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The Impact of Devaluation and Oil Price On the Banking Sector of Azerbaijan

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Biography Note

My name is Anar Ibrahimov, I am 25 years old and I come from Baku, Azerbaijan. I graduated from undergraduate degree in International Economic Relations from Azerbaijan State University of Economic in 2012. Then I did my military service within a year and right after that I started my first graduate degree in MBA from the same university. Currently, I am attending the Master in Finance programme of the Faculty of Economics of the University of Porto, Portugal and I will graduate in June 2016. Right now I am working on my dissertation and after my graduation I am planning to continue my carrier in Baku.

Abstract

Banks are a part of our life, part of financial institutions which make feasible our daily life and provide us services and financial transactions. As an integral part of financial markets, it is crucial to understand the factors that impact to the profit of the banks.

It needs to be noted that there are internal and external factors to impact the profit of the banks. In this dissertation mainly external factors (macroeconomic) will be learned through.

In addition, in this dissertation I will research banking sector in Azerbaijan, brief history and the impact of the decisions made by CBA to the banking sector (specially to commercial banks). It is worth to note that the dramatic reduction of oil price in the world market in the second quarter of the year 2014 had a serious impact on Azerbaijani economy. On this research, the impact of the decreased oil income to the banking sector and above Central mentioned problems and their solution will be discussed.

Additionally, the reasons why Azerbaijani banks faced crisis and the relief of it will be studied and learn the relevant experience of world practice. My relevant work experience in this field and my future plans to continue working within the sector motivated me to do my dissertation on this topic.

The relation of the dependent and independent variables of the regression model will be tested by using the Panel Data Analysis Method. The empirical analysis and the results based on the panel data will employ to find the factors influencing the profitability of the banks. The population consists of 41 commercial banks which are registered at CBA at the end of 2015. Data source since 2012 until 2015 will be use in this research.

Key-words: Financial Institutions, Financial Markets, Internal Factor, External Factor, Azerbaijan Bank Sector, Devaluation, Commodities Prices
JEL-Codes: E50, E58, G21, G23, G28, G34, Q49.

This project dedicated to my Mom.

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Additionally, a lot of thanks I owe to my sister, Narmin Ibrahimova, master of Social Work student at Washington University in St. Louis who helped with edition and formatting the paper.

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Chapter 1: Introduction

1.1. Introduction

Banks are a part of our life, part of financial institutions, which make feasible our daily life and provide us services and financial transactions. As an integral part of financial markets, it is crucial to learn the factors that impact the profit of the banks.

The existence of the modern economy of any country is impossible without an efficient banking system. Banks are financial institutions defined as enterprises that engaging buying and selling financial assets, which deal with deposits, lend out these deposits as a loans and related with other financial services (Tobin 1987).

Despite the impressive growth in domestic economy and regulatory reforms over past years, banking sector of Azerbaijan remains small in relation to the size of the economy. Although oil sector is acting as the main indicator for economic and social development of Azerbaijan. Currently the Azerbaijani government is pursued to develop of the non-oil sector. To reduce the economy's oil dependency, banking sector should play an important role.

The Azerbaijan banking sector has been in many changes after gaining independence[1]. Throughout the years, there have been a number of regulations, reforms and consolidation to develop the banking system. However, Azerbaijan banking system needs more regulatory changes. The banking sector of Azerbaijan consisted of 45 banks, from which 44 of them were private and 1 of them was a government bank in the first half of the year 2015. In spite of large number of banks, the Azerbaijani banking sector is dominated by few big banks. Thus, the 10 largest banks hold 80 % of total market share of assets, deposits and credit portfolios. Actually, the number of banks in the banking system of Azerbaijan is the most discussed aspect. If we compare countries with similar size, there is a huge number of banks in the country. Presently, the CBA works on diminishing the number of banks to the half. Quliyev (2010) says that,

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[1] Azerbaijan got its independency on 18th October 1991 after USSR.

according to the territory and size of population, 45 banks are too many for the country, thus 20 banks may consider as an optimal number. Also, Aliyev (2011) discussed that large number of banks in the domestic market should indicate a high level of competition. However, the reality is different. The lack of high quality of services provided by banks, high loan rates, difficult procedures to obtain these loans, undesirable level of banking system in the economy, are factors that strengthens the lack of competition idea[2]. But there is not any role according to the territory and size of population of the country that to measure number of banks in the country. I would like to mention that from the beginning of 2016 ten banks already announced their bankruptcy. So that on 31st of January 2016 there are 35 banks and most of operating banks' charter capital below the limit of charter capital of CBA requirements, which is AZN 50 million[3]. And there are great probabilities that the number of banks will decrease in future because of lower charter capital that is under CBA's requirement.

In this dissertation the decision of devaluations made by CBA on 21st of February 2015 and 21st of December 2015 will be a focus point. Dramatic devaluation of AZN[4] against the USD[5] (by 33.75 percentages[6] and 50 percentages[7]) also have their huge impact on the banking sector discussed in the dissertation. According to the decision made by CBA on 25 July 2012, the cumulative capital of local banks, and minimal amount of charter capital for newly established banks was increased from AZN 10 million to AZN 50 million. Above mentioned devaluations caused reduction of cumulative capital of local banks, besides, banks which newly reached AZN 50 million of cumulative capital faced serious problems and the interest rate of problematic loans increased in the total loan portfolio, which resulted in the increase of the amount of problematic loans. Currently, consolidation of small banks (which do not reach the AZN 50 million of charter capital) is on the agenda of the governmental policy in Azerbaijan. According to CBA, only 26 of all banks have reached AZN 50 million of charter capital in the first

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[2] Evaluation of factors affecting the higher credit rates. Baku-2011

[3] Approximately 31 mln Euro – 28.02.2016

[4] AZN (man)-local currency of Azerbaijan

[5] USD- local currency of United States

[6] 21st of February 2015

[7] 21st of December 2015

quarter of 2015 (Monetary Policy Review of CBA for the first quarter of 2015). However, CBA works on consolidation process in order to strengthen the financial system.

As mentioned, oil sector is acting as the main indicator for economic development. That's why any negative change of oil price has direct impact on the domestic economy. I will focus on the impact of low oil income of country to the bank sector. It worth to note that the dramatic reduction of oil prices in the world market in the second quarter of 2014 had a serious impact on the Azerbaijani economy. Thus, according to official website of Ministry of Finance of Azerbaijan Republic, there was a dramatic deficit on every barrel of oil for estimating USD 100 of oil price/barrel of state budget in 2014 and the dramatic deficit was to estimate USD 90 of oil price/barrel to state budget in 2015. That's why the decision on 33.75[8] percent devaluation occurred in February 2015. However, devaluation did not compensate difference between the forecasted and current rate. The government tried to compensate current difference by the foreign exchange reserves of State Oil Fund of Azerbaijan Republic (SOFAZ). But it was not much enough to cover this deficit and because of that only ten months later (21st of December 2015) Azerbaijan government changed the role of exchange rate policy from fixed exchange rate to floating exchange rate. And because of the supply and demand disproportion (high demand of USD) local currency of Azerbaijan lost its value by 50%[9] and day by day Azerbaijan Manat losing its value[10] because of high demand of USD. In this paper, the impact of the decreased oil income to the banking sector and above mentioned problems and their solution will be discussed.

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[8] Before devaluation (21st of February 2015) official exchange rate of AZN was 0.780 (1 USD=0.780 AZN), but after devaluation it increased 1.043 (1 USD = 1.043 AZN), which means that 33,75 % decrease. (33.75 % = [(1.043-0.780) *100]/0.780).

[9] Untill 21st of December 2015 official exchange rate of AZN was 1.043 (1 USD=1.043 AZN), but after second devaluation it increased 1.56 (1 USD=1.56 AZN – 21st of December 2015), which means that almost 50% decrease (50%=[(1.56-1.043)*100]/1.043).

[10] Official excahnge rate by CBA was 1.67 AZN/$ at 31st of January 2016.

1.2. The Motivation of the study

My experience within banking system and my future plans on working in the bank sector was my motivation to write this dissertation. In addition, this is one of the first academic research after above mentioned devaluations in 2015. I believe that this research will be my privilege compared to my peer colleagues and I will have comparative advantage in the labour market.

1.3. The Aim of the study

The main purpose of the study is to define the reasons of current crises that banks face and to study how banks in the world experience act during such kind of crisis. Also the main objective of the study is to develop methodological, theoretical and applied aspects of the creation, development and regulation of the banking system and the development of management strategies of the banking system of the Azerbaijan Republic. In the econometric model I have used panel data (the sample includes cross-sectional and time-series data). The population consists of 41 commercial banks which are registered at CBA in 2015. Furthermore, the study focuses on the impact of devaluation and oil price to the bank sector of Azerbaijan. Another important issue which research is taking into account is the need for consolidation in the banking system.

1.4. Research questions

In order to achieve above mentioned objectives the study sets out and tries to solve the following problems and it determines the structure and logic of the research:

- **What is the impact of the oil price on the Banking Sector of Azerbaijan?**
- **What is the impact of the devaluation on the Banking Sector of Azerbaijan?**

1.5. Hypotheses of research

The purpose of the research is to explore the impact of devaluation and oil price on the profitability of the Azerbaijan Banking Sector. On the basis of the purpose, this study strives for checking to the following hypotheses:

1.5.1. Hypothesis 1.

$H_{1.0}$: Devaluation might have negative effect on a return of banks

$H_{1.1}$: Devaluation might not have negative effect on a return of banks

1.5.2. Hypothesis 2.

$H_{2.0}$: Oil price might have positive effect on a return of banks

$H_{2.1}$: Oil price might not have positive effect on a return of banks

1.6. The Methodological Basis of the Study

The secondary data was collected from the official websites of government and commercial banks of Azerbaijan covering the last 4 years. The scope of the research includes all domestic banks, which are registered by the CBA. The regression models were constructed and analysed for each model. The empirical analysis obtained from the regression analysis of the models was observed and identified the relationship between the profitability determinants and the factors affecting the profitability.

1.7. Structure of the dissertation

The dissertation consists of six chapters.

First chapter presents the introduction, motivation for this topic, aim of the study, hypothesis of research.

Chapter two focuses on economic indicators in Azerbaijan economy, review of Azerbaijan Banking System and history, current performance of Banking Sector, importance of the banking sector and the impact of the oil price and devaluation nowadays in Azerbaijani economy.

Chapter three present the literature review, main theories and relevant studies, internal factors that affect banks' profitability, and finally external factors that affect profitability of the banks.

Chapter four covers data and methodology, econometric model, methodology, dependent and independent variables of the regression model and the estimation process.

Chapter five presents the empirical results.

And finally last chapter concludes entire project and covers future research.

Chapter 2: Azerbaijan

2.1. The Economic Indicators of Azerbaijani Economy

After 70 years of dependence from the USSR, Azerbaijan became an independent country on 18 October, 1991. The new country faced lots of challenges in the political, economic and social spheres. Especially, political instability, economic stagnation, high level of inflation, higher unemployment rate, reduction in production reasoned in higher deficit in state budget during 1991-1995. Azerbaijan gained macroeconomic growth since 1996 by running independent politics in the international arena. Large oil and gas resources were a key indicator in the formation of Azerbaijani economy and its future development. According to the "Oil and Gas Journal" (2012), Azerbaijani oil resources has been calculated about 7 billion barrels. An agreement which is allowed exporting oil via Baku – Novorossiysk (1996), Baku - Supsa (1999) and Baku – Tbilisi – Ceyhan (2006) pipelines have contributed as a significant factor to the economic growth. Especially Baku – Tbilisi - Ceyhan pipeline has significant role of Azerbaijan economy. Because of that pipelines Azerbaijan has concluded 21 production-sharing agreements with 11 oil companies. An export pipeline that transports Caspian oil to the Mediterranean from Baku through Tbilisi, Georgia to Ceyhan, Turkey (Baku – Tbilisi – Ceyhan Pipeline) became operational in 2006. The pipeline is expected to generate $160 billion revenues for the country over the next 30 years. In fact, the recent decline of the oil price in the world market had already negative impact Azerbaijani economy, but the high price of oil during over the last ten years have caused oil boom in the country. Eastern Caspian producer, Kazakhstan, also have expressed interest in accessing this pipeline to transport a portion of their production. Below is the map of Baku – Tbilisi – Ceyhan pipeline.

Source:

According to the State Statistical Committee in 2010, Azerbaijan entered into the top eight biggest oil yearly suppliers to EU countries with €9.46 billion.

Investments to the country's economy decreased 11.1% to AZN 16 billion in 2015. From that investment oil sector constituted AZN 7.2 billion, while investments to the non-oil sector made up AZN 8.8 billion. The volume of investments increased by 7.8% to the industry, by 2.2 times to information and communication services, by 29.2% to real estate related operations, by 3.8 times to the tourism and catering, and it decreased by 11.8% to the transportation and depot, by 60.9% to the trade, by 5.6% to the construction. 7.7% of total non-oil investments were used for the development of the non-oil industry. 56% of funds channelled to capital stock stemmed from domestic sources, while 44 % from foreign sources. In 2015 funds of entities and organizations prevailed in total investments by 66.5%. In 2015, economic growth in Azerbaijan key trade partners continued weakening. Whereas average economic growth[11] on 15 trade partners was 1.7% in 2014, it was replaced by 0.65% recession in 2015. Although

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[11] Non-oil export weighted

employment dropped in developed trade partners (the USA, the Euro Zone etc.), it rose in developing partner countries (Russia, Iran, etc.). Drops in global commodity prices and lasting international sanctions had a negative impact on economic growth of Russia – the key trade partner in the last quarter of the year, resulted in lower investment and employment indicators. Most partner countries devalued their national currencies over the year (Monetary Policy Review – CBA 2015).

Oil and gas sector contributed to approximately one-third of the country's gross nominal GDP. According to the World Bank, in 2006 Azerbaijan become one of the world's fastest growing countries, among a 36 % GDP growth. Azerbaijani economy depends on oil and gas sector, therefore oil share in GDP is 46.2 % (State Statistical Committee, 2015). Foreign investment is an important factor for the financing and the development of the economy, especially for the oil and gas sector. The government of Azerbaijan employ "welcoming policy" for foreign investments.

The amount of investments in Azerbaijan is directly depends on oil price in the world market. Last two years (2014-2015) oil prices slide down due to the economic distress in developing countries, high production by the OPEC, stronger USD, and oversupply in global markets. One of the reason of low oil prices in the world market is high supply low demand

Source: *International Energy agency.*
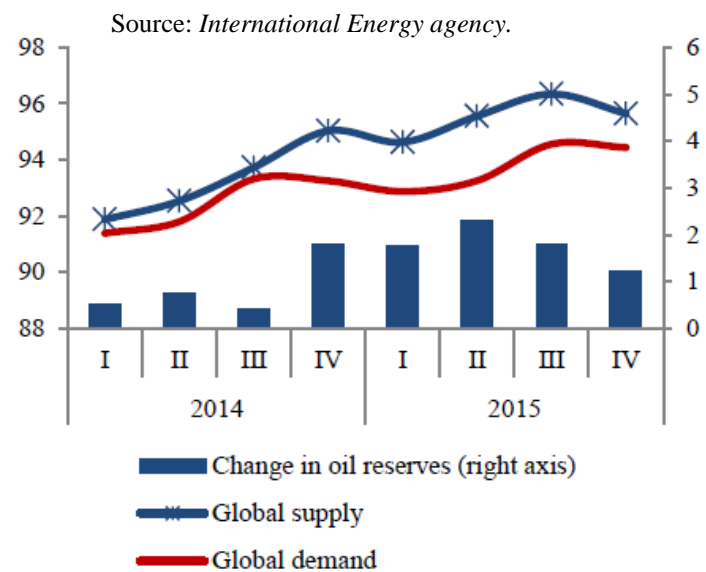
Figure 1: Global oil supply-demand market in 2015, mln. Barrel/day

correlation. And low oil price in the World has negative effect to the foreign investments in Azerbaijan economy. In figure 1 you can see the amount of global oil supply-demand market for all quarters in 2014 and 2015.

As mentioned above, according to the State Statistical Committee the total amount of foreign investment in the economy amounted to AZN 11,869 billion in 2015 [12].

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[12] 1.00 AZN = 1.27259 USD

Investors from Great Britain, Norway, Turkey, Russia, Iran, the USA, Malaysia and Sweden account for major part of investments to fixed capital by foreign countries and international organizations. Particularly, a few years ago the primary shares of foreign investments were targeted into the oil sector. Nowadays, non-oil sector - tourism, communication, agriculture, transport and logistics becomes an attractive sector for the foreign investors.

Table 1: Economic Indicators (2006-2015)

Years	GDP (US $ billions)	Growth of GDP (%)	Inflation (CPI) (%)	Unemployment rate (%)
2006	22.93	36.0	8.4	6.6
2007	34.14	25.0	16.6	6.3
2008	51.08	10.8	20.8	5.9
2009	43.95	9.3	1.4	5.7
2010	52.99	5.0	5.7	5.6
2011	63.82	0.1	8.1	5.4
2012	68.79	2.2	6.58	5.2
2013	73.50	5.8	7.5	5.0
2014	75.16	2.8	6.5	5.5
2015[13]	69.30	1.1	8.2	6.1
Average	**55.567**	**9.81**	**8.978**	**5.73**

Source: *The World Bank Group, The Statistical Committee of the Republic of Azerbaijan.*

The **GDP** in Azerbaijan was decreased 69.30 billion US dollars in 2015. The GDP value of Azerbaijan represents 0.12 percent of the world economy. GDP in Azerbaijan averaged USD 55.567 billion from 2006 until 2015, reaching an all-time high of 75.16 USD Billion in 2014 and a record low of 22.93 USD Billion in 2006. GDP in Azerbaijan is reported by the World Bank Group[14].

Azerbaijan's **GDP growth** slowed to 1.1 percent in 2015 compared to 2.8 percent in 2014, due to low oil prices, devaluation of the national currency and impact from an economic crisis in neighbouring Russia. GDP Annual Growth Rate in Azerbaijan averaged 9.81 percent from 2006 until 2015, reaching an all-time high of 36.0 percent

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[13] With old exchange rate – 1 AZN = 1.2738 $

[14] http://www.tradingeconomics.com/azerbaijan/gdp/forecast - 28.02.2016

in 2006 and a record low of 0.1 percent in 2011. GDP Annual Growth Rate in Azerbaijan is reported by the State Statistical Committee of the Republic of Azerbaijan[15].

The **inflation rate** in Azerbaijan was recorded at 13.60 percent in January of 2016. Inflation Rate in Azerbaijan averaged 8.978 percent from 2006 until 2015, reaching an all-time high of 20.8 percent in 2008 and a record low of 1.4 percent in 2009. Inflation Rate in Azerbaijan is reported by the State Statistical Committee of the Republic of Azerbaijan[16].

Unemployment Rate in Azerbaijan increased to 6.1 percent in 2015 from 5.5 percent in 2014. Unemployment Rate in Azerbaijan averaged 5.73 percent from 2006 until 2015, reaching an all-time high of 11.80 percent in 2000 and a record low of 5 percent in 2013. Unemployment Rate in Azerbaijan is reported by the State Statistical Committee of the Republic of Azerbaijan.

However, increased oil related financial resources gave advantage to the government to increase population's incomes and social expenditures when the oil price was high. Currently, there is a decline in oil sector and the economy already shows signs of "Dutch Disease" (The Economist, 2007). To avoid oil dependency of domestic economy Azerbaijani government started regulatory economic reforms. Success of the reforms, improvement in business environment and development of entrepreneurship support of government to the business was reflected in the reports of international organizations. During the global financial crisis in 2008, despite the recession in the developed countries, Azerbaijan continued with macroeconomic stability, economic growth. Geray Musayev (2010) pointed out that inadequate exchange reserves and unclose position of countries to the financial markets were an important fact to struggle with the crisis easily.

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[15] http://www.tradingeconomics.com/azerbaijan/gdp-growth-annual - 28.02.2016

[16] http://www.tradingeconomics.com/azerbaijan/inflation-cpi - 28.02.2016

2.2. Review of the History of Azerbaijan Banking System

The Azerbaijani Banking sector has undergone a lot of changes throughout its history. Until the 19th century, Azerbaijan had not any state central financial regulatory organization. Regulations in the banking area started in 1861 when the State Bank of the Russian Empire opened its Baku branch. Main role of this branch was to generate development of the credit system and to increase trade turnover in the region. During its activity, Baku branch realized issue of mortgage credits, transactions on registration of promissory notes and other financial services. Credit-banking system were included 135 small banking agencies, 28 branches of commercial credit banks, 8 mutual credit societies, 7 mortgage banks and 5 banking agencies.

On May 28, 1918 Azerbaijan gained its independency and one year later The Financial Ministry of new government approved to establish National Central Bank. The net worth of the Central Bank was 50,000000 rubles[17]. Between 1919 and 1923 Central Bank issued its first own currency which was called Manat. The main role of the Central Bank was to support trade, industry, agriculture, to simplify money turnover in the system and to strengthen monetary policy. On April 28, 1920 as a result of the occupation of Azerbaijan by the Bolshevists Russia (derived from bolshinstvo, "majority") existing financial system was destroyed. By the order of Bolshevists Committee, the State Bank of Azerbaijan was renamed to People's Bank of Azerbaijan. Consequently, all banks and other financial institutions were nationalized and affiliated to the People's Bank. Therefore, banking system in the country became under monopoly of state until 1991.

Establishment of the national banking system occurred when Azerbaijan restored its independence on October 18, 1991.The branches of soviet banks, such as Gosbank (Central bank), Agrobrombank (Agricultural bank) and Promstroibank (Industry bank) were acted in the Azerbaijan under the Soviet system were merged to develop CBA[18].

After gaining independency, Azerbaijan contributed to the development of the banking sector, conduct of economic policy in the country has begun to establish new banks.

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[17] Equivalent to AZN 1.1 mln – 05.03.2016

[18] http://en.cbar.az/pages/about-us/history/ - 28.02.2016

In 1990s, starting with the process of independence, structural changes were made in all financial systems, including the banking system. The interest rates and the removal of the restrictions in foreign exchange rates played an important role in the rapid settlement of these structural changes. These structural changes in the nature of the reforms provided the development and the growth of the financial system and banking sector. But in 1990s, development of banking sector has led to a significant deterioration of financial institutions; banks operated under increased attention for a long time. During this period, the growing borrowing requirement and budgetary using of resources for financing the state-owned banks have accelerated this process. In 2000s, the banking sector has been exposed to serious risk. The restructuring of the banking sector and the financial structure of banks have become inevitable. As a result, some radical changes were made to the Law on Banks of the Republic of Azerbaijan and in the regulation and supervision of banks was introduced with a new approach (Aliyev, 2007).

In parallel with the efforts of restructuring and integration in international markets, both in the institutional structure of the banks in Azerbaijan and in services and products that they offer, have been implemented serious changes. Thus, "The banking sector" of the economy of Azerbaijan is open to international competition and is headed by the leading sectors compatible with EU. After creating a free-market model, the restructuring of the banking sector in Azerbaijan was needed again. In terms of the international applications, basic elements of the restructuring of the banking system are improving the regulation and management of the system, changing of the method and period of taking and management of the risk, recognition and reduction of problem assets, strengthening of the capital, elimination and proper governance of the political interference in the banking system (Aliyev, 2007).

There are two basic approaches of the restructuring of banks. The first approach is improving and strengthening of the financial structure of the banks foresee the increase in equity over time, plus the profits that would make the most efficient way for the creation of economic environment efforts.

The second approach is a short-term approach; it is required to increase the equity immediately. Surely, each depending on the occurrence of the conditions of the two approaches has advantages and disadvantages. When viewing as a method for

configuring or bank rehabilitation, considering the conditions in the banks and the banking system, it is clear that there are different methods that can be applied. The most common methods of the rehabilitation are the strengthening of the bank capital, good governance, strengthening of the structure of the bank's shareholders, improving of the structure of competitiveness, providing of a conditional provision for liquidity support to the bank. The methods of restructuring are applications such as the ensuring of public support, adoption of banks into public administration, merging, separating, reducing, restructuring and privatization of loans[19].

In order to explore the world banking system, harmonization with the global banking system is required. Therefore, for harmonization of Azerbaijani banks with global banks and in the training of Azerbaijani bankers need help and experience of other countries. At present, the most important issue facing in banking system is characterized as education. Especially, technology, quality of services and knowledge are needed.

Complete centralization of bank transactions and the practices of the banking system constituted the main feature of Azerbaijan in the period of Soviet Union. Centrality is the main router in the distribution of all resources contributes to the realization of scientific socialism. Long-term experience shows that banks' activities established by the central management system, business activities and financial results had been away from independent and fair solving and management of banking services was sealed off from other kinds of services. During 1991-1997 periods, the volume of GDP in all the Commonwealth of Independent States countries decreased significantly and deep economic crisis has affected all former Soviet countries considerably (Aliyev, 2007).

Naturally, this is negativity reflected in the banking system of Azerbaijan. The disintegration of the Soviet regime identified problems in Azerbaijan as well. As a result, the establishment of appropriate market economy and fundamental changes on the banking system need to be made.

After gained its independence accordance with the requirements of the economy, the market economy start creating and giving head in the country, technological developments, economic and political reforms in the banking system showed effect of re-establishment of the infrastructure.

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[19] Zulfiyye Nuriyeva – Master Dissertation "*Factors Affecting the Profitability of Azerbaijan Banking System*" Eastern Mediterranean University. July 2014.

After USSR, between 1992-1995 years there were 200 banks in Azerbaijan. Between 1994- 2004 the number of banks has diminished five times due by strong regulations, such as minimum capital requirements by CBA.

Figure 2: Quantity Changes in the Banking Sector
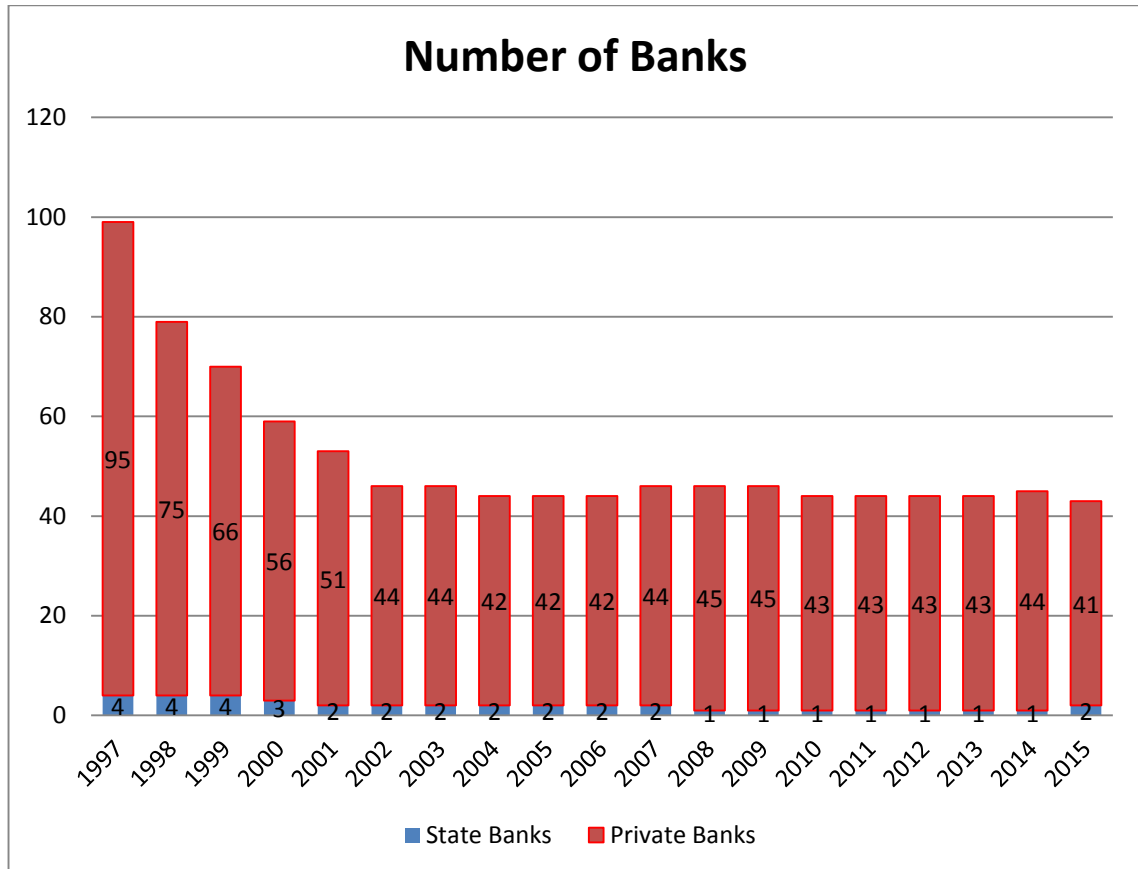
Number of Banks

Source: *Central Bank of Azerbaijan – 2015.*

The tendency of the last years shows that there has been a decrease in number of banks in Azerbaijan. The last nineteen years, private banks fell from 95 to 41 and state banks fell from 4 to 1 because of strong policy of CBA.

2.3. Azerbaijan Banking Sector and its Current Performance

After restoration of independence, the first national banknotes Manat (AZN) was put into circulation [20]. In accordance with the principles of the market economy of Azerbaijan to create a legal framework for competitive and modern banking system, two important laws entered into force in August 7, 1992. They were "Law on the Central Bank" and "Law on Banks and Banking Activities", which is confirmed by the National Parliament of Azerbaijan (Milli Mejlis). In June 1996, the new "Law on the Central Bank" and "Law on Banks and Banking Activities" entered into force[21]. This law defines the adaptation of banking system law to the international standards to develop the role of banking system in the domestic economy, strengthening the rights of depositors and creditors, to ensure stable and secure functioning of the banking system, illustrate principles of regulations and liquidation of banks. Article 1 of the Law of the Azerbaijan Republic on Banks, states that:

> *"Bank is a legal person that implements the attraction of deposits from physical persons and legal entities or other return assets, issuance of credits from its behalf and from its own funds, as well as implementation of payment and cash-desk and money transfer operation by the client request."*

According to this law, the banking system in Azerbaijan is two stepped – which consists of the CBA and credit institutions. The Central Bank, which is on the top, is the central bank of the state and its activities are regulated by the Constitution of the Azerbaijan Republic, "Law on Azerbaijan Republic Central Bank" and by other legal acts. In accordance with the legislation, the Central Bank gives license to the banking activities, regulates and carries out supervision of banking activity in the manner prescribed by the law.

The Central Bank is empowered to regulate the activities of all banks operating in the country and currency of the credit system across the country. This bank serves to

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[20] Before that Russian Rubble was into circulation

[21] The Annual Report of CBA, 2007

another banks and government and it works with them, but not with customers. Other banks directly provide the services to the customers.

According to the statistical bulletin[22] of the Central Bank of 2015, the number of operating banks totals 41 banks. Referring to the bulletin of the Central Bank, by comparing to previous years, 16 branches and 5 departments of banks were closed in the country. Half of the private banks, more precisely 21 of them, is held of foreign capital. I would like to mention that two of foreign investment banks have defaulted in the end of 2015.

For 2015, ROA in total made 1.07% and ROE was 5.63%. The "oil crisis" in 2015 highly influenced on decline of the payment systems. On the whole 6.635 mln pieces of transactions were carried out through ATM machines and POS-terminals which are 11.53 % lower than 2014. Total Income gained by banks before all expenses made AZN 1021.1 mln and total expenses AZN 316.6 mln.

The level of development of the banking sector can be measured by the ratio of the total asset to GDP. In the last 10 years the volume of banking assets increased by 7.01 times and in 2015 it became 26.4 billion AZN. Thus, percentage of banking sector total assets to GDP was 48.64 % in 2015. Growth rate of the banking sector assets in the year 2006-2015 exceeded country's GDP growth rate. As a result of lower oil price in the World market, sharp decrease was observed in the growth of assets. In recent years, despite the growth of banking assets to GDP ratio Azerbaijan fall behind the former USSR and Eastern European countries for this indicator. Among the former Soviet Union countries Azerbaijan exceeds only Kyrgyzstan (29.5 %) and Tajikistan (29.1%)[23].

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[22] Annaul Report of 2015 was not provided yet – 28.02.2016

[23] Fitch Ratings, EM Banking System Datawatch

Table 2: The Shares of Bank Assets in GDP for the 2006-2015

Years	GDP (billion AZN)	Volumes of assets (mln AZN)	Assets to GDP (%)[24]
2006	18.0	3778.0	20.99
2007	26.8	6725.7	25.10
2008	40.1	10273.5	25.62
2009	34.5	11665.2	33.81
2010	41.6	13290.8	31.95
2011	50.1	14259.2	28.46
2012	54.0	18037.7	33.40
2013	57.7	20385.1	35.33
2014	59.0	25182.3	42.68
2015	54.4	26462.6	48.64
Average	**43.6**	**15006.1**	**32.60**

Source: *The World Bank group, Central Bank of Azerbaijan – 2015.*

In 2015, one of the main missions of the CBA was FX policy. FX policy of the CBA was conducted in response to increase international competitiveness and maintain macroeconomic sustainability of the country, amid contained foreign exchange supply channels and sharp rise in demand for foreign currency in 2015 (Monetary Policy Review – CBA 2015).

So, 2015 was the year of nosedive supply and sharp rise in demand in the FX market. Low foreign exchange supply mentioned above in attributable to reduced foreign currency income due to slump in oil prices and the deteriorated economic situation in partner countries. Transfers from oil revenues – the vital source of public expenditures – were significantly low amid reduced surplus of the balance of payments. Sharp rise in foreign exchange demand is explained by high dollarization. Slump in oil prices in global commodity markets, and the waves of devaluation in our main trade partners heightened expectations of the devaluation of the national currency in the country triggering high dollarization. Sharp rise in foreign exchange demand weighed on cash and cashless segments of the FX market alike.

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[24] Assets to GDP (%) = Volume of assets/GDP

Figure 3: Net cash foreign currency sold by banks FX division, mln. currency unit
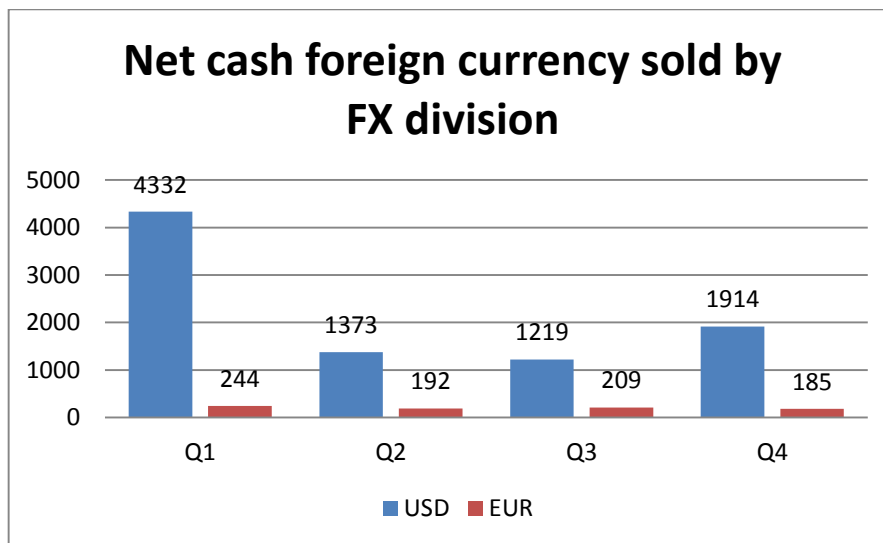
Source: *Central Bank of Azerbaijan – 2015.*

According to CBA, cash foreign currency sold by banks to the population in USD over the year increased 47.4% to USD 8.8 billion. Quarter 1 accounts for 50% of net USD and 29% net EUR sold in 2015.

Management Board of the CBA decided set the exchange rate of USD against AZN at AZN 1.05 as of 21 February 2015 in the light of the serious pressure on the FX market and exchange rate of AZN. CBA also moved towards pegging national currency to a dual currency basket, comprising USD and EUR.

The FX market and the exchange rate of Manat started adapting to the oil price of USD 50-55 in the aftermath of the February devaluation and transition to a new operational technique.

However, starting from the end of July, slump in oil prices refreshed the pressure on the FX market elevating the expectations on changes of the exchange rate of Manat. Ongoing devaluations in trade partners amplified parallel negative impact on the international competitiveness of the national economy. National currencies of a number of trade partner countries have depreciated over 100% since the beginning of 2014.

New environment necessitated tailoring of the FX market and the exchange rate of Manat to new oil prices. The Board of Directors at CBA took a decision to move to a

floating exchange rate regime on 21 December 2015, which induced alignment of the new exchange rate of Manat to the conjuncture in the FX market. To note, transition to the new exchange rate regime put an end to the dual-currency basket of USD and EUR as an operational framework.

Under the floating exchange regime, CBA substantially diminished interventions in the FX market. Overall, CBA sold USD 8.4 billion worth of net currency in 2015.

Figure 4: CBA's net FX sales, in billion $
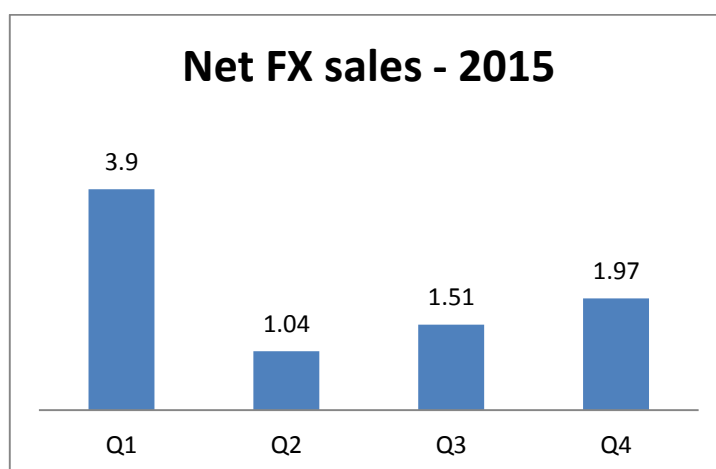
Source: *Central Bank of Azerbaijan.*

The size of CBA's foreign exchange reserves constituted USD 5 billion as of end 2015. In 2015 CBA's foreign exchange reserves amounted to 90.3% of broad money supply in Manat (internationally 10-20% minimum).

The operational framework of the CBA's exchange rate policy was adjusted to the new exchange rate regime late in 2015. Currently[25], CBA sells foreign exchange only through auctions. With no exchange rate related quantitative targets in mind, CBA only strives to smooth sharp exchange rate fluctuations. Average weighted exchange rate on interbank operations is set to be an official exchange rate.

The main advantage of the floating exchange rate regime is that it allows absorbing the impacts of global shocks to the economy through exchange rate. Meantime, it promotes the development of the domestic financial market and the use of a number of new

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[25] 27th of March, 2016

financial tools. Also, transition to the floating regime makes possible to achieve equilibrium level of the exchange rate.

Manat depreciated against most of foreign currencies in 2015. USD appreciated 98.8%, while EUR appreciated 79% against AZN in 2015.

The dollarization level increased in 2015 and the share of foreign currency denominated deposits in total savings and deposits amounted to 76.8% as of the end of year.

Figure 5: Dollarization, %
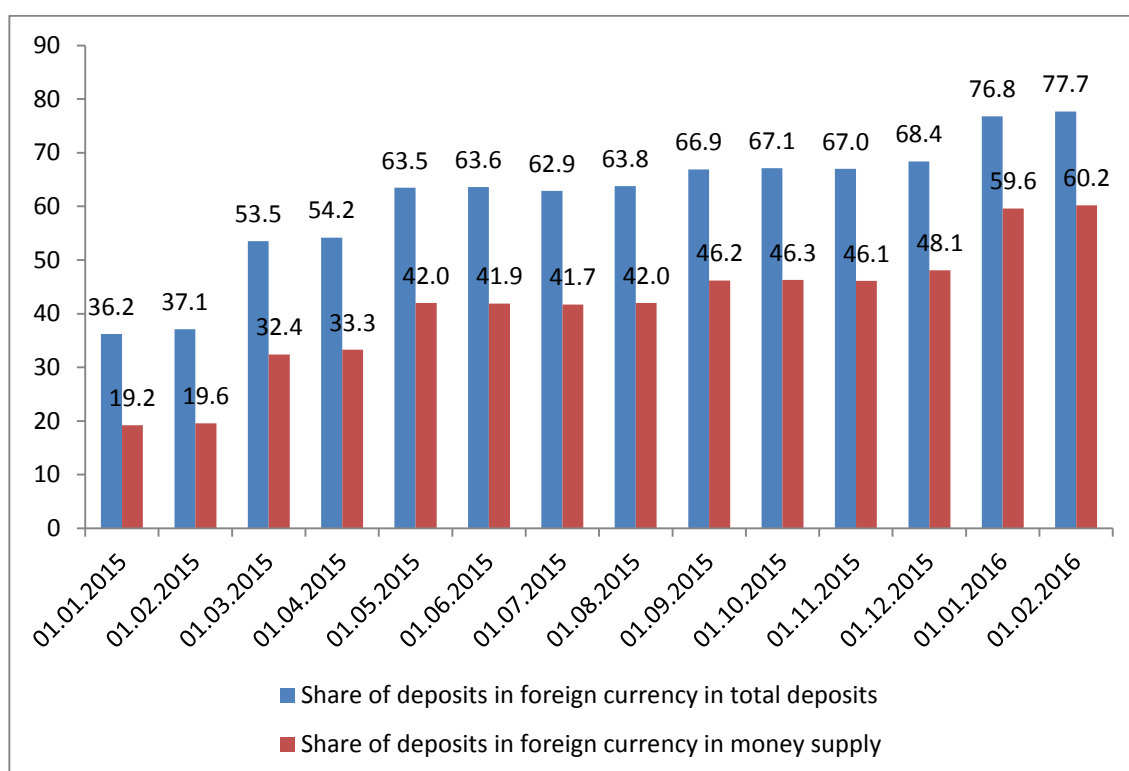
Source: *Central Bank of Azerbaijan – 2015.*

The share of foreign currency denominated deposits in money supply made up 59.6% as of the end of period.

The rise in the share of foreign currency denominated deposits in total deposits partially stems from the rise in their value in Manat terms. It is obvious that, during 2015, Azerbaijani government spent a lot of national currency to compensate low income of oil in the hope that oil price will increase in the nearest future. It did not happen and

government went to dramatic devaluation the beginning of 2015. Starting from 2015 oil price went down and that's why that national budget of Azerbaijan faced second dramatic deficit, so the government made second dramatic devaluation[26] to compensate difference between oil income and national budget. As reported by Central Bank, in 2015 assets of the banking system of Azerbaijan Republic were AZN 26462.6 mln and it went up by 5.083% during the year, compared to 23.53% growth in 2014. Loans went down by 2.65% and constituted AZN 21399.4 mln. In 2015, total income of banks (interest and non-interest incomes) constituted 1021.1 mln AZN, whereas total expenses of banks (interest and non-interest expenditures) made 704.5 mln AZN. Profitability indicators (ROA and ROE) were 1.07% and 5.63%, respectively.

Table 3: Growth rate of key determinants of the Azerbaijan Banking System, %

	2011	2012	2013	2014	2015
Assets	7.3	26.5	23.3	23.5	5.12
Loans	8.1	24.3	26.0	20.2	-2.65
Deposits of legal entities	16.08	-0.18	0.54	40.77	-18.76
Deposits of population	36.0	24.1	25.1	12.4	-12.34
Aggregate capital	12.7	20.3	33.2	24.6	1.91

Source: Personal calculations *based on the report of Central Bank of Azerbaijan – 2015.*

Table 4: Profits of Azerbaijan banks, AZN million

	2013	2014	2015	Change 2014-2015, %
Interest Income	1646.9	2255.7	835.2	-62.97
Interest expense	817.6	986.4	351.8	-64.33
Non-interest income	442.6	476.45	185.9	-60.98
Non-interest expense	759.8	909.14	352.7	-61.21
Total income[27]	2089.5	2732.2	1021.1	-62.63
Total expense[28]	1577.4	1895.5	704.5	-62.83
Net operation profit	512.1	836.61	316.6	-62.16

Source: *Central Bank of Azerbaijan, Financial Stability Review 2015*

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[26] Shifted from fixed exchange rate to floating exchange rate

[27] Total Income = Interest Income + Non-interest income

[28] Total expense = Interest expense + Non-interest expense

Below tables represent total assets of considered banks. Three figures presented because it is not possible to fit in one figure.

Figure 6: Azerbaijan banks ranked by Total Assets (in thousands AZN)
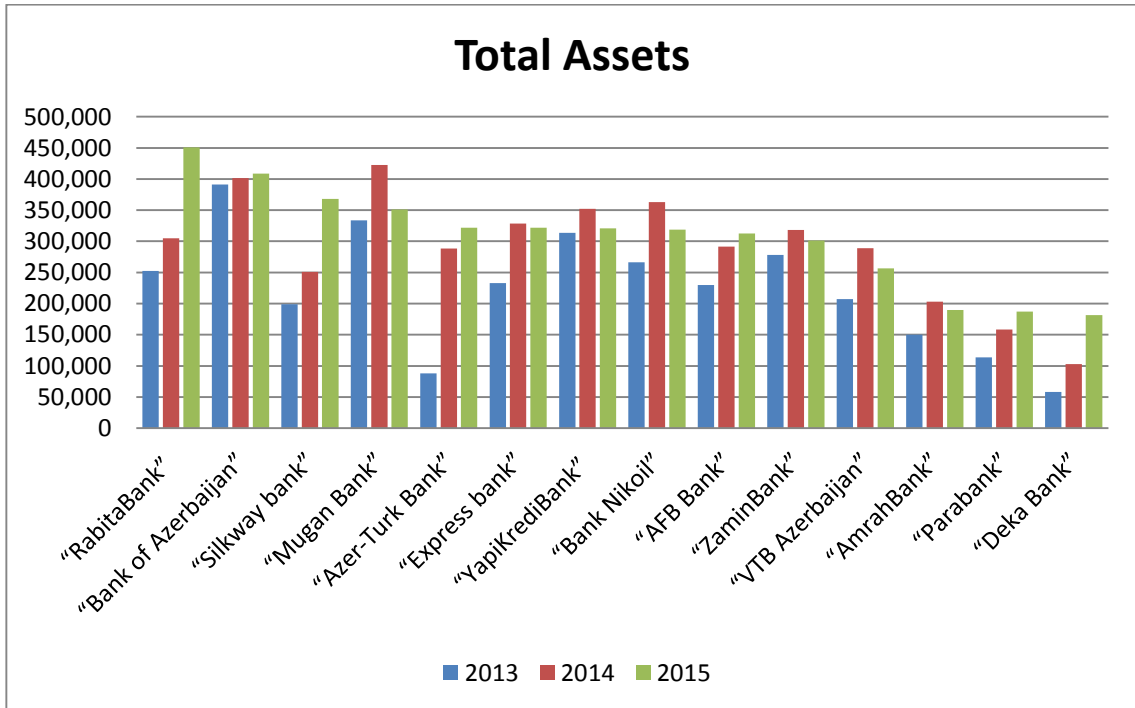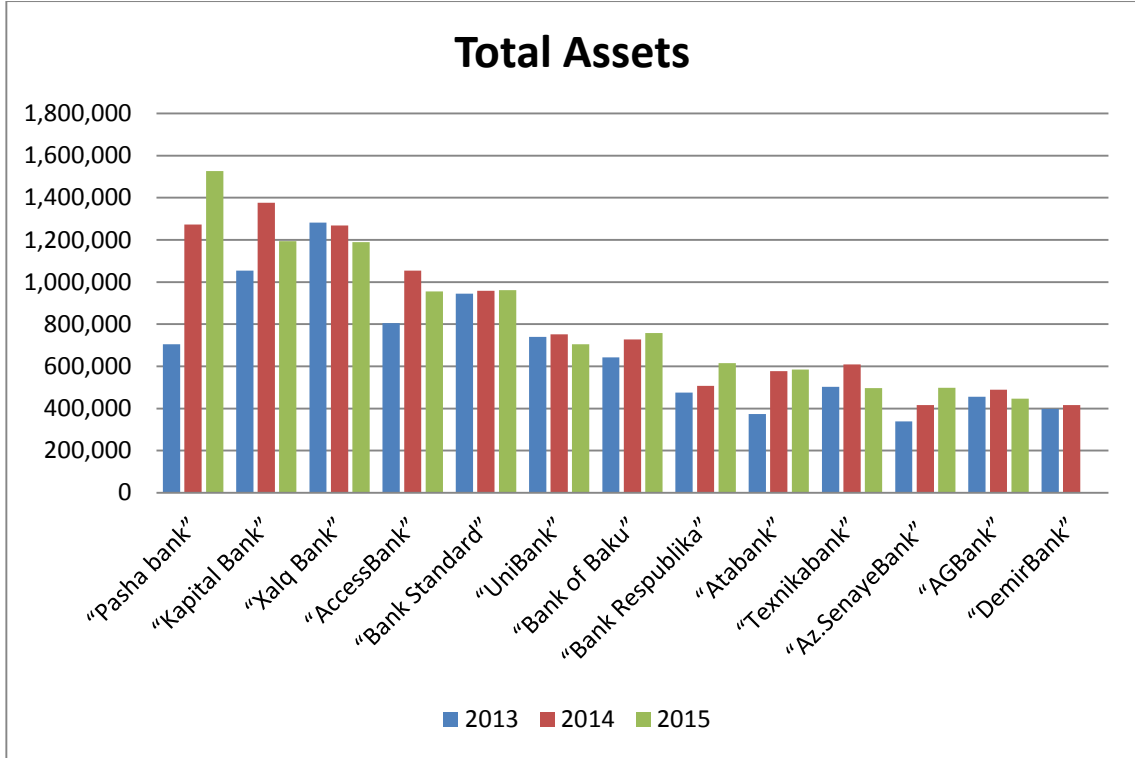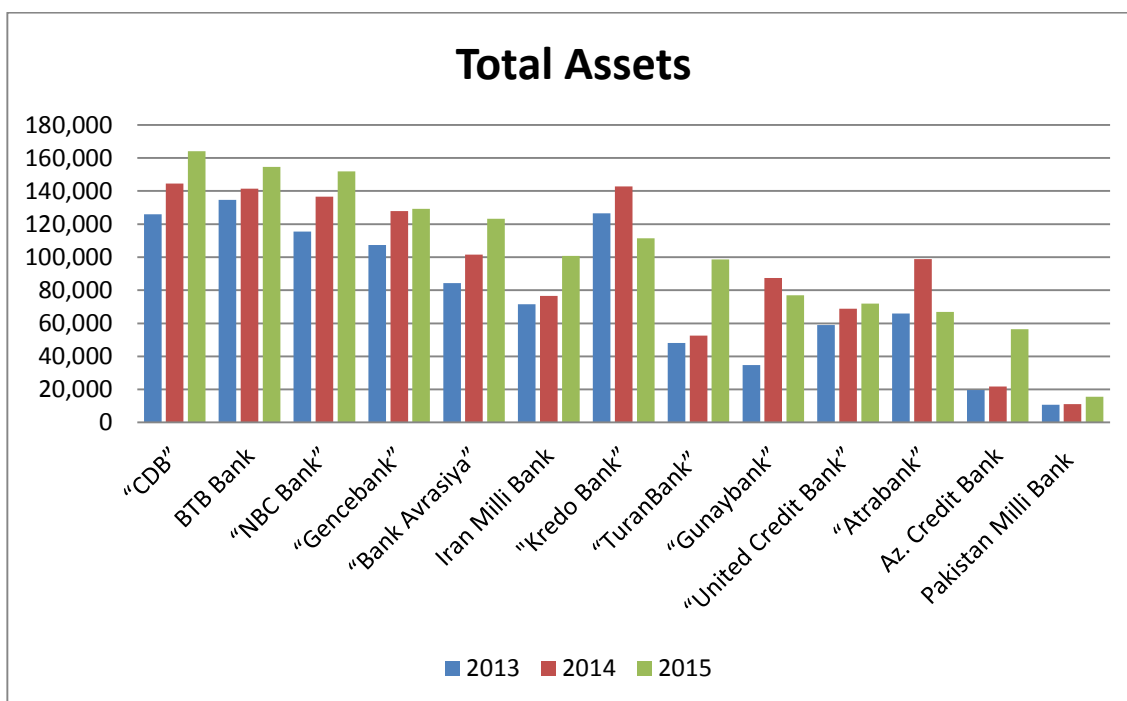
Total Assets

Source: *Annual report of each bank from relevant years.*

To follow Figure 6, a leading position in a ranking among 41 banks by total assets takes Pasha Bank with a highest amount of assets of AZN 1 billion 662.398 million in 2015. Kapital Bank is on a second leading place with amount of assets of AZN 1 billion 526.421 million. Xalq Bank and Access Bank share third and fourth place with almost the same amount of assets (AZN 1 billion 193.629 million and AZN 1 billion 188.797 million respectively). Bank Standard, UniBank, Bank Respublika, Bank of Baku, Ata Bank, Texnika Bank, Azerbaijan Senaye Bank and AG Bank share next places. The least amount of assets (AZN 15 million 654 thousand) has Pakistan Milli Bank which is one of foreign bank in Azerbaijan. It is clear that there is huge difference between top and last five banks' total assets. CBA aims to eliminate this issue by consolidation of small banks.

Below tables represent net income of considered banks. Three figures presented because it is not possible to fit in one figure.

Figure 7: Azerbaijan banks ranked by Net Income (in thousands AZN)

Net Income

Legend: 2013, 2014, 2015

Banks (left to right): "Bank of Baku", "Kapital Bank", "AccessBank", "UniBank", "Texnikabank", "Pasha bank", "Bank Respublika", "Xalq Bank", "Atabank", "DemirBank", "AFB Bank", "TuranBank", "Az.SenayeBank"

Net Income

Legend: 2013, 2014, 2015

Banks (left to right): "AmrahBank", "Mugan Bank", "YapiKrediBank", "Bank Avrasiya", "Bank of Azerbaijan", "Silkway bank", "RabitaBank", "BTB Bank", "Bank Nikoil", "Express bank", "Parabank", "Azer-Turk Bank", "United Credit Bank", "NBC Bank"

Net Income

	2013	2014	2015
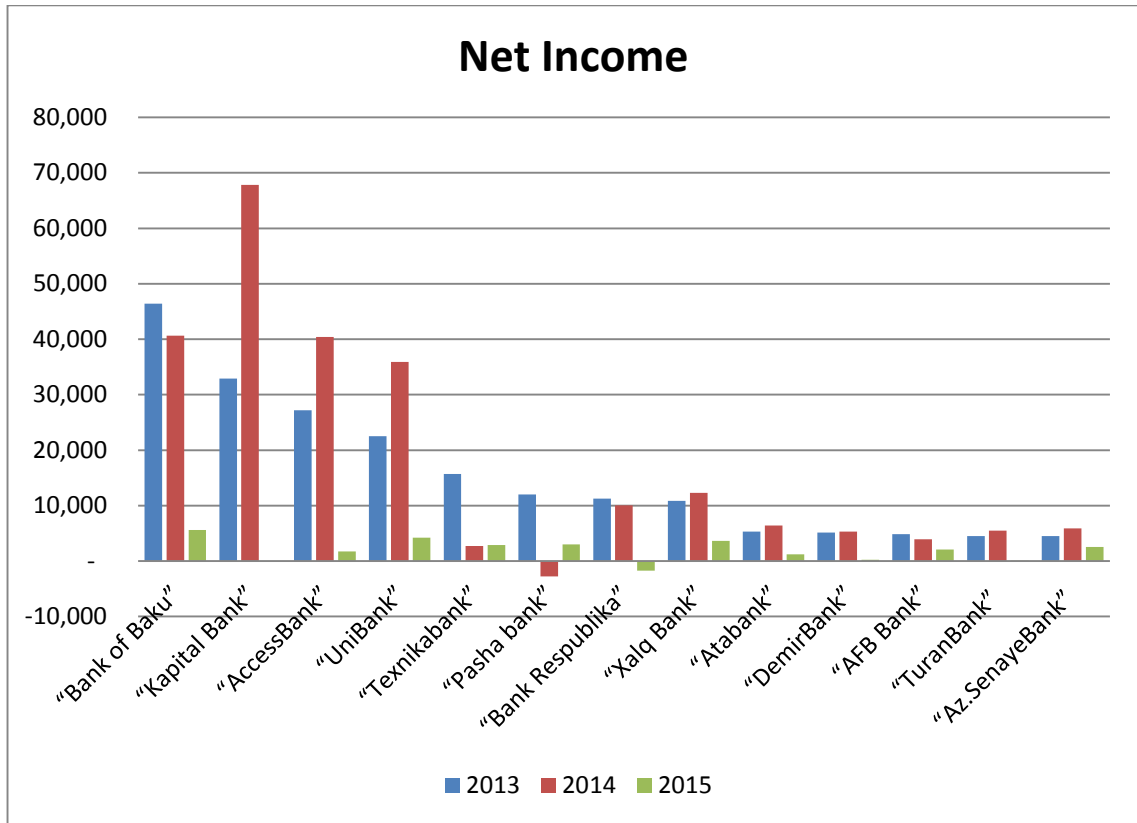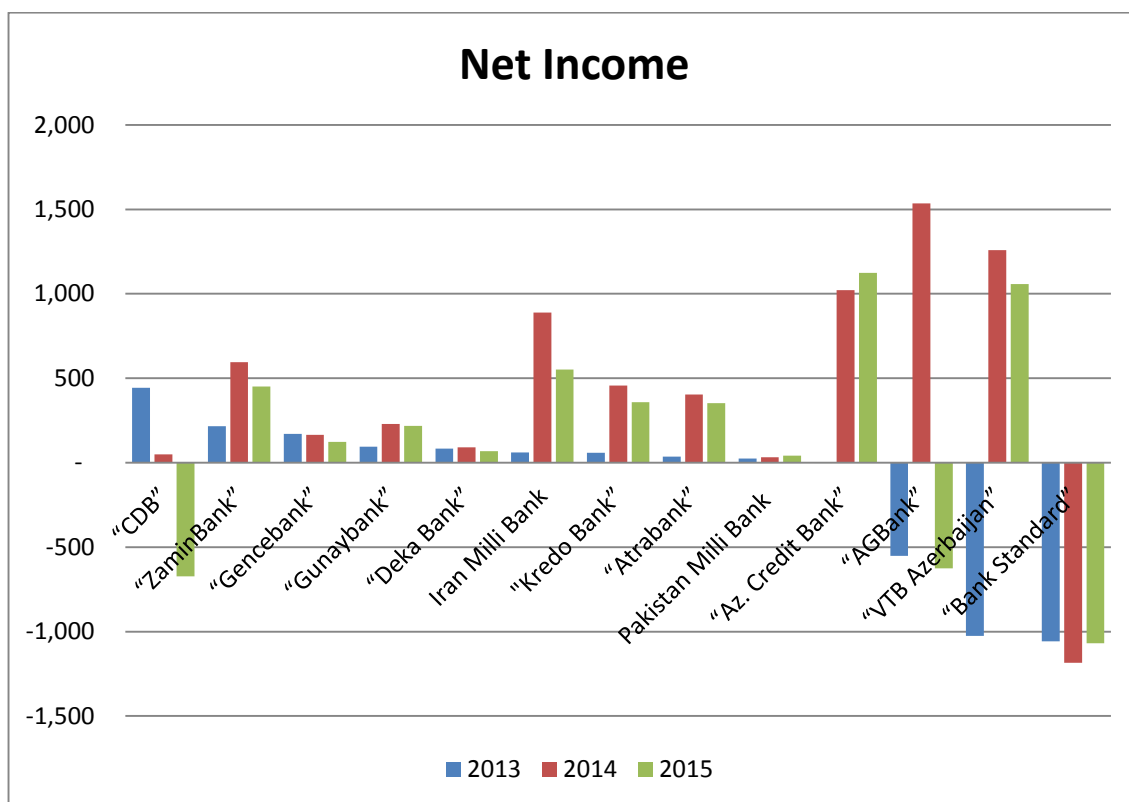
According to Figure 7, ranking of 41 considered Azerbaijani banks by its Net Income for 2015, Bank Respublika has a loss of (1.752) million AZN and consequently it takes last position of this ranking. The first and leading position takes Bank of Baku with a highest amount of net profit of 5.628 million AZN. Next two banks: Mugan Bank and UniBank stands next to Bank of Baku with profit of AZN 4.325 million and AZN 4.242 million respectively. They are followed by Xalq Bank, Pasha Bank, Texnikabank, Azerbaijan Sanaye Bank with a profit vary from AZN 3.627 million until AZN 2.556 million. Bank Respublika stands last place with AZN (1.752) million lose. Bank Standard, CDB, AGBank, Kapital Bank stands next to Bank Respublika with lose vary from AZN (-1.069) million until AZN (-32) thousand.

Below tables represent total equity of considered banks. Three figures presented because it is not possible to fit in one figure.

Figure 8: Azerbaijan banks ranked by Total Equity (in thousands AZN)

Total Equity
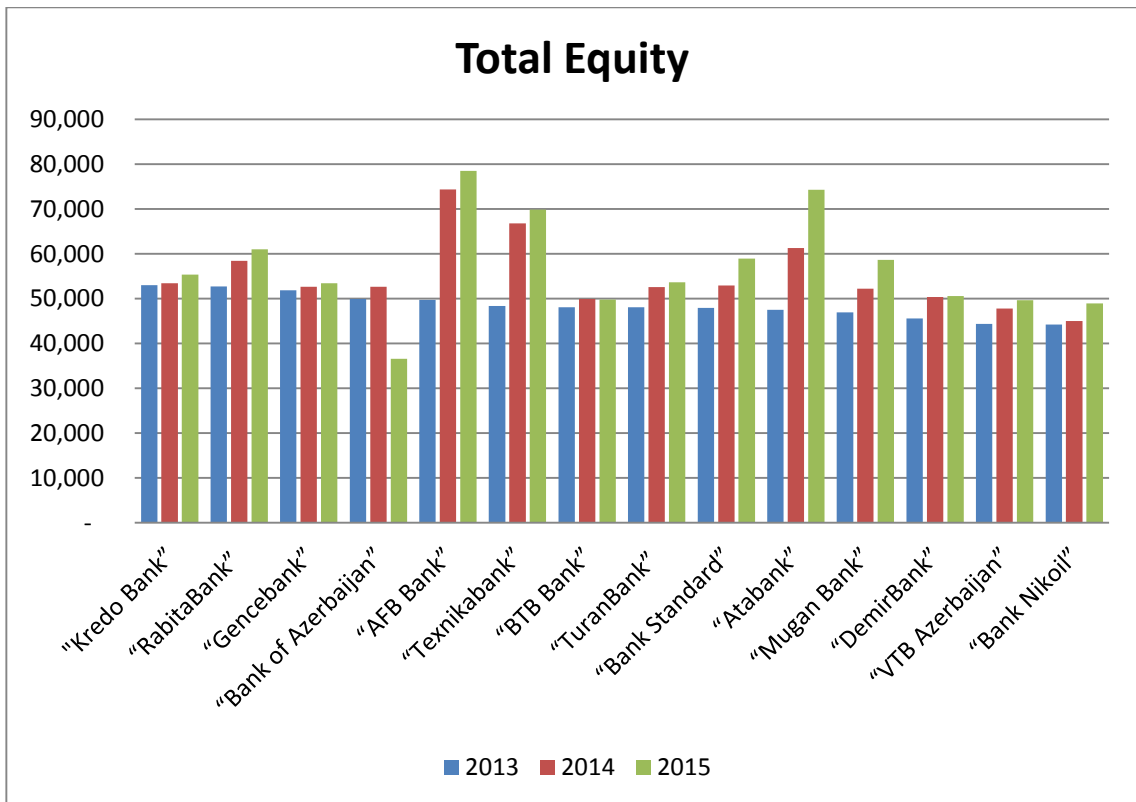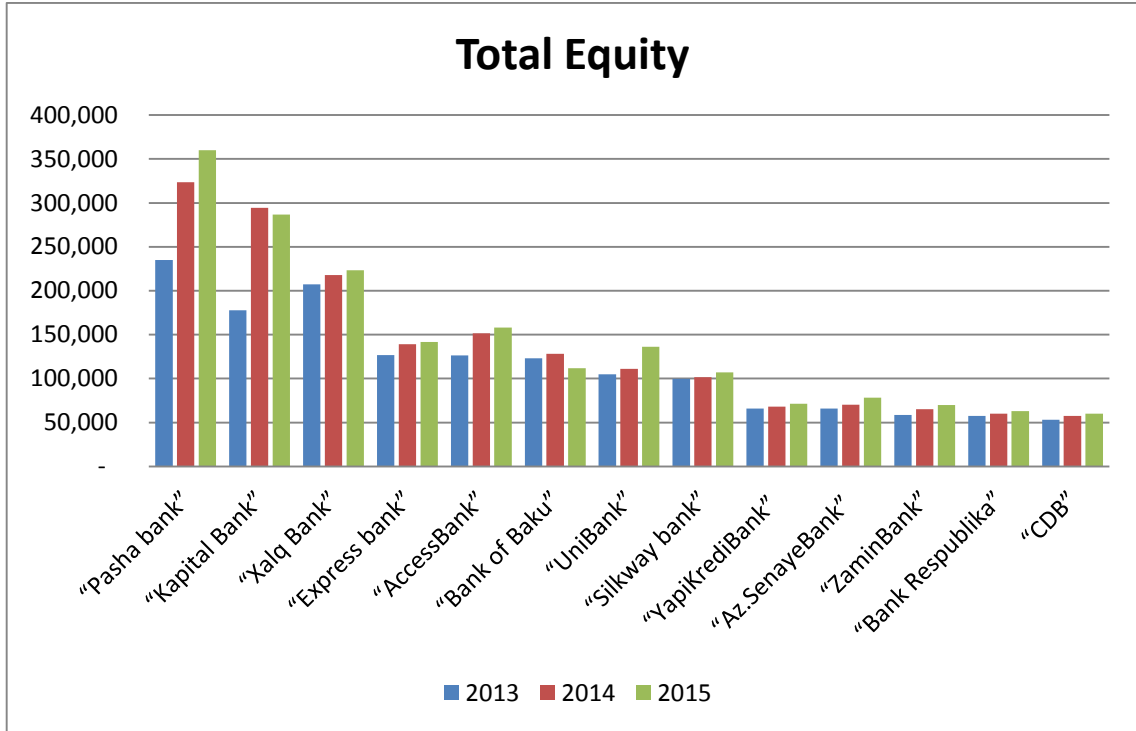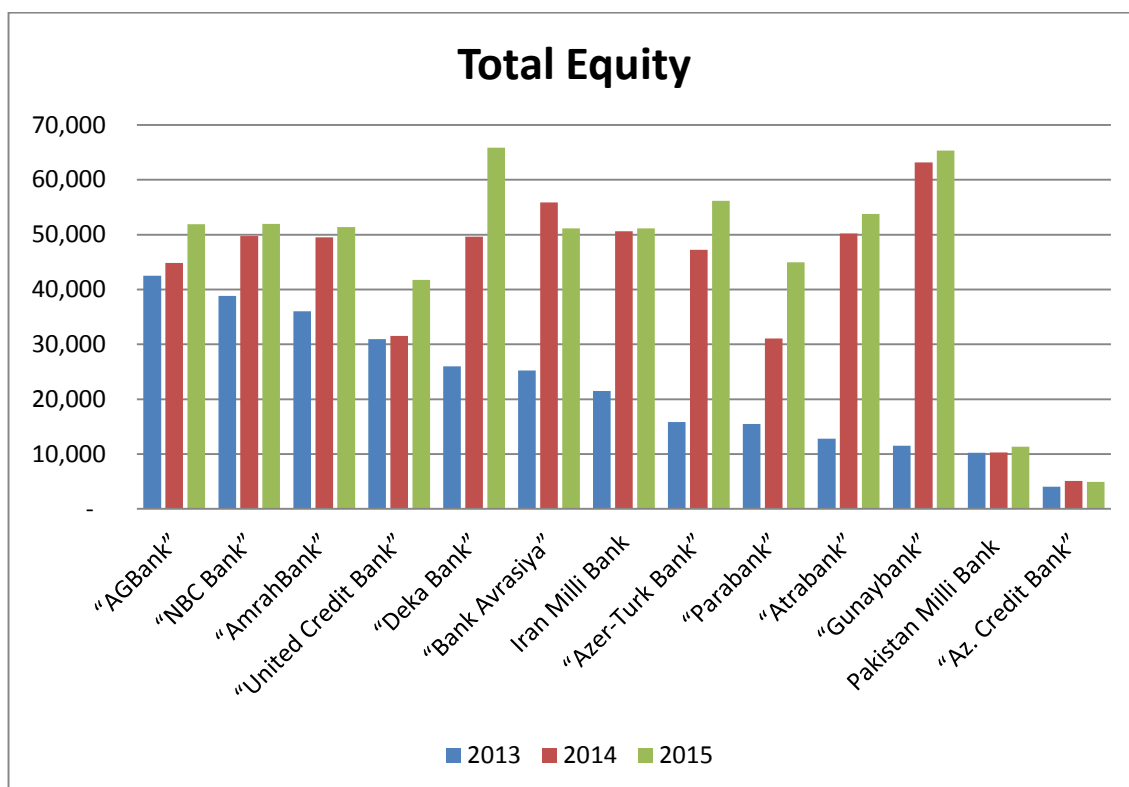
Source: *Annual report of each bank from relevant years.*

In accordance with Figure 8, Pasha Bank has a highest amount of equity capital of AZN 360.038 million. Kapital Bank is on a second leading place with amount of equity AZN 286.802 million. Xalq Bank and AccessBank share third and fourth place with AZN 223.223 million and AZN 158.240 million respectively. Express Bank, Bank of Baku, UniBank, Silkway Bank distribute next places. The least amount of equity capital of AZN 4 million 931 thousand has Azerbaijan Credit Bank. It is obvious that there is huge difference between top and last five banks' equity capital.

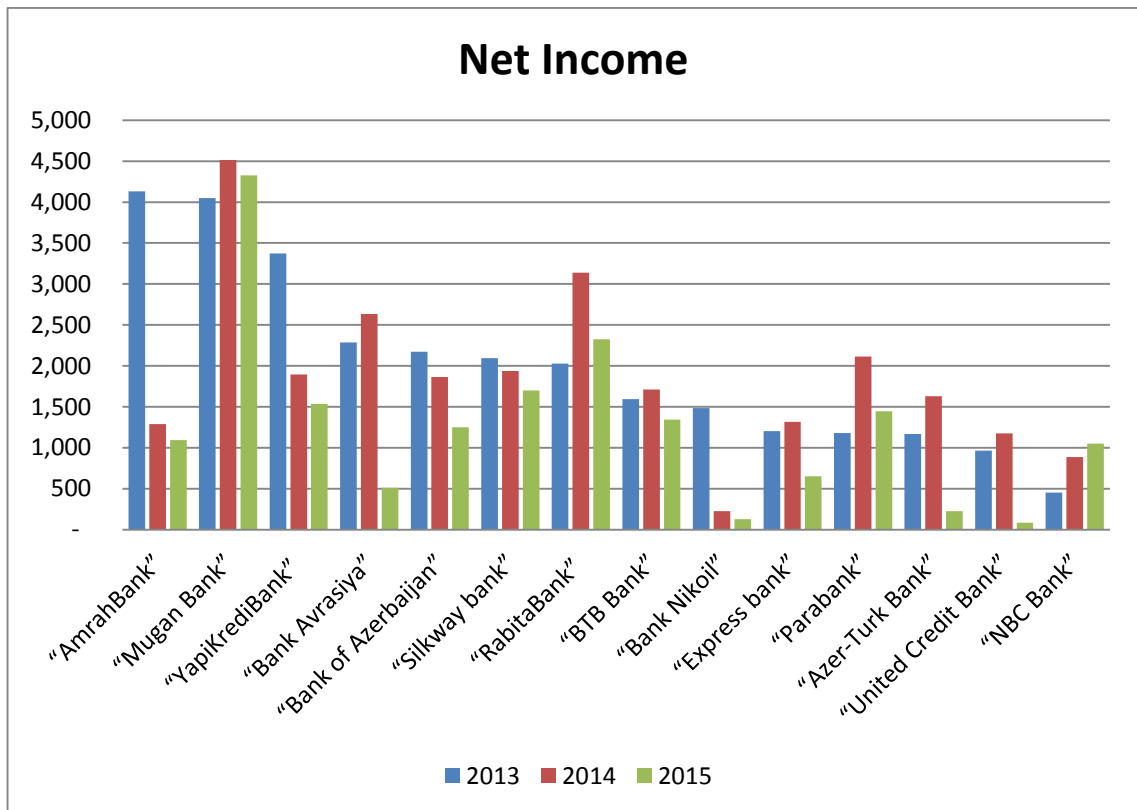One of the profitability indicator ratios is ROA. This profitability ratio shows how beneficial a bank is regarding in relation to its net income and total assets. The ROA ratio indicates how well management is using the banks total assets to make profit. The higher the income, the more effective management is in the use of its assets base. The ROA ratio is computed by dividing net income to total assets and expressed in percentage. Below tables represent ROA of considered banks. Three figures presented because it is not possible to fit in one figure.

Figure 9: List of the Azerbaijani banks ranked by ROA

ROA

Banks (first chart): "TuranBank", "Az. Credit Bank", "Bank of Baku", "AccessBank", "Texnikabank", "Kapital Bank", "UniBank", "AmrahBank", "Bank Avrasiya", "AFB Bank", "Bank Respublika", "Pasha bank", "United Credit Bank", "Az.SenayeBank"

Legend: 2013, 2014, 2015

ROA

Banks (second chart): "Azer-Turk Bank", "DemirBank", "Mugan Bank", "BTB Bank", "YapiKrediBank", "Silkway bank", "Parabank", "Xalq Bank", "RabitaBank", "Bank Nikoil", "Bank of Azerbaijan", "Express bank", "NBC Bank", "CDB"

Legend: 2013, 2014, 2015

ROA

Source: *Own estimates based on annual report of each bank.*

Figure 9 show that Azerbaijan Credit Bank has a highest ROA of 8.15%. The second highest position takes Bank of Baku with 4.18% and it followed by Turan Bank, VTB Azerbaijan, Mugam Bank. United Credit Bank has a lowest ROA of -1.99% which means that it invested a high amount of capital into its production and contemporaneously obtained little profit. The ranking is followed by AG Bank, Bank Standard, Bank Respublika, CDB and Kapital Bank. They vary in a range from -0.77% to -0.002%.

Another profitability indicator ratio is ROE. This profitability ratio shows how profitable a bank is in relation of its net income to its own total equity capital. The ROE ratio determines how much the equity holders earned for their investment to the bank. The higher the ratio, the more effective management is in the use of its equity base and more return is to investors.

The ROE ratio is computed by dividing net income to average shareholder equity and it expressed in percentage. Below tables represent ROE of considered banks. Three figures presented because it is not possible to fit in one figure.

Figure 10: Azerbaijan banks ranked by ROE

ROE
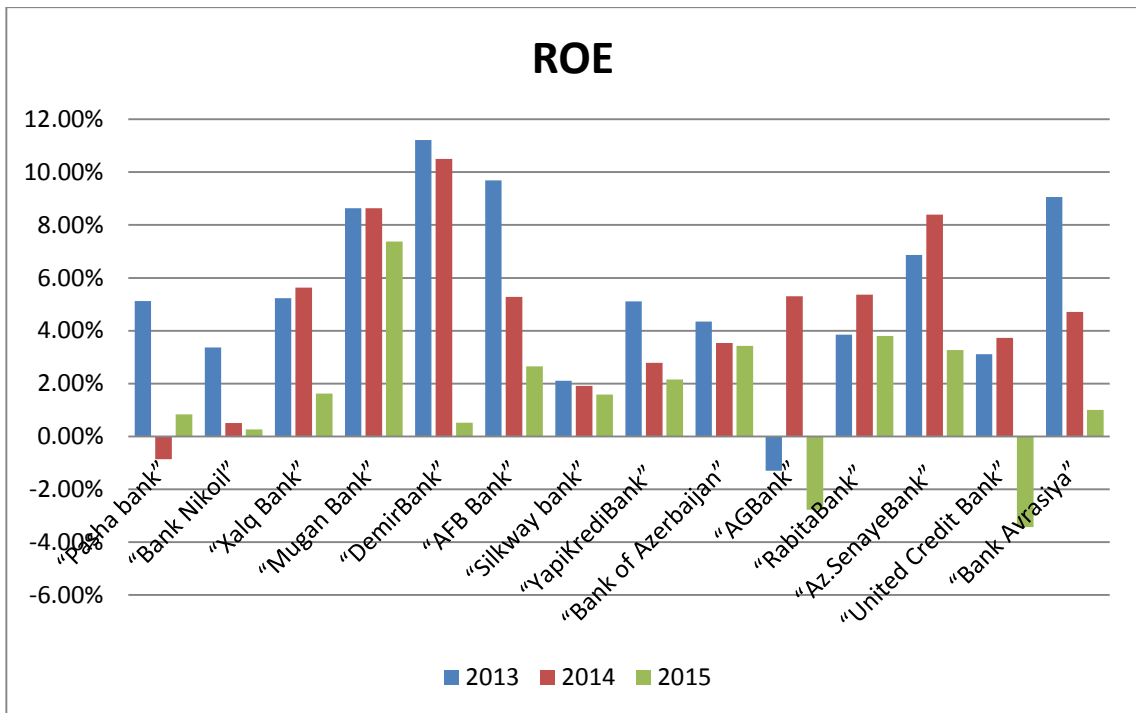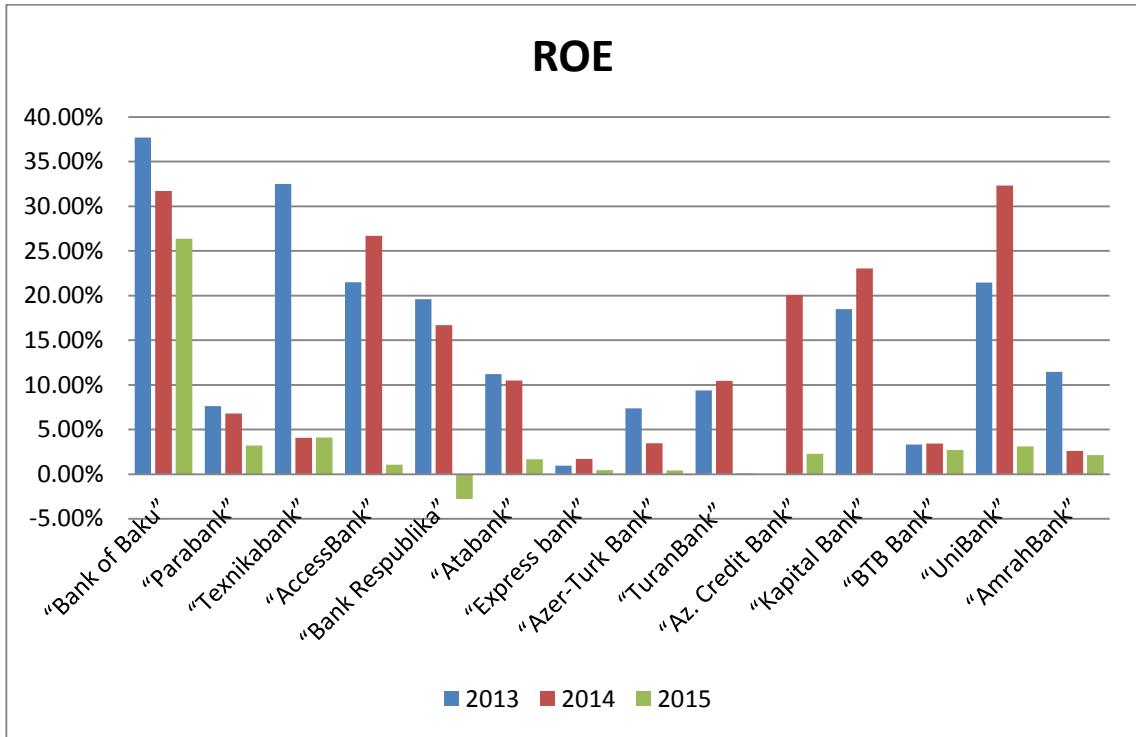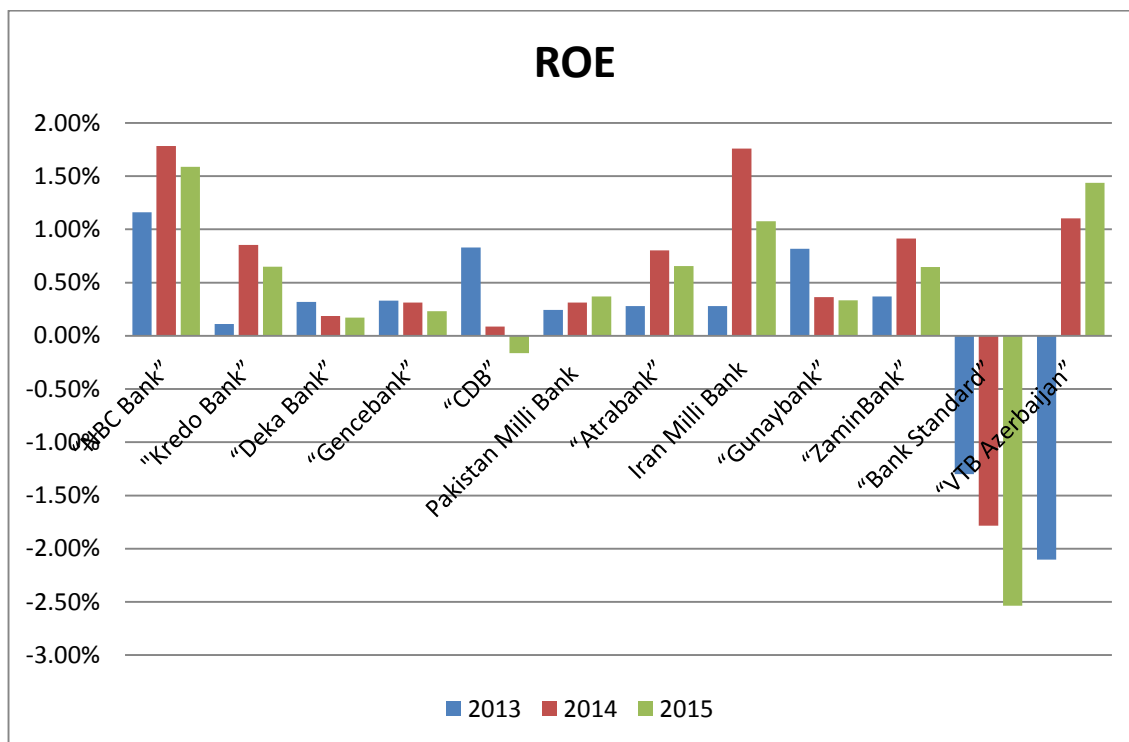
Source: *Personal calculation based on annual report of each bank.*

Under the Figure 10, in a ranking of 41 Azerbaijan banks by ROE for 2015, Bank of Baku has a highest ROE of 26.36%. The second highest position takes Mugan Bank with 7.38%. Then Texnikabank with ROE of 4.11% and Rabita Bank, Bank of Azerbaijan, Azerbaijan Senaye Bank, Unibank are followed. Banks vary in a range from 3.80% to 3.12%. United Credit Bank has lowest negative ROE with -3.44% which indicates that its shareholders are losing the value rather than gaining. This often occurs in a bank's early years. Bank Respublika, AG Bank, Bank Standard, CDB stands next to United Credit Bank with negative ROE vary from -2.78% to -0.16%.

Figure 11: List of Azerbaijan banks having less than AZN 50 million charter capitals
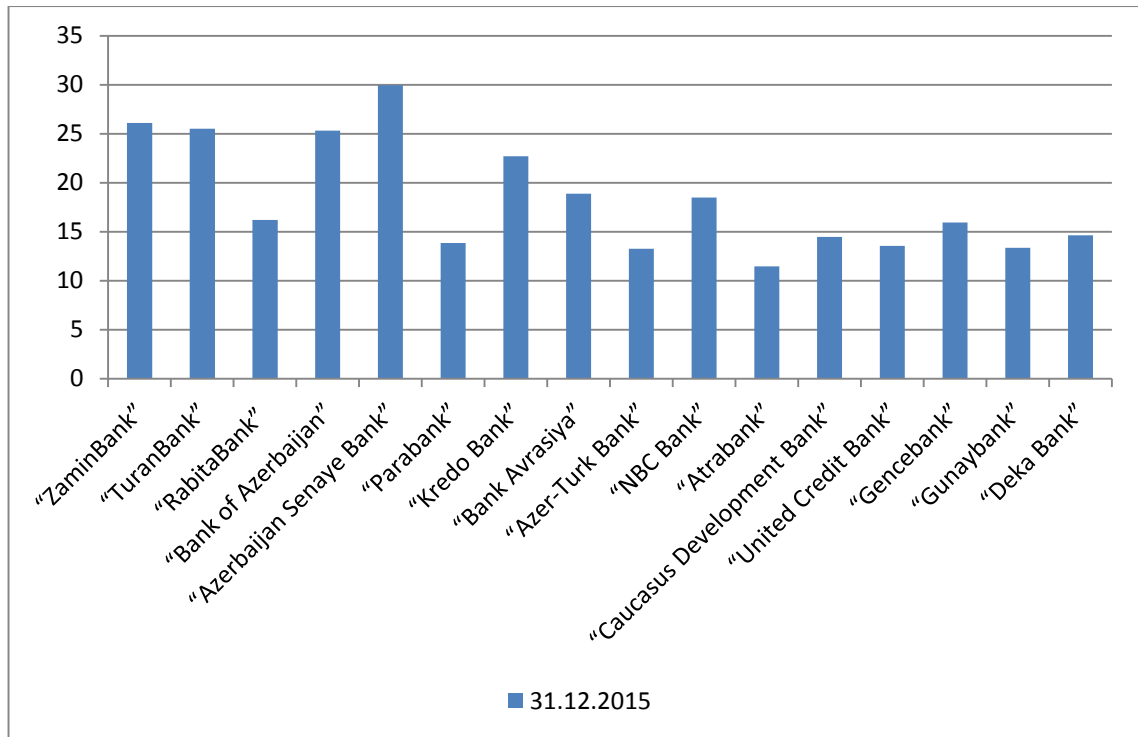
Source: A*nnual report of each bank.*

As mentioned in the first chapter, according to the law of banking sector AZN 50 million is a limit of charter capital requirement by CBA. Below Figure shows that 16 banks under AZN 50 million charter capital. According to the current law above mentioned banks have to stop their operation on the banking sector. Because of that, currently[29] they are working to merge each other to stay in the sector as a powerful market participant on the sector.

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[29] 15.03.2016

Chapter 3: Literature Review

3.1. Literature Review

This chapter described relevant definition according to the literature. Two types (Internal & External factors) of factors affecting bank's profitability are defined. First of all, Internal Factors are described. In this part, studies on international experience clearly identified Denmark, France, Germany, Italy, Spain, UK, from Asian countries - Hong Kong (China), Asia-Pacific countries, Macao (China), Malaysia, India and Indonesia from Asia, Ethiopia from Africa and USA are indicated countries. Then External factors follow. This part starts with studies from Azerbaijan, which are recent working papers. Then similar studies from other countries are presented.
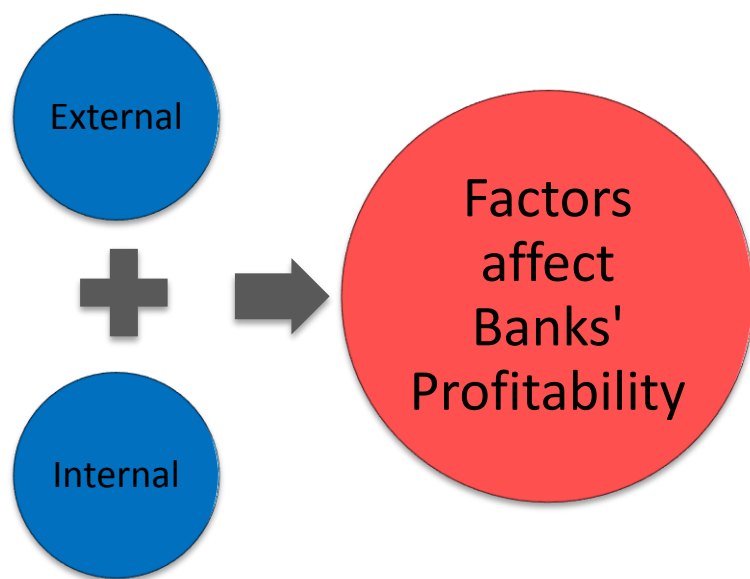
Figure 12: Determinants of Bank's profitability

3.2. Relevant definitions

Literature seeks to identify the factors affecting the performance of banks. Some studies have concentrated on the profitability of a single country (China, Malaysia, USA), while others are considering the factors affecting the performance of banks in the panel of countries (EU countries, Asia-Pacific countries). Regardless of the number of countries, Internal and
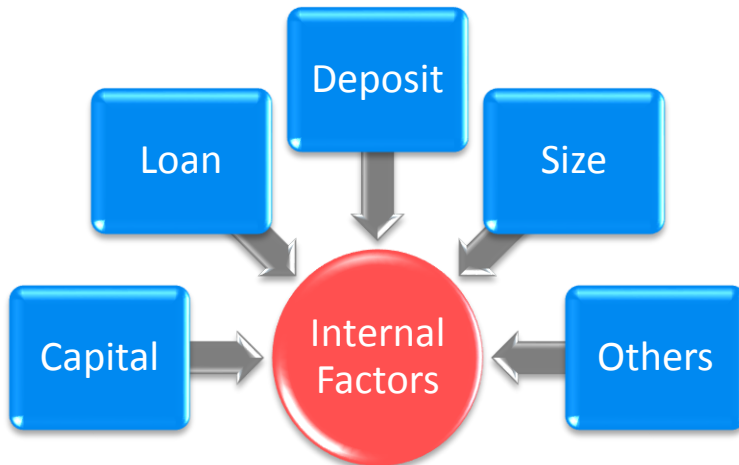
Figure 13: Internal Factors

External factors are the ones affecting profitability of the banks: **Internal** determinants can be distinguished as factors which depend on a bank's management decisions. *Internal factors* (Microeconomic) focuses on bank specific features i.e., such as, size of the bank, capital, loan and deposits. **External** determinants are the factors which are out of the bank's management control. *External factors* or Macroeconomic consider macroeconomic factors i.e., such as GDP, Inflation, Market Capitalization, and main focused factors -
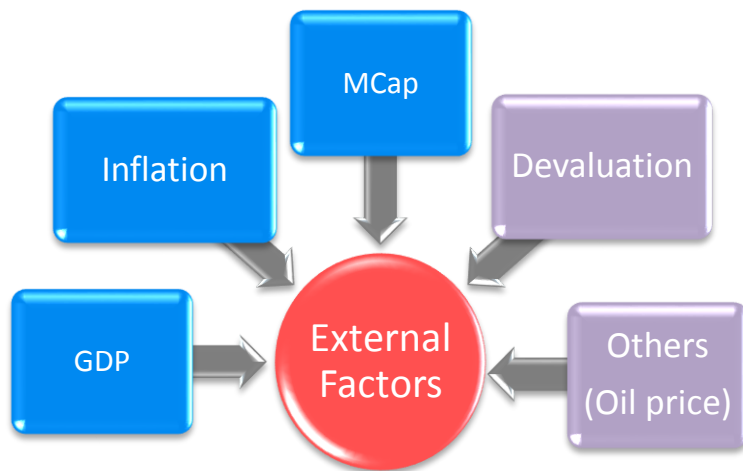
Figure 14: External Factors

devaluation and other independent factors (in this case the independent factor is oil price). In most reviewed studies both of the determinants were indicated.

3.3. Similar studies

In this section, Internal and External factors that affect bank's profitability are reviewed. First of all, I will describe Internal Factors. In the Internal Factors action studies from different part of the World are discussed. Then I will describe the External factors. In External factors part, first of all I will describe studies from Azerbaijan which are recent working papers about last events. Then, I will describe similar studies from different region (EU countries, Asia-Pacific countries) of the World.

3.3.1. Internal Factors

Goddard et al. (2004) used cross-sectional and dynamic panel estimations to identify selected determinants of profitability in six major European banking sectors: Denmark, France, Germany, Italy, Spain and the UK in the 1992-1998 period. The study suggested direct relationship between profitability and capital-assets ratio. Similarly, the study suggested significant size-profitability relationship in some of the estimations.

Guorong et al. (2003) attempted to quantify factors affecting the profitability of banks in Hong Kong. The study found that macroeconomic environment has played a main role in affecting bank profitability from 1992 to 1996. They also found out that equity capital ratio, deposits and share of loans in total assets are not significantly related to the bank's profitability.

Lee et al. (2014) examines the effects of revenue diversification on the bank's performance for 2,372 banks from 29 Asia-Pacific countries over the period from 1995 to 2009. The study suggests that bank performance can be improved through diversification. In addition, under different financial systems the relationships between revenue diversity, financial reforms and bank performances are multidimensional. Financial reforms include interest rate controls, credit controls, entry barriers, banking supervision, privatization, and financial restrictions.

Vong et al. (2007) analysed the determinants of bank's profitability in Macao (China), by using a fifteen-year period from 1993 to 2007 with a sample of five different banks in Macao to figure out the determinants of the profitability. To analyse the internal and

external determinants panel regression techniques were used. In a long run, they revealed that the banks with more equity capital are perceived to have more sustainability and such an advantage can be translated into higher profitability.

Table 5 describes summary of above mentioned literature review.

Table 5: Literature summary of Internal Factors (Positive Effect)

Internal Factors (Positive Effect)			
Study	*Sample size*	*Period*	*Result*
Goddard et al. (2004)	6 European Banks	1992-1998	There is a direct relationship between profitability and capital-assets ratio.
Guorong et al. (2003)	N/A	1992-1996	Equity capital ratio and deposits and the share of loans in total assets are not significantly related to bank profitability
Lee et al. (2014)	2.372 banks	1995-2009	Bank performance can be improved through diversification
Vong et al. (2007)	Macao (China) Banks	1993-2007	Banks with more equity capital are perceived to have more sustainability this advantage can be translated into higher profitability

After identifying on effect of Internal Factors, we move on negative effect of Internal Factors.

Sufian (2009) analysed the Malaysian banks' profitability. He shows that the higher loan concentration and credit risk is associated with the lower profitability level during the 2000-2004 periods. High operational expenditures, higher level of capitalization and higher proportion of income from non-interest sources tend to exhibit higher profitability. The study results suggest that high inflation rate has positive effect on Malaysian banks' profitability, while growth in economy has a negative influence on banks' profitability.

Hoffmann (2011) discusses the US banking industry and the determinants affecting its profitability. He scrutinized 11,777 US banks over the period from 1995 to 2007. He found the negative relationship between capital ratio and profitability of the banks. The fact that banks size has a negative effect on profitability and investment securities have a positive effect were ascertained in this study. The researcher used Generalized Method of Moments (GMM) to deal with endogeneity problems.

In terms of the case of Ethiopia, Abera (2012) hypothesized a significant relationship between the bank's profitability and the amount of capital of the bank, the operational efficiency of it, the income diversification of a bank, the liquidity risk of a bank, the size of a bank, the asset quality of a bank, the concentration of the banking sector, GDP growth and inflation.

Kalakkar (2012) studied Indian banks' performance and the key factors in determining the profitability, investigated in 83 commercial banks for the 2009-2011 period. He concluded that public banks are on the top over the foreign banks and private banks respect to Total Assets, Total Income, Net profit, Deposits. According to the study, the key factors of Indian banks' performance are Investment to deposit ratio and Market share.

The case of Indonesia is reviewed by Syafri (2012), who discusses the bank's profitability and its influence by total equity, operational efficiency, inflation rate and loans. Despite of other variables, such as credit risk and bank size have considerable effect on banks' profitability, but its impact against the theory. The non interest income and economic growth to total assets has positive effect on profitability but not statistically significant. The inflation rate negatively affects the banking profitability. Following figure indicates summary of above mentioned studies.

Table 6: Literature summary of Internal Factors (Negative Effect)

Internal Factors (Negative Effect)			
Study	*Sample size*	*Period*	*Result*
Sufian (2009)	Malaysian banks	2000-2004	High inflation rate has positive effect on Malaysian banks' profitability, while growth in economy has a negative influence on banks' profitability.
Hoffmann (2011)	11 777 US banks	1995-2007	Negative relationship between capital ratio and profitability of the banks.
Abera (2012)	Ethiopia banks	N/A	There is significant relationship: • between the bank's profitability and the amount of capital of a bank, • between the bank's profitability and the operational efficiency of a bank, • between the income diversification of a bank and the bank's profitability, • between the liquidity risk of a bank and the bank's profitability, • between the size of a bank and the bank's profitability, • between the asset quality of a bank and the bank's profitability, • between the concentration of the banking sector and the bank's profitability, • between real GDP growth and bank profitability, • between inflation and bank profitability.
Kalakkar (2012)	83 Indian banks	2009-2011	Public banks on the top over the foreign banks and private banks respect to Total Assets, Total Income, Net profit and Deposits.

Syafri (2012)	Indonesian banks	N/A	Noninterest income and economic growth of total assets has positive effect on profitability however it is not statistically significant. The inflation rate negatively affects the bank's profitability.

3.3.2. External Factors

First of all, research about the macroeconomic factor affecting Azerbaijani bank sector is reviewed. Safarli and Gumus (2012) considered the internal and external factors affecting the profitability of banks in Azerbaijan. By using the panel data regression analyses, they tried to define the determinants of profitability. The study reports that inflation and GDP have a negative effect on the performance of banks.

Bayramov[30] et al. (2015 p. 7) mentioned that "It is clear that dramatic devaluation has directly negative impact to the bank sector of Azerbaijan, because commercial banks provide loans with USD and AZN to their clients. Also, devaluation will be cause decreasing loan interest".

The minister of Finance of the Republic of Azerbaijan Samir Sharifov (2015), in his speech after devaluation has mentioned "As an energy carrier states Azerbaijan also faced economic difficulties. We have to adapt the events which are taking place in our region, as last devaluation negatively impacted to overall economy especially Azerbaijan Banking Sector".

According to "Fitch Ratings" International Rating Agency (2015) the devaluation of Azerbaijani national currency negatively impacted capitalization of the Azerbaijan Banking Sector. "We consider that in the current situation the decline of national currency of Azerbaijan will lead to increase capital risk of banks". (Fitch Ratings" International Rating Agency - 2nd quarter report)

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[30] Dr. Vugar Bayramov - Chairman of Center for Economic & Social Development (CESD)/think tank.
http://www.upenn.edu/pennnews/news/penn-based-index-shows-rise-asian-latin-american-african-think-tanks-brookings-institution-top- 27.11.2015

After review of local evidence, we move to world practice and evidence from different countries.

Gul et al. (2011) explore macroeconomic indicators and the impact of bank-specific characteristics on banks' performance in Pakistan for the 2005-2009 periods. Determinants of the bank's profitability in Pakistan are considered as internal and external factors. The study hypothesized that microeconomic and external factors have significant impact on the profitability of the bank.

In terms of Switzerland case, Dietrich and Wanzenried (2009) considered 453 commercial banks in Switzerland over the 1999-2006 periods in their study. They concluded that better capitalized bank is more profitable and banks with a higher interest income share are less lucrative. The age of the bank doesn't have an effect on bank's performance. Comparing foreign banks with Swiss owned banks, foreign banks are less profitable. In addition, GDP positively affects the bank profitability, and market concentration and effective tax rates have significantly negative effect on the bank's profitability.

Tomola (2013) observed 20 banks of Nigeria from 2006 to 2012. The panel secondary data acquired from the financial reports of the 20 banks were used to identify the indicators of profitability. The results exhibited that bank size have a significantly positively effect on profitability: large banks make a more profits that small banks. Capital, GDP and the variable of interest rate have a significantly positive effect on bank's profitability.

Also, Pasiouras and Kosmidou (2007), looked at European banks from fifteen countries over the period 1995–2001 and they found that profitability was positive relationship associated with real GDP.

Acaravci and Calim (2013) investigated Turkish banking sector as long-run relationship among macroeconomic, bank specific factors and profitability of foreign, privately-owned and state-owned banks during the 1998-2011 period. They concluded that liquidity has significantly negative effect on profitability for state-owned banks and significantly positive effect on profitability for foreign and private banks. Deposits have significantly positive effect on profitability for state-owned bank, but insignificant effect on profitability for privately-owned and foreign banks. In terms of Asset Quality,

which can be defined as Total Loans to Total Assets ratio, this variable has significantly direct effect on profitability for foreign banks and significantly indirect effect on profitability for private banks. Real GDP has a significant direct impact on profitability for state-owned bank and significantly indirect impact on profitability for private and foreign banks.

Table 7: Literature summary of External Factors

	External Factors		
Study	*Sample size*	*Period*	*Result*
Safarli and Gumus (2012)	Azerbaijani Banks	N/A	In that study they came to think that inflation and GDP have a negative effect on performance of banks
Bayramov et al. (2015)	Azerbaijani Banks	N/A	It is clear that dramatic devaluation has directly negative impact to the bank sector of Azerbaijan, because commercial banks provide loans with USD and AZN to their clients. Also, that devaluation will be cause decreasing loan interest
Gul et al. (2011)	Pakistan banks	2005-2009	Microeconomic and external factors have significant impact on profitability of bank.
Dietrich and Wanzenried (2009)	453 Switzerland banks	1999-2006	The age of the bank doesn't have an effect on bank's performance. The GDP positively affects the bank profitability, and market concentration and effective tax rates have significantly negative effect on bank profitability.
Tomola (2013)	20 Nigeria banks	2006-2012	Banks sizes have a significantly positive effect on profitability: the banks make a more profits that the small banks. The capital, GDP and the variable of interest rate significantly positive affect the bank's profitability.
Pasiouras and Kosmidou (2007)	15 European banks	1995-2001	Profitability was positive relationship associated with real GDP.

Acaravci and Calim (2013)	Turkish banks	1998-2001	They concluded that:
			• liquidity has significantly negative effect on profitability for state-owned bank and significantly positive effect on profitability for foreign and privately-owned banks.
			• deposits have significantly positive effect on profitability for state-owned bank, but insignificant effect on profitability for privately-owned and foreign banks.
			• asset Quality has significantly direct effect on profitability for foreign banks and significantly indirect effect on profitability for privately-owned banks.
			• real GDP has a significantly direct impact on profitability for state-owned bank and significantly indirect impact on profitability for privately-owned and foreign banks.

After defined determinants of bank's profitability we move out to the next chapter which covers methodology and data.

Chapter 4: Methodology and Data

4.1. Methodology

The method of research used in the study is a panel data regression model. The dependent and independent variables are integral part of the regression model.

4.1.1. Dependent Variables of the Regression Model

In order to measure profitability, two variables will be used. ROE and ROA which are as described in the following table. Dependent variables are designed to measure banks' performance. ROE and ROA, which are as described in the following table, are used as proxies of that performance.

Table 8: Dependent variables of the Regression Model

Variables	Description	Formula
ROA	Return on Assets	Net Income (Net Profit)/Total Assets
ROE	Return on Equity	Net Income (Net Profit)/Total Equity

Return on Assets is a profitability metric that shows how profitable the bank's assets are in generating revenue. Hence higher percentage of ROA indicates that the bank is more profitable. As assets are defined on the sum of equity and debt, ROA measures how all investors are remunerated. ROA calculated from the following formula:

$$\textbf{Return on Assets} = \frac{\textbf{Net Income (Net Profit)}}{\textbf{Total Assets}}$$

Return on Equity is a profitability metric that measures the ability of a bank to generate the revenue from its shareholder's equity. The growth of the ROE shows that a bank increased its proficiency to generate more profits. ROE calculated from the formula below:

$$\text{Return on Equity} = \frac{\text{Net Income (Net Profit)}}{\text{Total Equity}}$$

4.1.2. Independent Variables of the Regression Model

As a result of the literature review carried out in chapter 3, independent variables are SER, LTD, size, oil price and devaluation. Two types of independent variables – explanatory variables and control variables – are defined in the study.

4.1.2.1. Explanatory Variables

Give scope of this dissertation, Oil price and devaluation are the explanatory variables of this piece of research.

Oil Price – As mentioned in the second chapter, oil income is playing a leading role of the country's economic growth. Oil price is expected to be one of the major external factors that politically affect profitability of the Banking Sector in Azerbaijan. Azerbaijan exports the oil and oil products by US dollar and converts that money to Azerbaijani Manat. Because of the perfectly correlation between oil price (in dollar) and devaluation (exchange rate of AZN against USD) we converted oil price to Azerbaijani Manat.

Devaluation – Because of oil dependency of the domestic economy, as well as national budget any negative change of oil price in the world market causes devaluation in order to compensate oil income deficit of the Azerbaijan. And that devaluation is expected to have extremely negative impact on the banking sector of Azerbaijan.

4.1.2.2. Control Variables

As banks' features are also potentially relevant, three control variables are described in the following table:

Table 9: Control variables of the Regression Model

Variables	Description	Formula
SER	Shareholder Equity Ratio	Total Equity/Total Assets
LTD	Loan to Deposit Ratio	Total Loan/Total Deposit
LSIZE	Logarithmic value of Size	Log (1+Total Assets)

Each variable is defined as it follows:

Shareholder Equity Ratio (SER) is a ratio that determines how much bank are financed by their shareholder. The growth of SER shows that a bank increasingly financed by equity meaning that stronger financing structure and less financial risks. SER computes from the formula below and expressed as a percentage:

$$\textbf{Shareholder Equity Ratio} = \frac{\textbf{\textit{Total Equity}}}{\textbf{Total Assets}}$$

Loan to Deposit Ratio (LTD) is used to calculate the "deposit rotation". If the ratio is lower than 1, the bank relied on its own deposits to make loans to its customers, without any outside borrowing. If the ratio is greater than 1, the bank borrowed money which it reloaded at higher rates, rather than relying entirely on its own deposits. So, when an economy is performing well and high LTD is good as it increases banks profit. However, once the economy is in trouble, improvement losses will grow as LTD growth. Banks may not be earning an optimal return if the ratio is too low. If the ratio is too high, it means that banks might not have enough liquidity to cover any unforeseen

fund requirements; if the ratio is too low, banks may not be earning as much as they could be. LTD ratio computes from the formula below:

$$\textbf{Loan to Deposit Ratio} = \frac{\textit{Total Loan}}{\textbf{Total Deposit}}$$

Bank Size: It is a fact that bank size is accountable for the economies or diseconomies of scale (Naceur and Goaied, 2008). If an industry has to depend on the economies of scale, larger banks would be more efficient and they could provide service which is more sensitive in price (Rasiah, 2010a). Also, the theory of the banking firm maintains that a firm enjoys economies of scale up to a level, and then diseconomies of scale set in. This hints the fact that profitability increases with the increase in size until it decreases when there is economies of scale. Thus, literature further present the idea that the association between the size of bank and profitability can either be positive or negative (Dietrich and Wanzenrid, 2011), depending on what is the optimal size.

4.1.3. Model Estimation process

Through the Eviews software, the following regression models will be estimated:

$$ROA_{i,n} = \alpha + \beta_1(OIL)_{i,n} + \beta_2(DVL)_{i,n} + \beta_3(LTD)_{i,n} + \beta_4(SER)_{i,n} + \beta_5(LSIZE)_{i,n} + \varepsilon$$

(model 1 – table 12)

This is an initial model, but as mentioned before, because of perfectly negative correlation (about 99%) of oil price and devaluation (exchange rate of AZN against USD) we converted oil price from USD to AZN using oil price with USD and exchange rate of AZN/USD and reached the following models.

$$ROA_{i,n} = \alpha + \beta_1(OILAZN)_{i,n} + \beta_2(LTD)_{i,n} + \beta_3(SER)_{i,n} + \beta_4(LSIZE)_{i,n} + \varepsilon$$

(model 2 – table 13)

In this model, we converted oil price by using exchange rate of AZN (DVL) in compare final results with previous model.

$$\text{ROA}_{i,n} = \alpha + \beta_1(\text{DVL})_{i,n} + \beta_2(\text{LTD})_{i,n} + \beta_3(\text{SER})_{i,n} + \beta_4(\text{LSIZE})_{i,n} + \varepsilon$$

(model 3 – table 14)

$$\text{ROA}_{i,n} = \alpha + \beta_1(\text{OIL})_{i,n} + \beta_2(\text{LTD})_{i,n} + \beta_3(\text{SER})_{i,n} + \beta_4(\text{LSIZE})_{i,n} + \varepsilon$$

(model 4 – table 15)

$$\text{ROE}_{i,n} = \alpha + \beta_1(\text{OILAZN})_{i,n} + \beta_2(\text{LTD})_{i,n} + \beta_3(\text{SER})_{i,n} + \beta_4(\text{LSIZE})_{i,n} + \varepsilon$$

(model 5 – table 16)

$$\text{ROE}_{i,n} = \alpha + \beta_1(\text{DVL})_{i,n} + \beta_2(\text{LTD})_{i,n} + \beta_3(\text{SER})_{i,n} + \beta_4(\text{LSIZE})_{i,n} + \varepsilon$$

(model 6 – table 17)

$$\text{ROE}_{i,n} = \alpha + \beta_1(\text{OIL})_{i,n} + \beta_2(\text{LTD})_{i,n} + \beta_3(\text{SER})_{i,n} + \beta_4(\text{LSIZE})_{i,n} + \varepsilon$$

(model 7 – table 18)

Where,

α - constant

β_{1-5} – coefficients of the regression model

ε – Error term

4.2. Data

Panel data features cross-sectional and time-series data.

The secondary data source covers the 2012 – 2015 period. Data of bank variables were collected from financial statements of selected banks (balance sheet and income statement, profit & loss report) which are accessible through their official websites and statistical bulletin of financial statement analysis issued by CBA. Also, oil price data were collected from official webpage of U.S. Energy Information Administration.

4.2.1. Descriptive Statistic analysis

Below table presents the descriptive statistics of the variables collected.

Table 10: Descriptive Statistics

Variables	Observation	Mean	Std. Dev.	Min.	Max.
ROA	141	0.0107	0.021	-0.1453	0.0815
ROE	141	0.0563	0.116	-0.1786	0.3909
OIL	4[31]	86.558	18.186	48.660	97.984
DVL	4[32]	0.8298	0.095	0.7844	1.0285
OILAZN	4[33]	70.122	9.695	50.049	76.872
LTD	141	2.3589	2.386	0.4696	13.949
SER	141	0.2399	0.175	0.0002	0.9485
LSIZE	141	6.9062	0.087	6.7906	7.0317

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[31] Average oil price of considered years, USD

[32] Average exchange rate of AZN of considered years

[33] Average oil price of considered years, AZN

Table 10 shows descriptive statistics for the all variables. The highest standard deviation for OIL and OILAZN is 18.186 and 9.695 respectively. There is greater variation in the data set of OIL and OILAZN because of the huge difference of oil price over 4 years, from 2012 to 2015. Also there is huge difference of mean and standard deviation of DVL because of the higher difference of exchange rate over 4 years. All the other variables have low standard deviation values which show the consistency of the data set. Their values are close to their mean values.

4.2.2. Correlation Analysis

The correlation coefficient is an indicator of linear relationship between two variables. The values of the correlation coefficient range from -1 to +1. A correlation coefficient of -1 means that there is negative linear relationship between two variables, while the correlation coefficient of +1 means positive linear relationship between two variables. A correlation coefficient of 0.00 means there is no linear relationship between two variables. If the correlation coefficient ranges from 0 to 0.50, this means that there is a positively weak correlation between two variables. In a case if it ranges from -0.50 to 0, it means a negatively weak correlation. If the correlation coefficient ranges from 0.50 to 0.90, this means that there is a positively strong correlation. In a negative case, when the coefficient ranges from -0.90 to -0.50, there is a negatively strong correlation. If the correlation coefficient ranges from 0.90 to 1.00, it means that there is a positively perfect correlation between two variables. If the coefficient ranges from -1.00 to -0.90, there is a negatively perfect correlation.

In this study, the correlation analysis was made to display relationship between all variables and whether there is multicollinearity problem or not.

The correlation coefficients in the form of matrix that has been done by using the data collected from the official websites of the banks is presented in the table below:

Table 11: Correlation analysis of all variables

	ROA	ROE	DVL	OIL	OILAZN	LTD	SER	LSIZE
ROA	1.000							
ROE	0.900	1.000						
DVL	-0.054	-0.123	1.000					
OIL	0.052	0.124	**-0.995**	1.000				
OILAZN	0.052	0.124	**-0.988**	**0.999**	1.000			
LTD	-0.157	-0.191	0.011	-0.009	-0.008	1.000		
SER	0.050	-0.143	0.006	-0.011	-0.013	0.438	1.000	
LSIZE	0.066	0.001	0.682	-0.690	-0.693	0.049	0.064	1.000

The table of correlation analysis, which was done in EVIEWS software, shows that there is negatively perfect correlation between OIL (OILAZN) and DVL, also there is positively perfect correlation between OIL and OILAZN. This indicates that there will be multicollinearity problem in regression analyses. In other words, there is evidence of a multicollinearity problem. This is why we changed our initial model. As already known, the problem of multicollinearity occurs when correlation coefficients are either very close to 1 or -1 (when explanatory variables are perfectly correlated with each other). Excluding that relationship there is not any other strong correlation (positive and negative) between variables.

Devaluation is negatively weak correlated to ROA and ROE. This indicates that the lower rate of devaluation conducts the higher profitability ratio of ROA and ROE. Devaluation also has negatively perfect correlation to oil price (both in dollar and in AZN), positively weak correlated to LTD and SER, also positively strong correlated to LSIZE. This indicates that low price of oil has extremely positive effect to devaluation.

Loan to Deposit ratio is negatively weak correlated to dependent variables, ROA and ROE, and also some independent variable such as oil price. But at the same time positively weak correlated to DVL, LSIZE and SER. This indicates that increasing in

case of lower Total Assets the amount of the loan and deposit goes down. Also low oil price indicates lower Total Loan and Total Deposit, so when oil price goes down LTD ratio also goes down.

Shareholder Equity ratio is negatively weak correlated to ROE and oil price, at the same time positively weak correlated to ROA, devaluation and LTD ratio. Positively weak correlation to ROA indicates that in case of higher Total Assets SER goes down. Also higher oil price has negative effect on SER, because higher oil price indicates higher Total Assets.

Chapter 5: Empirical results

This chapter presents and discusses the results of the study learning from the regression analysis.

5.1. Regression Analysis

First and foremost, we will demonstrate our initial model. The regression model for ROA is estimated and introduced in Table 12. According to this table, most explanatory variables are statistically significant, which are: OIL, DVL, LTD and LSIZE. Only one independent variable is not statistically significant that is SER.

Table 12: Regression analysis of Model 1 – Dependent Variable is ROA

Variables	Coefficient	t-Statistic	P-Value
C	-0.340358	-16.53622	0.0000
OIL	0.000465	5.884250	0.0000
DVL	0.031985	2.068026	0.0414
LTD	-0.000650	-2.529838	0.0131
SER	0.065227	1.259747	0.2108
LSIZE	0.039115	5.660877	0.0000
R-squared			0.424176
Adj. R-squared			0.151417
S.E. of regression			0.019976
F-statistic			1.555130
Prob(F-statistic)			0.036806
Durbin-Watson stat			2.007221

Coming back to significant variables, it should be noted that all variables are significant (exception SER) at the 5% significance level, which means that these variables explain ROA. As expected oil price has a positive coefficient, which means that higher oil price

positively affected to ROA. Another significant variable is devaluation; whose coefficient is also positive. However, this coefficient should be negative. It implies that higher exchange rate of AZN is directly positively connected to ROA, which is not expected. This unexpected finding might result from high correlation between oil price and devaluation. The next significant independent variable LTD ratio is negatively related to ROA. This makes sense in an economy with devaluation relying on oil prices. LSIZE variable is significant as well. The coefficient of LSIZE is positive, which means that the higher the size of the bank, the more profitable bank is. This is because of economic of scale and suggests that the size of Azerbaijan banks is still not large.

The second model is a regression model for ROA. It is displayed in table 13. In this model, we used oil price in AZN by converting exchange rate of AZN. According to this table, all variables are stationary with the exception of SER.

Table 13: Regression analysis of Model 2 – Dependent Variable is ROA

Variables	Coefficient	t-Statistic	P-Value
C	-0.314549	-9.444786	0.0000
OILAZN	0.000563	17.011897	0.0000
LTD	-0.000646	-2.523646	0.0133
SER	0.065312	1.267025	0.2082
LSIZE	0.039328	5.933174	0.0000
R-squared			0.424171
Adj. R-squared			0.160249
S.E. of regression			0.019872
F-statistic			1.607184
Prob(F-statistic)			0.027739
Durbin-Watson stat			2.006557

Considering the variables one by one, it should be mentioned that they are statistically significant at 1% significance level (exception SER). OILAZN is positively related to

ROE, what explain an indirect oil dependency of banks profit. Total Loan to Total Assets is directly negative connected with ROE. SER is statistically insignificant and doesn't affect the profitability measured by ROA. LSIZE is significant and the coefficient is positively related to ROA, which explain the increasing of ROA when the size of the bank is increased.

For testing a model on autocorrelation, the Durbin-Watson stat has been verified and the result showed that here is no problem of autocorrelation. The value of Durbin-Watson stat is very high: 2.006. Furthermore, from the P-Value of F-statistic, the whole model is statistically significant. The results of R-squared and Adjusted R-squared also look significant. Furthermore, on R^2 of 0.4241 means that 42.41% of the variance of the dependent variable ROA is explained by exoplanetary variables.

Next regression model is constructed for ROA but with different independent variables. Corresponding table of the regression analysis presented below in table 14. According to this table DVL, LTD and LSIZE are significant. Only SER is statistically insignificant and cannot express the relation with ROA.

Table 14: Regression analysis of Model 3 – Dependent Variable is ROA

Variables	Coefficient	t-Statistic	P-Value
C	-0.214722	-7.170997	0.0000
DVL	-0.055602	-16.71643	0.0000
LTD	-0.005588	-2.431612	0.0169
SER	0.064887	1.255743	0.2123
LSIZE	0.037269	6.731815	0.0000

R-squared	0.422591
Adj. R-squared	0.157945
S.E. of regression	0.019899
F-statistic	1.596817
Prob(F-statistic)	0.029453
Durbin-Watson stat	2.000798

As expected, DVL is significant and negatively connected to ROA, which means the increasing of the exchange rate of AZN has negative effect on ROA. The P-value of LTD is also statistically significant showing a negative relationship with ROA. LSIZE is also significant, which justify the increase of the ROA ratio as a result of the increasing of size.

Next and last regression model is also constructed for ROA but different independent variables. Corresponding table of the regression analysis are presented below in a table 15. According to this table OIL, LTD and LSIZE are significant. Only SER is statistically insignificant.

Table 15: Regression analysis of Model 4 – Dependent Variable is ROA

Variables	Coefficient	t-Statistic	P-Value
C	-0.298270	-11.19124	0.0000
OIL	0.000299	29.49824	0.0000
LTD	-0.000625	-2.505977	0.0139
SER	0.065174	1.263416	0.2095
LSIZE	0.038944	6.740220	0.0000
R-squared			0.423969
Adj. R-squared			0.159955
S.E. of regression			0.019875
F-statistic			1.605856
Prob(F-statistic)			0.027953
Durbin-Watson stat			2.003566

As expected, OIL is significant and positively connected to ROA, which means the decreasing of the oil price has negative effect on ROA. LTD is statistically significant showing a negative relationship with ROA. LSIZE is also significant and positive, which justify the increasing of the ROA ratio as a result of the increasing of the size.

Our next model is regression model for ROE that is estimated and introduced in table 16. In this model we used oil price in AZN by converting exchange rate of AZN. According to this table, two variables are significant and two of them are not (LTD and SER), which means they are statistically insignificant and do not affect profitability (when measured by ROE).

Table 16: Regression analysis of model 5 – Dependent Variable is ROE

Variables	Coefficient	t-Statistic	P-Value
C	-1.502338	-16.47538	0.0000
OILAZN	0.003476	39.26640	0.0000
LTD	-0.001617	-0.811863	0.4189
SER	0.161536	0.849754	0.3976
LSIZE	0.185334	9.069607	0.0000
R-squared			0.517509
Adj. R-squared			0.296367
S.E. of regression			0.097321
F-statistic			2.340170
Prob(F-statistic)			0.000276
Durbin-Watson stat			2.043701

OILAZN is positively related to ROE, what explain the indirect oil dependency of banks' profit. LSIZE is significant and the coefficient is positively related to ROE.

Next regression model is also constructed for ROE but different independent variables. Corresponding table of the regression analysis are presented below in table 17. According to this table DVL and LSIZE are significant. Other two independent variables, LTD and SER, are statistically insignificant.

Table 17: Regression analysis of model 6 – Dependent Variable is ROE

Variables	Coefficient	t-Statistic	P-Value
C	-0.873450	-4.174510	0.0001
DVL	-0.339957	-11.55464	0.0000
LTD	-0.001272	-0.651474	0.5163
SER	0.158925	0.832666	0.4071
LSIZE	0.170386	5.309114	0.0000
R-squared			0.514700
Adj. R-squared			0.292270
S.E. of regression			0.097604
F-statistic			2.313991
Prob(F-statistic)			0.000328
Durbin-Watson stat			2.041007

As expected, DVL is significant and negatively connected to ROE, which means the increasing of the exchange rate of AZN has negative effect on ROE. The value of LSIZE is also significant.

Next and last regression model is also constructed for ROE with different independent variables. Corresponding table of the regression analysis are presented below in a table 18. According to this table OIL and LSIZE are significant. Other independent variables, LTD and SER, are statistically insignificant.

Table 18: Regression analysis of model 7 – Dependent Variable is ROE

Variables	Coefficient	t-Statistic	P-Value
C	-1.396322	-13.39438	0.0000
OIL	0.001838	30.95723	0.0000
LTD	-0.001492	-0.755674	0.4517
SER	0.160681	0.844104	0.4007
LSIZE	0.182224	9.529056	0.0000
R-squared			0.517006
Adj. R-squared			0.295633
S.E. of regression			0.097372
F-statistic			2.335456
Prob(F-statistic)			0.000285
Durbin-Watson stat			2.041239

OIL is significant and positively connected to ROE, which means the decreasing of the oil price has negative effect on ROE. The value of LSIZE is also significant.

Chapter 6: Conclusion

6.1. Conclusion

Azerbaijan Banking System has changed for many years. Currently, compared with the previous years (with the exception of 2015), the number of financial institutions and its size increased in the country. The profit obtained from the banks also increased, as well as the amount of credit. But in 2015, because of lower oil price and the dependency of oil income of the country, the banking sector went through dramatic crisis.

This study examined the determinants of banks' profitability. External and internal determinants were discussed and analysed. Two hypotheses have been put forward in which it is assumed that devaluation might have a negative effect on the return of bank, and oil price might have positive effect on return of banks. In order to test these hypotheses, a number of regressions have been conducted.

In this research 41 Azerbaijan banks were examined over 4 years (from 2012 to 2015). There are about 141 observations. All data were collected from the official sources of the respective banks and were used to justify the hypotheses using the EVIEWS software.

By using the EVIEWS, the seven regression models with their dependent and independent variables were constructed.

With the help of the correlation matrix, the independent and dependent variables were tested for multicollinearity problem. In a sum, it turned out that there is a multicollinearity problem between oil price and exchange rate of local currency. Because of that, we have changed our initial model.

According to the regression model with the dependent variable ROA, almost all of the selected independent variables affect the performance of the banks, except SER. As expected OIL/OILAZN and LSIZE have a positive relationship with ROA, whereas LTD and DVL have a negative relationship with ROA which is the same result as of Guorong et al. (2003). Recall that study, more deposits significantly related to bank's

profitability. Also according to Abera (2012) and Tomola (2013) size has significantly positive impact to bank's profitability which is same result of our evidence. According to study of Syafari (2012) total assets, which is size in our consideration, has significantly positive affect to bank's profitability as our evidence.

Considering the second model with the dependent variable ROE, it was clear that two independent variables positively affect the profitability of the Azerbaijan banks. As seen from the results of the coefficients, OIL/OILAZN and LSIZE have a positive relationship with ROE, whereas DVL negatively affect ROE. Vong et al. (2007) who found that more equity capital has positive impact to bank's profitability. My results do not show this relation. Also according to Safarli and Gumus (2012), Gul et al (2011), Dietrich and Wanzenried (2009), Pasiouras and Kosmidou (2007) macroeconomic factors have significant impact to bank's profitability. In our case, oil price has significant positive impact and devaluation has significant negative impact to bank's profitability.

About designated "internal variables", results show that size as a positive impact on profitability, meaning that banks are still getting relevant economies of scale. About the financial structure of banks, as SER is not significant, it means that the strength of the banks' balance sheet is not relevant. The significance of LTD and its negative signal means that the higher the deposit rotation lower the profitability, a finding that makes sense in an oil dependent economy facing high devaluation.

In conclusion, I would like to highlight that the bank profitability is positively determined by the external macroeconomic factor oil price. This is a clear indicator of the huge importance of the oil industry in Azerbaijan. At the same time, devaluation is negatively related to the profitability determinants in all models. This leads to the conclusion that the hypotheses $H_{1.0}$ and $H_{2.0}$ putted forward were correct.

6.2. Future Research

For the future research, we can mention possible development is applying the research to a more extent sample according to the future years since the second devaluation

happened just 10 days before[34] of our consideration data. It would be better to apply to the next two years' data (our data starting from 2 years before of "Oil Crisis"). Additionally, we can test some other potentially relevant independent variables.

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[34] 21st of December 2015

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http://en.cbar.az – Official webpage of The Central Bank of Azerbaijan

https://www.fitchratings.com - *"Fitch Ratings"* International Rating Agency

http://www.stat.gov.az - Official webpage of The State Committee on Statistics of the Republic of Azerbaijan

http://www.worldbank.org – Official webpage of The World Bank Group

https://www.iea.org – International Energy Agency

http://www.accessbank.az – Official webpage of "AccessBank" Close Joint Stock Company

https://afb.az/en   - Official webpage of "AFB Bank" Open Joint Stock Company

https://www.agbank.az – Official webpage of "AG Bank" Open Joint Stock Company

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http://www.bank.az – Official webpage of "Bank of Azerbaijan" Open Joint Stock Company

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https://www.ibar.az/en/ - Official webpage of "International Bank of Azerbaijan" Open Joint Stock Company

https://www.muganbank.az/en/ - Official webpage of "Mugan Bank" Open Joint Stock Company

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http://www.nbcbank.az/?lang=en – Official webpage of "NBC Bank" Open Joint Stock Company

http://www.nbp.az – Official webpage of "Pakistan Milli Bank" Open Joint Stock Company

http://nikoil.az/en/ - Official webpage of "Nikoil Bank" Open Joint Stock Company

http://www.pashabank.az/lang,en/ - Official webpage of "Pasha Bank" Open Joint Stock Company

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http://www.yapikredi.com.az/Mainpage.aspx?Lng=En – Official webpage of "YapiKrediBank" Close Joint Stock Company

http://www.ucb.az/az/ - Official webpage of "United Credit Bank" Open Joint Stock Company

http://www.zaminbank.az/en/ - Official webpage of "Zamin Bank" Open Joint Stock Company

Appendices

Appendix 1: Regression Analysis of Model 1

```
Dependent Variable: ROA
Method: Panel Least Squares
Date: 05/24/16   Time: 17:51
Sample: 2012 2015
Periods included: 4
Cross-sections included: 41
Total panel (unbalanced) observations: 141
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.340358	0.020583	-16.53622	0.0000
OIL	0.000465	7.90E-05	5.884250	0.0000
DVL	0.031985	0.015466	2.068026	0.0414
LTD	-0.000650	0.000257	-2.529838	0.0131
SER	0.065337	0.051865	1.259747	0.2108
LSIZE	0.039115	0.006910	5.660877	0.0000

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.424176	Mean dependent var	0.010707
Adjusted R-squared	0.151417	S.D. dependent var	0.021685
S.E. of regression	0.019976	Akaike info criterion	-4.730966
Sum squared resid	0.037909	Schwarz criterion	-3.768959
Log likelihood	379.5331	Hannan-Quinn criter.	-4.340040
F-statistic	1.555130	Durbin-Watson stat	2.007221
Prob(F-statistic)	0.036806		

Appendix 2: Regression Analysis of Model 2

Dependent Variable: ROA
Method: Panel Least Squares
Date: 05/25/16   Time: 17:28
Sample: 2012 2015
Periods included: 4
Cross-sections included: 41
Total panel (unbalanced) observations: 141
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.314549	0.033304	-9.444786	0.0000
OILAZN	0.000563	3.31E-05	17.01897	0.0000
LTD	-0.000646	0.000256	-2.523646	0.0133
SER	0.065312	0.051548	1.267025	0.2082
LSIZE	0.039328	0.006629	5.933174	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.424171	Mean dependent var	0.010707
Adjusted R-squared	0.160249	S.D. dependent var	0.021685
S.E. of regression	0.019872	Akaike info criterion	-4.745142
Sum squared resid	0.037909	Schwarz criterion	-3.804048
Log likelihood	379.5325	Hannan-Quinn criter.	-4.362714
F-statistic	1.607184	Durbin-Watson stat	2.006557
Prob(F-statistic)	0.027739		

Dependent Variable: ROA
Method: Panel Least Squares
Date: 05/24/16   Time: 17:51
Sample: 2012 2015
Periods included: 4
Cross-sections included: 41
Total panel (unbalanced) observations: 141
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.214722	0.029943	-7.170997	0.0000
DVL	-0.055602	0.003326	-16.71643	0.0000
LTD	-0.000588	0.000242	-2.431612	0.0169
SER	0.064887	0.051672	1.255743	0.2123
LSIZE	0.037269	0.005536	6.731815	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.422591	Mean dependent var		0.010707
Adjusted R-squared	0.157945	S.D. dependent var		0.021685
S.E. of regression	0.019899	Akaike info criterion		-4.742402
Sum squared resid	0.038013	Schwarz criterion		-3.801308
Log likelihood	379.3393	Hannan-Quinn criter.		-4.359974
F-statistic	1.596817	Durbin-Watson stat		2.000798
Prob(F-statistic)	0.029453			

Appendix 4: Regression Analysis of Model 4

Dependent Variable: ROA
Method: Panel Least Squares
Date: 05/24/16   Time: 17:16
Sample: 2012 2015
Periods included: 4
Cross-sections included: 41
Total panel (unbalanced) observations: 141
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.298270	0.026652	-11.19124	0.0000
OIL	0.000299	1.01E-05	29.49824	0.0000
LTD	-0.000625	0.000250	-2.505977	0.0139
SER	0.065174	0.051585	1.263416	0.2095
LSIZE	0.038944	0.005778	6.740220	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.423969	Mean dependent var	0.010707
Adjusted R-squared	0.159955	S.D. dependent var	0.021685
S.E. of regression	0.019875	Akaike info criterion	-4.744791
Sum squared resid	0.037923	Schwarz criterion	-3.803698
Log likelihood	379.5078	Hannan-Quinn criter.	-4.362363
F-statistic	1.605856	Durbin-Watson stat	2.003566
Prob(F-statistic)	0.027953		

Appendix 5: Regression Analysis of Model 5

Dependent Variable: ROE
Method: Panel Least Squares
Date: 05/25/16   Time: 17:28
Sample: 2012 2015
Periods included: 4
Cross-sections included: 41
Total panel (unbalanced) observations: 141
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.502338	0.091187	-16.47538	0.0000
OILAZN	0.003476	8.85E-05	39.26640	0.0000
LTD	-0.001617	0.001992	-0.811863	0.4189
SER	0.161536	0.190097	0.849754	0.3976
LSIZE	0.185334	0.020435	9.069607	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.517509	Mean dependent var	0.056307
Adjusted R-squared	0.296367	S.D. dependent var	0.116020
S.E. of regression	0.097321	Akaike info criterion	-1.567721
Sum squared resid	0.909250	Schwarz criterion	-0.626627
Log likelihood	155.5243	Hannan-Quinn criter.	-1.185293
F-statistic	2.340170	Durbin-Watson stat	2.043701
Prob(F-statistic)	0.000276		

Appendix 6: Regression Analysis of Model 6

Dependent Variable: ROE
Method: Panel Least Squares
Date: 05/23/16   Time: 22:50
Sample: 2012 2015
Periods included: 4
Cross-sections included: 41
Total panel (unbalanced) observations: 141
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.873450	0.209234	-4.174510	0.0001
DVL	-0.339957	0.029422	-11.55464	0.0000
LTD	-0.001272	0.001953	-0.651474	0.5163
SER	0.158925	0.190863	0.832666	0.4071
LSIZE	0.170386	0.032093	5.309114	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.514700	Mean dependent var	0.056307
Adjusted R-squared	0.292270	S.D. dependent var	0.116020
S.E. of regression	0.097604	Akaike info criterion	-1.561914
Sum squared resid	0.914544	Schwarz criterion	-0.620821
Log likelihood	155.1150	Hannan-Quinn criter.	-1.179487
F-statistic	2.313991	Durbin-Watson stat	2.041007
Prob(F-statistic)	0.000328		

Appendix 7: Regression Analysis of Model 7

Dependent Variable: ROE
Method: Panel Least Squares
Date: 05/24/16   Time: 15:28
Sample: 2012 2015
Periods included: 4
Cross-sections included: 41
Total panel (unbalanced) observations: 141
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.396322	0.104247	-13.39438	0.0000
OIL	0.001838	5.94E-05	30.95723	0.0000
LTD	-0.001492	0.001974	-0.755674	0.4517
SER	0.160681	0.190356	0.844104	0.4007
LSIZE	0.182224	0.019123	9.529056	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.517006	Mean dependent var	0.056307
Adjusted R-squared	0.295633	S.D. dependent var	0.116020
S.E. of regression	0.097372	Akaike info criterion	-1.566678
Sum squared resid	0.910198	Schwarz criterion	-0.625584
Log likelihood	155.4508	Hannan-Quinn criter.	-1.184250
F-statistic	2.335456	Durbin-Watson stat	2.041239
Prob(F-statistic)	0.000285		

Appendix 8: The result of Hausman Test

Dependent Variable	Statistic	P-Value
ROA	14.042442	0.0072
ROE	9.118881	0.0582