

Determinants of Profitability in Domestic and Foreign Banks in Turkey

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ABSTRACT

The most important instrument of financial system for the future of the economy is the profitability of banking sector. The goal of this research is to determine the specific bank factors that impact the profitability of 14 commercial banks in Turkish banking sector for the period of 2005-2011. The data are collected into two groups: Privately owned domestic and foreign Banks. Profitability measures are the operation of specific of bank that used to measure the bank performance. The bank specific determinants that effect the profitability are equity/total assets, total loans/total assets, interest income/interest expense, liquid assets/total assets, total assets and interest expense/deposit.

Keywords: Profitability, Turkish, Banking

ÖZ

Finansal sistemin başarısı ve geleceđi için en önemli enstümanlardan biri de bankaların karlılığı ve verimliliđidir. Bu nedenle bu çalışmada Türk Bankacılık sektörünü etkileyen faktörleri belirlemek amacı ile 14 banka 2005-2011 yıllarını kapsayan süreçte incelenmiştir. Veri seti yerel özel bankalar ve yabancı bankalar olmak üzere iki grupta incelenmiştir. Özellikle banka karlılık faktörlerinin belirlemek için özsermaye karlılığı, kredi aktif oranı, likidite, faiz gelir ve giderlerini kapsayan rasyolar baz alınarak ekonometrik modeller çerçevesinde analiz edilmiştir.

Anahtar Kelimeler: Karlılık, Banka, Türkiye Bankacılık Sistemi

To my parents
For their love, support, and encouragement

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LIST OF ABBREVIATIONS

ROA	Return on asset
ROE	Return on equity
CAR	Capital adequacy ratio
EFF	Efficiency
ASQ	Asset quality ratio
LQR	Liquidity ratio
LSIZE	Natural logarithm of total assets
MGMT	Management efficiency
TBS	Turkish Banking System
OLS	Ordinary Least Square
E-VIEWS	Econometric views

Chapter 1

INTRODUCTION

In Turkish dynamic economy, the banking sector has an important part of its financial system. A great part of money activities, dealing and money markets are achieved by banks. For the finance a particular industry state banks were established but to large industrial groups and holdings private banks generally have close connections.

Banking activities started before the 18th century and called money-changers and Galata bankers. During this period, money-changers achieved all activities of banking and for the minorities in Istanbul through Galata bankers activation.

With the loss of strength of Ottoman Empire, they demanded external financial support. During this period, for the aim of spreading credits to the Empire with high interest rates foreign banks came to Istanbul.

In 1856 the Ottoman Bank (Osmanlı Bankası) was found that its head office was in London until 1930s that served as the central bank.

The Central Bank established around 1930s and it has all usual banks functions and also finances the State's budget deficits and makes loans to public and nonpublic

banks until 1983. After this year, central bank increased its supervisory responsibilities.

The number of foreign banks in Turkey grew from 4 to about 50 after 1980s. As of December 2012, there are a total of forty five banks operating with 10,105 branches in Turkey and 75 branches abroad.

1.1 Aim of the Study and Research

There was a similar study done by Songul and Ahmet (2013) that examine Turkish banking sector's profitability factors over the period of 1998 to 2011.

The goal of the research is to analyze the indicators of bank profitability in the case of Turkey in the period of 2005 to 2011. Banks profitability in the Turkish banking system is investigated by achieving ratio of capital, ratio of asset quality, ratio of management efficiency, ratio of liquid o and size of bank as bank specific.

Banking sector divided into two different parts: private owned and foreign banks. These banks are used to measure the affect of above ration them in terms of profitability. In the same field, there are lots of studies that performed the similar work. These are Alper and Anbar (2011), Al-Tmmi (2010), Teker et al (2011), Songul and Ahmet (2013) and so on.

This study focuses on the profitability of selected 14 commercial banks in Turkey. The banks are chosen basing on their asset size. The analysis of profitability of private banks and foreign banks, is the main goal need to answered with the following empirical results chapters

. 1.2 Structure of the Thesis

This research is structured as follows: Part 2 reviews the previous studies on profitability of banks, Part 3 includes overview of the banking system in Turkey, Part 4 brings out research methodology, variables and data. Part 5 introduces the empirical results. In the final part conclusion and recommendation are provided.

Chapter 2

LITERATURE REVIEW

Short (1979) and Bourke (1989) investigated the profit level of bank in variance for the studies on bank profitability. Regarding to designate the indicators of bank opportunity, multiple empirical researches were held. There are studies on single country study analysis the profitability. Al-Tmimi (2010), Beckmann (2007), Flamini et al. (2009), Ilhamovich (2009), Krakah and Ameyaw (2010), Teker et al. (2011), Alper and Anbar (2011), Scott and Arias (2011) are the studies that can be given as examples.

Al- Tmimi (2010) examined some effectual levels in Islamic UAE and current national banks during the period 1996-2008. Islamic banks in UAE do not have a great share of market but they want to increase their services. This brought up the issue to compare Islamic banks with conventional banks. The internal and external factors divided to dependent and independent, dependent ones are ROE and ROA and independent ones are included; GDP, liquidity, size, centralization, number of branches. The result of this is he compare the conventional bank centralization and cost that are specific indicators and for Islamic banks' cost and number of branches are most important factors.

Flamini et al.(2009) for indicators of profit examine 389 banks in forty one Sub-Saharan Africa countries. They observe that good- sized banks, variation of

activities, and private ownership are considered as factors to receive a high return on assets and macroeconomic variables which have impacts for bank returns.

Ithomovich (2009) investigates the relationship between domestic and foreign banks in Malaysia from 2004 to 2008 (5 years). The statistics show that domestic banks are very profitable but he found that foreign banks have stronger capital. Also he found in Malaysia, foreign banks are affecting the quality of financial services. In a great competition, all banks offer better services for customers.

In Ghana Krakah and Ameyaw (2010) investigate the profitability of commercial banks. The results from the study indicate that non-interest income, non-interest expense, bank's capital strength, growth of money supply and annual rate of inflation are important factors of banks' profitability. On the other hand, the size of the Ghanaian economy and loan loss supply did not have any important effect on the banks' profitability.

Beckmann (2007) examines the indicators of profit in about sixteen Western European countries from data of during the period of 1979-2003. He found that capital market impact in financial system and also higher variation banks' income sources have positive effect. The industry of state banking systems do not have important effect on profitability.

Scott and Arias (2011) decided to examine determinants of profitability of the five important bank holding companies in the United States. This study reveals that positive relation between the return of equity and capital to asset ratio in the external capital income on profitability. In times of depression the size as measured by an

organization's total assets ability to struggle in opposition is more effective as an internal factor.

Taker et al. (2011) analyzed the Turkish bank level of profit during 2003 and 2010. The study includes 13 commercial banks recorded in Istanbul Stock Exchange. They found that nonfinancial levels such as customer satisfaction, effective management etc. have a strong effect to the performance of banks more than performance by financial only.

Moreover, Alper and Anbar (2011) focused on financial activities on the banking sector in Turkey. They examined over the time period from 2002-2010. The results distinguish that positive and negative effect on bank profitability. Amount of asset and income of non-interest have a positive impact and amount of credit portfolio and loans based on right supplementary have a negative impact. It means that they can develop level of profit based on accession size of bank and non-interest income, redusing credit ratio.

Rasiah (2010) uses a theoretical review of the level of profit of commercial banks. The level of profit indicators are allocated into two levels, specifically the internal factors and the external indicators. In this research asset portfolio mix, total expenses, liability composition and liquidity ratio and capital structure are the internal variables. Competition, regulation, inflation, market share, market growth, company size and interest rate are external indicators. In explaining the level of profit of the commercial banks in Malaysia and Singapore the internal variables are sufficient. Furthermore, in the profitability models the external indicators also pertinent.

Chapter 3

OVERVIEW OF THE TURKISH BANKING SYSTEM

Since 2001 after the banking crises the restructuring of financial institutions started. There were numerous reforms in banking division of Turkey between 2002 to 2008. Recovery of banking institutions, rapid increase in branch numbers and employees along with the strengthening in banking systems in comparison with before, were all brought by those changes and renewals. In addition, assessment and risk management systems developed and became more general.

The achieved success of 2002 - 2008 period can result from the appropriate domestic and international environment of Turkey, suitable economic situation and revolutions in classification of risk management, but perhaps renewal constitution of banking system in Turkey is the most important cause for banking succession in this country.

During 2010, the total value of entire banking institutions market in Turkey with 18% growth in comparison with late 2009 was reached to around 113 billion dollar. The total value of entire market for financial institutions incorporated in Istanbul's stock market is estimated around 41% of total value of all stock market companies. Furthermore, banking system in Turkey owns the major share in financial sector of country, in other words, the pivot of Turkey is the banking system.

With the global developments that affected the banking segments in Turkey, this country had less influence, in comparison with other countries. The reasons of limited influences from global crises in Turkey brought by having valuable properties with high quality, money supply risk management, influential successful risk management and general assessment, suitable management on interest rates and management of risks in due dates.

On the other hand, operations by central branch against global banking crises has assisted the crises management in banking division and prevented banking and international investment operations from risks and threats.

Currently, due to existing threats resulted from economic downturn and increase in demand for government financial supports, the banks in Turkey are taking precautionous policies in offering loans. In order to keep the profitability, the banks in Turkey have paid special attention to operational expenses, concerning continuation of these crises.

Banking systems in Turkey consist of forty seven banks with one hundred and thirty one thousands twelve employees in six thousands one hundred and sixty four branches. The Turkish banking system made division in five groups (table 3.1).

Table 3.1: Turkish Banking Sector – Bank Groups

	2008	2009	2010	2011	2012
Deposit Banks	32	32	32	31	32
State- owned	3	3	3	3	3
Private	11	11	11	11	12
Foreign	17	17	17	16	16
SDIF	1	1	1	1	1
Dev. And Invest. Banks	13	13	13	13	13
Participation Banks	4	4	4	4	4
Total	49	49	49	48	49

Source: Banking Regulation and Supervision Agency (BRSA)

Banking division in Turkey has established 38 financial companies and 78 branches as overseas agents until Sep. 2010. 96% of Turkey's banking resources are in commercial and development banks, the total resources of entire banks in Turkey including investment, developments and depository banks exceeds 1008 Billion Turkish lira, equal to 582 billion dollars.

The relation of shareholders rights to total resources is 13%. The categorized rubric of loans demonstrates that about 68% of loans in Turkey's banks have paid to companies.

Regarding to the bank regulations, the accounts are divided as 65% in Turkish lire and 35% in foreign currencies. Securities and commercial Guarantees are the largest credit items in banks in Turkey.

The rate of loan to credit has improved from 77% in late 2009 to 86% at late 2010.

Government banks own 43% of total credits, while the private banks own 49%. 12% of total capitals in Turkey are from international banks with branches in Turkey and major amount of it are in foreign currencies.

Considering the economic development, the banks are still expanding their branches, meanwhile along with job creation, investment base on technology are ongoing in these banks.

The employment rate is also increased significantly. In Turkey, financial and banking segments are still in growing. However the system of the banking is playing the main rule in financial system. According to international comparison charts, the banking system in Turkey has yet great potential for growth.

According to the published information the share of private banks in offering loans are 50%, government banks 27% and the loans offered via foreign banks are 15%. The ratio of total loans per gross rate of internal production is 48%. 88% of total loans paid via internal branches and the remaining paid via foreign branches. 22% is the small and medium business's share. The total loans share paid to industries are as following: Manufacturing and development industries as 38%. Commercial segment 15%, Service segment 13%, and Construction 8% due to 2010 this reached to 3.5%.

According to categorized banking system in Turkey, bank costumers in small and medium sizes are exceeding to around 1.9 million customers.

While corporate banking division demonstrates the less outstanding in comparison with small banking systems. The ratio of none commercial corporate loans from total in production division is 4%, agriculture 4.2%, service 4.1%, and business is 3.9%.

From the numbers, the capital budgeting of banks are registered as 17.7%. 18 banks in Turkey have more capital budgeting than medium range, as it was mentioned before. The banks profitability is one of the most important factors in Turkey during the crises years had a growth in shareholders rights, reduction of operational expenses and lack of interpellations due to their capital and debt.

47,000,000 credit cards and 69.9,000,000 debit cards are existing in banking system of Turkey. The total ATM and POS machines are 1,824,228 and 649,27. The total credit card transactions are estimated around 234 billion lira, and the debit card transactions via ATM, POS machines are 217 billion lira.

During recent years, the quantities of active internet banking consumers are increased to around 6.7 million persons. From these costumers, 90% small, and 10% are companies. The total volume of transactions via internet banking exceeds from 290billion lira.

Our focused in this thesis is on the privately owned banks and the foreign owned banks.

3.1 The Privately Owned Domestic Banks

The owner of the largest privately owned bank İşbank are the CHP system of government (28.1%) and its fixed wages paid at regular to a person dependents in consideration of past services, age, etc. (41.54%). Sabancı Group by 66.35% hold Akbank, the second largest privately owned bank. Sabancı Holding has majority of Aksigorta's shares (insurance company) and Exsa Corporation is a Sabancı Group export company. General Electric Consumer Finance (GECF) in December 2005 achieved a 25.5% share in Turkey's fourth largest private commercial Garanti Bank. GECF achieved Dogus Group has 1/2 of common shares of Garanti Bank.

Çukurova Group (44.5%) and SDIF (12.9%) in September 2005 held 57.4% of Yapı Kredi Bankası shares were negotiated to Koçbank, which is possessed by Koç Financial Services. Koç Holding and UniCredit Jointed with Koç Financial Services. In terms of assets, Yapı Kredi and Koçbank together with 33.6 bln TL rank place four.

Absolute majority owners of Finansbank's are the FIBA Group. This group contains of Fiba Holding, Girişim Factoring and Fiba Factoring (table 3.2).

Table 3.2: Top 10 Banks of Turkey-Essential Shareholders and Share of Market

Banks	Main Shareholders	Market Share
1 Türkiye Cumhuriyeti Ziraat Bankası A.S	State owned	16.44%
2 Türkiye İş Bankası A.Ş	İşbank Members Supplementary Pension Fund (41.54%) CHP political party (28.1%)	15.26%
3 Akbank T.A.Ş	Sabancı Holding(34.23%) Sabancı Family(23.29%) Aksigorta(6.62%) Exsa(2.21%)	13.35%
4 Türkiye Garanti Bankası A.Ş.	General Electric Consumer Finance (25.5%) Dogus Group (27.54%)	8.87%
5 Türkiye Vakıflar Bankası T.A.O.	Foundations managed by the General Directorate of Foundations (58.45%) Vakıfbank Pension Fund (16.1%)	7.85%
6 Türkiye Halk Bankası A.Ş.	State owned	7.15%
7 Yapı ve Kredi Bankası A.Ş.	Koçbank A.S.(57.4%)	6.33%
8 Koçbank A.Ş.	Koç Financial Services (100%). i.e.50% UniCredit	3.86%
9 Finans Bank A.S.	Former ownership: Fiba Holding A.S. (33.2%) Fina Holding (15.01%) Girişim Factoring (4.2) Fiba Factoring (3.27%): but recently acquired by National Bank of Greece	2.98%
10 Denizbank A.S.	Zorlu Holding A.S. (74.9965%)	2.36%

Source: <http://www.tbb.org.tr/default.aspx>

3.2. The Foreign Owned Banks

Foreign banks want to increase their function in Turkey in the second half the 1990s. After the 2001 national crisis a great number of state owned banks in Turkey sold to foreign banks or financial companies and they are projected for selling more.

After crises capital asset ratios have increased. The increase of participation of foreign banks in the Turkish banking system (TBS) have many reasons. Last achievement in the TBS has a great effect on the foreign investors decisions. Foreign banks pay attention to increasing the TBS profits and their achievement in the capital structure of banks. Because of Turkey growth, they wanted to diversify their investment options.

Incorporate of foreign banks cause new duties, forwarded knowledge, and accommodated market management abilities in the banking of Turkey. Cooperation is similar to leverage domestic technology with financial activities of foreign banks. Today, Turkish banks have a relatively large achievement the sale of goods in small base quantities, new knowledge and wide offshoot networks, which makes it hard for foreign investors to found business without learning an existing Turkish bank.

The share of market in foreign banks of Turkey is low. HSBC is the biggest foreign bank function in Turkey, has a market share of 2%. All the foreign banks that have a share of market less than 2%. Only 2 foreign banks have a offshoot network with more than one hundred and fifty offices and more than three thousands employees. Six foreign banks from 13 merely had one branch office since 2005. As mentioned above the largest group with 60% of total assets are privately owned banks. Since 2001, Foreign banks declare a small access in shares of total assets, loans and

deposits. But, foreign banks have as a group a very small market share of with 5.6% in total assets.

Chapter 4

DATA, METHODOLOGY AND MODEL

4.1 Data

In this research, 14 Commercial Banks are used regarding the balance panel dataset over the period 2005- 2011 to analyze their profitability measure. In the Central Bank of Turkey website the data of these banks were realized. Income statements and balance sheets of commercial banks are used for the bank-specific variables. From Statistical Bulletin of Banking Regulation and Supervision Agency (BRSA), Istanbul Stock Exchange and the bank's websites gathered the financial statement statistics.

For the purpose of this study, analysis of financial statements of selected banks will be carried out based on two approaches; the CAMEL approach and panel econometrics. Some of the tools that are used to run the regression are Microsoft excel that is to calculate some of the ratios are not provided on the Turkish Central Bank website and E_views which is the software that facilitate the task to use panel data that is to carry out an empirical analysis.

Table 4.1: The Commercial Banks and Their Categories

No	Name of Banks	Category-
1	Akbank T.A.S	Domestic Bank
2	Alternatif Bank A.Ş	Domestic Bank
3	Şekerbank T.A.S	Domestic Bank
4	Türkiye İş Bankası A.Ş	Domestic Bank
5	Türkiye Garanti Bankası A.Ş	Domestic Bank
6	Yapı ve Kredi Bankası A.Ş	Domestic Bank
7	Tekstil Bankası A.Ş	Domestic Bank
8	Arap Türk Bankası A.Ş	Foreign Bank
9	Finans Bank A.Ş	Foreign Bank
10	HSBC Bank A.Ş	Foreign Bank
11	Turkland Bank A.S	Foreign Bank
12	Fortis Bank A.S	Foreign Bank
13	Eurobank Tekfen A.S	Foreign Bank
14	ING Bank A.S	Foreign Bank

Source: <http://www.tbb.org.tr/eng/default.aspx>

4.2 Variables Description

In this study 8 variables have been chosen to examine the profitability of the 14 Turkish commercial banks profitability, through two dependent and 6 independent variables.

Table 4.2 The Variables Notation and Their Measure:

	Variables	Measures	Notation
Dependent Variables	Profitability	Return on assets (ROA)= Net Income/Total Assets	ROA
		Return on Equity (ROE)= Net Income/Total Equity	ROE
Independent Variables Bank-Specific	Capital Adequacy	Equity/Total Assets	CAR
	Asset Quality	Total Loans and Receivables/Total Assets	ASQ
	Efficiency	Interest Incom/ Interest Expense	EFF
	Liquidity	Liquid Assets/Total Assets	LQR
	Bank-Size	Natural logarithm of total Assets	LSIZE
	Management Efficiency	Interest Expense/deposit	MGMT

4.2.1 Dependent Variables

In the prospectus, bank profitability, specifically measured by (ROA) Return on Assets and (ROE) return on equity. These two variables are computed in proportion per hundred.

ROA

The return on assets (ROA) is the ratio of net income to total assets that it is used to measure profitability and efficiently the management of the company's total assets. ROA used in most of studies for dealing bank profitability.

ROE

The return on equity (ROE) is the percentage of net income to total equity that it is indicated to owner of shares equity on the book value of their investment. Molyneux and Thorton (1992) pointed out important positive connection between ROE and the grade of interest rates in multi-country financial institution focus and policy possession.

Mamatzakis and Remoundas(2003) mentioned in their study the importance of measure the profitability of the commercial banks is using the percentage ROA and ROE.

4.2.2 Independent Variables

Capital Adequacy

It is defined as capital divided by total assets (CA). According to Berger (1995); Hassan and Bashir (2003) and Bourke (1989) the ratio of capital over total assets is

predicted well-capitalized banks counter low costs of funding and risks have positive relation with this performance.

Management Efficiency

It is determined as interest expense over deposit. Central Bank of most of countries used management efficiency to rate operational efficiency of banks. Mainly the aim of it is to protect operation of the firms at minimum cost and maximize profit.

Efficiency

It is a ratio that used to recognize how well a firm can utilize its assets and liabilities internally. The efficiency ratio of a bank is typically equivalent to a firm's operating margin, that it measures how the bank pays on operating expenses. Bank desire to have a higher efficiency ratio which means the bank makes substantial profit more than expenses. A bank's non-interest expense level reflects its efficiency in converting inputs into revenue. A cost to revenue ratio of 50%, or below, is admired. A less efficient bank will have a higher efficiency ratio, say, 70% and above. So, all other things being equal, a low efficiency ratio is good.

Liquidity

In this study the measure of liquidity is the ratio of liquid assets to total assets. The more liquid the bank causes the higher this ratio. One of the major reasons of bankruptcy is inadequate liquidity. Bourke (1989) declares between bank liquidity and profitability has a positive relation. Vice versa Molyneux and Thornton (1992) find a negative correlation between liquidity and profitability.

Asset quality

It is evaluated as total loans over total assets. This percentage is a measurement of income source of banks, it is anticipated to impact profitability positively but if bank achieves on highly level of risk it is not true.

Bank- size

In banks total assets are used as a representative for size of bank. The impact of bank size on profitability of the bank is generally positive anticipated (Smirlock,1985).

4.3 CAMELS Ratings

The CAMELS technique is a financial rating system used by the US supervisory body is to classify banks, based on financial statements and on-site examination of overall position of banks. CAMELS are abbreviation of six key elements of bank's soundness and stability.

“C” stands for capital adequacy; it is a percentage of capital over asset. It is used to keep capitalist and develop the efficiency a system of financial company.

“A” indicates asset quality; in this study asset is described as all the tangible and intangible assets of the deposit financial institution, liquid and fixed, including risk assets, other investments and real estate owned as well as all contingent claims of the bank. Asset quality evaluated as total loans over total assets. This percentage is a measurement of source of banks income, it is anticipated to positive impact on profitability but if bank achieves on highly unit of risk it is not true.

“M” stands for management efficiency; Central Bank of most of countries use management efficiency to rate operational efficiency of banks. Mainly aim is to protect operation of the firms at minimum cost and maximize profit.

“E” indicates earning ability; Marketability and future prospect of a bank is basically a function of its earning ability. Bank earning includes all income from operations, non-interest, and other income from extraordinary components. A bank that yields good returns on its invested capital and asset has a better chance to expand.

“L” is for liquidity; responsibility of a bank to meet its short term obligations such as ability on customers demand for deposited funds, releasing other banks’ short term deposits, etc; are identification of banking firm’s liquidity capacity.

“S” indicates sensitivity to market risk; market risk is an important element of bank performance. An important part of banks profit come from interest earnings on assets, and they also incur expenses through interest paid on abilities. It is very common among banks to have part of its assets and liabilities enumerated in foreign currencies.

4.4 Panel Data Methodology

In this study same as Altunbas et al (2000), Ahmad et al (2009), and Fadzlan and Habibullah(2010), have examined panel data statistics to their function on capital adequacy in financial institutions. In a similar way, Konishi and Yasuda (2004) applied panel data to empirically describe bank risk- taking operation in Japan where capital was used as a determinant of risk operation. For this study, application of the

panel data method is equal to the fact that financial statements of banks in the same industry in most cases are correlated and may lead to multicollinearity. Panel data analysis is used to investigate if risk management efficiency of a bank is sufficient to keep capital and liquidity requirements of the bank. Other advantages of panel data methodology is that, by controlling for individual heterogeneity, our model estimators can be less biased since the degree of freedom will be increased(Judge et al 1980).

In order to evaluate if the data are stationary or not, unit root test is required. Davydenko (2011) found in his researches that stationary is implemented to detect if the mean, variance and autocorrelation of a variable do not change with time. In this case, the unit root test confirmed that all variables are stationary, which means we proceed with the regression analysis. Ordinary Least Square (OLS) method is applied to estimate the profitability of the Turkish Banks. In order to use OLS, E-views is employed to run the regression analysis.

The econometric form of the panel regression is:

$$Y_{it} = \alpha + \beta' X_{it} + \pi_{it} \quad (\pi_{it} = \mu_i + v_{it})$$

Where:

Y_{it} is the dependent factor of the function

α expresses intercept

β is our estimating parameter on the expository variables

X_{it} denotes the explanatory variable in the congruent period

π_{it} unobservable disturbance terms

μ_i is the unobservable individual effect

v_i is the residual of disturbance

In this study used panel data analysis in the form of fixed effect models (FEM). In the fixed effect model to be fixed estimated parameter assume unobservable disturbance (μ_i) with random residual term (v_i).

The FEM focus on micro-unit effects, too little attention to variables in industry is a common character of the FEM.

In this study the models are as follows:

$Y = f(\text{CAR}, \text{ASQ}, \text{EFF}, \text{LQR}, \text{SIZE}, \text{MGMT})$

$\text{ROA} = \alpha + \beta_1(\text{CAR}) + \beta_2(\text{ASQ}) + \beta_3(\text{EFF}) + \beta_4(\text{LQR}) + \beta_5(\text{SIZE}) + \beta_6(\text{MGMT}) + \pi_{it}$

$\text{ROE} = \alpha + \beta_1(\text{CAR}) + \beta_2(\text{ASQ}) + \beta_3(\text{EFF}) + \beta_4(\text{LQR}) + \beta_5(\text{SIZE}) + \beta_6(\text{MGMT}) + \pi_{it}$

Chapter 5

EMPIRICAL RESULTS

5.1 Correlation Analysis

Correlation analysis shows the relationship between the variables. The correlation of variables is categorized into two groups of banks (private and foreign banks) and one group that take all the banks together. Therefore, Correlation Analysis is implied to forecast how the selected independent variables can influence the profitability indicators (ROA, ROE).

Table 5.1: Correlation Analysis: All Banks

	ROA	ROE	CAR	ASQ	LQR	EFF	LSIZE	MGMT
ROA	1							
ROE	0.937078	1						
CAR	0.09422	-0.05255	1					
ASQ	0.030291	0.060304	-0.03266	1				
LQR	0.204677	0.225284	-0.1945	0.149606	1			
EFF	-0.21502	-0.10727	-0.35916	0.02029	-0.02753	1		
LSIZE	0.371081	0.305655	-0.41809	0.0505	0.316356	0.079579	1	
MGMT	-0.203	-0.12588	-0.00668	-0.27953	-0.2607	0.570055	-0.29878	1

In this table, CAR, ASQ, LQR and LSIZE are positively related to ROA, same case for ROE as well except CAR and EFF, they are inversely related to it. However, MGMT is negatively correlated to both ROA and ROE. Another relevant point is that, explanatory variables are not highly correlated to each other, thus no sign of multicollinearity can be identified.

Table 5.2: Correlation Analysis: Domestic Banks

	ROA	ROE	CAR	ASQ	LQR	EFF	LSIZE	MGMT
ROA	1							
ROE	0.965354	1						
CAR	0.241531	0.15566	1					
ASQ	-0.12922	-0.01685	0.075371	1				
LQR	0.054911	0.153899	-0.34235	-0.17352	1			
EFF	-0.1534	-0.10461	-0.34696	-0.13105	0.296786	1		
LSIZE	0.347823	0.207562	-0.0593	-0.61698	0.076368	0.216434	1	
MGMT	-0.06063	-0.03305	-0.12697	-0.05461	-0.04035	0.620952	-0.19696	1

In the correlation analysis of Private banks all the explanatory variables are positively related to both variables except the ASQ, EFF and MGMT have a negative effect on them.

Table 5.3: Correlation Analysis: Foreign Banks

	ROA	ROE	CAR	ASQ	LQR	EFF	LSIZE	MGMT
ROA	1							
ROE	0.925732	1						
CAR	0.113202	-0.20887	1					
ASQ	0.183946	0.208966	-0.0669	1				
LQR	0.36629	0.354491	-0.00711	0.383462	1			
EFF	-0.35481	-0.24911	-0.34093	0.058114	-0.21771	1		
LSIZE	0.365639	0.521209	-0.51842	0.562842	0.411843	-0.04615	1	
MGMT	-0.30963	-0.23858	-0.09441	-0.38055	-0.31874	0.641997	-0.24554	1

For the case of Foreign banks, CAR, ASQ, LQR and Lsize affect the dependent variable ROA positively. In the other case ROE, CAR and EFF have an inverse effect on it. Also, MGMT is related negatively to both ROA and ROE. In this correlation analysis realized that the MGMT has an impact negatively on profitability.

In this involvement separating realize that management efficiency has a negatively impact on bank's profitability. Moreover LQR which percentage of liquid assets over total assets and Lsize the ratio of natural logarithm of total assets are distinguished to be positively related to the profit in all above levels, in the LQR item bank sector has further liquid than assets which guide to have a high liquidity percentage. In case of LSIZE it means the enormous size get the further profit a bank.

CAR is the percentage of total equity divided on total assets, it is effects that involved negatively to the private and foreign bank's profitability. To estimate the efficiency of a bank used EFF, the correlation analysis shows that it is negatively related to the profit level of the all category of banks listed above.

Table 5.4: Regression Analysis of all Banks

All Banks		
	ROA	ROE
Constant		
Coefficient	-0.056507	-0.982785
Prob.Value	(0.1485)	(0.0453)
T-Stat	-1.459205	-2.0349
CAR		
Coefficient	0.07409	0.539533
Prob.Value	(0.0983)***	(0.2486)
T-Stat	1.673423	1.162537
ASQ		
Coefficient	0.010425	0.069541
Prob.Value	(0.6539)	(0.7979)
T-Stat	0.450072	0.256964
LQR		
Coefficient	0.093147	1.656365
Prob.Value	(0.0505)***	(0.0062)*
T-Stat	1.986349	2.811073
EFF		
Coefficient	-0.018016	-0.230771
Prob.Value	(0.3011)	(0.2432)
T-Stat	-1.040925	-1.175912
LSIZE		
Coefficient	0.005868	0.099415
Prob.Value	(0.1752)	(0.0552)***
T-Stat	1.368176	1.946607
MGMT		
Coefficient	0.052778	0.950531
Prob.Value	(0.2876)	(0.0632)***
T-Stat	1.070604	1.884877
R-squared	0.461851	0.343074
F-stat	3.523231	2.143942
Prob.Value	0.000043*	0.01012***

*Indicates significance at 1% Level

**Indicates significance at 5% Level

***Indicates significance at 10% Level

Table 5.5: Regression Analysis of Private Banks

Private Banks		
	ROA	ROE
Constant		
Coefficient	-0.209886	-3.074935
Prob.Value	(0.0105)**	(0.0094)*
T-Stat	-2.701699	-2.74619
CAR		
Coefficient	0.249388	3.343972
Prob.Value	(0.0167)**	(0.0188)**
T-Stat	2.50988	2.459859
ASQ		
Coefficient	0.003417	-0.066275
Prob.Value	(0.9162)	(0.8796)
T-Stat	0.105979	-0.152534
LQR		
Coefficient	0.355512	5.425273
Prob.Value	(0.0046)*	(0.0019)*
T-Stat	3.026364	3.358305
EFF		
Coefficient	-0.087166	-0.767798
Prob.Value	(0.1247)	(0.3145)
T-Stat	-1.571991	-1.02015
LSIZE		
Coefficient	0.019893	0.26891
Prob.Value	(0.0061)*	(0.0074)*
T-Stat	2.911588	2.840151
MGMT		
Coefficient	0.256111	2.837268
Prob.Value	(0.0091)*	(0.0225)***
T-Stat	2.755005	2.384396
R-squared	0.598847	0.512169
F-stat	4.478435	3.149674
Prob.Value	(0.000226)*	(0.00379)*

*Indicates significance at 1% Level

**Indicates significance at 5% Level

***Indicates significance at 10% Level

Table 5.6: Regression Analysis of Foreign Banks

Foreign Banks		
	ROA	ROE
Constant		
Coefficient	0.088827	0.601582
Prob.Value	(0.0063)	(0.0064)
T-Stat	2.902669	2.892508
CAR		
Coefficient	0.016975	-0.330193
Prob.Value	(0.7189)	(0.2853)
T-Stat	0.362742	-1.084563
ASQ		
Coefficient	0.001479	0.040097
Prob.Value	(0.9496)	(0.8149)
T-Stat	0.063616	0.235792
LQR		
Coefficient	0.074846	0.631237
Prob.Value	(0.2781)	(0.211)
T-Stat	1.101141	1.273528
EFF		
Coefficient	-0.000479	-0.046163
Prob.Value	(0.9667)	(0.5957)
T-Stat	-0.042088	-0.535317
LSIZE		
Coefficient	-0.009257	-0.057809
Prob.Value	(0.019)**	(0.0335)**
T-Stat	-2.456147	-2.210471
MGMT		
Coefficient	-0.073315	-0.243165
Prob.Value	(0.0442)**	(0.2824)
T-Stat	-2.085735	-1.091324
R-squared	0.689207	0.715189
F-stat	6.652731	7.53329
Prob.Value	(0.000004)*	(0.000001)*

*Indicates significance at 1% Level

**Indicates significance at 5% Level

***Indicates significance at 10% Level

5.2 Regression Analysis Results

As the correlation analysis between variables is drawn out, in this specific part of the thesis, the results of regression model is run through the E-views software by analyzing all the specific ratios of the different bank chosen. In order to explain how the explanatory variables affect the profitability ROA and ROE, six estimated regression analysis has been run and categorized into three main models.

5.2.1 Regression Analysis Results of All Banks

In table 5.5, the models of all banks are best fitted at 1% for ROA and ROE, and the other variables have negative and positive impact on profitability have been brought out. Capital adequacy ratio (CAR) has a positive impact on return on asset at 10% significance level. Furthermore CAR is the percentage of total equity over total assets, it means that the higher of ratio in institution could be the more profitable, because of many equity of shareholders help to cause to the best operation of the organization. However, capital adequacy does not have any effect on return on equity (ROE) because it is insignificant at 10% level.

Considering liquidity, the regression result shows a direct positive impact of total asset on returns (ROA) at 10% significant level ($0.0505 < 10\%$) and asset on equity (ROE) at 1% significant level ($0.0006 < 1\%$). Gonsel (2007) mentioned that liquidity ratio is appraisal to be positive or negative reason with a possibility of insolvency. When the percentage is high it means low probability of deficit on the bank. Although, higher liquidity ratio can also mean a higher probability of deficit, in the other words show the weak financial activity in the banks.

The regression results of bank size declares positively impact of total asset on equity (ROE) at 10% significant level ($0.0552 < 10\%$). This indication broadens the fact that changes in bank assets impact on profitability on return on equity (ROE). Although return on assets is insignificant at 10% level on bank size.

Finally, management efficiency (MGMT) has positively impact on return on equity at 10% significance level ($0.0632 < 10\%$). Also management efficiency does not have an effect on return on assets (ROA), it means that it is at 10% insignificant level. Central Bank of Turkey used management efficiency to rate operational efficiency of banks. The main aim of it is to protect operation of the firms at minimum cost and maximize profit.

Between the independent variables some of them do not have any important affect on profit level. For example in the item ROA; ASQ, EFF, LSIZE and MGMT are unimportant, and for ROE; CAR, ASQ and EFF are insignificant. When ROA is intended as dependent variable, R-square is 0.4618 it means 46.18% change in profitability. In all bank explained in terms of changes in CAR, ASQ, EFF, LSIZE, LQR and MGMT. The remaining is equal to 53.82 can be elaborated by other variables that are not contained the model. On the other hand, when ROE is intended as dependent variables, R-square is 0.3430 which shows that 34.3% changes in profitability of all banks can be explained in terms of changes in CAR, ASQ, EFF, LSIZE, LQR and MGMT and the remaining 65.7% can be elaborated by the other items that are not part of the model.

5.2.2 Regression Analysis Results of Domestic Banks

Private banks are nongovernmental institution. They are owned by partnership or limited partnership. In table 5.6, the models of private banks, Capital adequacy ratio (CAR) effects the profitability at 5% significance level for ROA and ROE and has positively impact, this clearly cause to increase of capital in the private banks. It means that the owner of private banks have unlimited of assets and equity.

Liquidity shows a positive impact of total asset on returns (ROA) and asset on equity (ROE) at 1% significant level (0.0044<1%), (0.0019<1%). As explained later, when the ratio is high it means low probability of deficit on the bank. Although, higher liquidity ratio can also mean a higher probability of deficit, in the other words show the weak financial activity in the private banks.

Bank size indicates a positive impact of total asset on equity (ROE) and total asset divided on returns (ROA) at 1% significant level (0.0061<1%), (0.0074<1%). This indicates that alters in assets of bank effect on profit level on return on equity (ROE). Alper and Anbar (2011) found the total assets positively affect on the banks of Turkey at 1% significance level.

Management efficiency (MGMT) has a positive impact on ROA at (0.0091<1%) 1% level of significance and on ROE at 5% level of significance, this clearly bring out the access of capital in the private banks.

Efficiency (EFF) and asset quality (ASQ) have a huge negative impact on ROA and ROE at 10% level of significance. This shows the weakness of the private banks in efficiency, its expenditures are higher than its income.

Furthermore, R-squared is 0.5988 equal to 59.88% change in profitability in private bank if ROA is the dependent variable. It can be illustrated in levels of alters in all items; CAR, ASQ, EFF, LQR, LSIZE and MGMT and the 40.12% remains interpreted by other variables that are not located in the model. When ROE is intended as dependent variable, R-square is 0.512169 it means 51.21% alter in profit level. In private bank interpreted in levels of alters in all items; CAR, ASQ, EFF, LSIZE, LQR and MGMT. The percent remains is equal to 48.79% interpreted by other variables that are not located in the model.

5.2.3 Regression Analysis Result of Foreign Banks

Foreign banks importantly incremented their ownership shares of banking systems in developing markets.

No other variables have an effect on foreign banks profitability except the bank size (Lsize) and management efficiency. These two ratios have a negative impact at 5% level of significance.

Among the independent variable all of them do not have any significant impact on profitability except MGMT and LSIZE in the case of ROA and MGMT in ROE. Surely foreign banks do not have much opportunity to capital.

In addition we can explain ROA as dependent variable, R-squared is 68.92% alter in profit level of foreign banks. In level of alters in all items; CAR, ASQ, LQR, EFF, LSIZE and MGMT and the 31.08% remaining can be explicated by other variables that are not located in the model. In the item of ROE, R-squared is 0.71518 equal to 71.51% alters in profit level of foreign banks can be elaborated in all terms; CAR, ASQ, LQR, EFF, LSIZE and MGMT and the remaining 28.49% can be implemented by other part that are not located in the model.

5.3 Comparison Between the Categories of Banks

In the comparison between the categories of private and foreign banks specific shows that private banks are affecting than foreign banks. Most of the variables have positive impact on private banks profitability especially the return on assets. They hold a huge amount of assets which play an important in their success. This indicates that private banks were able to forecast the overall prices and knew how to adjust with it and make profit in a ways that none of foreign banks could.

When considering the crisis of 2008, based on the results obtained, private banks were able to resist them in any way to avoid deficiency. During the crisis period, the Central Bank decreases the provision rate in order to decrease intermediary cost and provide with permanent liquidity. However, private banks are the victims of the crisis, but still most of them are still in the market.

Chapter 6

CONCLUSIONS

The aim of this study is to investigate the profitability of 14 commercial banks selected based on their assets, to be evaluated in accordance with some ratios that are follows: CAR, ASQ, LQR, EFF, LSIZE and MGMT. For this aim, panel data method (fixed effects model) and CAMELS analysis are applied to data which is obtained 14 bank's financial statements from 2005 to 2011.

Similar study was also been conducted, like the work of Songul and Ahmet (2013) that focus on profitability of some commercial banks in Turkey for the period of 1998 to 2011 by utilizing some bank-specific and macroeconomic determinants. Empirical finding suggest that the bank-specific determinants have been more effect than macroeconomic factors on profitability of the banks. Further research in the same field of profitability was also conducted by Alper and Anber (2011) that focused on bank-specific and macroeconomic determinants of Turkish Banks for the period of 2002 to 2010. Their results showed that Bank size contributes to the profitability of commercial banks in Turkey, and some other ratios were also significant with regards to the profitability of these banks.

The result found in this thesis shows that all commercial banks ran with ROA as profitability item, demonstrate that CAR, LQR, LSIZE and MGMT are positively related and EFF is the one inversely related to it, the remaining variables are

significant. On the other hand, when ROE is the dependent variable of the regression, all the mentioned indicators are significant with positive impact.

Furthermore, when Private banks are considered, only EFF is negatively related to ROA but CAR, LQR, LSIZE and MGMT are also part of significance. When ROE is taken into consideration; EFF and ASQ are negatively related but CAR, LQR, LSIZE and MGMT are the ones with a positive relationship.

In the case of Foreign banks, EFF, LSIZE and MGMT are negatively related to both ROA and ROE, only CAR, ASQ and LQR have positive impact on ROA, the rest are significant.

Private banks are the ones with most significant variables with positive impact on profitability. CAR, ASQ, LQR, LSIZE and MGMT are the significant variables on ROA. The return on equity has the same as return on asset.

For this purpose, foreign banks need to introduce new services to improve the productivity and efficiency that basically lead to profitability.

Finally, we recommended that the Central Bank of Turkey, need to revise high profitability of private banks in Turkey, like to establish an efficient corporate governance, the taxes on these banks should not be the same as the other banks. And hopefully this suggestion can be a breakthrough for the foreign banks. We believe that this thesis can facilitate further in depth research in that field.

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APPENDIX

Table 1. Panel Unit Root Tests (All Banks)

Variables	Levels		
	LLC	IPS	M-W
ROA			
τ_T	-28.42*	-2.52*	96.40*
τ_μ	-0.54***	-0.58***	81.63*
τ	-2.77*	-	60.51*
ROE			
τ_T	-45.83*	-4.05*	64.40*
τ_μ	0.62***	-0.28***	59.73*
τ	-3.24*	-	70.30*
CAR			
τ_T	-3.12*	0.83***	32.63***
τ_μ	-13.14*	-1.92**	31.26***
τ	0.70***	-	18.72***
ASQ			
τ_T	-7.18*	0.46***	52.07*
τ_μ	-5.47*	-0.24***	53.18*
τ	0.79***	-	5.78***
EFF			
τ_T	-9.43*	-0.17***	52.07*
τ_μ	-8.25*	-1.91**	32.04***
τ	-1.81**	-	13.05***
LQR			
τ_T	-3.69*	0.91***	23.21***
τ_μ	-13.08*	-2.15*	43.36**
τ	0.50***	-	24.10***
LSIZE			

τ_T	-7.59*	0.27***	52.01*
τ_μ	-2.71*	0.71***	30.86***
τ	2.66***	-	2.57***
MGMT			
τ_T	-8.99*	-0.03***	63.88*
τ_μ	-6.86*	-0.46***	11.04***
τ	-5.32*	-	32.29***

Table 2. Panel Unit Root Tests (Private Banks)

Variables	Levels		
	LLC	IPS	M-W
ROA			
τ_T	-14.31*	-1.09***	49.07*
τ_μ	0.03***	-0.32***	42.16*
τ	-0.92***	-	20.42***
ROE			
τ_T	-47.04*	-3.56*	34.27*
τ_μ	8.42***	0.55***	28.48**
τ	-1.49**	-	30.61*
CAR			
τ_T	-2.08*	0.72***	11.35***
τ_μ	-4.74*	-1.05***	20.15***
τ	0.04***	-	10.37***
ASQ			
τ_T	-5.54*	0.03***	28.05**
τ_μ	-6.81*	-1.27***	38.83*
τ	1.78***	-	1.56***

EFF			
τ_T	-4.88*	0.21***	20.76***
τ_μ	-3.28*	-0.34***	14.48***
τ	-1.04***	-	7.21***
LQR			
τ_T	-2.61*	0.67***	14.77***
τ_μ	-2.00**	-0.63***	29.18*
τ	0.49***	-	20.38***
LSIZE			
τ_T	-6.19*	-0.07***	31.29*
τ_μ	-5.17*	-0.01***	16.41***
τ	3.14***	-	0.83***
MGMT			
τ_T	-6.82*	-0.27***	37.29*
τ_μ	-6.71*	-1.00***	5.02***
τ	-4.69*	-	17.41***

Table 3. Panel Unit Root Tests (Foreign Banks)

Variables	Levels		
	LLC	IPS	M-W
ROA			
τ_T	-29.80*	-2.48*	47.33*
τ_μ	-0.66***	-0.50***	39.47*
τ	-3.30*	-	40.10*
ROE			
τ_T	-31.98*	-2.17*	30.13*
τ_μ	-2.56*	-0.94***	31.24*
τ	-3.62*	-	39.70*
CAR			
τ_T	-2.31*	0.45***	21.27**
τ_μ	-14.12*	-1.67*	11.11***
τ	0.93***	-	8.36***
ASQ			
τ_T	-4.58*	0.63***	24.01**
τ_μ	-0.81***	0.92***	14.34***
τ	-0.32***	-	4.22***
EFF			
τ_T	-7.98*	-0.45***	31.30*
τ_μ	-6.89*	-2.36*	17.57***
τ	-1.52**	-	5.84***
LQR			
τ_T	-2.84*	0.62***	8.44***
τ_μ	-13.65*	-2.41*	14.18***
τ	0.23***	-	3.72***
LSIZE			

τ_T	-4.52*	0.45***	20.73***
τ_μ	0.49***	1.01***	14.44***
τ	1.55***	-	1.74***
MGMT			
τ_T	-5.63*	0.23***	26.59**
τ_μ	-2.22*	0.35***	6.02***
τ	-2.64*	-	14.88***

Note for the three tables:

ROA represents return on assets; ROE represents return on equity; CAR represents Capital adequacy; ASQ represents asset quality; EFF represents efficiency; LQR represents liquidity; LSIZE represents the bank size; MGMT represents management efficiency; τ_T represents the most general model with a drift and trend; τ_μ is the model with a drift and without trend; τ is the most restricted model without the drift and trend. *, **, *** denote rejection of the null hypothesis at the 1%, 5% and 10% level. Tests for unit roots have been carried out in E-VIEWS 6.

Regression Analysis

Regression Analysis of All Banks

Table.4 General Regression Model

Dependent Variable: ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.056507	0.038725	-1.459205	0.1485
CAR	0.074090	0.044275	1.673423	0.0983
ASQ	0.010425	0.023162	0.450072	0.6539
MGMT	0.052778	0.049297	1.070604	0.2876
LQR	0.093147	0.046893	1.986349	0.0505
EFF	-0.018016	0.017308	-1.040925	0.3011
LSIZE	0.005868	0.004289	1.368176	0.1752
R-squared	0.461851	Mean dependent var		0.013929
Adjusted R-squared	0.330764	S.D. dependent var		0.012018
S.E. of regression	0.009832	Akaike info criterion		-6.226496
Sum squared resid	0.007540	Schwarz criterion		-5.698952
Log likelihood	325.0983	Hannan-Quinn criter.		-6.013115
F-statistic	3.523231	Durbin-Watson stat		1.324377
Prob(F-statistic)	0.000043			

Table. 5 General Regression Model

Dependent Variable: ROE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.982785	0.482965	-2.034900	0.0453
CAR	0.539533	0.464099	1.162537	0.2486
ASQ	0.069541	0.270627	0.256964	0.7979
MGMT	0.950531	0.504293	1.884877	0.0632
LQR	1.656365	0.589229	2.811073	0.0062
EFF	-0.230771	0.196249	-1.175912	0.2432
LSIZE	0.099415	0.051071	1.946607	0.0552
R-squared	0.343074	Mean dependent var		0.105224
Adjusted R-squared	0.183054	S.D. dependent var		0.132226
S.E. of regression	0.119512	Akaike info criterion		-1.230890
Sum squared resid	1.114089	Schwarz criterion		-0.703346
Log likelihood	80.31362	Hannan-Quinn criter.		-1.017509
F-statistic	2.143942	Durbin-Watson stat		1.326732
Prob(F-statistic)	0.010120			