial reengineering process. In this process, the percentage of liquid assets to total assets such as cash assets, debt receivables from money market, marketable securities started to increase rapidly in state-owned banks. In the respective period, a serious change was not observed in private capital banks and foreign banks whereas the percentage of liquid assets within total assets increased in all banks after 2008 crisis. This situation depicts that it was tried to provide enough percentage within total assets for the need of sudden liquidity such as run on a bank in Turkish Banking sector.
Fig. 13. Liquid Assets/Short-term Liabilities

State-owned deposits banks provided a fierce increase on coverage of short-term liabilities to liquid assets by 2002. State-owned banks provided a ratio above 100% for the coverage of short-term sources with short-term liquid assets especially in 2004. In addition to these, the risk perception decreasing globally caused the drop of the ratio of holding liquid assets equivalent to short-term liabilities in all banking groups to decrease the ratio until 2008. It is seen that the respective ratio in Turkish banking sector increased especially in privately owned and foreign banks with global economic crisis.

Fig. 14. Liquid Assets/(Deposits+Non-Deposit Funds)

While state-owned banks’ coverage ratio of liquid assets for non-deposit sources composed of components such as payables to money market between deposit and interbank, credits obtained, securities issued had a tendency to increase by the end of 2007, this ratio had a tendency to decrease in privately-owned and foreign banks by the end of 2008. With the effect of global economic crisis, the need of increasing liquid assets has become a current issue in banks for deposit or non-deposit sources.
4.6. Sensitivity to Market Risk

Banking sector acquires the biggest percentage from privately-owned deposit money banks between the years of 2002-2009. The regular increase of privately-owned banks in terms of total assets in total banking sector until the end of 2005 started to decelerate after 2006. In this respect, the increase tendency of state-owned banks until the end of 2004 turned to horizontal progress. The horizontal view of foreign banks in terms of total assets until the end of 2005 started to increase owing to merging and take-over transactions.

In terms of the percentage of total loan and debt receivables in the sector, it is observed that privately-owned banks remained at the forefront as in its total assets. While the total loan and debt receivable ratio decreased at the end of 2005, the horizontal progress of state-owned banks in the sector continued until the crisis in 2008. After the crisis, there was an increase tendency in state-owned banks in terms of loan

Fig.15. Total Assets/ Sector Assets

Fig.16. Total Loans and Receivables/ Sector Loans and Receivables
and debt receivables. As for foreign banks, the size of them in the sector increased in terms of loan and debt receivables as in their total assets by 2006.

![Fig.17. Total Deposits/ Sector Deposits](image)

Fig.17. Total Deposits/ Sector Deposits

Along the analysis period, the size of privately-owned banks drew attention in the sense of percentage of deposits in the sector. While the size of deposits had partial horizontal progress until the end of 2005, this size started to decelerate by 2006. While the deposit size in the sector increased by the end of 2004, there was horizontal progress with the decrease after that period in terms of state-owned banks. Foreign banks’ increasing percentage of deposit within sector has accelerated by 2006. In terms of deposit composition of 2008 global crisis, it is observed that there were not any crucial changes in banking groups. This situation shows that there was no a sudden change for banking selection habits of depositors who provide fund to the banking sector.

5. Findings and Conclusion

Within the scope of this study, it was aimed to create the data set reflecting 2001 and 2008 global economic crisis. In this respect, the data set covering the years from 2002 to 2009 in the banking sector was used. Respective data were acquired by using the official web site of “The Bank Association of Turkey”. In this analysis, deposit banks were analyzed under three categories as “State-owned, Privately-owned deposit and Foreign Banks”. In this way, it is possible to obtain important implications about the structure of the general sector and ownership structure of the banking sector as a result of changes occurred in those banking groups.

As a result of analysis data, it is observed that positive developments were seen in terms of the performance of State-owned, Privately-owned and Foreign Banks after 2001 and 2008 crisis. Especially after 2001 crisis, various regulations such as banking law amendments, capital adequacy, effective internal control and functions created crucial effects on restructured banking sector. By these regulations, financial ratios in the banking sector during the global crisis in 2008 indicated that successful results were obtained substantially. The equity ratio which was assigned for respective risks of banks after the crisis varied in parallel to macro economic developments under the condition of banking rule about being above the ratio of 8%. Additionally, it had a tendency to increase in the effect of crisis period. This situation showed that Turkish Banking sector provided sufficient capital stock against risks as a whole. Besides, the investment to financial assets within total assets increased under the leadership of state-owned banks.
after the global crisis. In Turkish banking sector after global crisis an important credit decrease was not seen generally in total assets, except for Private Capital Deposit Banks. However foreign banks, in terms of their investment to fixed assets within total assets, had a tendency to decrease except for the increase provided by merging transactions in 2006. As public sector was foreground in the interest income and interest expenses of banking sector within total income and expenses in the period of crisis, a decrease tendency dominated in general banking sector. While a rational similarity was seen in terms of the ratio of total income to total expenses in all banking groups, the increase in the ratio of total expense ratio in total assets took great attention after the global crisis in the general banking sector. Before global crisis, the ratio of liquidity assets which showed variability in banking groups, made crucial progress in all banking groups as a whole by the period of global economic crisis. This situation can be seen as one of the most important lessons for the banking sector acquired from 2001 crisis. In terms of active and profit capital, a crucial increase was observed in whole banking groups after global economic crisis. By this way, banking sector created a serious increase in profitability ratio by converting crisis to opportunity. Private Capital Deposits Banks which had the biggest share about credits and deposits in terms of total assets, credits and deposits of banking sector, protected its size in related analysis period, and a partial slowing down emerged in the crisis period. However, credit share within total sector of state-owned banks increased. Especially after 2005, increment of total assets, credits and deposits share of foreign banks was related to merging and take-over transactions in the banking sector substantially. To sum up, Turkish Banking sector taking lesson from 2001 crisis, and being restructured showed a positive attitude especially in terms of profitability as it was affected from the effects of 2008 global crisis less than other developed markets.
References


