

THE RELATIONSHIP BETWEEN CONCENTRATION AND PROFITABILITY IN TURKISH BANKING SECTOR²

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ABSTRACT:The crisis taking place in Turkish banking sector in 2001 caused many structural changes in the following periods. This study aimed to examine the relationship between profitability and concentration which are important indicators in view of banking sector in the period of structural change. As profitability indicator Return on Assets (ROA) and Return on Equity (ROE) were used and in order to show concentration K bank ratio and Herfindahl-Hirschman Index (HHI) which are used at most were put to use. According to the results, profitability and concentration indicators after the crisis taking place in Turkish banking sector in 2008 moved in the same direction unlike the period before the crisis.

Index terms: Profitability, Concentration, Banking Sector

TÜRK BANKACILIK SEKTÖRÜNDE YOĞUNLAŞMA VE KARLILIK İLİŞKİSİ

ÖZET: Türk bankacılık sektöründe 2001 yılında meydana gelen kriz, sonraki dönemlerde birçok yapısal değişimin gerçekleşmesine neden olmuştur. Çalışmanın amacı yapısal değişim sürecinde bankacılık sektörünün izlenmesinde önemli göstergeler olan karlılık ile yoğunlaşma arasındaki ilişkinin ortaya konmasıdır. Karlılık göstergesi olarak aktif karlılık göstergeleri ve özkaynak karlılık göstergeleri ve yoğunlaşma oranı ölçütü olarak da K banka yoğunlaşması ile Herfindahl-Hirschman indeksi kullanılmıştır. Çalışmanın bulgularına göre 2008 krizinden sonra Türk bankacılık sektöründe karlılık ve yoğunlaşma göstergeleri aynı yönlü olarak hareket etmektedir. 2008 öncesi dönem için böyle bir ilişki söz konusu değildir.

Anahtar Kelimeler: Karlılık, yoğunlaşma, bankacılık sektörü.

INTRODUCTION

The financial crisis that occurred in November, 2000 and February, 2001, had severe effects on the whole economy along with the banking sector, causing the banks that are incapable of competing to collapse and confiscated and enter into the dissolution process by the Saving Deposits Insurance Fund (TMSF).The Transition Program for Strengthening Turkish Economy issued after the crisis included various new structural adjustments for re-building of the economic system after the crisis and also offered various new regulations for the banking sector. When the levels of the sector profits are considered, the profits obtained after 2003, the year in which the effects of the crisis started diminishing, have been on a constant rise.

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However, this period should also be considered as the period in which the financial integration within the Turkish banking sector and assets and equities of banks has started increasing.

When data on return on assets and return on equity, two generally accepted profitability indicators, are examined; it is determined that contrary to the level values; the values have been following a fluctuating course and within the period following 2008 global crisis, despite some of the biggest banks announcing record-breaking interests; these profitability values were on the decline.

Even though there were more than 40 banks in the banking sector between 2003-2005, the top 5 banks with the highest asset amounts were hold of more than half the total size of assets of the whole Turkish banking sector.

In this study, first the literature review on profitability and concentration will be presented, followed by an analysis of the profitability indicators and profitability determinants used in the banking sector. The concentration indicators, which are deemed as factors affecting profitability, will be separately examined and the profitability and concentration indicators in the Turkish banking sector will be examined graphically.

1. LITERATURE REVIEW

By using the concentration ratios of top three banks Bourke(1989) has concluded that concentration has a positive and significant effect on the profitability of the banking industry in the study he conducted on the profitability indicators in European, North American and Australian banking sectors.

Molyneux and Thorton (1992) used the concentration ratios of top ten banks as a concentration indicator in their study conducted based on Bourke's study and on eighteen European countries between 1986 and 1989. This study revealed that there is a positive and significant relation between concentration and profitability rates of the European banks.

In Jeon and Miller's (2002) research, in which they examined the relation between concentration and performance in the American banking sector by using the market shares of the first 5 and first 10 banks and Herfindahl-Hirschman Concentration Index (HHI) as concentration indicators and return on investment rates (ROE) as the profitability indicator, it was revealed that concentration has a positive and significant impact on profitability.

Hassan and Bashir's(2003) study on Islamic banking sector in 21 countries between 1994-2001 focuses on the determinants of profitability. In this respect, the concentration indicator including the market shares of top 3 banks with the highest assets has statistically meaningful and positive relation as a determinant for return on assets and return on equities.

Tregenna's (2006) study analyzing how much and how the concentration in the American banking sector affects profitability puts forth that there is a structurally generalized positive and significant relation between concentration and profitability. Plus, the study focusing on both deposit banks and investment banks determined that this relation was significant for both sectors.

Athanasoglou, Delis and Staikouras' (2006) research revealed determinants of profitability by using ROA and ROE indicators in 7 countries in the South Eastern Europe. When their findings are examined, it was detected that there is a positive and significant relation between concentration and profitability ratios only when ROA is accepted as a profitability indicator. However, Abbasoğlu, Aysan and Güneş's (2007) study on deposit banks within the Turkish banking sector couldn't assert that there is relation between profitability and concentration between 2001 and 2005.

Rinkevičiūtė and Martinkutė-Kaulienė's (2014) study, which examined the relation between concentration and profitability in the Lithuanian banking sector between by using HHI, market shares of the top 3 banks, ROE and ROA, concluded that there is no direct relation between concentration and profitability indicators.

2. PROFITABILITY INDICATORS

According to the studies in the literature, return on assets (ROA) and return on equities (ROE) are two of the most widely used indicators for profitability in the banking sector. ROA is the ratio of profit after tax of banks to their average total assets, while ROE is the ratio of profit after tax of banks to their average total equities. The return on equities can be obtained by multiplying return on assets and the ratio of assets to equities, which is called as the equity multiplier (Bumin, 2009). In this respect, it can be asserted that return on equity includes both the return on assets ratio and the capital adequacy ratio.

While ROA is significant as it indicates how much profit each Dollar a bank has creates, bank owners usually take into consideration the return on equities (Boskhoska, 2013).

Table 1: Desired value of ROA and ROE

ROA	ROE
Lower- under %0.5	%15 after tax
Adequate- %0.5-%1	%25 before tax
Good- %1-%2	
Verygood- over%2	

Source: Boskhoska, 2013.

The desired value of ROA is over 1%. While values between 0.5% - 1% are deemed as adequate, values below 0.5% indicated that the return on assets is lower than the desired level. The return on equities, which is more significant for shareholders, should be 25% or above when the profit before tax is considered and should be 15% or above when profit after tax is considered.

3. DETERMINANTS OF PROFITABILITY

Empirical research classifies profitability indicators within the banking sector in three categories; internal factors, external factors and financial structure. The internal factors consist of balance sheets and income calculations of the bank in question (Gülhan & Uzunlar, 2011). Further, the capital structure, expense structure, liquidity structure, etc. are deemed as internal factors affecting profitability. While they have an impact on profitability, external factors are factors that arise beyond the control of the bank and therefore, cannot change and can only obtain data on (Tunay ve Silpar, 2006). These factors, sometimes called as macroeconomic factors, include GDP, inflation rate, changes in the market structure, etc.

Factors that affect profitability within the financial structure are relative sizes determined by dividing the total deposits of bank by the capitalization rate used in the equity market used for determining the development of financial market, the ratio of total assets of banks to the national income and the total assets of the biggest five banks to the total bank assets or variables such as the concentration rate calculated via HHI.

4. CONCENTRATION INDICATORS

The concentration ratio indicates how much concentration is taking place in the assets within the banking sector. In other words, concentration ratio shows the rate the total assets of the banks we deem as big banks in the sector to the total assets of all the banks included within the sector. There are various indexes to show this ratio including K bank concentration, HHI, Hall Tideman Index, Comparative Concentration Index, Hannah and Kay index and U index.

Table 2: Concentration Ratios

Ratio	Calculation Method
K banking concentration	$CR_k = \sum_{i=1}^k S_i$
HHI	$HHI = CH = \sum_{i=1}^n S_i^2$

Hall-Tideman Index

$$HTI = 1 / (2 \sum_{i=1}^n i^* s_i - 1)$$

Source: Rinkevičiūtė ve Martinkutė-Kaulienė, 2014.

K bank concentration index shows how much of the total assets in the sector are owned by the first K (number) banks in the sector in terms of asset sizes and is calculated by adding the ratios of first K banks' asset sizes to the total asset size in the sector. As K, which is between 0 and 1, approaches 0, the concentration decreases and as it approaches 1, the concentration increases.

HHI, which includes the whole sector unlike the previous indicator, is calculated by adding squares of sector shares calculated separately for each bank. HHI can be between 0 and 10.000 and as HHI approaches 0, concentration in the sector decreases and as HHI approaches 10,000, concentration in the sector increases.

In addition to HHI, HTI, considers the sequence of banks in terms of their asset ratios. The ratio of the biggest bank is deemed as i=1 and the index ranges between 0 and 1. The least concentration is found when the index is 0 and the most concentration occurs when the index approaches to 1.

5. THE RELATION BETWEEN CONCENTRATION AND PROFITABILITY IN TURKISH BANKING SECTOR

In this section of the study, the relation between CR3, CR5 and HHI, used as the concentration indicators and ROA and ROE used as profitability indicators will be analyzed in the Turkish Banking sector in general.

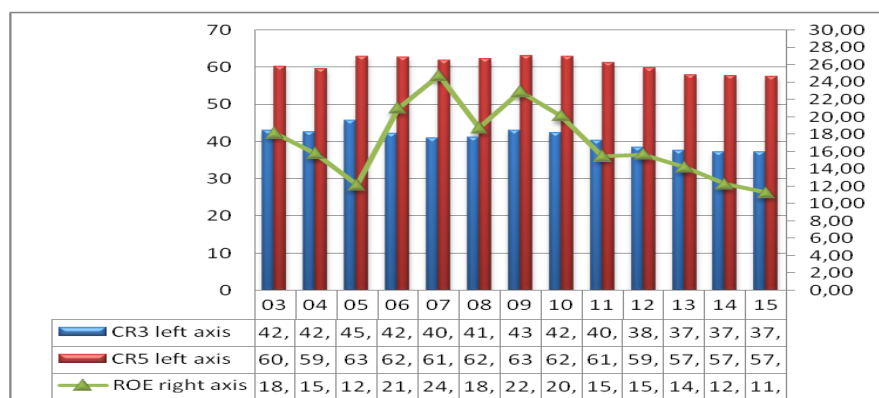


Figure 1: ROE and CR3-CR5

When the top 3 and top 5 banks are considered, it is determined that there concentration between 2003 and 2009 followed a fluctuating path and the return on equity, used as a profitability indicator followed a path independent of the concentration. When the literature is

considered, it is evident that this period proves that when concentration increases, profitability increases as well however, in 2005, during which the concentration was the highest, the return on equity ratios are the lowest.

When the period after 2009 is considered, it is observed that the concentration in the banking sector decreases and the return on equity acts in parallel to concentration and decreases as well.

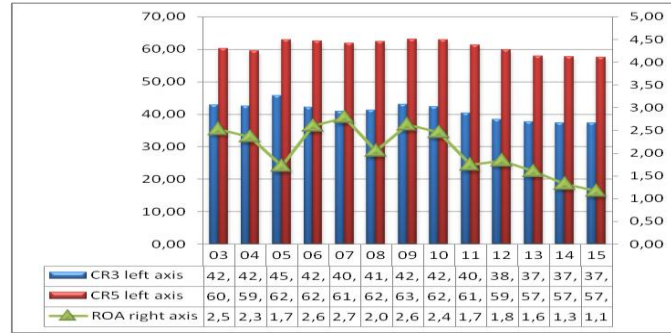


Figure 2: ROA and CR3-CR5

Similar results are obtained when return on asset ratio is used as a profitability indicator instead of return on equity ratio. Again, the return on asset ratio in 2003-2009 period fluctuates and is at its lowest level in 2005 when the concentration is the highest. After 2009, it is determined that the return on assets decreases parallel to the concentration ratio.

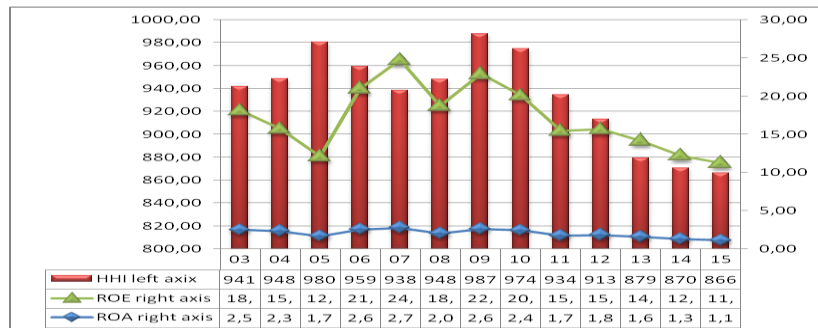


Figure 3: HHI and ROE-ROA

According to the HHI concentration index covering the whole sector, concentration decreases correspondingly to the concentration ratios of the top 3 and top 5 banks. This indicates that the active structure of the top 3 and top 5 banks are determinative in terms of the whole structure of the sector in terms of concentration. When course of fluctuation between 2003-2009 is observed through HHI, it becomes evident that again the concentration level in 2005, in which the return on asset and equity ratios are at their lowest level, the concentration is at its highest level.

It is observed that after 2009, the assets of banks which are deemed as small banks in the sector increase annually. This results in the decrease in the dividends as it creates effects that increase competition.

CONCLUSION

While ROA and ROE values after 2003 in the Turkish banking sector have been at the desired levels, ROE values after 2012 deviate from the levels desired by the shareholders. In terms of concentration, while the market shares of relatively smaller banks increase, the concentration values decrease after 2009.

When profitability and concentration indicators are considered together, the literature indicates that the results in the Turkish banking sector were parallel to each other for 2003-2009 periods. Especially in periods following the global crisis, the profitability and concentration ratios move in the same direction in line with the related general theory. This indicates that studies focusing on 2009, in which the profitability of the Turkish banking sector started declining and the following years, should also take into consideration concentration.

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