

Comparison of Profitability Indicators of Conventional Banking Systems: The Case of Azerbaijan and Turkey

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Submitted to the
Institute of Graduate Studies and Research
in partial fulfillment of the requirements for the Degree of

Master of Science
in
Banking and Finance

Eastern Mediterranean University
August 2014
Gazimağusa, North Cyprus

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ABSTRACT

The main purpose of this study is to do comparative analysis of commercial banks of two different countries: Turkey and Azerbaijan in terms of profitability indicators. According to the annual report of Credit Institution Rating, the banking industry of Turkey is considered to be one of the strongest industries of Europe and Asia regions, and it is obvious that Azerbaijan and other CIS countries are trying to pursue the same objectives as Turkey. In this research, 10 commercial banks were selected: 5 banks in Turkey and 5 banks in Azerbaijan, for the period of 2006-2012. Moreover, profitability indicators are proxied as return on equity (ROE) and return on assets (ROA). Explanatory variables or standard financial ratios are chosen according to the CAMEL approach. In order to find the statistical difference in financial performance of banks in two different countries, dummy variable is used. As a result, specific model and results have been found. It is found that there is no statistical difference in profitability determinants of the banks. And some significant relationship between variables was also found.

Keywords: Commercial Banks, Turkey, Azerbaijan, CAMEL approach, Dummy variable.

ÖZ

Bu çalışmanın amacı, iki farklı ülkedeki; Türkiye ve Azerbaycan, ticari bankaların kar göstergeleri temel alınarak karşılaştırmalı analizini yapmaktır. Kredi değerlendirme kuruluşu olan Fitch şirketine göre, Türk bankacılık endüstrisi Avrupa ve Asya bölgelerinin en güçlülerinden biri olarak düşünülmektedir. Azerbaycan ve diğer BDT ülkeleri de Türkiye'nin ulaştığı noktaya varma amacındadırlar. Bu çalışmada, 5 tanesi Türkiye'den 5 tanesi Azerbaycan'dan olmak üzere toplam 10 banka 2006-2012 dönemi için örnek olarak alınmıştır. Ayrıca, kârlılık göstergeleri, varlıklar ve sermaye kârlılığı baz alınarak değerlendirilmiştir. Açıklayıcı değişkenler ve standart mali oranlar CAMEL yaklaşımına göre seçilmiştir. İki farklı ülke arasındaki finansal performans açısından istatistiksel farkı görebilmek için kukla değişkeni kullanılmıştır. Sonuç olarak, özellikli bir model ve sonuca ulaşılmıştır. Görülmüştür ki, bankaların kârlılık etkenleri arasında istatistiksel bir fark yoktur. Fakat değişkenler arasında belli bir seviyede olmak üzere belirleyici ilişki tespit edilmiştir.

Anahtar Kelimeler: Ticari Bankalar, Türkiye, Azerbaycan, CAMEL yaklaşımı, Kukla Değişken.

To My Family

ACKNOWLEDGMENTS

I would like to thank Assoc. Prof Dr. Bilge Öney for his continuous support and guidance in the preparation of this study. Without his invaluable supervision, all my efforts could have been short-sighted.

Additionally, I would like to thank the whole Department of Banking and Finance, and Mr. Alimshan Faizulayev for his help and support, especially on analysis during the last semester in Banking and Finance Department at Eastern Mediterranean University.

I owe quite a lot to my family who allowed me to travel all the way from Azerbaijan to Cyprus and supported me all throughout my studies. I would like to dedicate this study to them as an indication of their significance in this study as well as in my life.

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LIST OF ABBREVIATIONS

TE/TA	total equity over total assets
PL/TL	provision loans over total loans
DUM	dummy variable
INT/D	interest expenses over deposits
C/R	cost to revenue
Liq/D	liquid assets over deposits
ROA	return on assets
ROE	return on equity

Chapter 1

INTRODUCTION

The banking sector plays a very important role in the world. Almost everything is linked to the banking system. To develop the economy of a specific country, the government uses the banking system to do so. Furthermore, even small types of transactions is being done through banks, it is not possible to imagine the life without banks. It gives people safety, an easiness and efficient ways of doing business. Education fees are paid via banks, and online banking is used to buy goods and services. The banking system made all the different kinds of transactions easier, safer and faster globally. All of the people are benefiting from the use of banks; they are really facilitating the life. In the sense of education, all the money should not be carried for tuition fees and accommodation from one country to another. Those business people save time as well as money by doing all the activities via banks. The banking services are used every day, and it is not possible to imagine the life without the banking system.

On the other hand, if the banking system fails to work properly well, it will affect everyone in the world; even the poor people will be affected. This failure may happen due to some causes. So, in order to have a proper banking industry, there is a big need to do research in this field and protect the banking systems from potential failures in a future. There many studies that have been conducted, related to banking

sector. So, the main purpose of this study is to find out a good model that will be used to increase the efficiency and profitability of banks in Azerbaijan and Turkey.

1.1 The Aim of the Study

In this thesis, conventional banking systems will be used to do a comparative analysis in terms of profitability determinants in Azerbaijan and Turkey. The main aim is to see whether there is a difference in profitability indicators of these two countries. So, five commercial banks from Azerbaijan and five commercial banks from Turkey are chosen for the period of 2006-2012. It can be said that there is no difference in financial performance of Azerbaijan and Turkey, because the banks of these two countries are operating under more or less the same system in the regulation of banks. In order to conduct a comparative analysis of the conventional banks in Azerbaijan and Turkey, simple multiple regression analysis is done by using Eviews software. Moreover, standard financial ratios that are being used in literature will be employed in accordance with CAMEL methodology in this research as well, and they are categorized as explanatory variables and also as dependent variables. Financial performance indicators are proxied as dependent variables. Furthermore, dummy variables are used. The main reason to use the Dummy variable is because it is aimed to see the differences between two conventional banking systems in Azerbaijan and Turkey in terms of financial performance.

In order to test the banking sector or financial institutions in terms of creditworthiness, simply it can be said that generally CAMEL approach is applied whether the banks are able to meet the short and long terms obligations or not (CAMEL: Capital Adequacy, Asset Quality, Asset Management, Earnings

Ability and Liquidity Risk). There are countless papers done by using CAMEL methodology. According to the findings of A. Kumar et al. (2012), in which more than 10 banks were taken into consideration, those banks are public ones and private banks for the period of 2000-2011. In this research they used CAMEL method for India. The main aim was to find which types of banks were safer in terms of defaults, so private banks showed that they are safer.

1.2 The Scope of the Study

The comparative analysis in terms of financial performance of conventional banking systems in Azerbaijan and Turkey is done for the period of 2006-2012. The first and main question should be answered in this empirical analysis is that is there a statistical difference in profitability determinants of conventional banks between Azerbaijan and Turkey? Secondly, what are the variables that exert more effect on profitability indicators? Furthermore, is the whole estimated models are best fitted or not? It is very significant to have validated and useful model for both Azerbaijan and Turkey. Because, it has been proved that the model is statistically validated, and it will be beneficial for the banks of these two countries to use these models to do some future predictions.

1.4 The Structure of the Thesis

In this study, the research is divided into six chapters: The first one starts with Introduction. In second chapter Background Review of the banking system of Azerbaijan and Turkey will be outlined. Moreover, chapter three will talk about different studies which were published in international journals. In the following chapter methodologies of analysis will be outlined. Chapter 5 will provide the results of the analysis related to Azerbaijan and Turkey. Finally, Chapter 6 is Conclusion.

Chapter 2

BACKGROUND REVIEW

2.1 An Overview of Turkish Economy

After the middle 1970's, Turkey started to implement the liberalization policies. It registered for the balance of payments for the first time in 1977. On 24th of January, in 1980, Turkey committed for long term development and process policies of both International Monetary Fund (IMF) and World Bank. The aim of this transition was to be free of crises that the country was having due to its structural difficulties in its economy and financial markets. Liberalization of Turkish economy and its constitution in this matter had significant impact on its both gross domestic product (GDP) and gross national income (GNP).

Table 2.1. Growth Rates of Turkey between the Years of 1980-2010 (Percentage prices of 1987)

Years	GDP	GNP	Years	GDP	GNP
1980	-2.8	-2.4	1996	7.1	7
1981	4.8	4.9	1997	8.3	7.5
1982	3.1	3.6	1998	3.9	3.1
1983	4.2	5	1999	-6.1	-4.7
1984	7.1	6.7	2000	6.3	7.4
1985	4.3	4.2	2001	-9.5	-7.5
1986	6.8	7	2002	7.9	7.9
1987	9.8	9.5	2003	5.9	5.8
1988	1.5	2.1	2004	9.9	8.9
1989	1.6	0.3	2005	7.6	7.4
1990	9.4	9.3	2006	6	6.1
1991	0.3	0.9	2007	N/A	4.7
1992	6.4	6	2008	N/A	0.7
1993	8.1	8	2009	N/A	-4.8
1994	-6.1	-5.5	2010	N/A	8.9

Source: <http://dpt.gov.tr>

Growth rates of Turkey between the years of 1980-2010 are given in the Table 1 above. As it can be seen from the table, Turkish economy shrank in 1980 in terms of both GDP and GNP. Even though it is observed that the growth rates are falling down time to time, it can be concluded that Turkish economy is growing strongly after 1980. In addition to that, growth rate is seemed to be stable until the year of 1986. The main reason behind that situation is the political stability which came after the military intervention that the country experienced in 1980. As labor unions got stronger and both financial and social aid received from international organizations between those years, stable and satisfactory growth came along (Akalin, 2006). It should be noted though after 1986, growth rate of both GDP and GNP started to become much more volatile. In fact, this volatility lasted for a long time almost to the present day.

After 90's, Turkey accelerated the process of liberalization and it moved on the second step of this phase; which is the convertibility of Turkish Lira (TL). As the TL was let to fluctuate freely in international exchange rate markets, the currency obviously became sensitive to portfolio investment of foreign investors. Furthermore, the economy itself became sensitive to external shocks. Several crises that appeared in Asian countries as well as in Russia affected Turkish markets and made the whole economy fragile. On top of that, Turkey experienced a financial crisis in 1994 which resulted in foreign investor's run away. Therefore, successful growth rates had replaced with negative growth rate in 1994. This crisis was also known as the very first difficulty that Turkey had due to foreign capital withdrawals. As a result, when the growth rates were examined after 1990's to 2000's, instability in GDP and GNP growth rates were continued which started in 1980's.

In 1997, it can be seen that the growth rate in both GDP and GNP were promising but as it was mentioned before, growth rates were far from being consistent so that in the following year growth rates were much less when compared to previous year. In addition to such inconsistent and unreliable growth rates, in 1999 Turkey had a catastrophic earthquake which was reflected severely in the country's GDP and GNP statistics. Turkish economy shrank in terms of both indicators GDP and GNP by 9.5 and 7.5 percent respectively. Even though the country's economy seemed to be recovered after that year and started to realize the positive growth, banking crisis occurred in 2001 which eventually evolved to an economic crisis and once again Turkey experienced severe negative growth rates. In this process, Turkey signed a stand-by agreement with IMF. In the economic crisis, banking industry can be considered as a milestone in Turkish economic history. After this, policymakers paid much more attention in order not to have such structural difficulties in their banking industry and not to shake its citizen's trust towards their own financial system. Even though it is controversial how successful those policymakers are; it is still can be seen that both growth indicators are relatively more stable in a positive way when compared to past couple of decades.

Economic growth indicators are quite important for any nation but it may not be enough for us to see the whole picture by examining the GDP and GNP alone. Therefore, in this section, some other important economic indicators will be presented.

Inflation is one of the most important indicators for a nation's economic view. As it is mentioned before, Turkey was following international regulations in its liberalization goal. As a result, Turkey implemented both IMF's and World Bank's

suggested policies. Increase of inflation in Turkey accelerated from 1977 and finally in 1980 it reached to a historical peak.

Figure 1 presents the annual inflation rates in consumer prices between the years of 1977 and 2012 (Worldbank, 2014). As it can be seen, there is a tremendous up in inflation in 1980. After 1980, inflation rate seems to be volatile and upward trend afterwards. In 1994, there is another financial crisis emerged in Turkey. Inflation rate climbed to a level over 100% once again in that year. Inflation rate climbed to a level over 100% once again in that year.

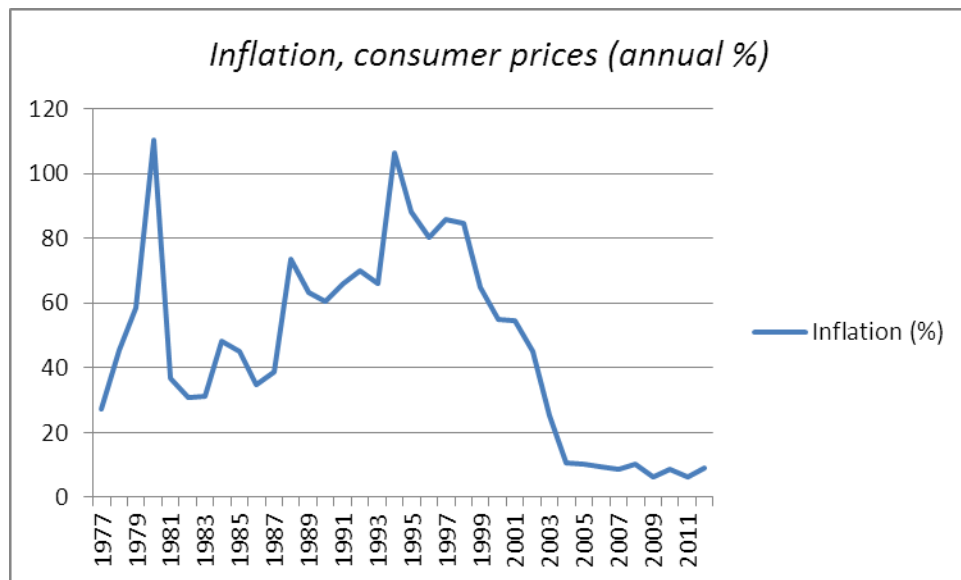


Figure 2.1. Inflation Rate between the years of 1977-2011
(Annual percentage)

Source: World Bank (2013)

After 1994 crisis, Turkish economy seemed to handle the inflation comparably better than previous periods. Even though markets were hit one more time by 2001 banking crisis, inflation rate was kept under control and it decreased to 11% in the middle of 2003. It can be seen that the inflation rate didn't exceed 10% level in the last 7 years.

When Turkey's current account balance in Figure 2 is examined; which is solely composed from the difference between the country's exports and imports of goods, it is seen that the trend is going down over the years. Starting from 2001, it can be argued that current account balance or in other words, the country's trade activities are one of the main concerns for Turkey.

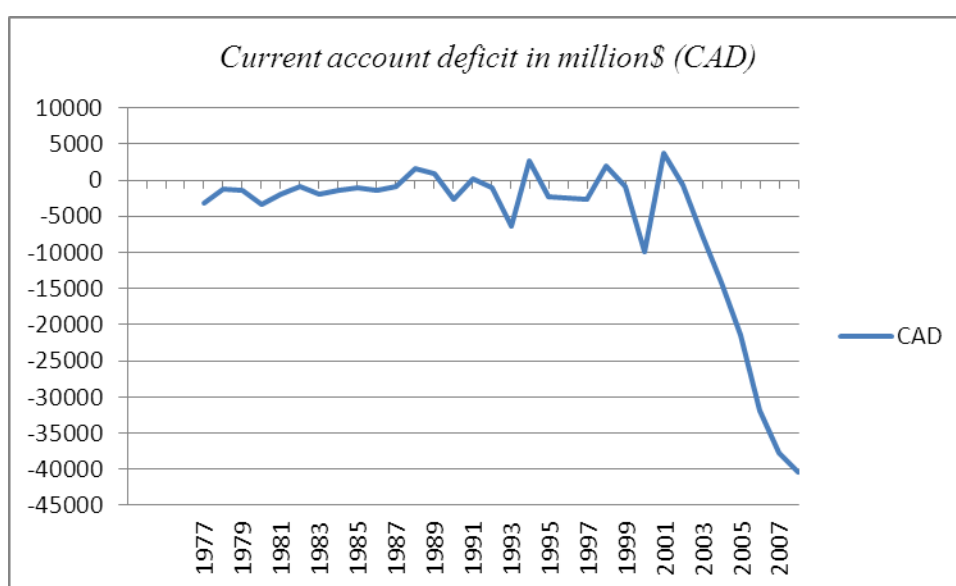


Figure 2.2. Current Account Deficit between the Years of 1977-2007 (millions of dollars)

Source: Central Bank of the Republic of Turkey

From the figure above, it can be concluded that Turkey over the past 30 years is becoming a more import oriented country. Hence, imports of the country are exceeding its exports in a dramatic way, especially after 2000's. The outcome of being an import dependent country can be justified by being dependent on the foreign capital. In order to finance all those imports that Turkey is having, only can be financed by either foreign portfolio investments or foreign direct investments that other countries are having. Such a situation may expose Turkey to external shocks much more than export oriented countries.

As the current developments are considered, such as the growth rates and improvements in inflation rates in recent years, it can be said that Turkey is in a better condition even though it is having difficulties in its current account deficit. Since foreign investors are still keeping their investments inside of Turkish borders and putting their trust in Turkish markets, current account deficit can be financed. On the other hand, Turkey is categorized as an upper developing country, so it is still under the development. Therefore, the country must be careful about its social, structural and political stability in order not to put itself into a catastrophic crisis or disruptions.

2.3 The Banking and Financial Industry of Turkey; an Overview

Banks are one of the most crucial institutions in any country. They are the ones that meet the potential lenders and borrowers in every scale. It is very difficult to separate the banking industry from the financial industry in emerging markets. Turkey is not an exception in this matter. Since all the financial activities are handling by banks, one can understand that banking activities such as providing deposit accounts and lending-borrowing services, also financial activities like providing insurance services or foreign exchange trade services are mainly offered under the same roof. Therefore, banks are being even more important for nations.

As it is pointed in the previous section, Turkey had several devastated crises in its economic history and some of them were started as banking crises. For example, in 1991 the Turkish economy suffered due to the external shocks. These shocks were originated from the Gulf crisis. Banks Associations of Turkey (2010) indicated that Gulf crisis caused foreign investors to leave the Turkish market and domestic trade in the region to slow down. One other shock was realized in the country due to the

Asian crisis in 1997. It can be said that Turkish banking sector was fragile and structurally problematic back then. Inconsistent figures in their financial statements and investor lack of trust put the whole system into a hard situation. Furthermore, the risk appetite of banks made investors uncomfortable which in turn caused capital withdrawals by both foreign and domestic investors. In Turkey, the financial sector used to work more publicly rather than for private sector, and they had problems in transferring the deposits into credit. According to the information provided in the table below, the number of banks and branches has increased. As number of private banks increased, so transformation from governmental banks to private, made banks more liberalized. Moreover, after liberalization of banking system, the banks became more sensitive and more exposed to risks.

Table 2.2. Operational Indicators of Banking Industry

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of Banks	66	65	69	70	67	68	69	72	75	81	79
Number of Branches	6.560	6.477	6.206	6.241	6.104	6.240	6.442	6.819	7.370	8.104	8.298
Share of Total Assets *	47,2	45,2	44,3	42,3	47	46,3	45,5	43,9	44,1	46,3	47,8
Share of Total Assets **	62,1	60,1	58,3	55,8	62,9	61,7	60,4	60,2	60,4	67,5	69,2
Share of Global Capital %	3,5	3,3	3,7	3,8	3	2,9	3	4,7	4,4	7,1	3,4

**For the 5 largest banks ** For the 10 largest banks*

Source: BRSA, BAT. Participation Banks were Included as of 2005

It is witnessed that the interest rate increased in 2000. That was a good sign that made the cash outflow and reduced the reserves of central bank. Many decisions were made up to stop the panic among the depositors, not to let the banking system to fail. However, those predictions and measures were not so accurate. Despite these, the financial crisis of Turkish lira was started. As people got into panic, the demand for domestic currency reduced, the people started to sell out, and demanded more

foreign currencies. As foreign investors left the Turkish market, the central bank had to intervene to stabilize the situation. As foreign investors continued to demand more foreign currencies, the central bank sold around 6 billion dollars and at the end the reserves of central bank was reduced. Once intervention of central bank took place, the financial crises have slowed down.

A very strict rule and regulation were employed by Turkish government to stop the potential financial instabilities in the future. Nowadays, Turkish banking sector is performing well.

2.4 An Overview of Azerbaijan Economy

Azerbaijan is one of the greatest potential developing countries. Its economy is mainly dependent on the oil industry and its growth and development are related greatly to the oil sector. Azerbaijan was an USSR country and its growth was driven by industrial sector as much as oil sector and agriculture. Agriculture was a crucial source of income for the country in its USSR era. However, after alcohol production is limited by Gorbachev, the country has almost lost its grape production which in turn damaged its agriculture income. Furthermore, the lack of technological competitiveness with the world's great technology countries as well as internal political disturbs made the GDP of Azerbaijan to diminish. As it can be seen from Table 2.3 below, in the half decade of 1990's, the country's growth was in negative terms. Also Table 2.3 indicates that in the second half of 1990's, GDP started to increase and the country has realized the positive growth. The average growth rate from 1995 to 2000 was as high as 7%.

Table 2.3. Growth rates of Azerbaijan between the years of (1991-2010)

Years	GDP	Years	GDP
1991	-1	2001	10
1992	-23	2002	11
1993	-23	2003	11
1994	-20	2004	10
1995	-12	2005	26
1996	1	2006	34
1997	6	2007	25
1998	10	2008	11
1999	7	2009	9
2000	11	2010	5

Source: <http://ers.usda.gov>

In November 1991, Azerbaijan became fully independent from USSR system and after this turnaround, the country followed important economic policies and it took several steps to re-construct its economy. As a result of such progress, foreign investments that were made for oil related sector had increased tremendously. Therefore, Azerbaijan became a player in oil trade in the world at wide level rather than the Soviet Union alone. Regional trade agreements were signed in order to boost the trade level by Muslim countries; those were Turkey, Iran and Pakistan. After the USSR was left, Azerbaijan focused on the liberalization process. In this respect, the government introduced its money in the international markets and let the currency to fluctuate freely. Even though privatization was one of the attempts under such liberalization, it was relatively slow. However, state modernization was an important determination in terms of its liberalization goal. As a result of revolutionary progress of Azerbaijan's liberalization in economy, it gained a great potential in foreign trade and export growth. Those steps were taken by the help of the IMF and World Bank. In 2008, gross domestic product was almost two times greater of what it has been in 1990.

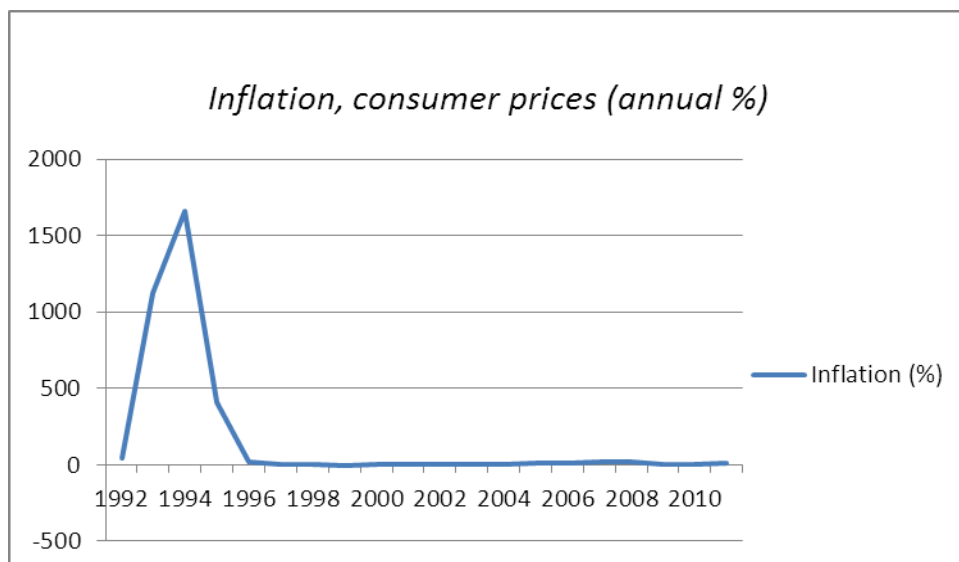


Figure 2.3. Inflation rate between the years of 1992-2010 (Annual percentage)
Source: World Bank (2013)

Figure 2.3 above presents the annual inflation rate starting from 1992 to 2010. As it can be seen, inflation rate increased to a historical record level in 1994 but then it came to a steady level of 4% in 1997. After that it can be said that inflation was kept mainly under control thereafter. Azerbaijan economy entered the revival phase after 1995 and the inflation rate was stable.

Finally, Figure 2.4 shows the current account deficit of Azerbaijan. As it was mentioned before, one of the Azerbaijan's source incomes is oil. As an oil producer country, Azerbaijan could not be able to export its oil worldwide since the country was a member of USSR. Therefore, including oil; many of the exportable products, such as the agricultural products and industrial products would not be able to be sold to other continents. After the economic reforms and the regression phase of Azerbaijan, exports started to climb and eventually, the country became an exporter. By the year 2005, current account deficit was out of the picture and the country realized the current account surplus since then.

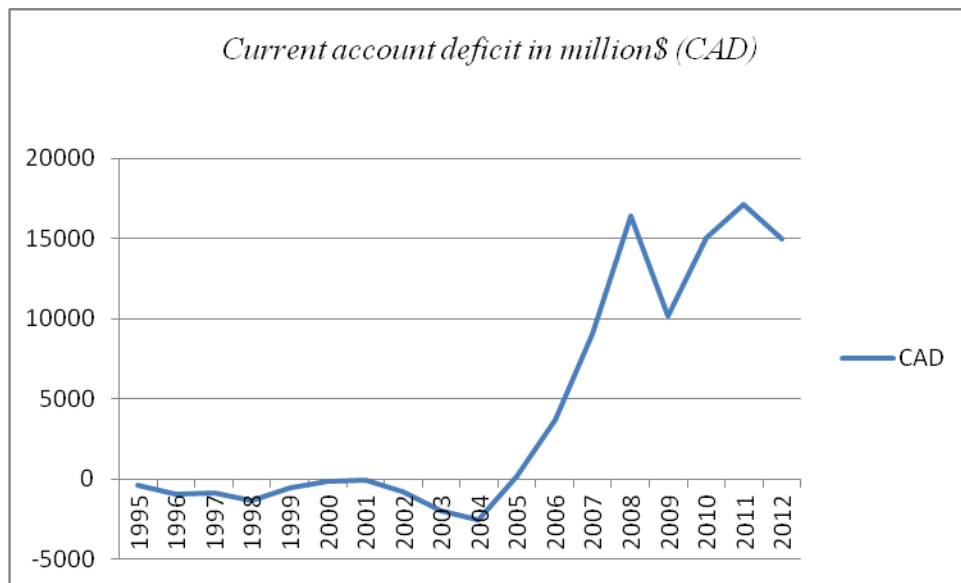


Figure 2.4. Current Account Deficit between the years of 1995-2012 (millions of dollars)
Source: World Bank (2013)

From the year 2005 to 2008, current account surplus maintained and, in fact, it increased quickly by the help of industrial developments and the other countries' oil demand. However, when the global financial crisis hit the global financial markets in 2008, the exports of the Azerbaijan were diminished. That impact of such an external shock had naturally caused the exports of Azerbaijan to decrease. It can be seen that in the beginning of 2009, current account surplus started to increase again.

2.4 The Banking and Financial Industry of Azerbaijan; an Overview

When Azerbaijan's banking sector is viewed, the first thing to mention is the drop in the number of banks. In 1990's which was the regression phase of the economy, the number of banks was more than 200. By the year 2004, that number decreased to 50. The main reason behind that was the regulations and reforms that the International Bank of Azerbaijan (IBA) and the Central Bank of Azerbaijan followed (Jurgen F. Conrad, 2012). The strategy was to increase the minimum level of reserve requirements that were hold by the commercial banks. As it is mentioned earlier,

Azerbaijan government intended to privatize its economy after its release from the USSR. In order to accomplish such attempt, banking sector needed to privatize as well. Therefore, IBA that was holding the majority shares of assets among the industry, privatized by the help of the Price Waterhouse Coopers by planning a privatization schedule. As of 2012, the major banks in Azerbaijan are presented in Table 2.4 below.

Private banks started to grow rapidly after the reforms and regulations that the government implemented towards the privatization of state banks and increase the role that privately owned banks are playing. Especially after 2002, crucial progress of reconstruction in banking sector was carried out. Since the country has received a significant amount of revenue which was generated from oil sales, the banking sector became more solid in order to transfer their funds among the international banking industry. To accomplish to reach the international standards in banking industry, it is important to gain the consumer confidence. When the investors in the economy trust enough to their banking structure, it is highly likely to see the improvements in both economy and banking sector. Azerbaijan has followed modernization plans that are implemented by leading European countries such as Germany. Citizens were encouraged to deposit their wealth after Azerbaijan applied the deposit insurance system in 2007. In Table 2.5, some important banking sector indicators for Azerbaijan are presented.

Table 2.4. Major Banks in Azerbaijan

International Bank of Azerbaijan (IBA)	Majority state (51%)	5,229	Former Soviet foreign trade bank
Kapital Bank	Private domestic (Pasha holding)	991	Former Soviet savings bank Traditionally a passive lender
Xalq Bank	Private domestic	801	Mainly corporate customers
Bank Standard	Private domestic (AB Standard group)	726	Founded in 1995, initially a retail bank, now mainly corporate banking
Pasha Bank	Private domestic (Pasha Holding)	625	Holding includes banks, insurance companies, and construction firms
Technika Bank	Private domestic (through offshore fund)	576	Old management removed in 2012. Now managed by team from IBA
Unibank	Minority foreign (DEG 8.3%, EBRD 15.2%)	460	Incorporated in 2002 through merger of M-Bank and Promtechbank
Accessbank	Majority foreign (EBRD, IFC, KfW, BSTDB, LfS Financial Systems)	391	Established in 2002 as green field Microfinance Bank. Leading provider of microloans
Demir Bank	Minority foreign (EBRD 25%, Dutch Development Finance Company 10%)	358	Founded in 1989. Focus on SMEs and individuals

Sources: Central Bank of Azerbaijan, expert interviews, media reports.

As it can be seen from the following table, the number of banks was only 44 as of 2011. Among those banks, a big majority was hold by domestic private owners and only one state bank was kept in the sector. Under the concentration category, it is observed that the percentage shares of assets that are hold in the largest banks are decreased from 50% to 34%. However, it should be noted that among the largest five banks, that concentration rate kept quite stable around 60%. It also can be seen that under the asset quality, private sector credit to GDP increased on average. In terms of other important indicators, liquidity risk and foreign exchange risk improved as well in Azerbaijan banking sector.

Table 2.5. Banking Sector Indicators for Azerbaijan

	2005	2007	2008	2009	2010	2011
Ownership						
Number of banks	44	46	46	46	45	44
Private domestic	37	38	36	36	35	34
Foreign (majority)	5	6	9	9	9	9
State owned	2	2	1	1	1	1
Foreign-owned banks' share in assets (%)	n.a	n.a	8.0	8.0	9.1	9.7
State-owned banks' share in assets (%)	55.1	42.4	42.5	43.5	34.4	33.7
Concentration (%)						
Share of assets of largest bank	50.6	38.7	42.5	43.5	34.4	33.7
Share of assets of largest five banks	65.4	62.7	62.6	61.0	60.7	57.0
Banks with capital < \$2.5 million (number)	34	6	3	4	3	2
Capital Adequacy (%)						
Capital to risk-weighted assets (>12)	20.7	19.9	19.6	17.7	16.9	14.7
Capital to total assets (not risk weighted)	17.2	16.3	14.5	15.1	14.3	13.2
Asset Quality						
Private sector credit growth	49.3	85.4	54.1	8.2	11.5	16.6
Private sector credit to GDP	9.5	15.1	15.5	19.5	18.1	17.5
Non-performing loans to total loans	6.7	3.0	3.3	3.5	4.7	6.0
Specific provisions to non-performing loans	80.1	73.5	67.2	70.4	72.3	74.6
Foreign Exchange Rate Risk (%)						
Loans in foreign exchange to total loans	64.9	46.8	49.6	41.3	35.7	33.6
Deposits in foreign exchange to total deposits*	79.5	53.9	64.5	63.1	58.0	54.7
Foreign exchange loans to foreign exchange deposits	82.5	97.4	84.5	87.5	74.6	68.2
Net foreign assets to capital	32.3	-83.6	-113	-64.2	-70.4	-57.4
Total foreign exchange assets to total foreign exchange liabilities	100.7	96.8	94.8	100.1	97.1	90.8
Liquidity Risk (%)						
Liquid assets to total assets	25.3	14.6	13.8	11.2	15.0	14.6
Liquid assets to short-term liabilities	83.6	58.2	84.5	71.7	78.9	66.0
Customer deposits to customer loans	100.9	75.6	57.7	52.6	64.3	70.3
Earnings and Profitability (%)						
Return on Assets	1.9	1.9	1.8	2.2	0.9	-1.1
Return on Equity	13.2	14.3	14.2	16.0	7.0	-9.3
Net interest rate margin to total assets	5.2	4.6	5.2	4.9	3.8	3.7
Interest rate spread (percentage points)	6.8	7.4	6.9	10.0	8.1	8.8

Sources: Central Bank of Azerbaijan, International Monetary Fund, Asian Development Bank staff calculations

Chapter 3

LITERATURE REVIEW

Banks are financial institutions that carry the function of meeting people who have excess funds and people who need those funds. There is no doubt about how those financial institutions are important for any nation or country. In previous sections, it was mentioned how the financial crises are appeared in lack of banking sector accountability. Those financial crises are most of the time can lead the economic crisis. That is why nations pay great deal of attention on their banking system when they construct their reforms and regulations.

Since banks are crucial for both the financial industry and the economy of nations, scholars from all around the world investigated variety of issues regarding the banking sector. One important issue to be examined is the relationship of banks' profitability with its determinants. Researchers, bankers, academicians have done plenty of studies in order to reveal the determinants of banking sector's profitability determinants.

Athanasoglou et al. (2005) made an investigation on Greek banks in order to find out both internal and external sources of profitability in the banking industry. The time period that they have used was between the years of 1985 to 2000. Generalized Method Moment (GMM) method was applied to specify the profitability factors. As a result of their statistical regression outcome, they found out that macro-economic

variables make a significant influence when it comes to the banking profitability. Also they found that banking sector performance indicators are playing an important role. For example, the more capital that banks have in their balance sheet, the more opportunity for them to increase their profits. That is explained by having more confidence in investing at different levels of risky instruments.

Alper and Anbar (2011) conducted a study for the Turkish banking industry in an attempt to detect the determinants of the markets' profitability dependents. Their study included 10 commercial banks that traded in Istanbul Stock Exchange and the sample period was between the years of 2002 to 2010. Their main dependant on banking profitability was the size of the bank. The meaning of such finding was that it implied that as much as the size of the bank has a positive relationship with its profitability. They also investigated if bank specific indicators had any contribution on profitability. After they tested the relationship of profitability and liquidity, deposit amount, capital adequacy and net interest margin; they observed that profitability was not positively dependent on these bank specific variables.

One study was carried out in Nigeria banking sector. Toni Uhomobhi Aburime (2008) took 154 banks that were operating in Nigeria for the sample period of 1980 to 2006. They also revealed that macro-economic indicators such as interest rates, national currency performance and inflation have significantly correlated with banking industry profitability. Furthermore, it was found that structural developments like stock market transparency and monetary authority's policy implementation sensitivity have an influence on profitability of banks.

Ramlall (2009) conducted a research on banks' profitability factors for Taiwanese market. He also investigated macro-economic indicators and bank specific indicators; in addition to that the study was examining the industrial factors. The study included the years between 2002-2007 and in order to achieve a significant outcome, this period's data is used in for of quarters. The main result indicated that capital is an important determinant because banks that have higher capital are able to reach more customers by leverage ratio low. He also found that credit risk is negatively correlated with banks' profitability and the institutions that have higher credit risk are tend to become less profitable when compared to other banks among the same industry.

Aldrin Herwany (2006) completed his research in Indonesia banking sector in order to determine the variables that have influence on banks' profitability. In this study, two types banking systems; private and state owned banks are investigated. As profitability proxies, returns on equities (ROE) and returns on assets (ROA) were used. Both ROEs and ROAs were put as dependent variables and they tested which macro-economic variables and bank-specific variables have actually had an impact on these dependent variables. Capital adequacy rate was turned out to be as the most influential variable on proxies. Furthermore, the ratios of capitals over assets and credits over deposits made a significant impact on both ROE and ROA of Indonesian state and private banks.

Sufian (2011) worked on Korean banking industry in an attempt to detect the profitability determinants in this market. The time period that he used as sample started from 1992 to 2003. From macro-economic factors point of view, he discovered that inflation has a great impact regarding the profitability of banks. He

also revealed that liquidity is a crucial factor in order to explain the profitability changes among the Korean banking industry.

Gul et al. (2011) completed their investigation on Pakistan banking industry. They took 15 financially traded commercial banks into their sample and the study was carried out between the years of 2005-2009. Even though the time period of the study was relatively shorter, they managed to reach conclusive results. Pooled Ordinary Least Squares (POLS) indicated that the deposit amount, the magnitude of the banks and finally capital are influentially internal, bank-specific variables that are related with profitability. External variables were also tested to see their relationship with profitability and it turned out that gross domestic product and market capitalization were crucial indicators for Pakistani banks in terms of their profitability.

Ukrainian banking sector profitability was investigated by Davydenko (2011). He applied panel data in his study by taking the sample period of 2005 to 2009. He also investigated both internal and external factors that might have an influence on Ukrainian banking industry. His results showed the fact that banks are not depending on consumer deposits due to the poor quality of their loans. Therefore, there is a negative relationship between liquidity, amount of deposits and banking profitability in Ukraine. Naturally, it was seen that credit risk also is a big factor that cause banks' profitability to decrease. Furthermore, the outcome of the results showed that inflation and foreign ownership of the sector's banks cause a negative correlation in banking profitability. On the other hand, the determinants that have positive impact in this matter were found as the size of the bank as well as concentration ratio and currency depreciation.

Dietrich and Wanzenried (2009) examined Switzerland in order to find the determinants in Swiss banking industry. In their research, they examined 455 Swiss banks. The study investigated the period of 1999 until 2006. There were three main categories to be tested in order to understand and reveal the profitability impact variables. Bank specific factors, industry related factors and macroeconomic variables were taken into the study. They reached some interesting results after testing the Swiss banks in terms of these three main categories. The profitability indicators that were affected from each independent variable showed changes from region to region. For instance, the banks in Geneva region turned out to be more profitable than the banks that operate in Zurich region. As a result, for this study it is quite difficult to come to a conclusion since the bank structures and their influence variables are sort of controversial even though they are located in the same country and they are dependent on the same banking system which is dictated by the same authority. However, when the differences are extracted from the main outcome, it has been noticed that some important economic variables, such as effective tax rate, have a negative influence. Similarly, it is found that effective tax rate has a significant negative impact on profitability of Swiss banking sector.

Chapter 4

DATA AND METHODOLOGY

4.1 Data

In this research panel data is used in order to run the empirical analysis on financial performance of banks in Turkey and Azerbaijan. The financial performance is proxied by dependent variables that come from the financial statements of banks. Simply to say, financial ratios are used for dependent variables as well as for independent variables to do the comparative analysis. The data has been collected from the official website of database of “Banks and Banking Sector Information in Turkey” and individually from official websites of banks in Azerbaijan. Banks are specifically selected in Turkey and Azerbaijan, in order to conduct the comparative analysis of the banking financial performance of these two different countries over the period of 2006-2012. Five banks in Azerbaijan and five banks in Turkey were chosen which are illustrated in the table below.

Table 4.1. Conventional Banks in Turkey and Azerbaijan for the period of 2006-2012.

#	Banks in Azerbaijan	Banks in Turkey
1	Bank Euroasia	Seker Bank
2	Bank BTB	Eurobank Tekfen AS
3	Bank of Baku	Bank Asya
4	Evrobank	HSBC Bank AS
5	Kredobank	Turkiye Ihracat Kredi Bankasi

4.2 Methodology

It is very essential to check for the stationary before conducting the regression analysis, otherwise the result will be misleading and bias. So, the existence of unit root test was studied, where the data is stationary or not. And the multicollinearity and autocorrelation were checked, and proceeded with ordinary least square which are illustrated in Chapter 5. As a result, it was found that data is stationary by rejecting the Null hypothesis under the assumption of methodology developed by LLC (Levin, Lin and Chu). Furthermore, the multicollinearity does not exist as well due to the low correlation between the independent variables.

Financial ratios that are collected from financial statements are classified as dependent variables and independent variables. Dependent variables are: Return on Equity and Return on Asset. Independent Variables are: Total Equity over Total Assets, Provisional Loans divided by Total Loans, Interest Expenses over Total Deposits, Cost divided Revenue and Liquid Assets over Total Deposits. These ratios are employed in this study to find out the difference in financial performance of the banks between Azerbaijan and Turkey, and all significant factors will be in consideration by applying the CAMEL methodology. As it is stated in one of the popular article of Uyen Dang (2011), CAMEL approach is the one of the major measurements to evaluate the soundness and creditworthiness of the banks.

In this study regression analysis is used in order to evaluate the difference in profitability determinants of the two different countries over the period of 2006-2012. In total, 10 banks were selected and empirical analysis is done according to the following and regression models:

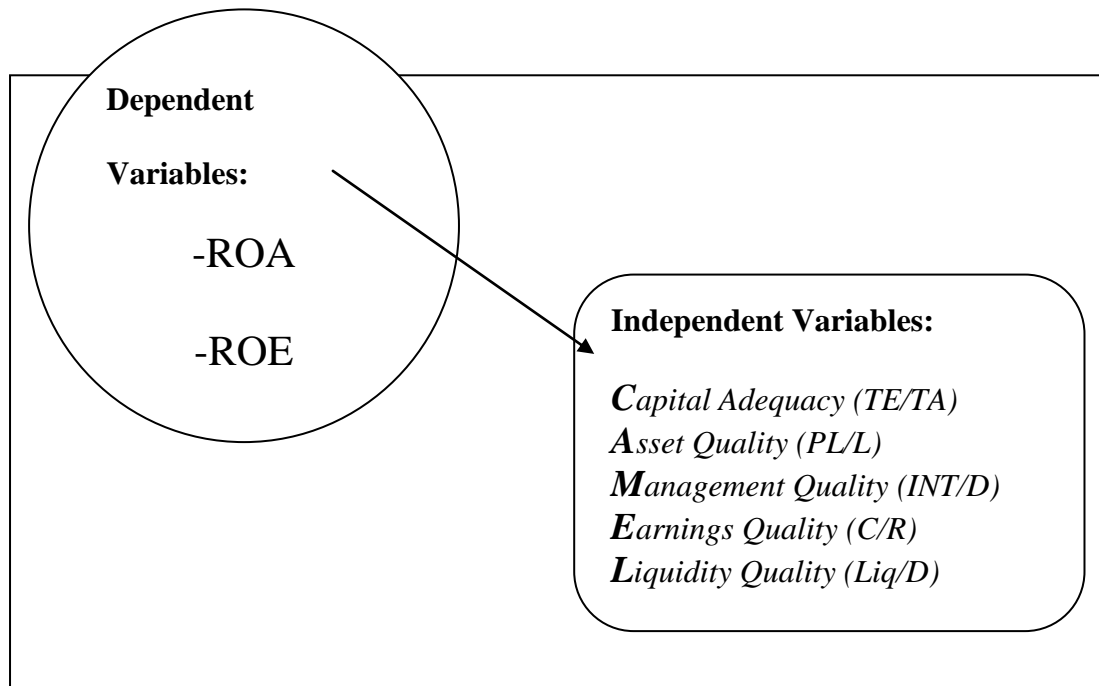


Figure 4.1. Illustration of Financial Ratios of Regression Analysis Based on CAMEL Approach

ALL BANKS

$$ROA = \alpha_1 + \beta_1(TE/TA) + \beta_2(PL/TL) + \beta_3(INT/D) + \beta_4(C/R) + \beta_5(LIQ/D) + \beta_6(DUM) + \varepsilon$$

$$ROE = \alpha_1 + \beta_1(TE/TA) + \beta_2(PL/TL) + \beta_3(INT/D) + \beta_4(C/R) + \beta_5(LIQ/D) + \beta_6(DUM) + \varepsilon$$

Turkey's banks are coded as "1" and Azeri banks as "0" in DUMMY variable.

AZERBAIJAN

$$ROA = \alpha_1 + \beta_1(TE/TA) + \beta_2(PL/TL) + \beta_3(INT/D) + \beta_4(C/R) + \beta_5(LIQ/D) + \varepsilon$$

$$ROE = \alpha_1 + \beta_1(TE/TA) + \beta_2(PL/TL) + \beta_3(INT/D) + \beta_4(C/R) + \beta_5(LIQ/D) + \varepsilon$$

TURKEY

$$ROA = \alpha_1 + \beta_1(TE/TA) + \beta_2(PL/TL) + \beta_3(INT/D) + \beta_4(C/R) + \beta_5(LIQ/D) + \varepsilon$$

$$ROE = \alpha_1 + \beta_1(TE/TA) + \beta_2(PL/TL) + \beta_3(INT/D) + \beta_4(C/R) + \beta_5(LIQ/D) + \varepsilon$$

ROA represents the Return on Assets,

ROE represents the Return on equity,

α_1 represents alpha (constant) for each model respectively,

β represents coefficients of the regression equation,

TE/TA represents Total Equity to Total Asset,

PL/TL represents Provisional Loans over Total Loans,

INT/D represents Interest Expenses to Deposits,

C/R represents the Cost to Revenue,

LIQ/D represents Liquid Assets to Deposits,

E represents Error terms

Chapter 5

EMPIRICAL ANALYSIS AND RESULTS

5.1 Correlation Analysis, Unit Root Test and Regression Analysis in the case of Azerbaijan

As it was mentioned before, the existence of unit root test should be done in order to check whether data is stationary or not, so it was found that for the case of Azerbaijan Bank, all the data are stationary by rejecting the Null Hypothesis based on the methodology by Levin, Lin and Chu, because probability values are less than all the significance levels for all the ratios. As it can be seen from Table 5.1.1, Alternative Hypothesis is not rejected.

Table 5.1.1. Unit Root Test in the case of Azerbaijan

Series: ROE Method Null: Unit root (assumes common unit root process) Levin, Lin & Chu t*	Statistic Prob.** -2,51327 0.006	Series: ROA Method Null: Unit root (assumes common unit root process) Levin, Lin & Chu t*	Statistic Prob.** -3,67554 0.0001
Series: TE/TA Method Null: Unit root (assumes common unit root process) Levin, Lin & Chu t*	Statistic Prob.** -5,53852 0.0000	Series: PL/TL Method Null: Unit root (assumes common unit root process) Levin, Lin & Chu t*	Statistic Prob.** -2,999 0.0062
Series: INT/D Method Null: Unit root (assumes common unit root process) Levin, Lin & Chu t*	Statistic Prob.** -2,746 0,003	Series: C/R Method Null: Unit root (assumes common unit root process) Levin, Lin & Chu t*	Statistic Prob.** -4,809 0.0000
Series: LIQ/D Method Null: Unit root (assumes common unit root process) Levin, Lin & Chu t*	Statistic Prob.** -18,72 0.0000		

Correlation analysis was done as well for the financial ratios of Azerbaijan Banks with two main purposes. First of all, it was aimed to check for the multicollinearity and noticed that there is no multicollinearity due to the low correlation between the independent variables and significance of t-ratios in regression analysis. Secondly, correlation analysis was run, in order to predict the sign of the variable and to see the degree of correlation of variables. So, as it can be seen from Table 5.1.2, as an example, the relationship is negative and low between Liq/D and ROE which is 26%. Moreover, there is a negative association between C/R and ROE at degree of 24%, PL/TL is correlated negatively at the degree of 13% with TE/TA and so on.

Table 5.1.2. Correlation Analysis in the case of Azerbaijan

	ROE	ROA	TE/TA	PL/TL	INT/D	C/R	Liq/D
ROE	1						
ROA	0,906424	1					
TE/TA	0,016874	0,08743	1				
PL/TL	-0,37933	0,35115	-0,13165	1			
INT/D	-0,45097	0,40425	0,427322	0,310724	1		
C/R	-0,24154	-0,2054	0,038704	0,384773	0,40614	1	
Liq/D	-0,26672	-0,2625	0,503375	0,111653	0,432285	0,442999	1

As it can be seen from regression analysis below in Table 5.1.3.1, there is a negative relationship between the asset quality and ROE, and it is statistically significant. This is to say that as provisions in loans increase, there will be more write offs and it will be subtracted from the revenue which will reduce the ratio of profitability determinant. Moreover, cost to revenue affects negatively as well and it is statistically significant, in other words as the banks' costs go up, the bank will go down in revenue which will reduce the ROE. As it can be seen from the coefficient

of determination, 59% of variation in dependent variables can be explained by variation of independent variables. Finally, as a whole model, f-probability is less than 1% significance level, the whole model of regression analysis is statistically significant, and so it can be relied on this model.

Table 5.1.3.1. Regression Analysis in the case of Azerbaijan-ROE

Dependent Variable: ROE				
Method: Panel Least Squares				
Sample: 2006 2012				
Total panel (unbalanced) observations: 35				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.064576	0.865169	3.54217	0.00250
TE/TA	-0.00068	0.015327	-0.044373	0.96510
PL/TL	-0.162634	0.038491	-4.225199	0.00060
INT/D	0.029484	0.205509	0.14347	0.88760
C/R	-0.040781	0.007335	-5.560126	0.00000
Liq/D	0.028501	0.019482	1.462947	0.16170
F-statistic	16.58033	R-squared	0.597728	
Prob(F-statistic)	0.000001	D-Watson	1.945078	

It can also be seen from the regression analysis below in Table 5.1.3.2, there is a negative relationship between the asset quality and ROA, and it is statistically significant. That is, as provisions in loans increase, there will be more write offs and it will be subtracted from the revenue which will reduce the ratio of the profitability determinant. Moreover, cost to revenue affects negatively as well and it is statistically significant. In other words, as the banks' costs go up, the bank will go down in revenue which will reduce the ROA. There is a positive significant relationship between liquidity and ROA. This is to say that the banks are considered

to be profitable due to their high liquidity. As it can be seen from the coefficient of determination, 66% of variation in dependent variables can be explained by variation of independent variables. Finally as a whole model, f-probability is less than 1% significance level, the whole model of regression analysis is statistically significant, and so it can be relied on this model.

Table 5.1.3.2. Regression Analysis in the case of Azerbaijan-ROA

Dependent Variable: ROA				
Method: Panel Least Squares				
Sample: 2006 2012				
Total panel (unbalanced) observations: 35				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.1079	3.2533	4.0291	0.0010
TE/TA	0.0051	0.0603	0.0851	0.9332
PL/TL	-0.9144	0.1482	-6.1707	0.0000
INT/D	0.6737	0.7780	0.8659	0.3993
C/R	-0.2011	0.0275	-7.2995	0.0000
Liq/D	0.3168	0.0742	4.2710	0.0006
F-statistic	48.3215	R-squared	0.6645	
Prob(F-statistic)	0.0000	D-Watson	1.9197	

5.2 Correlation Analysis, Unit Root Test and Regression Analysis in the Case of Turkey

Unit root test existence was done in order to check whether the data is stationary or not, so it was found that for the case of Banks in Turkey, all the data are stationary by rejecting the Null Hypothesis based on the methodology by Levin, Lin and Chu, because the probability values are less than all the significance levels for all the ratios. As it can be seen from Table 5.2.1, Alternative Hypothesis is not rejected. As an example, in the case of ROE, the probability value is 0 which is less than 1% significance level. Thus, ROE data is stationary.

Table 5.2.1. Unit Root Test in the case of Turkey

Series: ROE			Series: ROA		
Method	Statistic	Prob.**	Method	Statistic	Prob.**
Null: Unit root (assumes common unit root process)			Null: Unit root (assumes common unit root process)		
Levin, Lin & Chu t*	-8,250	0,000	Levin, Lin & Chu t*	-7,995	0,000
Series: TE/TA			Series: PL/TL		
Method	Statistic	Prob.**	Method	Statistic	Prob.**
Null: Unit root (assumes common unit root process)			Null: Unit root (assumes common unit root process)		
Levin, Lin & Chu t*	-26,702	0,000	Levin, Lin & Chu t*	-27,728	0,000
Series: INT/D			Series: C/R		
Method	Statistic	Prob.**	Method	Statistic	Prob.**
Null: Unit root (assumes common unit root process)			Null: Unit root (assumes common unit root process)		
Levin, Lin & Chu t*	-6,101	0,000	Levin, Lin & Chu t*	-31,318	0.0000
Series: LIQ/D					
Method	Statistic	Prob.**			
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*	-3,934	0.0000			

Correlation analysis was done as well for the financial ratios of Banks in Turkey with two main purposes. First of all, multicollinearity was aimed to be checked and it was observed that there is no multicollinearity due to the low correlation between the independent variables and significance of t-ratios in regression analysis. Secondly, correlation analysis was run, in order to predict the sign of variable and to see the degree of the correlation of variables. So, as it can be seen from Table 5.2.2, as an example, the relationship is positive and low between Liq/D and ROA which is 42%. Moreover, there is a negative association between INT/D and ROA at the degree of 22%. PL/TL is correlated positively at degree of 39% with ROA. Cost to revenue is positively correlated with TE/TA and so on.

Table 5.2.2. Correlation Analysis in the case of Turkey

	ROA	ROE	TE/TA	PL/TL	INT/D	C/R	Liq/D
ROA	1						
ROE	0,943951	1					
TE/TA	0,441374	0,653187	1				
PL/TL	0,397877	0,487695	0,46537	1			
INT/D	-0,22986	-0,26467	-0,36282	-0,07015	1		
C/R	0,196853	0,319914	0,255483	0,508314	0,496916	1	
Liq/D	0,422594	0,564174	0,61167	0,080909	0,002102	0,082109	1

The results from regression analysis are illustrated below in Table 5.2.3.1. There is a positive relationship between the asset quality and ROA, but it is not statistically significant. That is, there is an abnormal relationship due to the limitation of information. There is a positive significant relationship between the liquidity and ROA. As the banks want to increase the profitability, they should be more liquid. There is a negative relationship between the management quality ratio and ROA, and it is statistically significant. Furthermore, earnings' ratio has got a positive significant influence on ROA. As it can be seen from the coefficient of determination, 62% of variation in dependent variables can be explained by the variation of independent variables. Finally, as a whole model, f-probability is more than 1%, and 5%, but less than 10% significance levels. The whole model of regression analysis is statistically validated, and so it can be said that the whole model is best fitted.

Table 5.2.3.1. Regression Analysis in the case of Turkey-ROA

Dependent Variable: ROA				
Method: Panel Least Squares				
Sample: 2006 2012				
Total panel (unbalanced) observations: 35				
	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.690961	0.66054	-2.559981	0.0336
LIQD	0.021468	0.00837	2.564986	0.0334
PLTL	0.081829	0.07267	1.125967	0.2928
INTD	-0.081067	0.03872	-2.093921	0.0696
CR	0.020931	0.00451	4.643024	0.0017
	F-statistic	3.3148	R-squared	0.623692
	Prob(F-statistic)	0.07008	D-watson	1.855913

As it can be seen from the regression analysis in Table 5.2.3.2, there is a positive relationship between the asset quality and ROE, and it is statistically significant. This is to say that as total loans decrease, by assuming that provision loans are fixed, this will increase the ratio PL/TL. Hence there will be less of interest income on loans and it will lead to the reduction of net income, then it will increase the ratio of the profitability determinant. Moreover, cost to revenue and liquidity affects positively as well and it is statistically significant. In other words, as the banks' costs go up, they expand and incur more cost in return with higher profits. There is an inverse association between the management and ROE, and it is statistically significant. As it can be seen from the coefficient of determination, 69% of variation in dependent variables can be explained by the variation of the independent variables. Finally, as a whole model, f-probability is less than 1% significance level. The whole model of regression analysis is statistically significant, and so it can be relied on this model.

Table 5.2.3.2. Regression Analysis in the case of Turkey-ROE

Dependent Variable: ROE				
Method: Panel Least Squares				
Sample: 2006 2012				
Total panel (unbalanced) observations: 35				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.042596	1.232976	0.034547	0.9736
TE/TA	-0.030619	0.077865	-0.39323	0.7077
PL/TL	0.152467	0.066102	2.306544	0.0606
INT/D	-0.119484	0.018253	-6.54589	0.0006
C/R	0.024256	0.009535	2.54383	0.0439
Liq/D	0.007068	0.0036	1.963464	0.0972
F-statistic	9.515312	R-squared	0.688011	
Prob(F-statistic)	0.008082	D-Watson	2.415431	

5.3 Correlation Analysis, Unit Root Test and Regression Analysis in the case of All Banks

As it was mentioned before, unit root test existence should be done in order to check whether the data is stationary or not, so it was found that for the case of Azerbaijan Bank, all the data are stationary by rejecting the Null Hypothesis based on the methodology by Levin, Lin and Chu, because the probability values are less than all the significance levels for all ratios. As it can be seen from Table 5.3.1, Alternative Hypothesis is not rejected.

Table 5.3.1. Unit Root Test in the case of All Banks

Series: ROE			Series: ROA		
Method	Statistic	Prob.**	Method	Statistic	Prob.**
Null: Unit root (assumes common unit root process)			Null: Unit root (assumes common unit root process)		
Levin, Lin & Chu t*	-9,069	0,000	Levin, Lin & Chu t*	-8,760	0,000
Series: TE/TA			Series: PL/TL		
Method	Statistic	Prob.**	Method	Statistic	Prob.**
Null: Unit root (assumes common unit root process)			Null: Unit root (assumes common unit root process)		
Levin, Lin & Chu t*	-22,190	0,000	Levin, Lin & Chu t*	-25,656	0,000
Series: INT/D			Series: C/R		
Method	Statistic	Prob.**	Method	Statistic	Prob.**
Null: Unit root (assumes common unit root process)			Null: Unit root (assumes common unit root process)		
Levin, Lin & Chu t*	-6,849	0,000	Levin, Lin & Chu t*	-37,144	0.0000
Series: LIQ/D					
Method	Statistic	Prob.**			
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*	-17,974	0.0000			

Correlation analysis was done as well for the financial ratios of Banks in Turkey with two main purposes. First of all, was aimed to check for multicollinearity and it was noticed that there is no multicollinearity due to the low correlation between the independent variables and significance of t-ratios in regression analysis. Secondly, correlation analysis was run, in order to predict the sign of the variable and to see the degree of the correlation of variables. So, as it can be seen from Table 5.3.2, as an example, the relationship is positive and low between Liq/D and ROA which is 25%. Moreover, there is a negative association between INT/D and ROA at degree of 4.5%, PL/TL is correlated inversely at degree of 56% with ROA. Cost to revenue is positively correlated with TE/TA and so on.

Table 5.3.2. Correlation Analysis in the case of All Banks

	ROA	ROE	TE/TA	PL/TL	INT/D	C/R	Liq/D
ROA	1						
ROE	0,909901	1					
TE/TA	-0,08628	-0,14962	1				
PL/TL	-0,56084	-0,46591	-0,06288	1			
INT/D	-0,04545	-0,11464	-0,01624	0,147447	1		
C/R	-0,4113	-0,68335	0,088869	0,407368	0,115541	1	
Liq/D	0,25604	0,154952	-0,06416	-0,13157	0,527635	0,011249	1

It can be seen from the regression analysis below in Table 5.3.3.1 that there is a negative relationship between asset quality and ROA, and it is statistically significant. That is, as provisions in loans increase, there will be more write offs and it will be subtracted from the revenue which will reduce the ratio of the profitability determinant. Moreover, cost to revenue affects negatively as well and it is statistically significant. In other words, as the banks' costs go up, the bank will go down in revenue which will reduce the ROA. As it can be seen from the coefficient of determination, 56% of variation in dependent variables can be explained by the variation of independent variables. Finally, as a whole model, f-probability is less than 1% significance level, the whole model of regression analysis is statistically significant, and so it can be relied on this model.

Table 5.3.3.1. Regression Analysis in the case of All banks-ROA

Dependent Variable: ROA				
Method: Panel Least Squares				
Sample: 2006 2012				
Total panel (unbalanced) observations: 70				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.650429	0.820992	5.664404	0.0000
TETA	-0.00243	0.006552	-0.370494	0.7140
PLLTL	-0.1217	0.023249	-5.234709	0.0000
INTD	-0.07592	0.064839	-1.170933	0.2522
CR	-0.04168	0.004074	-10.2292	0.0000
LD	0.011815	0.007877	1.499982	0.1457
DUM	-0.96747	0.756373	-1.279095	0.2122
F-statistic	13.35982	R-squared	0.560454	
Prob(F-statistic)	0.00000	Durbin-Watson stat	2.160887	

As it can be seen from the regression analysis of all banks below in Table 5.3.3.2, there is a negative relationship between the capital adequacy and the profitability determinant. This may happen because of the expansion of the financial institution. As the banks expand, they acquire more market share which increases their profits from giving services to new customers. Furthermore, there is a negative relationship between the asset quality and ROE, and it is statistically significant. This is to say that as provisions in loans increase, there will be more write offs and it will be subtracted from the revenue which will reduce the ratio of the profitability determinant. Moreover, cost to revenue affects negatively as well and it is statistically significant. In other words, as the banks' costs go up, the bank will go down in revenue which will reduce the ROE. However, the researcher could not find any differences in the profitability determinants of the banks in Turkey and Azerbaijan because Dummy variables is said to be non significant. However, it can

be said that from the coefficient of determination, 75% of variation in dependent variables can be explained by the variation of the independent variables. Finally, as a whole model, f-probability is less than 1% significance level, the whole model of regression analysis is statistically significant, and so it can be relied on this model.

Table 5.3.3.2. Regression Analysis in the case of All banks-ROE

Dependent Variable: ROE				
Method: Panel Least Squares				
Sample: 2006 2012				
Total panel (unbalanced) observations: 70				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.61698	10.69084	1.741396	0.09150
TE/TA	-0.14783	0.083459	-1.771319	0.08630
PL/TL	-0.98776	0.192996	-5.11805	0.00000
INT/D	-0.12842	0.683386	-0.18792	0.85220
C/R	-0.22217	0.048877	-4.545431	0.00010
Liq/D	0.140289	0.098775	1.420292	0.16550
DUM	9.307987	9.762304	0.953462	0.34770
F-statistic	16.07685	R-squared	0.656789	
Prob(F-statistic)	0.0000	Durbin-Watson stat	1.871376	

Chapter 6

CONCLUSION AND SUGGESTIONS

The importance of banking sector in life has already been discussed and a comparative analysis in financial performance for two different countries was done. The main purpose of this study is not to make one banking sector better off than the other. The major objective of this research was to find the statistical difference of the profitability determinants of conventional banks in Azerbaijan and Turkey. Unfortunately, statistical difference in these two countries could not be found; the information was obtained from the Dummy variable that was not statistically significant. The findings support that the banking regulations of these countries are more or less the same. Regression analysis was conducted and it was divided into 2 parts: specific model and general model. In specific model, regression was done separately by countries, but in general model, it was done altogether by uniting all the banks in Turkey and Azerbaijan in order to find the statistical difference. Moreover, some similarities and differences were found in financial performance of these banks. By doing these paper works, it was tried to get to know whether there is difference in profitability determinants of these banks or not? Which factors are affecting more profitability indicators? And the models that are formulated are the best fitted or not?

First of all, in both Turkey and Azerbaijan, liquidity has a positive impact on profitability determinant. Unlike Turkey, in Azerbaijan asset quality of banks affect

the profitability indicators negatively, which means that as loan write offs increase this leads to reduction in the profit. The efficiency of banks exert positive influence on banks of Turkey. This is an opposite case in Azerbaijan. The management of the banks in Turkey affects the financial performance negatively, so they spend more money and attention on the management of banks' operations which leads to a reduction in profit. The formulated models for both Azerbaijan and Turkey are statistically validated.

Finally, there is a negative relationship between the capital adequacy and profitability determinant. This may happen because of the expansion of the financial institution, as the banks expand; they acquire more market share which increases their profits from giving services to new customers. Furthermore, there is a negative relationship between the asset quality and ROE, and it is statistically significant. This is to say that as provisions in loans increase, there will be more write offs and it will be subtracted from the revenue which will reduce the ratio of the profitability determinant. Moreover, cost to revenue affects negatively as well and it is statistically significant. In other words, as the banks' costs go up, the bank will go down in revenue which will reduce the ROE. However, the researcher could not find any differences in the profitability determinants of the banks in Turkey and Azerbaijan, because Dummy variables is said to be non significant.

It can be said that for both Azerbaijan and Turkey, the banks should keep the liquidity high in order to increase the profitability of banks. However, if the banks decide to expand their business for Turkish banks, it will be useful and profitable, even though their cost will increase as well in contrast to banks in Azerbaijan because if they plan to increase the market share, their profit will go down. As for

Azerbaijan's banks should be careful in terms of evaluating the customers' creditworthiness, because as number of defaults increases that will lead to an increase in provision loans that will reduce the profitability determinants of the banks in Azerbaijan. Finally, the banks in Turkey ought to work on marketing department to attract more customers to increase the deposits account, if deposits increase in banks, this will lead to the reduction in ratio of INT/DEP that will cause to increase profitability determinant.

The main issue that was faced by doing this research was the availability of data. If the number of years and variables are increased, more appropriate and true empirical results will be obtained. The limited data may lead to irrational relationship between the variables, so if the researcher had access to "Bank Scope Database", it would have been performed much better.

REFERENCES

Aburime, T. (2008), Determinants of Bank Profitability; Macroeconomic Evidence From Nigeria, Department of Economics, Deakin University, Burwood Australia.

Akalin, S. U. (2006). Three Periods Three Economies. Istanbul, *Önsöz Books*. Pg: 192.

Alper, D. & Anbar, A. (2011). Bank Specific and Macroeconomic Determinants of Commercial bank profitability: Empirical Evidence from Turkey. *Business and Economics Research Journal*, 2: 2,139-152.

Anwar, M. & Herwany, A. (2006). The Determinants of Successful Bank Profitability in Indonesia: Empirical Study for Provincial Government's Banks and Private Non-Foreign Banks. *Working Papers in Business, Management and Finance*, No: 200601.

Athanasoglou, P. Brissimis, S & Delis, M. (2005). Bank-Specific, Industry-Specific and Macroeconomic Determinants of Bank Profitability. *Working Paper*, 25.

Conrad, F. J. (2012). Azerbaijan: Financial Sector Assessment. Central and West Asia *Working Papers*, No 3.

Consulate General of Switzerland, Pakistan Banking Sector, Karachi 25th February 2011, www.osec.ch.

Davydenko, A.(2011). Determinants of Bank Profitability in Ukraine.
Undergraduate economic Review, 7: 1.

Dietrich, A. & Wanzenried. G. (2009). What Determines the Profitability of Commercial Banks? New Evidence from Switzerland. Lucerne University of Applied Sciences. SSRN.

Gul, S. Irshad,F. & Zaman,K.(2011). Factors Affecting Bank Profitability in Pakistan. *The Romanian Economic Journal, 14:39, 61-87.*

Kumar, S. & R. Gulati (2008). 'Evaluation of technical efficiency and ranking of public sector banks in India.'
International Journal of Productivity and Performance Management 57(7): 540-568.

Ramlall, I. (2009) .Bank-Specific, Industry-Specific and Macroeconomic Determinants of Profitability in Taiwanese Banking System: Under Panel Data Estimation. *International Research Journal of Finance and Economics, 34, 160-167.*

Sufian, F. (2011). Profitability of the Korean Banking Sector: Panel Evidence on Bank-Specific and Macroeconomic Determinants.

Journal of Economics and Management, 7: 1, 43-72.

The Central Bank of the Republic of Turkey (2014)
http://www.tbb.org.tr/eng/Banka_ve_Sektor_Bilgileri.

Turkish Planning Organization (2014) <http://www.dpt.gov.tr> .

United States Department of Agriculture Economic Research Service (2014)
<http://www.ers.usda.gov/>

World Bank database, Sunday 10th of March 2013,

<http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG/countries/MY?display=default>.