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THE FINANCIAL PERFORMANCE OF CONVENTIONAL AND ISLAMIC BANKS IN TERMS OF PROFITABILITY & LIQUIDITY: A CASE OF TURKEY

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I, GULEID ALI ISMAIL;

Hereby declare that this Master's Thesis is my own original work and that due references have been appropriately provided on all supporting literature and resources.

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ACCEPTANCE AND APPROVAL

This work entitled **THE FINANCIAL PERFORMANCE OF CONVENTIONAL AND ISLAMIC BANKS IN TERMS OF PROFITABILITY & LIQUIDITY** prepared by **GULEID ISMAIL** has been judged to be successful at the defense exam held on **JULY 1st, 2020** and accepted by our jury as **MASTER'S THESIS.**

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ABSTRACT

Since 1980s, Turkish banking sector has been a pivotal player for capital inflow from the Middle East and North Africa region. Islamic banks operate alongside conventional banks. Islamic financial system started in Turkey in 1984. The first trademark for Islamic finance was Special Finance Houses for which later changed into Participation Banks by new banking law in 2005 enacted the government. After 2001, Turkish banking sector has been through in profound restructuring, and the government has been adopting convalesced programs which at end enabled the sector to open up to many foreign investors. The objective of this study is to compare the financial performance of Islamic banks and conventional banks in Turkey and also examine whether they behaved differently during the global financial crisis of 2008. The study aims to contribute to the literature on Islamic banking. The methodology employed by thesis include testing profitability and liquidity of banks using variables within the CAMELS approach and use panel data to test the research hypotheses. The results suggest there is no difference with respect to performance of the two types of banks. However, risk adjusted returns suggest a negative performance measure for Islamic banks. Based on the regression results, the study finds during the crisis Islamic and conventional banks did not behave differently and insignificant difference among them was reported.

Key Words: Banking, Islamic finance, CAMELS ratios, Emerging Markets, Turkey.

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Chapter 1- Introduction.

To attain sustainable global economic and political developments, a state needs to render enough consideration to the creation of a well-developed, open, and liquid financial system, which would enable economic development (Demirgüç-Kunt, Patrick Honohan, and Thorsten Beck 2008). A well-developed financial system would include many financial products and financial institutions that are developed and serve to the needs of customers such as mutual funds, derivatives, Mortgages, Auto Loans, Home Equity Loans, Credit Cards and Debit Cards as well as Islamic financial products (Demirgüç-Kunt., Patrick Honohan, and Thorsten Beck,2008; Visser, H., 2019).

Within this system of financial institutions, services provided by both Islamic and commercial banks are significant in our daily life. Having a developed and thriving financial sector is essential for poverty reduction, diminishing income inequality, and fostering economic growth (Demirgüç-Kunt, Patrick Honohan, and Thorsten Beck 2008). Individuals are not the only participants, which benefit from the existence of banks, but also governments are a notable player in the market. During the last global financial crisis in 2008, many financial institutions around the world faced financial difficulties which was followed by a great recession. Importantly, lack of contemplating financial policies was one reason why financial tragedies occurred. Due to that a large number of savers had lost their financial fortunes, jobs, and houses (Bourkhis, Khawla, and Mahmoud Sami Nabi 2013).

Since the 7th century, Muslims have been aiming to establish a financial system, which grounded on norms, principles, and values of Islamic convictions (Asutay, Mehmet, Karahan 2013). During the 10th-15th centuries, all the financial transactions exercised by Middle Eastern countries were based on Islamic principles by adopting the same regulations as European countries (Al-Omar F.A, Iqbal n.d). As time passed, most Muslim countries had solid financial relationships with most of the European countries through profit-and-loss sharing, which had the most developed financial sector in the continent, particularly Spain. Western financial system maintained to persist being the strongest financial system and opened many branches in Asia and Middle East regions (Asutay, Mehmet, Karahan 2013).

The barrier the Islamic financial system faced during the infant stage was the geographical area it operated under, which was exceedingly small compared to the

conventional western system. Following the birth of Islam, the exercise of interest rate in any financial transactions was prohibited, and all activities, accordingly, must be conducted on a profit-sharing basis. The outset of the 19th century was the first appearance of a modern Islamic financial system in Egypt, and Mit Ghamr was the first local bank established in Egypt in 1963. Mit Ghamr became the pioneer institution which entirely operates under Islamic principles (Iqbal, Z, Mirakhor A. 2011). It was intended to provide saving accounts to the local community, and enormous inhabitants benefited the existence of this bank (Ghafoor 1995: Nasser 1996). This occasion stimulated and awakened Muslim countries, and onward many conferences relating how to introduce this system into the world were consistently held in many Muslim countries (Al-Marwyne 1985; Wilson 1983).

Within the past decades, the Islamic banking system has expanded into wide-range markets around the world, including North America, Middle East, and Southeast Asia. The mainstay behind the inception of the Islamic banking system is to help millions of customers around the world who seek to avoid Riba-interest. The main principles for Interest-free operations are all prescribed by the Islamic sharia. In addition, Islamic finance is an alternative system which displays financial products and services that equivalent to those commercial banks provide their client. Islamic banking system is also regarded as a financing structure which is grounded on the main beliefs of Islamic laws (Mawdudi; 1961: Siddiqi, 1983). Based on that, Islamic economics is one of the principles by which Islamic financing was made. Importantly, theoretical approaches of Islamic finance suggest that institutions who are aiming to operate under sharia have to make sure that all their financial activities performed in a way that compliant with Islamic principle (Shariah).

Furthermore, enhancing and emphasizing socio-economic righteousness and discouraging the usage of interest is the foundational principle of Islamic finance (Wilson,1997; Zaher and Hassan, 2001; Beekun and Badawi, 2005; Kuran, 2004; Kamla, 2009). For that reason, Islamic banks innovate unique financial instruments, which are free from interest, preferably encouraging the profit and loss sharing model. Islamic finance, as some people regard, has been the most convenient financial system in decades (Taqi 2002). Chapra (1992) details that Islamic economics serve to fulfill the following objectives: firstly, it assists people to complete their necessities. Secondly, Islamic economics is to make money from a source which is acceptable in Islamic sharia, otherwise, it would not be valid to benefit from it in any aspect.

On the other side, the following mechanism is how commercial banks finance their business activities. Commercial banks base their financial operations on interest, while Islamic banks are not permitted to involve interest. They collect interest from the initial investors and pay it to the lenders. The difference between these two processes is where commercial banks generate profit. After1960s, Islamic banking has spread worldwide with extreme speed, and it has been considered as an alternative system to the traditional banking system (Sufian, F., Mohamad, A. M., & Muhamed-Zulkhibiri, A.M.2008).

With the help of the process of liberalising the Turkish banking sector in the 1980s, the first bank functioning in compliance with Islamic law launched in Turkey in 1985 (Okumus, Saduman 2005). Since then, Islamic financial institutions in Turkey have been thriving and show a tendency to contend with traditional banks to attract potential clients, and they maintain almost 6% market share (TKBB 2018). As a result, that brought excessive competition between Islamic and traditional banks (Okumus, H 2013). Another important aspect, liquidity is recognized by Basher, Syed Abul, Kessler and Munkin, (2017) with respect to the challenges faced by Islamic banks. Choi, J.J, (2010), reveals that Islamic banks surpass conventional banks in terms of liquidity during the financial crisis. Therese findings underline the importance of liquidity management in comparing Islamic banks and conventional banks.

In the light of previous findings, the aim of my thesis is to study and analyze the financial performance of Turkish banks and understand whether Islamic banks are different than conventional banks in terms of profitability and liquidity. To attain answers, I focus on important metrics highlighted in the literature within the CAMELS ratios[1]. I also analyse whether these two financial institution types behaved differently during the most recent global financial crisis.

I find that, Islamic Banks, with respect to profitability, as measured by Return on Assets (ROA) and Return on Equity (ROE) are not statistically significantly different than commercial banks in Turkey controlling for inflation, discount interest capital adequacy, asset quality, liquidity, sensitivity, and efficiency ratios. However, looking at the risk adjusted ROA

1 As one of the prominence methods for examining banking performance, CAMELS model is designated to study the performance of the banks. CAMELS ratios contain six components which include Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, Liquidity, and Sensitivity. Moreover, after when the Basel committee on Banking supervision of the Bank of International Settlements (BIS) underlined the importance of CAMELS model for analysing a bank's financial performance, many papers have adopted CAMELS approach such as (Dincer, H., Gencer, G., Orhan, N., & Sahinbas, K. 2011). Barr et al. (2002) insists that CAMELS model must adhere to any evaluation to banks.

and ROE, Islamic banks seem to perform worse. In a matter of liquidity, Islamic banks were in bad performances regarding a loan to deposit ratio, but cash to deposit does not illustrate a significant difference between the two systems. When looking at the performance difference during the financial crisis, Islamic Banks do not show a difference than conventional banks. However, with respect to liquidity, after the financial crisis, Islamic banks seem to have performed better.

Evidently, all the three variables of the study selected for capital adequacy ratios, while they all have a positive effect, only equity to net loan and equity to total assets have significantly accumulated the profitability of Islamic banks. On other hand, the increases of equity to total liabilities led to traditional banks to decline significantly regarding findings. Similarly, expanding the level of loan to deposit ratio leads loss for both systems. By profound restructuring strategy taken by the government of Turkey in 2001, the crisis had less impact on the financial sector as a whole (Aras 2010). However, according to the findings, the crisis affected the conventional banks far less than Islamic banks.

1.2 Problem Statement

Al-Khathlan, Gaddam and Malik (2009) describe the well-functioning banking sector is essential for the economic development of a country. Since Islamic Banks offer different products as compared to traditional banks their business model is also different. As compared to a traditional bank, Islamic banks drive their profit from equity. There are several facts that are worth noting. Islamic banks do not guarantee the capital value and the return on investment, but they offer depositors a full professional investment management. This implies that depositors in the Islamic system own a proportion of share which enable them to receive some portion of bank's net profit and loss.

The expansion of the Islamic banks created intense competition among the Turkish banking sector, and that persuaded banks to innovate new financial products and an effective strategy for resource allocation. Therefore, that expedites the efficiency of the sector, and it has attracted many investors to enter the sector, not only locally, but also worldwide. Thus, the chief participants in the sector, Islamic and commercial banks, pursue a very intensive strategy to contend one another for leading the market. As a result of that, each bank exercises a different way to set a unique character, which differentiates it over others in achieving a higher market share.

The study deals with three research questions which is focused on the comparison of the financial performance of the traditional banks and Islamic banks:

1. Is there a significant difference between Islamic and conventional banks with Return to Assets and Return on Equity?
2. Is there a significant difference between Islamic and conventional banks with respect to liquidity management?
3. Are there other external and internal factors that impact the financial performance and liquidity of conventional and Islamic banks in Turkey during 2005-2018?

In addition, since 2008, it has become prevalent in a global financial landscape to examine the impact of the late financial crisis in 2008 on the financial performance of Islamic and conventional banks. As many argued that factors which kept Islamic banks to be less affected by the crisis are asset-based and risk-sharing nature (Hasan, Maher, Dridi 2011). Based on that, they also suggest that Islamic banks were better performance than traditional banks given the large losses they faced in Europe and the US. To determine which bank are in better performance, the thesis addresses the following question: Did Islamic and traditional banks behave in a different way during the financial crisis?

Under the financial crisis there are two questions:

1. Are there significant differences between Islamic and conventional banks in terms of profitability and liquidity during the financial crisis?
2. Do Islamic and conventional banks perform differently in terms of profitability and liquidity after the financial crisis?

To address this question, the thesis investigates a set of internal and external variables in a bank to enlighten the performance of the banks.

To find an appropriate and valid answer to the above questions will assist not only for the Turkish banking sector, but to the entire economy of the country, and other countries as well.

1.3 Importance of The Study

The competence of Islamic principles of economics and finance makes policymakers and experts interested in the Islamic banking system and then initiated to process the edifice of a system which compatible with Islamic principles (Ayub, Muammad 2013). Thus, the demand for products and services compliant with Islamic principles has thrived since then, both In Muslim countries and non-Muslim states. The paramount strategy of the Islamic financing system has been to alleviate the global financial crisis. Therefore, to ease Investors and other

Individuals who are interested to know further about the financial soundness of the Islamic banking system in the Turkish banking sector, this study attempted to compare the profitability and liquidity management of Islamic and conventional banks and the Impact of the late financial global financial crisis on the Turkish banking sector.

1.4 Objectives of the study

The foremost objective of the study is to provide stakeholders understandings into how Islamic banks in Turkey work through the evaluation of the financial performance of the selected banks from 2005 to 2018, and investigating the effects both internal and external factors on Islamic and conventional banks during and post the global financial crisis.

The thesis proceeds as follows. Chapter 2 presents the literature review of the study and discusses the previous research conducted in banking, Islamic Banking, and Islamic Banking specific to Turkey. In it, the study formulates hypotheses based on the literature review.

Chapter 3 deals with the methodology of the thesis elucidating how research design and the sample size of the thesis was selected. It also explained the regression, correlation, and T-test analysis that the thesis employed. In chapter 4, the result of various regression analyses is discussed. Chapter 5 concludes and provides recommendations.

Chapter 2 - Literature Review

The purpose of this chapter is to draw the theoretical approach behind, in general, the banking system and describe how conventional and Islamic banking systems execute their

activities. Then, by summarizing the literature, this chapter enables to study the differences between conventional and Islamic banks in terms of characteristics and financial performance. Before we go further into financial intermediaries, it is appropriate to define the basic structure of financial markets, where funds are channeled easily from depositors to investors.

In general terms, the financial system as a whole is crucial for explaining and comprehending the economic progress that has been happing in the world for the last decades (Mishkin and Eakins 2015). It encompasses enormous financial players such as banks, mutual funds, investment banks and finance companies. Well-known financial markets such as the stock and bond markets are essential for high productivity in the economy(Mishkin and Eakins 2015). In order to link understand my research question's relevance, which is to examine the profitability of Islamic and conventional banks in Turkey, it is important to focus on the basic function of financial intermediaries and understand what makes them one of the most important participants in the financial system.

Therefore, it is clear to anyone that financial institutions play a pivotal role in the productivity of the overall economy, and without them, financial markets might not obtain enough capital to enable investors to invest in their business easily. Conventional banks, which play a significant role in the inflow of capital of the world, are financial institution rely on a full-featured intermediary model which simplify the process of fund rotation in the market (Ayub, M. 2013). However, As Allen, Franklin, and Anthony M. Santomero (2001) emphasize the traditional banking system which accepts deposits and turns into loans has been declining in important and alternatively, some other form of intermediaries is formulated, which provide to individuals the same service as traditional banks do such as pension funds and mutual funds etc.

Casu, Girdardone, Molyneux (2006) suggest the tendency of the depository to lend their savings into investors through financial intermediaries are the core foundation of banks, and that makes them the most valuable prayer in the market. With the purpose of defining the basic features of intermediaries, there are three main reasons for the existence of financial intermediaries: the divergences of interest between lenders and borrowers, problem of transaction costs, and the possibility of information asymmetries. Coupled with that, an individual would benefit the financial market either one of the following routes. Firstly, direct finance, the borrower would be able to access funds from savers by issuing financial instruments in financial markets. The second route is indirect finance, which mainly takes

place in the hand of financial intermediaries. Moreover, financial intermediaries are subject to stringent regulations and full observation controlled by central banks. Central banks are responsible for managing all the financial decisions made by financial institutions. One of the mainstays for intermediaries is to make available projects which are highly liquid and facilitate to transfer funds from savers to borrowers with less risk and low cost.

Even though all the financial intermediaries are essential to have in an economy, particularly banks are far significant than others, and they are the most substantial source that business often obtain funds to finance their businesses plans (Mishkin and Eakins 2015). According to Gurley and Shaw (1960), financial intermediaries are intended to transform the illiquid liabilities issued by corporates to liquid instruments held by clients. Moreover, if financial intermediaries would not exist, and the only route that one can benefit from the market is direct finance, small savers would not have attained the opportunity to participate in the financial market.

In general, one of inimitable method that financial intermediaries practice reducing the transaction costs is economies of scale, and that enables them to bundle different small savers and provide an opportunity to take advantage of the market. On the other side, one of the primary functions of financial intermediaries is to eradicate the asymmetric information in the market and minimize its cost on investor. Even though both government and private enterprise try to reduce the impact of asymmetric information on the efficiency of the financial market, it exists yet (Goldsmith 1969, Patrick 1966). The neoclassical model established the argument that financial intermediary can only exists and operate when the market is imperfect (Walras, L,1954). According to Ayub (2007), the objectives of Islamic and conventional banks are the same, which are to provide enough financial services to clients, though they have different strategies to attain them. The demands for Islamic institutions to operate under the scheme of financial intermediaries were approved by Islamic economists, bankers, and scholars (Ayub 2007). In general, by using economies of scale and expertise, financial intermediaries can enable to solve the market problem (Mishkin and Eakins 2015). Gharar, which means deception, is equivalent word for asymmetric information in Islamic finance (Ahmed, 2004; Nordin et al., 2014). Even though they deal differently with asymmetric information, Islamic and conventional banks aim to make available to small savers and borrowers to benefit from the financial market through economies of scale and expertise.

2.1 Functions and Importance of Conventional Banks

Before proceeding to discuss the importance of conventional banks, it would be more valuable to understand where a bank obtains funds from. Mostly, banks acquire funds from various sources such as checkable deposits, non-transaction deposits and borrowing from other institutions. According to Siddiqui and Shoaib (2011), Banks are a powerful channel which facilitates the implementation of monetary policies formulated by central banks. Standardly, there are two different forms for the conventional banking system. The first pattern is the commercial system, which is a system that makes profits from the difference between the interest rate of lending and borrowing. The primary source of commercial banks is non-transaction deposits, and almost half of their funds come from this type of deposits (Ocde 2010).

Commercial banks are financial institutions which provide financial services to individuals and business include giving loans and accepting deposits. They are shaped to execute all the trading activities. Besides, they help corporations, institutions, and the governments for issuing financial instruments in the financial market. Here one additional point is that investment banks neither accept deposit nor they offer loan and credit for individuals. The other exclusive services that only investment banks perform are derivatives, fixed income instruments, stock to corporations, and foreign exchange (Hanif, 2011). Globally, banks are required to split their investment and commercial banking service. However, the universal banking system is a system which enables banks to offer a variety of services to their customers and it is most common in European countries. Contrary, there are countries in which prohibit banks to practice this kind of banking system such as the USA (Jan Schildbach 2012).

According to Lewis (2008), commercial banks intend to promote the productivity of an overall economy. In addition, as many scholars define, the commercial banks are institutions which all of their operations ground on the predetermined interest rate. According to Fry (1995), financial institutions, include commercial banks, must meet two primary meanings. The first one is to help the system to generate enough money and manage where that money goes. Even though the central bank is responsible for overseeing the management of capital and has full authority to print money, financial intermediaries are partially accountable for managing and administrating the allocation of money. In general terms, the second obligation is to adjust a financial strategy which fulfils the financial needs of investors and lenders.

The last financial crisis in 2007/2008 caused many financial institutions to proclaim bankruptcy, such as Lehman Brothers, which was one of the largest investment banks in the USA. The global financial crisis in 2008 brought to light the resilience of Islamic banks and Islamic banks outperformed comparing to conventional banks (Hasan, M., & Dridi, J 2011).

2.2 History, Purpose and Literature review on Islamic Banking:

It is essential to explain the basic principle of Islamic banks, and most importantly, what is the Islamic banking system. Then, the next section will provide the background and core principle of Islamic financial system.

2.2.1 What Is Islamic banking system?

The foundation of Islamic law is to advocate socioeconomic justice, securing religious life and prosperity (Napier 2006). According to Alkassim (2005), the Islamic banking system is a financial system based on profit-loss sharing. The essential character of Islamic economics in the Muslim inhabitants is, completely, the prohibition of collecting and paying interest which, according to, Islamic sharia considers a sin. The basic principles of Islamic finance do not revoke the market forces and inspire anything enhances the well-functioning of the market. Similarly, Taqi Usmani (1998), emphasized that while Islam decrees to evaluate the business opportunity before it would be implemented and not willing to invest those sectors that Islam prohibits, the capitalists renders unbridled authority to profit motive to exploit the market.

The emergence of Islamic finance in the modern time was in 1963 (Gafoor 1995). However, Farrukh (1970), claims that the origin of Islamic finance has dated back to 1,400 years ago, and at that time, some financial structures, observed were resembling the modern banking forms. In addition, Nasser (1996) also argues that before resurgent of the Islamic banking system in 1963, the western banking model was a ubiquitous system because.

Muslim communities had not enough skills and knowledge to launch an alternative banking system which comply with Islamic principle as the golden age of Islam used. Molyneux and Iqbal (2005), highlight pre-1950s Muslims executed their financial needs without practicing interest and alternatively used mobilizing resources to finance productive activities and consumer needs. During 1950s up to 1960s, the process of devising and structuring the theoretical work for Islamic economics were commenced and Muslim economists presented the first explanation of Islamic banking system which fully relied on

Islamic principles (Greuning and Iqbal, 2008). Due to the oil bust in the Middle East in 1974, Islamic finance gained momentum in the global financial markets, and it grew significantly. The first Islamic banks incepted in UAE in 1974, followed by Islamic Development Bank in 1975 in Saudi Arabia (Kettell, 2007).

After the declared Islamic Development Bank, many Muslim countries proclaimed the inception of the financial system, which complies with Islamic principles (Lewis and Hassan 2007). For this reason, Sudan and Pakistan and Iran declared the adaptation of noninterest institutions entirely. Furthermore, commercial banks provide essential assistance to Islamic banks to overcome the initial challenges, such as giving commodities and resell them at a mark-up amount (Booz & Company 2008). That encourages western banks launching Islamic windows, which provides to their Muslim customers accessing products and services which comply with Islamic principles.

It becomes prominent in the financial market of the world the progress that the Islamic financial system has reached for the decades, and that growth continues since then. The intensity of the competition in the global financial market motivates the senior managers of Islamic banks devising well-suited strategy and inventing cost-effective financial products and services to compete on its counterpart system (Booz & Company 2008). Then, the Accounting and Auditing Organization for Islamic Financial institution (AAOIFI) launched in Bahrain on Feb 26, 1990 with the hope of minimizing the agency problems in Islamic financial institutions.

2.2.2 Core principle of Islamic banking

The fundamental concept of the Islamic banking system is to offer financial services and products which are free from interest rate (Lewis and Algaoud 2001). Formerly, El-Gamal, (2006) In Islamic law, money cannot be a subject-matter of commerce, but it is a medium of exchange. In other words, according to the Islamic principle, sharia-compliant banks cannot predetermine the rate of return on deposits and loans. In addition, almost all the operations that Islamic banks execute are grounded asset-backed financing. The Quran and Fiqh lay down at the heart of the Islamic financial system and they are where Muslim communities and scholars go back as a reference to test the permissibility of Islamic financial instruments. If the following requirement are met accurately in transactions, the system will be considered as Islamic system.

A. The prohibition of Interest rate: Islamic law prohibits to practise anything relating on interests and alternatively encourages to be done with free interests. It is obligated to Islamic banks to base their business strategies and investments in according to Islamic sharia and principles. In this regard, the predetermined payment is prohibited and the only and acceptable loan that Islamic sharia permit is Qard al-Hasan (good loan) (Kettell, 2007). Qard al-Hasan enables the investor to take advantage of the prohibition of the additional amount above the principal lent.
B. According to Islamic sharia, money cannot be more than the medium of exchange and Islamic finance offer alternatively to individual tangible assets. According to Arriff,1988), money can be capital when it is invested in real market.
C. Risk sharing: Since Islamic banking system is grounded on profit-loss sharing, the risk of the investment is distributed equally among parties. Following that, lenders of fund, which are in this case depositor, would Share the profit and loss generating by the project.
D. To prevent and minimize the adverse selection, Islamic law promotes the transparency of transaction and Islamic sharia considered transaction illegal if the parties do not have enough information about the quantity and quality of the product. Ismail (2001) defined that to eradicate any problems for the execution of the contract, business transactions must be write.
E. Gambling: Islam prohibit anything that is built by speculation and uncertainty. Lewis and Hassan, (2007), defined the term of Gharar as deciding for investment without ample information and excessive risk.
F. Zakat (levy), With the hope of enabling needy people to fill their needs, Islamic law obligates banks to pay a certain portion of their revenue to society (Khan and Bhatti 2008).

2.2.3 Theoretical framework of Islamic banking system

Ahmed (1994) argues Islamic commercial banks must root their activities on zero-based interest. Moreover, Islamic financial instruments are financial tools which serve to enhance the efficiency of the sector and promoting social life through presenting and inventing a valuable products and services. This section comprises two parts; the first one is to give a brief detail about the theoretical approaches of the Islamic banking system. Secondly, in order to excavate the essential difference between Islamic banks and commercial banks, the study

listed the most used financial instruments in Islamic banks of the world: Murabahah (Mark-up finance), Ijara (Leasing), Musharaka, (equity participation), Mudaraba (trustee finance contract), Bay'salam/istisna(deferred delivery), Bai Muajjal(deferred payment) and Qard al-Hasan(charity/beneficence loan).

2.2.4 Profit and Loss Sharing through direct equity participation

Islamic finance is regarded as institution which its entire activities constructed by the principle of Profit and Loss Sharing model (Nienhaus, 1983). According to Islamic principle, instead of seeking fund from debt market, one should finance his business opportunity with equity finance (Khan, Feisal 2010). In this regard, this context it reaffirms that during the process of joint venture all the applicant must bear with the profit and loss of the projects.

Therefore, in order to distribute equally the profit and loss, both parties must agree to share the profit and losses with a pre-decided ratio. Ahmed, W. (2000), once completely applied equity-finance in our financial activities, life would be full of prosperity, and the level of unemployment, inflation, and poverty will be diminishing because of it. As many economists believed that, Profit-loss-sharing instruments render Islamic banks an ability to deter the impact of the crisis and preserve their gains (Bourkhis, 2013: Hesses,2010: Khan,1987: Syed, Ali, 2007).

2.2.4.1 Musharaka (equity participation): this contract is designed to assist people for making joint venture. In it, all the partners of this business agreement have equal right from its commencement and persist being a partner up to the end of the joint venture. According to Islamic jurisprudence, shirkah is term which is commonly referred as Islamic modes of finance. This instrument, Musharaka, can alternatively render a funds which grounded on Islamic law to the people (Taqi, A, 1998). Under Islamic sharia, an institution must be away from attempting to predetermine the return while the sole of conventional operations is entirely rooted a prearranged interest. Therefore, Musharaka has no legitimacy to the envisaging the return of a project, instead of dealing with interest, the financer will attain a return in the way of sharing the real profit made by joint venture.

2.2.4.2 Mudaraba (trustee finance contract): This contract is intended to serve as kind of partnership which one financer decides to give fund to another for undertaking a specific trade. Therefore, the one who is the financer in this case is referred 'rabb-ul-mal' which accurately means the owner of the money. Besides, the responsibility of the other partner,

known as Mudaraba, is to manage the main operations. The mutual consent between parties is prerequisite condition before the actual contract has not been concluded.

Both parties have right at the beginning to define the portion of profit that one would be entitled and, in that moment, Islamic Shariah does not prescribe any ratio, but it acknowledged the importance of the mutual consent. Mudarab mode is designated for short-term contracts (Zaher and Hassan, 2001). However, according to Luca, Mitra (1998), this mode, Mudaraba, is split up into two parts: restricted Mudaraba and unrestricted Mudaraba. On the liability side of the balance sheet, the bank reaches an agreement with depositors for their capital, which provides full authority to use the capital, and that is referred to as unrestricted Mudaraba. On the assets side, according to the Mudaraba contract, the bank is limited by the contract, and the bank can only invest in the agreed upon project.

2.2.5 Non-participatory Islamic modes

Even though the well-renowned type of finance is profit and losses share, and many scholars argue that it is the sole means of Islamic finance, non-PLS is another technique which an investor could use alternatively (Sundarajan and Errico 2002, p.20). Trade-based modes (non-PLS) are just only practical in transitory situations where other instruments are not possible to exercise (Zaher and Hassan 2001). Siddiqui (2002, p.175) argues that as long as the risk is distributed equally to both parties . The main non-pls type are the following: Murabahah (Mark-up finance), Ijara (Leasing), Bay'salam/istisna (deferred delivery), Bai muajjal (deferred payment), jo'alah(service fee), and Qard al hasana(charity/beneficence loan).

2.2.5.1 Murabahah (Mark-up finance): It is one of the pioneer products in which Islamic institutions presented in the market in 1970 (Brill 2002). Murabaha is one of the commonly exercised for a short-term investment in the financial market. Almost 75 percent of operations running by Islamic banks are Murabaha contracts. In the initial period of Islamic empire, Muslim communities were using it as a sale and doing their business transactions accordingly, which occurred on spot of an activity had been executed, but not deferred payment (Iqbal 2000). In general, Murabaha contract is used in transitory situations, where other instruments are not possible to use them. The cost-plus (Murabaha) is intended to exercise for using commodity and trade financing (Rahman, Yahiya Abdul 2010).

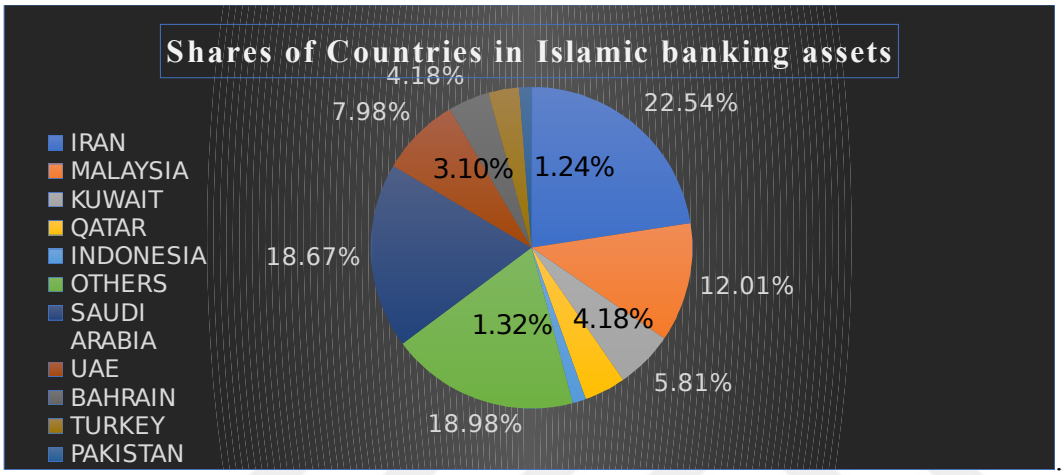
According to Siddiqi (n.d), there is a heated debate on the permissibility of this financial mode within Muslim scholars. In the light of what is written on the Qur'an Islam consider it as sale that operates as bargaining system in which the revealing of price is not obligatory to the seller. On the other side of the argument, Zineldin (1990), states that all the criticisms made on this model had no significant evidence. There are two Murabaha contracts: one which happens between the client and the bank and the second type is between the supplier and the bank. Before both parties (institution and client) agreed on the contract, the existence of the item must be observed at the time of the agreement. Otherwise, it would not be acceptable. Following that, unless it is in the possession of the seller, during the sale process, the seller (institution) has no legitimacy to implement that contract and Islamic sharia prohibited kind of that practice.

2.2.5.2 Tawarruq (Monetization): This type of financial mode is considered as a type of Murabaha contracts. Large number of Islamic institutions use this instrument for short-term. It is designated to link the bank and client. During the process, the bank would buy certain products from suppliers on behalf of client and resale it with a margin profit (Iqbal and Abbas 2007). Importantly, the product must be brought to the market by the client in order to obtain liquid money (Ahmed 1994).

2.2.5.3 Ijara (Leasing): According to Fiqh, the term Ijara means the consent of renting something. Ijara is a leasing contract. In this process, institution exercise this contract by purchasing assets for a client and rent it to the client for a fixed payment. During this process, the possession of this asset will be under the institution's authority, and the transfer of this asset to the client could be done gradually. It is utterly executed for equipment, vehicles consumer goods, home financing. The client has no right to obtaining the leased asset in instalments, but he can practice kind of that desire at the end of the lease period. Like other instruments, both parties must share the risk involved in the lease. In conventional leasing, the market rate of interest determines the risk of the lease, while the risk of Islamic banks based their risk on profitability of the asset and the cash flows (Zineldin 1990).

2.2.5.4 Bay Mu'ajjal (deferred payment): it is a sale contract which involves a credit sale of commodity through the process of deferring payment. **Bay'Salam (deferred delivery):** this is also another type of sale contract in Islamic financial system. The basic requirement of this contract is that the purchaser must pay the payment in advance, but the delivery will be sent at an agreed future date (Taqi, Arham 1998).

Figure 1



Source: EY world Islamic Banking Competitiveness report 2014-2015-PBAT.

As of 2014-2015 in all the countries where Islamic finance is operational, Iran has the most comprehensive asset volume by 29.1%, while Saudi Arabia was ranked second at 24.1%. Followed by Malaysia, Indonesia, Bahrain. According to this information, Turkey placed in 8th in terms of asset size with a share of 4%.

In Table 1 below, I summarize the difference between principals, tools and the operational practices used by Islamic banks and commercial banking system.

Table (1): Basic Difference between Islamic and Conventional Banking System.

Description	Islamic Banking System	Commercial Banking System
Principles	Islamic Law principles	Conventional principles
Financial Tools	Profit and Loss sharing	Predetermined return on investments
Principles	Based on interest free transactions	All the transactions are done through interest-based system
Operational Practice	Partners, investor and seller, and buyer's affairs with the customer	Creditor and debtor relationship with the clients
Operational Practice	Underlines the importance of assessing the possibility of the projects instead of creditworthiness.	Consider on creditworthiness of the customers.
Principles	Money can only be used for exchange	Money is considered as commodity
Principles	Obligating the collection of Zakat	Do not deal with Zakat
Operations	Deposit account are guaranteed not all the deposits	Promise all deposits
Operations	Investor funds and capital funds are separated	All the funds are encompassed
Financial Instruments	Musharaka are exercised	Direct cash loans are provided to clients
Principles	Certain transactions are not permitted include gambling, alcohols, interest-based transactions	All the transactions are allowed
Operational Practice	When a client does not pay the amount borrowed, Islamic banks can charge penalty for deferring payment, which will be considered as a charity.	Additional amount is charged at time of deferring payment.

2.3 Literature review of Bank's profitability

The banking sector has been essential for capital flow in different markets around the world. Equally important, to accomplish financial stability and growth, it is indispensable to recognize factors that determine the financial performance of the sector as whole. The two

common measurements that often used by contemporary studies to determine the performance of banks are internal and external factors (Alkassim, 2005). Therefore, this study used the internal and external determinants to compare the performance of commercial and Islamic banks during the late global financial crisis. As mentioned above, internal determinants include ROA and ROE, which enable firm to make an accurate assessment to the managerial performance. In addition, as inflation and interest rate are external determinants, banks have no direct control over them.

The following section presents different literature for comparison of commercial and Islamic banks in terms of financial performance in different regions around the world. Available literatures emphasize that good evaluations help all parties in the sector to determine the financial position of a bank.

2.3.1 Profitability of Conventional Banks.

A large number of researches have focused to study the primary factors determinant the profitability of commercial banks. One of those studies was done by Flamini, Schumacher (2009) attempt to examine the profitability of commercial banks in Sub-Saharan Africa. The sample of the study was 398 banks in 41 countries which all located in Sub-Saharan Africa. As usual, the study employed return on assets as main measurement of profitability of the banks. Since the study aimed to explore the determinants of profitability, the study selected internal and external factors. The Internal factors used in this study are Bank size, capital risk, cost management, activity mix, market power. While the external factors have been GDP, inflation, and regulation. The findings of this study suggest that the larger the bank is the higher the return on assets and similar to other internal factors. when it comes to external factors, well-performed economic and low inflation would probably lead to high profitability for a bank.

Spathis, Kosmidou, and Doumpos (2002) attempt to discover the primary factors which have direct effect on the profitability of banking system in Greece. The study measures the role of banks' size in the effectiveness and efficiency in Greece's banking system by employing some financial ratios of profitability include return on equity, return on assets, and net interest margin. Seven large banks and sixteen small banks chosen as sample over the period of 1990-1999 and panel data were used. Regardless of bank's type, the study found that large banks are more effective and efficiency than small banks. Besides, the study also indicates that small banks have more return on equity, Net interest margin and capital

adequacy than large banks. Contrary, large banks are also deemed as high return on assets, low Net Interest Margin (MARG) and capital adequacy.

Ben N. (2003) examines the effect of financial structure, macroeconomic indicators, and bank's features on profitability and net interest margins in Tunisia from 1980 to 2000. The study employs both external and internal determinants and takes capital ratio, liquidity ratios as internal factors and GDP growth, inflation, and financial structures for external factors. The study concluded that there is a negative relationship between net interest margin and bank size. Therefore, all the banks were selected by this study hold large overhead expenses and capital.

The findings indicate that all the external factors have no whatsoever effect on the profitability of the Tunisian banking system. The last global financial crisis motived various researchers to initiate the process of assessing the impact of the crisis on the financial performance of banks. On the study conducted by Tarawneh (2006) examines the financial performance of commercial banks in Omani during 1999-2003. The number of banks selected for sample were five. He selected five variables include total deposits, total credits, total assets, shareholders' equity, return on equity, return on assets and return on deposits in this case. In addition, the operational efficiency measures an operating efficiency ratio (interest income to interest expense). At the end, the study suggests that operational efficiency, bank size and asset management have strong influence on the financial performance of Omani commercial banks. Indeed, he underlined that having higher total credit, total capital deposits and total assets cannot be deemed as better profitability performance. In addition, Ghazavi, and Bayraktar (2018), try to compare the financial performance of six conventional banks listed in Turkish banks from 2005 to 2016 by using CAMELS approach.

2.3.2 Profitability of Islamic Banks and comparison with conventional banks.

Recently, the number of studies concentrate on comparative performance between conventional and Islamic banks has accrued. Furthermore, most contemporary literature has used all kind of financial ratios that are used in determining the financial position of a bank. Hasan and Dridi (2011) attempt to present the consequence of the global financial crisis to Islamic and conventional banks in terms of profitability, credit and asset growth. The sample of 120 conventional and Islamic banks were chosen for the study and all of them are in GCC countries. The result shows that the crisis has profoundly affected on conventional banks comparing to its influence on Islamic banks. Moreover, even though certain scholars argue

that Islamic banks are resilient crisis over conventional banks, the profit of Islamic banks shrank in 2009 (Sanaullah, Rehman 2011). Bashir (2003) attempts to study the main influence of eighteen Islamic banks performance in eight countries such Turkey, Qatar, Sudan, Kuwait, Egypt, Bahrain, Jordan, and UAE between 1993 and 1998. Net non-interest margin, before tax profit to total assets, return on assets, and return on equity was selected as a measurement for performance.

Banks perform an essential role in the economic allocation of resource. Following that, the unique modes of operations in the Islamic banking system commenced around 1970s and that renders it a distinctive feature to differentiate from the commercial banking system. Sabi (1996), the most prevalent type of analysis used for the evaluation of bank's performance is either intern-bank analysis or external analysis. Samad and Hassan (1999) deliberate the performance of Bank Islam of Malaysia Berthed (BIMB) in the period 1984 to 1997. The study compares BIMB, which is one of the oldest Islamic financial institutions in Malaysia, to eight conventional banks in terms of profitability, liquidity, risk and solvency. The results show that BIMB are less risky and high liquid and solvency than conventional banks. However, as a result depicted conventional banks are more profitable than the Islamic banks.

Brown (2003) initiates a study which he intended to evaluate the efficiency of Islamic banks in different countries using Data Envelopment Analysis cost efficiency and financial ratios. The sample includes 19 countries all located in Asia, the Middle East and North Africa. The study depicts that Iran, Kuwait and Saudi Arabia were considered the largest markets when it comes to assets size. The study also emphasizes that Saudi Arabia became the largest equity holder among others, while Iran has a low equity level. The study shows that the profit, which is measured by return on assets and return on equity, generated by those banks for each year varied among countries. Based on the study, by comparing the cost efficiency to the ratio cost efficiency, the result indicates that there are no significant correlations between them.

Even though the current evidence in the market does not reveal any superiority for Islamic system over conventional banks in terms of returns, when it comes to liquidity, risky Islamic banks are better off than the interest-bearing banks (Samad and Hassan 1999). Ayub and Mumtaz (2012) study the financial performance of commercial and Islamic banks in Pakistan. The study selects Al-Baraka for Islamic banks and five for commercial. The findings reveal that Al-Baraka bank was behind other five commercial banks in terms of return on assets and return on equity. Haron (1996) undertaken to explore the core factors shaping the profitability

of Islamic banks. The study employed all internal-bank and external determinants. Based on their findings, all the main sources that Islamic banks attain funds form have positive impact on profitability. The study also identified that other economic variables which have a significant impact on profits of both types of the banks are interest rates, inflation, and size. Because of Islamic sharia prescribed that all operations should adhere on asset-backing finance and prohibited short-term Instruments like repurchase agreements and certificate deposit, the contemporary challenges that Islamic banks confront is higher liquidity risk comparing to its counterpart (Basher, Syed Abul, Kessler and Munkin 2017). In contrast, due to the prohibition of investing any business activities involve in speculation, interest, and gambling, Islamic banks face less risk regarding liquidity than conventional banks (Choi, J.J, 2010). He also demonstrates the secret key behind the excess liquidity for Islamic banks, in general, resulting from enough cash reserve they hold.

According to research conducted by Eltabakh, Mohamed (2014), all the financial parameters that this study employed, except debt to equity ratio and debt to total assets ratio, had a positive impact on the profitability of Islamic banks after the global financial crisis in 2008. That suggested to Islamic banks to raise the profit the value of both debt to equity and debt to total assets rations must be at the lowest level and rather they must consider increasing the equity. Following that, nor bank size had an important impact on the profitability of Islamic banks, but small banks can also be more lucrative than large Islamic banks. For the last decades, the attempts of trying to discover the actual determinants of bank's profitability has been on the surface.

In almost every market in the world, the market size held by conventional banks is larger than the market size of Islamic banks (Eltabakh, Mohamed 2014). In Kenya, the conventional banks are far more ahead than Islamic banks in terms of capital adequacy, asset quality, management quality, earnings, and liquidity (Jamal, 2011). Based on this study, he also underlines that when it comes to asset quality, management quality, earnings, and liquidity there was not that much difference between them.

2.4 Turkish Banking Sector

The Turkish banking system contains three parts: Islamic banks, commercial banks and investment banks & development banks (Dincer H. 2011). The financial sector, globally, is the most regulated industry in every part of the world (Mishkin and Eakins 2015). During the Ottoman Empire, Turkish banking sector had not made further progress, and many argued that

Ottoman Empire failed to initiate a decisive action to create a solid financial system to stimulate the development of the sector and enhance personal wealth (Gormez,Yuksel 2008). In line with that, one reason why the Ottoman Empire failed to use its resources the best way and merit the existence of the financial system is the Islamic principles, which prohibit the payment and taking of interest in borrowing and lending.

The common system at that era was the western banking system, which operates under giving and collecting interest. However, the collapse of the Ottoman Empire inspired the declaration of an independent state. Following that, the decay of the Ottoman Empire left heavy financial obligations to the infant Turkish Republic, and that became an inevitable barrier for the state. The Turkish banking system paved its progress and adopted secularism principles. Under secularism system, religion has no role in controlling the financial activities in the market and the usage of interest was permitted on any financial transactions and personal wealth creation (Gormez,Yuksel 2008). The outstanding debt left by the Ottoman Empire was one of the toughest times the state passed through, and the last payment made by the Turkish Republic was in the 1950s (Gormez, Yuksel 2008). At that time, the infant Turkish state faced some financial challenges such us lack adequate money. Then it began to settle a formal request the central bank of the Ottoman Empire to assist to overcome that challenge and provide money to the state.

In modern times, The Turkish Banking sector has witnessed a moment of volatility in the 21st century in terms of interest rates and high inflation rates (Aysan, Faruk, and Ceyhan 2008). In the first quarter of the 21st century, especially in 2000 and 2001, the financial sector of Turkey has been ruined by several financial crises similar to other emerging markets which include Mexico, Sweden, Thailand, Malaysia, Korea, Philippines, Paraguay, Russia, Argentina and Indonesia (Ozkan, Nur and Tektas 2006).

Based on this study, all the movements that were appearing in the financial sector in the 1990s were rooted in political pressures, which targeted to augment the number of banks operated in the financial markets. Due to that, the significance of keeping under surveillance to all the financial issues which need the most very stringent regulations were not given so much importance, such as management quality and competence, so that many banks, which were their infant stage, have asserted bankruptcy (Gormez,Yuksel 2008). Regarding that crisis and the lack of applicable financial policies, the government determined to regenerate the financial rules and initiated some rehabilitation programs in May 2001 (Al and Aysan 2006).

Since then, by getting intense support from a program for transition to a strong economy that was commenced by the government to enhance the structural frame of the banking sector. The government and private institutions have maintained a consensus on the restructuring the laws. According to Ozkan, Nur, and Tektas (2006), the central causes of that crisis were the lack of effective banking practices and lack of implementing the process of diversifying revenue, inadequate capital, lack of contemplating credit risk assessment, high nonperforming loans. The Turkish banking sector went through reforms in terms of regulations and because of that, the stability of the sector has been obvious ever since.

BRSA (Banking Regulation and Supervision Agency) the watchdog of Turkish banking sector, was found on June 23, 1999. This agency is responsible for regulating and safeguarding the efficiency of the sector. It revealed in its report published in 2018 that in terms of percentages the net profit made by all banks, include participation banks and commercial banks, reached $ 10.16 billion which is 10% on year-on-year basis. In 2017, the net profit of banking was $12.88 billion, and that means the net profit obtained by banks from the market in 2018 was less than the net profit of previous years. On the other side, the total assets of Turkish banking sector have accrued by 6.7% in 2017. The shareholder's return has been raised at $80 billion in 2018 and the capital ratio registered at that year was 17.3%. furthermore, at the end of 2018, the amount of loan was estimated around $10.21 Billion.

The impact of heavy waves of mergers and acquisitions on the global financial sector has been prominent recently (Alhanhanah, Waleed M, 2019). Similar to this trend, the Turkish banking sector has also been through substantial mergers and acquisitions for the last decades, because Turkish banking sector needed capital (Alhanhanah, Waleed M, 2019). Generally, mergers and acquisition are designated to revivify those banks struggling financial problems and brings back into the system (Campa and Hernando, 2005). The enactment of new regulations promoted the main changes occurred in Turkish financial sector and due to the foreign direct investment law enacted in 2003, large number of local banks were acquired by foreign banks. As result, the stock market boomed substantially. The recent mergers and acquisition occurred in Turkey are intended for promoting profit, enhancing the productivity of the sector, and diminishing the costs (Çink and Avcı, 2008).

2.4.1 The Impact of Global Financial Crisis on the Banking sector of Turkey.

It is prominent that the late financial crisis in 2008 caused the failure of many commercial banks worldwide. According to Ocde (2010), this crisis has influenced severely

banks, which depend on wholesale findings, while those obtain funds from depositors were more resilient and not suffering the crisis. On other hand, there is an argument which underlines why the impact of global financial crisis on Islamic finance was not that much and built a reason which says Islamic principle helped Islamic banks to prevent and shield them from any catastrophe impact of the crisis.

According to Hasan, Mohamad, and Jemma (2010), the risk-sharing principle, discouraging debt-like sale, short-term contracts, uncertainty and the prohibition of selling assets that has not yet owned, are those principles which protected Islamic institutions from the crisis. The late global financial crisis has also impacted the stability of the banking sector of Turkey. However, due to the restructuring strategy implemented by the government in the financial sector, the effect of the crisis on the Turkish economy, particularly the financial sector, was limited TBAT[2], 2009. Following that, the reason behind this limitation is that Turkish banks were holding during the crisis a high capital adequacy ratio, asset quality, and low liquidity and currency risk. In line with that, to precisely evaluate the impact of the late crisis in 2008 on Turkish banking sector, credit/deposit ratio, non-performing loan/credits ratio and profit/assets ratio were used to give serious look at the crisis. The credit/deposit ratio illustrated that, during mid-2008, it diminished fairly. The second ration, non-performing loan/credits ratio, suggested that, despite the accumulation it made in previous years, lower rate has been recorded in 2008.

Originally, the crises have begun from the real estates and subprime mortgages in the USA, and they suffer a lack of enough liquidity and bad creditworthy (Khan 1987). During the crisis, the Turkish banking sector has grown significantly, and the credit rating also improved momentum, unlike other countries (Yörükoğlu, Mehmet and Atasoy 2010). As being stated earlier, the crisis has not damaged drastically to the stability of the Turkish banking sector (Aras, Nuri 2010). Based on that, Turkish banks were in better off in capital adequacy, assets, profitability, and equity compared to other countries in G-20. During the crisis, the Turkish banking sector had a solid value in terms of loans and deposits to GDP ratio (TBAT,2009). According to BRSA, while most of well-regulated financial markets of the world suffered severe financial panic, Turkish financial sector generated an impressive profit. However, the interest risk has raised because of the difference between the maturity of long-term assets and short-term liabilities (CBRT[3],2009).

2 The Banks Association of Turkey.
3 Central Bank of the Republic of Turkey.

2.4.2 Islamic Finance in Turkey.

Islamic banking system was launched in Turkey in 1985 under the name of Special Finance Houses (SFH). SFHs were serving to provide a wide range of financial products and services which full grounded on Islamic sharia. At the end of 1996, there were four SFHs in operation. The law enacted in 1999 brought commercial and SFHs together under the same regulatory framework. In 2005 new regulations were proclaimed with the hope of structuring the legal framework of banking sector. Because of that regulations, the name of Special Finance Houses changed into the name of Participation banks, which is the current trademark of Islamic finance in Turkey (Arslan, Bengul, Etem, 2010).

The participation banking sector in Turkey gained meaning for the last 30 years. The first institution which operated under the Islamic law in Turkey was AL Baraka Turk which launched in 1984. In addition, Participation banks Association of Turkey and the Government of Turkey have set strategies for total financial assets in 2023 which they anticipated to reach 15%, which can be translated to $173 billion. According to the World Bank report in 2019, Emlak Katilim Bank, a stated-owned Islamic bank, became the sixth participant. This new bank intended to focus on the real estate sectors. Coupled with this report, the total assets held by participation banks in December 2018 was $38.9 billion. Comparing to the total assets it made in 2017, which was 4.9%, Participation banks made astonishing progress in 2018 by capturing approximately 5.3% of the market share.

Tables 2, and 3 illustrate the total assets of Participation Banks and provide detailed information about the rules and regulation for Islamic banks and when they were enacted.

Table (2). Participation banks Licensed in Turkey.

Banks	Shariah Compliant Assets $M
1. Kuveyt Türk	14,059,152
2. Albaraka	7,996,903
3. Türkiye Finance	8,911,455
4. Ziraat Katilim	4,202.424
5. Vakif Katilim	3,968,846

Source: The BRSA. **December 31, 2018**

Table (3) Summary of Islamic Banks in Turkey.

1983	Special finance House law was enacted.
1984	The first Special finance House, Albaraka, was launched.
2005	Participation banks were initiated by enacted a new law.
2009	The earliest Takaful company entered in the financial market of Turkey.
2010	The first Sukuk was issued.
2010	The firs lease Sukuk was introduced to the market.
2011	The first Islamic index implemented in the market.
2011	First Islamic private pension firm was registered.
2012	The treasure issued its first sovereign sukuk.
2015	Three state-owned participation banks were launched.
2015	The first takaful cooperative were introduced.
2019	Sharia Board are presented.

Source: PSIFIs (Prudential and Structural Islamic Financial indicators), IFSB (Islamic Financial Services Board Workings) Secretariat Workings.

2.5 Hypotheses Development.

The concept of Islamic banks has unique different missions and objectives than traditional banks that completely adhere strictly to Islamic principles. The interest-free system does not exist for making available products and services based on the interest rate, rather designates to offer financial instruments free from the interest rate. In general, maintaining a stabilized financial sector relies on the financial performance of banks profoundly, then the whole economy would enable to bear negative and external financial shocks and playing a pivotal role in stabilizing the sector.

Athanasoglou (2005) focuses on the determinants of the financial performance of Islamic and traditional banks in Qatar. He aims to explore whether there is a significant difference between Return on Assets and Return on Equity of traditional and Islamic banks and concluded that a significant difference was observed between them in terms of profitability. Metwally (1997) argues that the two systems might be a divergence in respect of credit risk, liquidity, and leverage, but not in terms of efficiency and profitability. Hasan, Dridi (2011)

demonstrate that during the financial crisis in 2008, there were important challenges need to be addressed that had directly affected the profitability of Islamic banks.

There are studies conducted on Turkey aiming to compare Islamic and conventional banks. One of them conducted by Charap., M. J., & Cevik, M. S, (2011), aim to examine the practical behaviour of Islamic and conventional banks in terms of rate of return and profit and loss sharing accounts in Turkey and Malaysia. Likewise, Maher Hassan and Jemma Dridi (2010) look at the impact of the financial crisis in 2008 on Islamic and conventional banks in eight countries, including Turkey. However, all the contemporary literatures for comparison of Islamic banks do not look at profitability of Islamic and conventional banks and the effect of the crisis at contemporaneous.

To determine whether the suggestions made by previous studies resemble the contemporary situation of the financial performance of Islamic and conventional banks in Turkey, and to make the research more purposeful and objective, the study develops five hypotheses based on literature review.

H1: There is a significant difference between Islamic and Conventional banks with respect to profitability (measured using Return on Assets and Return on Equity).

H2: There is a significant difference between Islamic and Conventional banks with respect to liquidity (measured using cash to deposit ratio and loan to deposit ratio).

H3: Significant other factors influence the profitability of Islamic and Conventional banks in Return on Assets and Returns on Equity.

H4: The profitability and liquidity of Conventional banks and Islamic banks behaved differently during the most recent Global Financial Crisis of 2007-2008.

H5: The profitability and liquidity of conventional banks and Islamic banks behaved differently after the most recent Global financial crisis of 2007-2008.

Chapter 3-Methodology

This chapter will render the methodological scheme of the study and address the definitions of the variables used in my econometric model. Following that, the study will also present below all banks existing in Turkish banking sector and disclosure how the sample size has been chosen. Then, it will introduce all tools that will be practiced in the study to achieve the mainstay of this paper such as financial ratios and model.

3.1 Research Design

Research design is significant in reaching a reliable conclusion; therefore, the study must consider and devise a well-planned research design. It is essential to have research design in the study and almost every type of empirical research has that. Yin (2009) defines that research design is the reasonable categorization which links the empirical data to the initial research questions as well as its conclusion. To attain the study's objectives, the study implemented a quantitative methodology. As underlined earlier, the goal of this study is to provide investors or stakeholders full information about the foundation of Turkish banking sector and how it works by evaluating and analysing the financial positions of selected banks.

3.2 Specific objectives

1. To explore the role of Islamic banks in Turkish banking sector.
2. To measure and evaluate the financial performance of each system between 2005 and 2018 by using econometric techniques.
3. To examine the influence of capital adequacy on profitability of Islamic and conventional banks by using some financial indicators, namely equity to total assets, equity to total liabilities, and equity to net loan.
4. To investigate the effect of asset quality on ROA, and ROE of Islamic and conventional banks by adopting some financial ratios which are under CAMELS approach, such as loan to total assets, and fixed to total assets.
5. To explore the main effect of efficiency managements on profitability of Islamic and conventional banks through the following ratios, net interest income to total assets, and net interest income to net interest expense.
6. To examine the impact of sensitivity measures on financial performance of Turkish banks by adopting the internal indicator, namely Net interest income to non-interest expenses.
7. To examine the influence of liquidity indicators on the financial performance of Islamic and conventional banks of the Turkish banking sector.
8. To explore the impact of external determinants, namely inflation, the interest rate on ROA, and ROE of Islamic and conventional banks.
9. To examine the impact bank size, measured by Natural logarithm of total asset, on the financial performance of the Turkish banking sector.

3.3 CAMELS Framework.

CAMELS approach is a rating system which often used to evaluate and assess the financial performance of banks. Recently, the practices of CAMELS framework in banking industry has become standard and many uses this to examine the financial performance and soundness of a bank (Roman & Hudgins, 2010). The first rating system which ground on CAMELS indicators was introduced in the USA (Kaya, 2001). Generally, to examine the soundness of the financial conditions of banks, the central banks are in charge to monitor and supervisor banks through a CAMELS approach (Doumpos & Zopounidis,2010). According to Klomp, J., & De Haan, J, (2012) profound consensus on the empirical literature which

emphasizes the importance of CAMEL indicators to scrutinizes the financial situation of banks has been reached.

There are three entities which often use this approach: credit agencies, auditor and bank regulators (Pasiouras et al 2006). According to Kao & Liu (2004), the most known approach in the industry is the CAMELS framework, and it contains six compounds. Holdsworth (1993) presented the effectiveness of the CAMELS ratings approach and proposed that to prevent any financial misinformation, this approach enables to produce an accurate information which facilitates regulatory to assess the overall performance of banks.

This approach is very appropriate in determining the financial performance of a bank and anticipate the future as well (Salhuteru & Wattimena, 2015). As the aforementioned studies outlined, this study considered the adaptation of CAMELS approaches as a suitable approach since the contemporary studies pursuing similar objectives employed this approach. The main components are Capital adequacy, Asset quality, Management, Earnings and Liquidity and Sensitivity. It contains 27 ratios. Due to a lack of sufficient information about the financial statements of Islamic banks, this study has used thirteen ratios. Because some of ratios relate to interest rate which are not applicable to the principles of Islamic banking system.

3.4 Performance Measurement of Banks

According to Ahmad, Nor., Mohamad Akbar (2011), the standard measures for the profitability of bank are ROE, and ROA and anyone willing to evaluate the financial performance of Islamic and conventional banks can use these to determine the financial soundness of a bank. I base my analysis on the indicators of the CAMELS approach through calculating ratios that are mentioned under this approach. Nevertheless, there are some ratios which the study does not include into the model due to inapplicability to the Islamic banking system. Below I present the importance and use of ROA and ROE in the literature.

With the hope of finding answers to the research question, in addition to ROA and ROE, numerous control variables will be used. The following ratios are designed to evaluate a firm's financial health and examine the operational situation of a company. By looking at the financial statement, an investor would obtain information about the current financial position of a firm in the market and determines whether the business is making expansion or weakening (Acca 1996). The study employs both internal and external determinants to

examine the financial performance of conventional and Islamic banks in Turkey and following variables were used: profitability ratios, liquidity ratios, capital adequacy ratios, management efficiency, asset quality, Bank size, inflation and interest rate. As Table 4 indicates the number of independent variables is thirteen, while dependent variables are two.

Table (4) List of Variables.

	Variables	Notation	Source	
– **Dependent Variables.**	Profitability	**ROA**	Ramlan, Hamidah and Adnan 2016), (Ross,1994, Sabi, 1996, Hassan, 1999, and Samad, 1998), (Popovici, cosmin 2014), Kishore (2012)	USD, percentage.
		ROE		USD, percentage.
– **Independent variables**	Capital-Adequacy(Total equity/Total assets)	**CAR**	Ramlan, Hamidah and Adnan 2016)	USD, percentage.
	Equity/Total Liabilities		(Ghazavi, Masoud, and Sema Bayraktar 2018)	USD, percentage.
	Equity/Net Loans		(Besides, Bashir and Hassan 2003),	USD, percentage.
	Asset Quality (Total loan/Total assets)	**ASQ**	(Ahmad Nor Hayati Bt, and Mohamad Akbar 2011).	USD, percentage.
	Fixed Assets/Total Assets		(Ghazavi, Masoud, and Sema Bayraktar 2018)	USD, percentage.
	Management-efficiency(interest income/ interest expenses)	**ME_EF**	(Bashir, Abdel-Hameed M 2003)	USD, percentage.
	Net-Interest-Income/Non-Interest Expenses			USD, percentage.
	Liquidity (Loan/Deposit)	**LQR**	Samad, Abdus, and M kabir Hassan (2006)	USD, percentage.
	Cash/Deposits			USD, percentage.
	Sensitivity-(Net-Interest Income/Total Assets)	**RS**	(Ghazavi, Masoud, and Sema Bayraktar 2018)	USD, percentage.
	Bank Size	**LSIZE**	(Boyd, John H, and Dvid E. Runkle 1993)	Log
	Inflation rate.	**Infla**	(Smith Gary 1991)	Percentage.
	Interest rate	**Intr-rate**	(Samuelson, Paul A 1945)	Percentage.

3.4.1 Profitability ratios

Profitability ratios are defined as a type of financial metrics which serve to evaluate a business's competence to produce earnings relative to its revenue. Masud, Hossain and Rekha (2016) delineated, having extreme profitability ratios can be considered as better performance. In general, these financial ratios, profitability ratios, provides a clear clue about how properly firm utilizes its currents assets to extant and generate profits which enhances the shareholder's value.

Hasan, Mohamad, and Jemma (2010), used profitability ratios to analyze the effects of late global financial crisis on the financial performance of Islamic and conventional banks. As

this study explains above, profitability can be reached through ROA, ROE and therefore, ROA and ROE are those indicators that often employed by a financial analyst to determine the managerial efficiency of a bank (Ross,1994, Sabi, 1996, Hassan, 1999, and Samad, 1998).

Return on assets (ROA): is used to measure a bank's competence in using its assets to produce an abnormal return (Popovici, Mihaita-Cosmin 2014).

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

Return on equity (ROE): The return on average equity shows the level of the performance of a bank and it is used to measure the profitability of a bank over a financial year. Using these ratios help an investor to attain a further image of the bank's profitability. As Popovici, Cosmin (2014) acknowledged, this ratio can only be used in certain situations where the value of equity has altered substantially in the financial year. Kishore (2012) employed these two financial ratios to compare the profitability of banks in Australia and the USA, New Zealand. Heffernan and Fu (2010) have similarly applied return on average assets and return on average equity in the assessment of Chinese banking performance. Besides, a study conducted by Sufian, Habibullah (2009), also implemented these two ratios to analyze the performance of 37 commercial banks in Bangladesh in 1997 and 2004.

$$ROE = \frac{Net\ Income}{Total\ Equity}$$

3.4.2 Liquidity Ratios

Liquidity management performs a very pivotal role in the process of that a company reimburses its obligations such as operating and financial expenses, which are short term. Brigham and Houston (1998), described liquidity as the ability of a company to pay its short-term obligations. Companies often hold enough cash (liquid assets) to meet their short-term obligations. Therefore, Companies often hold enough cash (liquid assets) in order to meet their short-term obligations. Therefore, liquidity ratios facilitate them to evaluate that and check, whether the business would be able to meet those payment obligations by equating the near future cash- flows, and the cash. The cash generated by the current assets of the company has a direct influence on the firm's liquidity level (Saleem, Qasim and Rehman 2011). The required liquidity stage determines the balance sheet of a company (Basno, Dardac 2004). According to Dedu (2003), one of the extreme risks that a company might face during the operation is the liquidity risk. IFRS (The International Accounting Standards) defined

liquidity as available cash for future payment. The required aspects that liquid asset is needed to have is easily convert into cash, less credit risk, remaining maturity which compatible with the near-cash flows and it should be money-making assets (Saleem, Qasim and Rehman 2011).

Cash Deposit Ratio (CDR) ¿ $\frac{Cash}{Deposit}$ **:** As this ratio illustrates a higher CDR suggests that a bank is relatively liquid.

Loan Deposit Ratio (LDR) ¿ $\frac{Loan}{Deposit}$ **:** This ratio suggests that a higher loan deposit ratio can be interpreted as a bank takes more financial stress by creating excessive loan.

3.4.3 Management Efficiency Ratios (EFF)

The function of management efficiency ratio is to indicate the efficiency of a company's management and to estimate how effectively an institution using its assets. In general, once the management efficiency ratio is climbing up that indicates a bank make a substantial profit from its ongoing projects. Bashir, Abdel-Hameed M (2003) used these ratios to explore the main determinants of the profitability of Islamic banks in the Middle East. Therefore, the study chose the following two ratios for comparing the financial performance of Islamic and commercial banks.

Efficiency (EFF) ¿ $\frac{Interest\ Income}{Interest\ Expense}$ **EFF=** $\frac{Net\ Interest\ Income}{Non-Interest\ expenses}$

3.4.4 Capital Adequacy Ratios

The capital adequacy ratios, which also referred capital-to-risk weighted assets ratio, are designed to keep the depositors any financial disrupts. These ratios operate to indicate the financial stability of the banking sector and Its capacity for retrieving quickly from financial difficulties. Capital Asset Ratio (CAR), which is one of the ratios that will be used in this study, were employed by Iqbal (2001) to measure the capital adequacy. Besides, Bashir and Hassan (2003), as aimed to measure capital adequacy, chose Equity/Liabilities ration in their research. With the hope of measuring capital adequacy precisely, the study selects three capital ratios.

$$CAR = \frac{Total\ Equity}{Total\ Asset}$$

$$= \frac{Total\ Equity}{Net\ Loan}$$

$$= \frac{Total\ Equity}{Total\ Liabilities}$$

3.4.5 Asset Quality (ASQ)

Asset quality is one of the significant areas in defining the contemporary condition of a bank. It indicates the effective way a bank turns its assets into loans. In usual, loan plays a pivotal role in the process of making profits for banks. Ahmad Nor Hayati Bt, and Mohamad Akbar (2011) employed total loan to asset ratio to examine the impact of the late global financial crisis on the profitability of Islamic banks Therefore, the study selected two ratios: total loan to total assets and fixed assets to total assets.

$$\textbf{ASQ} \quad ¿ \frac{Total\ Loan}{Total\ Assets}$$

$$= \frac{¿\ Assets}{Total\ Assets}$$

- As mentioned earlier, the following ratios are not calculable under the Islamic Banking system and are therefore not included into the analysis:
    - Bearing assets/ Total assets.
    - Net income Per Branch (Growth Rate)
    - Net interest Margin
    - Bearing Assets/ Costly Liabilities

In addition to the CAMELS framework, the literature suggests the following variables are important determinants of bank performance:

3.5 Bank Size

To determine the bank's size, the total assets are commonly used. The role of bank size plays in the profitability of a bank has been a heated debate. Many contemporary literatures reveal the positive effect the bank size has on the bank's financial performance (e.g. Molyneux and Seth, 1998; Pill off and Rhoades, 2002; Sufian, 2009). According to Athanasoglou (2005) the size of the bank performs an essential role for the earnings of the bank. According to Boyd, J and D. Runkle (1993), big banks can benefit from the concept of economics of scale so that they could provide cheaper services to their clients. following that, a bank would also enable to accrue its market size and profit. Relying on the abovementioned

studies, the study considers important to include the bank's size in the control variables and see its role in the profitability of both commercial and Islamic banks during that period.

3.6 Interest Rate

The cost of borrowing money is called an interest rate, and as Samuelson (1945) revealed, the role interest in the bank's profitability is obvious, and there is a positive relationship between them. Therefore, the interest rate performs a pivotal role in the process of moving funds among the overall economy so that the study regards it as an important variable, and all the data relating it extracts from the central bank of Turkey.

3.7 Inflation Rate

Molyneux, P., & Thornton, J. (1992) emphasize the role of inflation plays in the determination of a bank's profitability. Smith, G (1991) defined inflation as a constant change in the price level measured by the annual rate of change in the consumer price index. Based on that, to reach a more accurate conclusion, the study considers the inflation rate as a significant factor.

3.8 Data

This study intends to examine and compare the financial performance of Islamic and conventional banks of Turkey between 2005 and 2018. The study covers almost all large banks in Turkey (both conventional as well as Islamic). The data excludes Emlak Katilim[4], due to limited information about its financial information, and the time period for the initiation of banks differ. The number of Islamic banks in Turkey and the limitation on the time period for 2 of the Islamic banks (i.e., financial data starting in 2015) is considered to be a weakness of this study. Nevertheless, I include all data available on these banks into the study so that there are no biases observed from selecting a subset. As a result, my whole sample includes 5 Islamic banks and 27 conventional banks that represent almost 93.3% percent of total assets in the Turkish Banking sector.

In sample design, the study collects that data from the financial reports which were published annually by banks between 2005-2018 from bank balance sheet and income statements. The data for bank balance sheet and income statements come from the bank's association of Turkey and participation banks association of Turkey. I obtain inflation data

4 Since the bank launched in 2019 separate financial window which provides Islamic financial instruments, the study was unable to obtain any pre-financial information related to their financial statements.

from Turkish statistical institute (TÜİK), as well the study attains the discount interest rate information from the International Monetary Fund (IMF) Financial Statistics.

The following tables 5 and 6 lists the date of establishment and the current ownership structure of both the Islamic banks and commercial banks in Turkey as of May 2020. The number of observations for Islamic banks are 49, while 354 observations are reported for conventional banks. The period study targeted range from 2005 to 2018, though some banks do not have financial data for the whole period mainly because they launched after 2005. These banks include Bank Mellate A.Ş (2010), Burgan Bank A.Ş (2006), Citibank A.Ş (2009), Fibabank A.Ş (2010), Habib Bank Limited (2007), Odea Bank A.Ş (2012), Vakif Katılım Bankası (2016), Ziraat Katılım Bankası (2015).

Table (5): Islamic Banks.

	Name	Date of Establishment	Current Ownership Structure
1	Kuveyt-katılım Bankası	1989	Foreign B.
2	alBaraka katılım	1984	Foreign B.
3	Türk_finans katılım	2005	Local/ Private
4	Ziraat Katılım bankası	2015	Local/ stated-owned
5	Vakif katılım Bankası	2015	Local/ stated-owned

Table (6): Commercial Banks

Source: BDDK

	Name	Date of Establishment	Current Ownership Structure
1	Ak Bank T.A. Ş	1948	Local/ Private
2	Denizbank A. Ş	1996	Foreign
3	HSBC bank A. Ş	1990	Foreign
4	QNB finansbank A. Ş	1987	Foreign
5	ICBC Turk-Bank A. Ş	1986	Foreign
6	Türkiye ekonomı Bankası	1927	Local/Private
7	T-iŞ Bankası	1924	Local/ Private
8	Türkiye Halk Banka	1938	Local/ state-owned
9	Türkiye Garantı Bankası	1946	Foreign
10	Yapı ve kredi bankası	1944	Local/ Private
11	Türkiye Vakıflar Bankası T. A	1954	Local/state-owned
12	Türkland bank A. Ş	1991	Foreign B.
13	Türkish bankası	1981	Privately-owned Deposit B
14	Şekerbank T.A. Ş	1953	Privately-owned Deposit B.
15	Arap Türk bankası	1977	Foreign B.
16	Anadolu-bank A. Ş	1996	Privately-owned Deposit B.
17	Al-Ternartıfbank A. Ş	1991	Foreign B.
18	ING Bank A. Ş	2008	Foreign
19	Bank Mellat	1984	Foreign B.
20	Societe Generale(SA)	1989	Foreign B.
21	Habib bank	1982	Foreign B.
22	Fibabanka A. Ş	1984	Privately-owned Deposit B.
23	Burgan bank A. Ş	1989	Foreign B.
24	Odea bank A. Ş	2011	Foreign B.
25	Deutsche bank A. Ş	1987	Foreign B.
26	Citibank	2004	Foreign B.
27	Türkiye Cumhuriyeti Zıraat Bankası A. Ş	1863	Local/ stated-owned

I next provide descriptive statistics for my overall sample. Table (7**)** shows that ROE for Islamic banks have remarkably a higher mean than conventional banks, which indicates that Islamic banks generate a higher return on funds provided by shareholders than conventional banks. Even though ROA for Islamic banks has higher mean than conventional banks, a significant difference was not reported. However, Islamic banks make higher ROA than conventional banks. Importantly, in the table, a negative minimum was reported in return on assets of conventional banks. That implies conventional banks were deficit comparing to Islamic banks.

The liquidity ratios (cash to deposit and loan to deposit ratios) for conventional banks is higher than Islamic banks as can be seen from the **Table (7)** The mean of cash deposit for conventional banks is 103.24 while for Islamic banks the mean is 97.68. On the other side,

loan to deposit ratio for conventional banks is 22.03 whereas for Islamic banks the mean is 13.93. Besides, the efficiency side (Net interest income to net interest expense, Net interest income to non-interest expenses) still conventional banks are ahead of Islamic banks and the mean of Net interest income to net interest expense for Islamic banks is 209, while the mean for conventional banks is 232.64. Besides, Capital Adequacy measures (Equity to total assets, Equity to Net Loans, and Equity to total Liabilities) for Islamic bank is lower than conventional bank regarding to the comparison of their mean.

The mean of loan to total assets, and fixed assets to total assets, which is under the asset quality component, for conventional banks are 54.2, 1.09, while for Islamic banks the mean for both are 69.1, 1.44, respectively. As the table shows, the mean of sensitivity measures(Net interest income to total assets) for Islamic banks is yet behind the mean for conventional banks, so we can conclude that conventional banks have better sensitivity ratios rather Islamic banks. On the side of external determinants, the mean of inflation for Islamic banks is 220.9, where Islamic banks obtain 211.97 and that provides the sense of that the effect of inflation on conventional banks are less than Islamic banks. The mean of Islamic banks for discount interest rate and banks size are higher than conventional banks.

Table (7): Descriptive Tables for Overall Sample

Variables	Bank	Obs	Mean	Std.dev	Min	Max
Profitability Ratios						
Return on assets (%)	**Commercial Bank**	354	1.386214	1.802581	-12.82212	13.20407
	Islamic Banks	49	1.468635	0.6986638	0.3172819	3.500414
Return on equity (%)	**Commercial Bank**	354	9.921093	13.42945	-97.19422	37.23006
	Islamic Banks	49	14.58993	6.22212	1.803079	32.86787
Liquidity Measures						
Loan to deposit ratio (%)	**Commercial Bank**	354	22.03498	33.82301	0.460843	456.2896
	Islamic Banks	49	13.93143	8.205597	3.329375	38.90313
Cash to deposit (%)	**Commercial Bank**	354	103.2429	58.77067	0.9263886	525.7055
	Islamic Banks	49	97.68467	18.44734	17.48782	134.5298
Efficiency measures						
Net Interest income to net interest expenses (%)	**Commercial Bank**	354	232.6482	171.4879	14.81124	1510.663
	Islamic Banks	49	209.1073	53.05502	150.9734	480.7799
Net interest income to non-interest expenses (%)	**Commercial Bank**	354	362.5159	295.1142	13.85168	3592.703
	Islamic Banks	49	278.4626	127.1664	126.9295	926.0621
Capital Adequacy Measures						
Equity to total assets (%)	**Commercial Bank**	354	14.30477	10.17881	0.1204427	65.97857
	Islamic Banks	49	10.55388	3.731231	6.848347	30.51894
Equity to Net Loans (%)	**Commercial Bank**	354	14.27516	10.20704	0.008261	65.97857
	Islamic Banks	49	10.80989	3.843787	6.848347	30.51894
Equity to total Liabilities (%)	**Commercial Bank**	354	35.53948	55.56428	0.1981143	597.9204
	Islamic Banks	49	16.00306	8.596764	10.14497	65.28047
Asset Quality Measures						
Loan to total assets (%)	**Commercial Bank**	354	54.2297	17.79114	0.5980356	89.96437
	Islamic Banks	49	69.11642	10.12165	15.11711	83.6602
Fixed assets to total assets (%)	**Commercial Bank**	354	1.092397	0.8995937	0.0000689	6.476798
	Islamic Banks	49	1.444176	0.6075071	0.2348763	2.732343
Sensitivity Measures						
Net interest income to total assets (%)	**Commercial Bank**	354	9.071493	3.413129	0.4254837	30.40364
	Islamic Banks	49	7.919332	2.218978	3.011299	13.56509
Inflation	**Commercial Bank**	354	220.9294	75.56967	122.65	393.88
	Islamic Banks	49	211.9712	74.79362	122.65	393.88
Discount interest rate (%)	**Commercial Bank**	354	15.91949	6.475538	8.75	27
	Islamic Banks	49	16.67857	6.575681	8.75	27
Bank size	**Commercial Bank**	354	10.99824	2.972634	4.425717	17.68663
	Islamic Banks	49	15.53635	0.739241	13.5217	16.53402

Table (8), looks at T-tests to examine and compare the mean of Islamic and conventional banks and see whether they differ significantly. Islamic banks have higher mean than conventional banks for ROA, though significant difference between the two system has not been observed. However, a significant difference is reported for ROEs among Islamic and conventional banks.

Therefore, the results from the table above depict that the liquidity ratios (loan to deposit, cash to deposits) specially loan to deposit of commercial banks is higher than Islamic banks with means difference -5.558. In cash to deposit ratio, conventional banks are also ahead of Islamic banks with mean difference of -8.1035 and significant at 9.6%. In efficiency measures, Net interest income to Net income expenses, the mean difference between conventional and Islamic banks is -23.541, which make conventional banks to be ahead of Islamic banks. On the other side of efficiency measures, Net interest income to non-interest expenses for commercial banks is higher than Islamic banks with mean difference -84.0535 with significance at 5%.

In capital adequacy ratios, as the table shows, both, , and conventional banks persist to be onward than Islamic banks with mean difference, - 3.751 for equity to total asset with significance of 1.1%, -19.53 for equity to net loans with significance of 1.45%, and -3.4655 for equity to total liabilities with significance of 1.9%. Islamic banks have obtained higher loan to total assets than conventional banks with means difference -14.88 at significant of 0%. While the mean difference between Islamic and conventional banks for fixed assets is -.352 with significant of 0.9%.

Sensitivity measures (net interest income to total assets) also shows a significant difference between Islamic and conventional banks with mean difference of -1.152 for conventional banks with a significant of 2.2%. For inflation, the mean difference between both banking system is -8.958, while there is a significant mean difference between them in discount interest rate by -.759 for Islamic banks. Overall, we can conclude that all variables have significant difference between the means of the two groups which is Islamic and conventional bank for profitability.

Table (8) - T-stats

Variables	Bank	Obs	Mean	St. Err	T-value	P-value	Di
Profitability Ratios							
Return on assets (%)	**Commercial Bank**	354	1.386	.261	.3	.752	.0
	Islamic Banks	49	1.468	.261	-.3	.752	-.
Return on equity (%)	**Commercial Bank**	354	9.921	1.948	2.4	.017	4.
	Islamic Banks	49	14.59	1.948	-2.4	.017	-4.
Liquidity Measures							
Loan to deposit ratio (%)	**Commercial Bank**	354	103.243	8.461	-.65	.5115	-5.
	Islamic Banks	49	97.685	8.461	.65	.512	5.
Cash to deposit (%)	**Commercial Bank**	354	22.035	4.8565	-1.65	.096	-8.
	Islamic Banks	49	13.932	4.857	1.65	.096	8.
Efficiency measures							
Net Interest income to net interest expenses (%)	**Commercial Bank**	354	232.648	24.6835	-.95	.341	-23
	Islamic Banks	49	209.107	24.683	.95	.341	23.
Net interest income to non-interest expenses (%)	**Commercial Bank**	354	362.516	42.734	-1.95	.05	-84.
	Islamic Banks	49	278.462	42.734	1.95	.05	84.
Capital Adequacy Measures							
Equity to total assets (%)	**Commercial Bank**	354	14.305	1.469	-2.55	.011	-3.
	Islamic Banks	49	10.554	1.469	2.55	.011	3.
Equity to Net Loans (%)	**Commercial Bank**	354	35.5395	7.959	-2.45	.0145	-19.
	Islamic Banks	49	16.003	7.959	2.45	.015	19.
Equity to total Lia bilities (%)	**Commercial Bank**	354	14.275	1.4735	-2.35	.019	-3.
	Islamic Banks	49	10.81	1.474	2.35	.019	3.
Asset Quality Measures							
Loan to total assets (%)	**Commercial Bank**	354	54.2295	2.5995	5.75	0	14.
	Islamic Banks	49	69.117	2.599	-5.75	0	-14
Fixed assets to total assets (%)	**Commercial Bank**	354	1.0925	.1325	2.65	.0085	.3
	Islamic Banks	49	1.444	.133	-2.65	.009	-.
Sensitivity Measures							
Net interest income to total assets (%)	**Commercial Bank**	354	9.0715	.502	-2.3	.022	-1.
	Islamic Banks	49	7.92	.502	2.3	.022	1.
Inflation	**Commercial Bank**	354	220.9295	11.5045	-.8	.4365	-8.
	Islamic Banks	49	211.971	11.505	.8	.437	8.
Discount interest rate (%)	**Commercial Bank**	354	15.9195	.989	.75	.443	.7
	Islamic Banks	49	16.679	.989	-.75	.443	-.
Bank size	**Commercial Bank**	354	10.998	.427	10.65	0	4.
	Islamic Banks	49	15.537	.427	-10.65	0	-4.

Next, I look at the correlation results for the whole sample to see which variables are correlated. Table 9 provides the pairwise correlations and shows statistical significance at the 5 percent level. The correlation is employed to explore the relationship between independent variables and dependent variables. In addition, I assume the relationship between the variables is linear, as a result, I conduct Pearson correlation tests. However, in order to consider the possibility that these relationships may not be linear, I also conduct, Kendall and Spearman correlation tests as can be seen in appendix and the results are similar. Table 9 shows the correlation whole sample.

Referring to Table (9), the cash to deposit ratio, and loan to deposit ratio do not have significant relationship. On the other side, Net Interest income to net interest expenses has positive correlation with cash to deposit. Net interest income to non-interest expenses has negatively related to Net Interest income to non- interest expenses, while there is positive correlation between net interest income to non- interest expenses and cash to deposit ratio. The table depicts a high correlation between equity to total assets and Net Interest income to net interest expenses (79%), and equity to total assets to equity to total liabilities (97%). Loan to total assets has negative correlation with equity to net loan, whereas a positive correlation between net interest income to total assets fixed assets to total assets was reported. Inflation has negative correlation to Net Interest income to net interest expenses, equity to total assets, equity to net loan, equity to total liabilities, Net interest income to non-interest expenses.

Table (9): Matrix of correlations for All Banks

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Return on Assets	1.000														
(2) Return on Equity	0.885*	1.000													
(3) Cash Deposit	-0.229	-0.053	1.000												
(4) Loan Deposit	-0.367*	-0.519*	-0.008	1.000											
(5) Net interest income to net Interest Expenses.	-0.253	-0.451*	-0.267	0.301*	1.000										
(6) Net interest income to Total Assets	0.022	0.170	0.509*	-0.105	-0.397*	1.000									
(7) Equity to Assets	0.060	-0.275	-0.170	0.297*	0.791*	-0.288*	1.000								
(8) Equity to Liabilities	0.065	-0.273	-0.221	0.274	0.768*	-0.321*	0.979*	1.000							
(9) Equity to Net Loans	0.197	0.074	-0.134	-0.419*	0.346*	-0.231	0.507*	0.492*	1.000						
(10) Loan to Assets	0.096	-0.105	-0.051	0.711*	0.174	0.034	0.274	0.262	-0.595*	1.000					
(11) Fixed assets to Assets	0.119	0.183	-0.063	-0.196	0.148	-0.039	-0.039	-0.065	0.034	-0.073	1.000				
(12) Net interest income to non-interest Expenses	0.744*	0.657*	-0.150	-0.203	-0.286*	0.230	-0.079	-0.112	0.016	0.204	0.319*	1.000			
(13) Inflation	-0.523*	-0.331*	0.197	0.175	-0.316*	0.123	-0.423*	-0.423*	-0.302*	-0.247	-0.084	-0.292*	1.000		
(14) Discount interest rate	0.467*	0.355*	-0.086	-0.240	0.168	0.069	0.285*	0.261	0.296*	0.113	0.040	0.458*	-0.634*	1.000	
(15) Bank Size	-0.263	-0.145	0.016	0.249	-0.477*	0.034	-0.538*	-0.500*	-0.464*	-0.055	-0.212	-0.186	0.764*	-0.767*	1.000

Shows significance at the 0.05 level

There are two dependent variables of profitability (ROA, ROE), and thirteen independent variables. The study conducts Ordinary Least Squares (OLS) regression uses panel data to conduct the analysis. Since the data set is not very large and the explanatory variables seem to be correlated, in order to make sure I account for multicollinearity on the one hand but also control for variables that are deemed as important in the literature on the other hand, I run different variations of my main specification as explained below.

3.9 Econometric Model

Almost all the instruments used in this study are extracted from the financial statements published by selected banks. First, financial ratios are calculated from the financial statements as explained below. This research relies on regression analysis to understand the profitability of banks. The following studies used regression analysis to examine the profitability of bank, such as (Ahmad, Mohamad 2011, Ramlan, Mohd 2016, and Samad 2004, Sanaullah, Rehman 2011). The study gathers data from financial statements of banks, employs panel data, and regression model to analyse the results. It also enables the study to discover the way that variables affect one another during the selected period.

To understand whether profitability and liquidity of Islamic banks is different from conventional banks in Turkey, I employ the following model as shown in equation 1:

$$Yi, t= \beta0+ \beta1Di, t +\beta Xi, t +\varepsilon t \qquad (1)$$

Where Yi represents the dependent variables of profitability as measured by ROA and ROE and liquidity as measured by cash deposit ratio and loan deposit ratio for each bank i at time t (Ramlan, Hamidah and Adnan 2016;Alp, A, et. al, 2010).

Di is the variable of interest as that's the dummy variable that differentiates Islamic banks from the conventional banks. Di=1 if the bank is classified as Islamic and 0 otherwise.

Xi is a matrix that controls for bank specific and macroeconomic characteristics.

CARi, t, represents the Capital Asset Ratio in year t.

C_E/Li,t represents the equity to Net loan in year t.

C_E/NLi,t represents the equity to total liabilities in year t.

A_l/TAi, t, represents the total loan to total assets in year t.

A_fA/tai,t, represents fixed assets to total assets in year t.

ME_EFi, t, represents net interest income to net income in year t.

ME_NI/NoIi,t, represents net interest income to non-interest expenses in year t.

L_CDRi, t, represents cash to deposit ratio in year t. (this variable is not included in liquidity regression)

L_LDRi,t, represents loan to deposit in year t. (this variable is not included in liquidity regression)

SRi, t, represents the market sensitivity in year t.

SIZEi, t represents the size of a bank in year t.

Intresti,t, represents the discount rate in year t.

Infli, t, represents the inflation in year t.

Di, t is a dummy variable on local versus foreign owned

In order to measure the effects on profitability, for robustness purposes, I also consider the risk adjusted ROA and ROE as in Ariss, R. T. (2010). Following the calculations in Ariss, R.T. (2010), the risk-adjusted ROA and ROE are calculated as follows: RAROAi=ROAi/σROAi and RAROE=ROEi/σROEi, where ROAi and ROEi are the average of return on assets and return on equity for each bank i in the sample and σROAi and σROEi are the standard deviations for each bank i, respectively. When I run the regressions using the risk adjusted ROA and ROE, I conduct cross-sectional regressions.

To further the analysis, the study underlines the importance of including z-score to measure bank stability through accounting measures of profitability. According to Beck, Thorsten., Asli Demirgüç-Kunt., and Ouarda Merrouche (2010), a higher z-score would indicate that the bank is more stable, and low z-score indicates the bank's insolvency position. The z-score for ROA/ROE is calculated as follows: Z-score=(X-Mean)/(σ (Standard Deviation)), where X represents ROA for each bank in the sample. I conduct this calculation for each year separately.

For my question on whether the global financial crisis resulted in commercial banks and Islamic banks behaving differently during and after the crisis with respect to performance and liquidity, I make a slight adjustment to equation (1) and run the following regression:

$$Yi,t = \beta 0 + \beta 1 Di,t + \beta 2 Fin.Crisist + \beta 3 Interaction\ i,t + \beta Xi,t + \varepsilon t \quad (1)$$

Where Yi represents the dependent variables of profitability as measured by ROA and ROE for each bank i at year t (Ramlan, Hamidah and Adnan 2016;Alp, A, et. al 2010).

Di is the variable of interest as that's the dummy variable that differentiates Islamic banks from the conventional banks. Di=1 if the bank is classified as Islamic and 0 otherwise.

Fin.Crisis t is a dummy variable equal to 1 if Year t is equal to 2008 or 2009 and zero otherwise (in after financial crisis regressions, Fin. Crisis t is a dummy variable equal to 1 if Year t is equal to 2010 or higher and zero otherwise)

Interaction is a dummy variable that is equal to 1 if a bank is classified as Islamic and Year is 2008 or 2009 and zero otherwise during crisis (and if Year is greater than 2009 =1 and zero otherwise after crisis).

Interaction after crisis dummy is a dummy variable that is equal to 1 if a bank is classified as Islamic and Year is after 2009 and zero otherwise during crisis (and if Year is greater than 2009 =1 and zero otherwise after crisis).

The other control variables are the same as in equation 1.

Chapter 4 - Findings and Discussions

This chapter shows the empirical results of research, the impact of internal and external determinants on the profitability of Islamic and conventional banks (ROA, ROE) between 2005 and 2018. The sample of this study is encompassed, both Islamic and conventional, 32 Turkish banks. The special technique the study used to test the hypothesis is panel data regression. By using STATA software, the study presents the empirical analysis for regression, which an ordinary least squares regression with robust standard errors was used to explain a set of variables as the table 4 shows**.**

I run six different specifications for which the dependent variables are ROA (in Table 10) and ROE (in Table 11). These specifications are as described in Equation 1 but with different subsets of control variables. For instance, specification 1 only includes bank size, inflation, interest rates and a dummy for which a bank's current ownership status. Specification 5 includes all my control variables (that are mainly the macroeconomic variables as well as CAMELS indicator measures such as capital adequacy, liquidity, asset quality, efficiency, sensitivity and the dummy variable that shows current ownership status and specification controls. Specification 6 includes all control variables as well as year fixed effects to take into account any time specific variation that may affect the performance of Islamic and conventional banks.

Table (10): Regression Models for Return on Assets

Robust standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

Independent variables						
Model	**1**	**2**	**3**	**4**	**5**	**6**
Islamic Bank Dummy	-0.262	-0.0817	0.0291	-0.0353	0.169	0.0279
	(0.211)	(0.216)	(0.277)	(0.285)	(0.260)	(0.263)
Inflation	-0.00119	-0.00154	-0.00163	-0.00126	-0.00189	-0.00258
	(0.00210)	(0.00186)	(0.00195)	(0.00204)	(0.00186)	(0.00309)
Discount interest rate	-0.0242	-0.0213	-0.0253	-0.0140	-0.0232	-0.0175
	(0.0218)	(0.0179)	(0.0203)	(0.0213)	(0.0163)	(0.0248)
Bank size	0.0774**	0.101***	0.0969**	0.0952**	0.0956**	0.0953***
	(0.0379)	(0.0334)	(0.0392)	(0.0428)	(0.0398)	(0.0364)
Capital Adequacy Measures						
Equity to total assets		0.140***	0.0834***		0.286***	0.306***
		(0.0465)	(0.0134)		(0.0996)	(0.0957)
Equity to Net Loans		-0.00362			-0.00547	-0.00618
		(0.00785)			(0.00907)	(0.00861)
Equity to total Liabilities		-0.0462			-0.171*	-0.187**
		(0.0286)			(0.0886)	(0.0847)
Asset Quality Measures						
Loan to total assets			-0.00213	-0.0199**	-0.00229	0.0102
			(0.00882)	(0.00995)	(0.0102)	(0.0101)
Fixed assets to total assets			-0.116	0.0299	-0.172	-0.328***
			(0.130)	(0.140)	(0.129)	(0.123)
Efficiency measures						
Net interest income to non-interest expenses				-1.79e-05	0.000160	0.000362
				(0.000252)	(0.000276)	(0.000365)
Net Interest income to net interest expenses					-0.00131	-0.000610
					(0.00115)	(0.00106)
Sensitivity Measures						
Net interest income to total assets				0.0280	0.0390	-0.0440
				(0.0458)	(0.0446)	(0.0614)
Liquidity Measures						
Cash to deposit					0.00657	0.0106*
					(0.00532)	(0.00550)
Loan to deposit ratio					-0.00486**	-0.00559**
					(0.00228)	(0.00221)
Local Bank Dummy	0.0630	0.397***	0.460***	0.162	0.352***	0.377***
	(0.158)	(0.121)	(0.113)	(0.121)	(0.121)	(0.116)
Year Fixed Effects	No	No	No	No	No	Yes
Constant	1.156**	-0.422	-0.0608	1.569**	0.0769	1.034
	(0.563)	(0.595)	(0.641)	(0.693)	(0.815)	(1.149)
Observations	403	403	403	403	403	403
R-squared	0.021	0.235	0.230	0.058	0.279	0.338

Independent variables						
Model	**1**	**2**	**3**	**4**	**5**	**6**
Islamic Bank Dummy	-0.262 (0.211)	-0.0817 (0.216)	0.0291 (0.277)	-0.0353 (0.285)	0.169 (0.260)	2.693 (2.349)
Inflation	-0.00119 (0.00210)	-0.00154 (0.00186)	-0.00163 (0.00195)	-0.00126 (0.00204)	-0.00189 (0.00186)	-0.00591 (0.0157)
Discount interest rate	-0.0242 (0.0218)	-0.0213 (0.0179)	-0.0253 (0.0203)	-0.0140 (0.0213)	-0.0232 (0.0163)	-0.272 (0.167)
Bank size	0.0774** (0.0379)	0.101*** (0.0334)	0.0969** (0.0392)	0.0952** (0.0428)	0.0956** (0.0398)	0.400 (0.257)
Capital Adequacy Measures						
Equity to total assets		0.140*** (0.0465)	0.0834*** (0.0134)		0.286*** (0.0996)	1.588*** (0.601)
Equity to Net Loans		-0.00362 (0.00785)			-0.00547 (0.00907)	-0.0245 (0.0384)
Equity to total Liabilities		-0.0462 (0.0286)			-0.171* (0.0886)	-1.331** (0.545)
Asset Quality Measures						
Loan to total assets			-0.00213 (0.00882)	-0.0199** (0.00995)	-0.00229 (0.0102)	0.178* (0.0976)
Fixed assets to total assets			-0.116 (0.130)	0.0299 (0.140)	-0.172 (0.129)	-3.228** (1.561)
Efficiency measures						
Net interest income non-interest expenses				-1.79e-05 (0.000252)	0.000160 (0.000276)	0.00632 (0.00458)
Net Interest income to net interest expenses					-0.00131 (0.00115)	0.00241 (0.00522)
Sensitivity Measures						
Net interest income to Total Assets				0.0280 (0.0458)	0.0390 (0.0446)	-0.676* (0.399)
Liquidity Measures						
Cash to deposit					0.00657 (0.00532)	0.0480** (0.0239)
Loan to deposit ratio					-0.00486** (0.00228)	-0.0337** (0.0135)
Local Bank Dummy	0.0630 (0.158)	0.397*** (0.121)	0.460*** (0.113)	0.162 (0.121)	0.352*** (0.121)	3.918*** (1.158)
Year Fixed Effects	No	No	No	No	No	Yes
Constant	1.156** (0.563)	-0.422 (0.595)	-0.0608 (0.641)	1.569** (0.693)	0.0769 (0.815)	14.95** (7.188)
Observations	403	403	403	403	403	403
R-squared	0.021	0.235	0.230	0.058	0.279	0.172

Table (11): Regression Models for Return on Equity

Robust standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

By comparing ROA of Islamic and conventional banks, the results in **Table (10),** and controlling all the variables in the Model 1,2,3,4, and model 5 constant among banks, the ROA for the Islamic banks is different than the commercial banks, though the difference is not significant. Based on the coefficient, the Islamic banks have a negative ROA comparing to conventional banks in Model 1, 2, and 4, whereas in Model 3, and 5, illustrates a positive ROA for Islamic banks over conventional bank. Besides, holding discount interest rate, inflation constant, bank size has significant influence on ROA of conventional banks and that suggests that the larger the bank size is the more ROA for conventional banks.

Therefore, as the table demonstrates, holding other variables in model 5 constant among banks, equity to total assets, and bank size have positive effect on ROA of conventional banks, and there is significant difference between them. In addition, equity to total liabilities, loan to deposit ratio have significant impact on ROA for conventional banks negatively. As the study finds that in results regarding local bank dummy, foreign banks have less ROA than local banks with significant 1%.

As for the control variables, bank size shows up as an important indicator explaining performance as previously found in the literature. Equity to total Assets measures which also measures capital adequacy seems to be positively related to performance. Local bank dummy also explains overall performance and suggests that local banks are more likely to have a higher ROA. However, there is no difference with respect to ROA for Islamic Banks in Turkey as compared to conventional banks.

In **Table (11),** Similarly**,** the results show that holding all other variables in **Model 1** and **5**, the Return on Equity for Islamic banks are not statistically significantly different than traditional banks in Turkey. By controlling inflation in **Model 1,** discount interest rate has negative influence on ROE for conventional banks, while the bank size has profound positive impact on ROE for conventional banks significantly. By comparing the ROE for local and foreign banks, the study finds that local banks have a higher return on assets than foreign banks in all models with a significance of 1%.

Apparently, the discount interest rate negatively affects the Return on Equity for conventional banks in all the way to model 5. Whereas the variable which has positive effect on the return on equity for conventional banks is equity to total assets, holding other variables in model 5 constant. Difference from that, equity to total liabilities and loan to deposit ratio

influence the return on equity for conventional banks negatively. That implies the rise for loan to deposit ratio causes to reduce the return on equity of conventional banks as well to Islamic banks.

Next, I look at the same models by using risk adjusted ROA and ROE in **Table 12.** As I mentioned earlier, Ariss. R. T (2010) uses this model to compare Islamic and conventional banks in global prospective. Referring to Table (9), By holding all the variables in model 2,3 the study finds a significant difference between Islamic and conventional banks for RAROA and RAROE. That implies the, according to mentioned above models, Islamic banks have negative RAROA, and RAROE. However, by holding other variables in Model 1 for RAROE constant, Islamic banks have outperformed than conventional banks. Besides, inflation, average equity to total liabilities, average fixed assets to total assets, bank size, average cash to deposit have a positive influence on RAROA for conventional banks, while average discount interest rate, average to equity total assets, average equity to net loans, average loan to total assets affect negatively the RAROA. On other side, in Model 2, negative effect of average discount interest rate, average equity to net loan, average equity to total assets, and average loan to total assets was reported. Therefore, this estimated r-square emphasized that the all variation of RAROE is explained by independent variables in model 1,2.

In Table (13), I also conduct the same analysis for by calculating a Z-score in ROA and I run the same regressions as changes in ROA and ROE (as well as changes in the independent variables). However, the results do not show a statistical significance using these measures for Islamic banks controlling for other factors.

Table (14), demonstrates the effect of global financial crisis on the profitability of Islamic and conventional banks and test whether Islamic banks behaved differently during the crisis. In **Model 1,** during the crisis there was difference between Islamic and conventional banks regarding ROA, and ROE. In addition, as can be seen, a significant impact for the crisis on Return on assets and Return on Equity for Islamic and conventional banks has not been observed. Holding all the control variables in **Model 1,2** constant, equity to total assets are the only variable which has affected the ROA and ROE for Islamic banks positively. Looking by the difference effects the crisis had on local and foreign banks, the study finds that during the crisis local banks outperformed better than foreign banks.

Table (12): Risk-Adjusted Return on Assets Return on Equity

Independent Variables	1	2	3	1	2	3
Islamic Bank Dummy	0.116	-0.720***	-1.520***	0.793**	-0.325	-0.938**
	(0.269)	(0.184)	(0.361)	(0.390)	(0.237)	(0.388)
Average Inflation	-44.60***	2.210***	5.591*	-45.07*	2.680	4.586*
	(15.12)	(0.546)	(2.833)	(24.29)	(1.626)	(2.423)
Average Discount interest rate	9.932	-24.62***	-73.52***	4.723	-37.72***	-83.19***
	(13.62)	(6.736)	(14.92)	(21.22)	(9.768)	(16.19)
Average Bank size	0.0721***	0.0667***	0.101***	0.107***	0.101***	0.130***
	(0.0239)	(0.0246)	(0.0190)	(0.0227)	(0.0233)	(0.0187)
Capital Adequacy Measures						
Average Equity to total assets		-3.708***	-5.859***		-4.906***	-7.464***
		(0.185)	(0.458)		(0.294)	(0.429)
Average Equity to Net Loans		0.000655	-0.0155***		0.00192	-0.0149***
		(0.00278)	(0.00316)		(0.00228)	(0.00335)
Average Equity to total Liabilities		3.679***	5.772***		4.847***	7.365***
		(0.179)	(0.452)		(0.289)	(0.423)
Asset Quality Measures						
Average Loan to total assets		-0.0295***	-0.0442***			-0.0644***
		(0.00685)	(0.0147)			(0.0151)
					-0.0416***	
					(0.00683)	
Average Fixed assets to total assets		0.352***	0.238**		0.462***	0.386***
		(0.102)	(0.109)		(0.0956)	(0.114)
Efficiency measures						
Average Net interest to non-interest expenses			-0.000752			-0.000647
			(0.000730)			(0.000752)
Average Net Interest income to net interest expenses			0.00573***			0.00315**
			(0.00133)			(0.00139)
Sensitivity Measures						
Average Net interest Income to total assets			-0.0134			0.0652
			(0.0450)			(0.0477)
Liquidity Measures						
Average Cash to deposit						0.0283**
						(0.0111)
			0.0193*			
			(0.0116)			
Average Loan to deposit ratio			0.00812			0.0100*
			(0.00499)			(0.00531)
Local Bank Dummy	0.890***	0.764***	1.092***	1.109***	0.892***	1.185***
	(0.143)	(0.128)	(0.153)	(0.171)	(0.147)	(0.163)
Constant	-158.0	396.7***	1,179***	-75.01	606.9***	1,334***
	(217.9)	(107.8)	(238.9)	(339.5)	(156.3)	(259.3)
Observations	403	403	403	403	403	403
R-squared	0.118	0.324	0.418	0.179	0.417	0.472

Robust standard errors in parentheses

***** p<0.01, ** p<0.05, * p<0.1**

Table (13): Z-score and Changes in Return on assets and Return on Equity

Independent variables	Zscore Return on Assets	Changes in Return on Asset	Changes in Return on Equity
Model	**1**	**1**	**2**
Islamic Bank Dummy	0.289	-2.317	-3.817
	(0.184)	(2.495)	(4.116)
Inflation	-0.00103	-0.00283	
	(0.000926)	(0.00240)	-0.00320
			(0.00296)
Discount interest rate	-0.0259***	0.0734	0.133
	(0.00981)	(0.111)	(0.180)
Bank size	-0.00838	0.189	0.365
	(0.0207)	(0.331)	(0.518)
Capital Adequacy Measures			
Equity to total assets	0.166	0.176	0.173
	(0.113)	(0.161)	(0.225)
Equity to Net Loans	-0.00240	-0.00212	-0.00123
	(0.00285)	(0.00350)	(0.00411)
Equity to total Liabilities	-0.127	-0.146	-0.168
	(0.102)	(0.162)	(0.227)
Asset Quality Measures			
Loan to total assets	-0.00182	0.0227	0.0349
	(0.00559)	(0.0245)	(0.0360)
Fixed assets to total assets	-0.114	-0.749*	-0.883*
	(0.0738)	(0.385)	(0.460)
Efficiency measures			
Net interest income to non-interest expenses	-0.000126	-0.00189	-0.00260
	(0.000145)	(0.00126)	(0.00197)
Net Interest income to net interest expenses	-0.00128	-0.00236	-0.00351
	(0.00104)	(0.00192)	(0.00257)
Sensitivity Measures			
Net interest income to total assets	0.0719***	0.0382	-0.107
	(0.0263)	(0.107)	(0.114)
Liquidity Measures			
Cash to deposit	0.00610	0.00226	0.00692
	(0.00603)	(0.00818)	(0.00903)
Loan to deposit ratio	-0.00440*	-0.000781	0.00283
	(0.00225)	(0.00466)	(0.00652)
Local Bank Dummy	0.00980	-0.983	-1.685
	(0.0978)	(1.247)	(1.987)
Constant	0.511	-0.731	-1.693
	(0.693)	(4.300)	(6.675)
Observations	403	370	370
R-squared	0.148	0.015	0.016

Independent variables	Return on Assets	Return on Equity
	1	2
Islamic Bank Dummy	0.118	3.174
	(0.270)	(2.537)
Interaction-Financial	0.409	2.262
crisis	(0.257)	(2.291)
Inflation	-0.00186	-0.00409
	(0.00186)	(0.0100)
Discount interest rate	-0.0237	-0.297***
	(0.0163)	(0.115)
Bank size	0.0956**	0.423
	(0.0398)	(0.281)
Capital Adequacy Measures		
Equity to total assets	0.278***	1.352**
	(0.102)	(0.601)
Equity to Net Loans	-0.00548	-0.0211
	(0.00909)	(0.0413)
Equity to total	-0.163*	-1.136**
Liabilities	(0.0905)	(0.546)
Asset Quality Measures		
Loan to total assets	-0.00258	0.0657
	(0.0102)	(0.0921)
Fixed assets to total	-0.172	-1.757
assets	(0.129)	(1.612)
Efficiency measures		
Net interest income to	0.000160	0.00358
non-interest expenses	(0.000276)	(0.00330)
Net Interest income to net	-0.00132	-0.00264
interest expenses	(0.00116)	(0.00543)
Sensitivity Measures		
Net interest income to	0.0371	-0.00947
total assets	(0.0452)	(0.314)
Liquidity Measures		
Cash to deposit	0.00660	0.0118
	(0.00533)	(0.0187)
Loan to deposit ratio	-0.00477**	-0.0260**
	(0.00228)	(0.0127)
Local Bank Dummy	0.355***	3.761***
	(0.121)	(1.179)
Constant	0.107	7.149
	(0.817)	(6.368)
Observations	403	403
R-squared	0.279	0.099

Robust standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

Table (14): Effects of the Financial Crisis on the Performance of Islamic Banks as Compared to Conventional Banks

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Next, I conduct the same exercise to understand whether liquidity management in Islamic banks are different than conventional banks. I use cash to deposit ratio and loan to deposit ratio for my dependent variables. **Tables 15 and 16** provide the results for the six models that I run (the last one being all the control variables and year fixed effects). For banks in Turkey, Cash deposit ratio does not show a significant difference for

Islamic banks than conventional banks. However, Islamic banks, under normal times, performed worse in terms of loan deposit ratio, which is the second ratio for liquidity ratios.

Table (15): Liquidity Measures (Cash Deposit Ratio)

Independent variables						
Model	**1**	**2**	**3**	**4**	**5**	**6**
Islamic Banks Dummy	-2.095 (3.105)	0.499 (2.878)	4.778 (4.688)	8.521 (6.740)	3.263 (3.767)	2.628 (4.738)
Inflation	0.0221 (0.0279)	0.0199 (0.0261)	0.0136 (0.0251)	0.0292 (0.0283)	0.0334 (0.0271)	0.0530 (0.0383)
Discount interest rate	0.213 (0.297)	0.241 (0.287)	0.0979 (0.309)	0.595 (0.385)	0.725* (0.370)	0.465 (0.414)
Bank size	-1.298* (0.761)	-1.015 (0.788)	-1.317 (0.838)	-1.308** (0.596)	-0.645 (0.396)	-0.508 (0.408)
Capital Adequacy Measures						
Equity to total assets		5.713*** (0.977)	0.604* (0.317)		2.119 (2.056)	1.689 (2.225)
Equity to Net Loans		0.0114 (0.0394)			-0.000312 (0.0361)	0.0373 (0.0331)
Equity to total Liabilities		-5.109*** (0.852)			-2.367 (1.687)	-2.258 (1.898)
Asset Quality Measures						
Loan to total assets			-0.174 (0.107)	-0.389** (0.173)	-0.190 (0.138)	-0.261 (0.180)
Fixed assets to total assets			-5.555** (2.353)	-4.677 (2.863)	-2.472 (1.508)	0.154 (1.205)
Efficiency measures						
Net interest income to non-interest expenses				0.00905 (0.00695)	0.0102 (0.00832)	-0.00222 (0.00563)
Net Interest income to net interest expenses					0.0946** (0.0432)	0.0834** (0.0364)
Sensitivity Measures						
Net interest income to total				2.273 (2.136)	1.946 (1.622)	2.963 (2.130)

assets						
Local Bank Dummy	-10.10*** (2.799)	-7.087*** (2.651)	-5.487*** (2.017)	-8.832*** (2.277)	-3.854* (2.013)	-2.996* (1.597)
Earnings Measures						
Return on Asset					1.252 (1.446)	4.409 (2.759)
Return on Equity						-0.323 (0.245)
Year Fixed Effects	No	No	No	No	No	Yes
Constant	32.29** (13.99)	18.76 (16.45)	41.13* (22.94)	26.50* (14.47)	-16.78 (22.86)	-31.48 (27.09)
Observations	403	403	403	403	403	403
R-squared	0.045	0.087	0.105	0.139	0.321	0.414

Robust standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

Table (16): Loan Deposit Ratio

Independent variables						
Model	**1**	**2**	**3**	**4**	**5**	**6**
Islamic Banks Dummy	-6.146 (6.302)	1.388 (6.294)	-16.30*** (6.182)	-18.63** (7.618)	-19.68*** (7.386)	-18.99** (7.884)
Inflation	-0.0539 (0.0330)	-0.0577* (0.0329)	-0.0479* (0.0278)	-0.0390 (0.0277)	-0.0384 (0.0236)	-0.0938* (0.0500)
Discount interest rate	-0.546 (0.481)	-0.378 (0.434)	-0.971** (0.453)	-0.616 (0.542)	-0.513 (0.428)	-0.940 (0.623)
Bank size	0.140 (1.135)	0.876 (0.924)	-0.496 (1.175)	-0.258 (1.082)	1.591* (0.919)	1.554 (0.950)
Capital Adequacy Measures						
Equity to total assets		32.68*** (7.915)	2.094*** (0.531)		30.25*** (7.738)	29.57*** (6.703)
Equity to Net Loans		-0.230*** (0.0741)			0.0473 (0.0708)	0.0624 (0.0654)

Equity to total Liabilities		-30.88*** (7.863)			-29.19*** (7.641)	-28.53*** (6.599)
Asset Quality Measures						
Loan to total assets			1.519*** (0.153)	1.050*** (0.174)	1.634*** (0.164)	1.616*** (0.192)
Fixed assets to total assets			-3.849 (3.032)	-0.793 (3.476)	0.795 (2.721)	1.406 (2.690)
Efficiency measures						
Net interest income to non-interest expenses				-0.0121* (0.00683)	-0.00492 (0.00726)	-0.00556 (0.00871)
Net Interest income to net interest expenses					0.139*** (0.0439)	0.137*** (0.0450)
Sensitivity Measures						
Net interest income to total assets				1.601 (1.678)	1.134 (1.136)	1.506 (1.515)
Local Bank Dummy	-16.14*** (4.980)	-12.24*** (4.112)	-14.90*** (3.938)	-21.14*** (4.127)	-7.583** (2.964)	-7.726** (3.128)
Earnings Measures						
Return on Asset					-2.544 (1.624)	-2.445 (1.639)
Return on Equity						
Year Fixed Effects	No	No	No	No	No	Yes
Constant	129.1*** (22.35)	99.10*** (20.56)	32.87 (29.05)	67.19*** (24.77)	-38.97 (25.10)	-26.41 (28.88)
Observations	403	403	403	403	403	403
R-squared	0.025	0.195	0.238	0.143	0.470	0.483

Robust standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

Finally, I consider whether the Performance of Islamic banks and liquidity management of Islamic banks differ after the financial crisis. Here, I include a dummy variable that is equal to 1 if year is equal to 2010 and up to 2018 to understand whether there is a permanent effect on

these two banks. **As Table 17** shows, Islamic Banks even though show as more profitable, the overall interaction term comes out to be negative. As a result, Islamic banks perform worse than their conventional peers. As for liquidity management. Islamic banks after crisis performed better in terms of liquidity management compared to their conventional counterparts came out as more liquid. This finding is consistent with the paper written by Choi, j.j, (2010) which outlines, despite the severe impact of the global financial crisis, Islamic banks remained intact while conventional banks experienced liquidity problems.

Table (17): The Performance and liquidity of Islamic Banks as Compared to Conventional Banks Post Financial crisis.

Independent variables	Return on Assets	Return on Equity	Liquidity After Crisis (Cash Deposit)	Liquidity After Crisis(Loan Deposit)
Model	1	2	1	2
Islamic Banks Dummy	0.953***	11.96***	-8.204*	-44.15***
	(0.316)	(3.360)	(4.878)	(7.988)
After Crisis Interaction	-1.142***	-12.39***	17.41**	34.91***
	(0.313)	(3.035)	(7.387)	(8.899)
Inflation	-0.00171	-0.00233	0.0289	-0.0399*
	(0.00187)	(0.0101)	(0.0266)	(0.0226)
Discount interest rate	-0.0311*	-0.380***	0.824**	-0.232
	(0.0168)	(0.119)	(0.399)	(0.456)
Bank size	0.0963**	0.431	-0.556	1.338
	(0.0398)	(0.280)	(0.387)	(0.940)
Capital Adequacy Measures				
Equity to total assets	0.250**	1.009	2.635	30.50***
	(0.109)	(0.660)	(1.996)	(7.099)
Equity to Net Loans	-0.00546	-0.0210	-0.00807	0.0611
	(0.00908)	(0.0413)	(0.0388)	(0.0637)
Equity to total Liabilities	-0.136	-0.797	-2.740*	-29.71***
	(0.0982)	(0.616)	(1.589)	(7.011)
Asset Quality Measures				
Loan to total assets	-0.00255	0.0645	-0.211	1.652***
	(0.0102)	(0.0907)	(0.147)	(0.162)
Fixed assets to total assets	-0.195	-2.010	-2.353	2.024
	(0.128)	(1.617)	(1.523)	(2.685)
Efficiency measures				

Net interest income to non-interest expenses	0.000166	0.00365	0.0104	-0.00581
	(0.000280)	(0.00334)	(0.00846)	(0.00700)
Net Interest income to net interest expenses	-0.00140	-0.00363	0.0927**	0.143***
	(0.00119)	(0.00580)	(0.0433)	(0.0447)
Sensitivity Measures				
Net interest income to total assets	0.0249	-0.152	2.201	1.408
	(0.0471)	(0.326)	(1.658)	(1.207)
Liquidity Measures				
Cash to deposit	0.00696	0.0159		
	(0.00534)	(0.0190)		
Loan to deposit ratio	-0.00441*	-0.0216*		
	(0.00231)	(0.0126)		
Local Bank Dummy	0.384***	4.087***	-3.799**	-9.347***
	(0.121)	(1.169)	(1.764)	(2.938)
Constant	0.283	9.217	-19.34	-44.93*
	(0.823)	(6.343)	(23.63)	(26.08)
Observations	403	403	403	403
R-squared	0.289	0.119	0.325	0.474

Robust standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

Even though based on univariate T-tests, I find a significant different between Islamic and conventional banks for ROE, overall the various regression models I run after controlling for other factors do not show a difference in terms of profitability and liquidity for Islamic banks. The hypothesis 1 (There is a significant difference between Islamic and Conventional banks in Return on Assets and Return on Equity) is not accepted. Even though global financial crisis in 2008 has not affected severely the banking sector of Turkey, Islamic and conventional banks were not behaving differently during crisis in terms of profitability and liquidity. As result, hypothesis 3 (The profitability of Conventional banks and Islamic banks behaved differently during the most recent Global Financial Crisis of 2007-2008) was not supported by the regression results. However, hypothesis 4, which suggests that after the global financial crisis, there was a difference with respect to profitability and liquidity is supported by the models.

Chapter 5 - Conclusion

For the last 34 years, the number of institutions who provide financial services which are well-matched with Islamic principles has multiplied significantly. Therefore, this increase expedites the approval of the Islamic banking system in many countries, and due to its solidness to the crisis, it gained astonishing popularity in recent days (Rahman. Y.A 2010). It is essential to underline that in modern times having well-formulated financial institutions play a pivotal role in the economic development made by both emerging and developed countries in the last decades.

After 1980, the Turkish economy has been through a profound restructuring process and the government set a strategy of free capital flow which permitted to foreign investors or institutions to invest in the Turkish financial market. Even though the conventional banks have a higher market share than Islamic banks in Turkish banking market, the interest-free system has been gaining momentum since its inception, and that attracted both state-owned and private banks, which their core business based on the interest rate, commenced new separate window for designated Islamic finance.

By employing an unbalanced panel data regression analysis, this study renders a comparative evaluation of the Turkish banking sector including, particularly Islamic and conventional banks, together with and examining the impact of internal and external determinants on the financial performance of the Turkish banking sector. My research examines thirty-two conventional and Islamic banks between 2005-2018. Overall, the main difference between the Islamic and conventional banks is a lack of interest and profit-loss sharing principle. The study took ROA, ROE indicators as the dependent variables for profitability and cash to deposit ratio and loan to deposit ratio for liquidity to test the hypotheses formulated in chapter two. My theses chose two macroeconomic control variables based on the literature to reach the objective of the paper: discount interest and inflation.

Even though the univariate t-test results suggest a difference in sample means of conventional and Islamic banks' ROE to be statistically significant, controlling for other determinants of profitability, I find no significant difference in return on assets and return on equity for Islamic

and conventional banks using various specifications. However, I observe that considering risk adjusted returns Islamic banks perform worse than conventional banks. With respect to other determinants of profitability, inflation, loan to total assets, net interest income to net interest expenses, cash to deposit, and loan to deposit are associated with the profitability of conventional banks negatively.

Furthermore, discount interest rate has positive relation with ROA, while it has insignificant negative relation with return on assets in conventional banks. Therefore, the rise of interest rate increases the ROA for Islamic banks. In comparison to conventional banks, the result shows that the size of the banks has direct impact on the ROA of Islamic banks, which means that big banks have higher ROA than small once. Then, bank size plays a significant role in the growth of ROA for Islamic and conventional banks.

This research carried out to take into consideration of the importance of banks liquidity management. In this study, I find that there is significant difference between Islamic and conventional banks in normal times, for loan deposit ratio, but in terms of cash deposit ratio, there is no significant difference between Islamic banks and conventional banks. However, I aim to see whether the profitability and liquidity of Islamic and conventional banks change post financial crisis. As the result shows, Islamic banks, in terms of profitability, were in worse performance than conventional banks after the crisis. In a matter of liquidity, Islamic banks experienced a thriving performance for liquidity management post the crisis comparing to conventional banks.

All things considered, the study reached to reveal that Islamic and conventional banks did not behave differently during the crisis. According to Yörükoğlu, Hakan Atasoy (2010), Turkish banking sector did not face intense impact from the crisis because perhaps main sources of capiatl were the funds they obtained from customers through deposits services, and that enabled them to not depend on the market funding.

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Appendix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Return on Assets	1.0000														
(2) Return on Equity	0.6536*	1.0000													
(3) Cash Deposit	-0.0291	-0.0920*	1.0000												
(4) Loan Deposit	-0.0991*	-0.1479*	0.2524*	1.0000											
(5) Net interest income to net Interest Expenses.	0.1519*	-0.0194	0.1675*	0.1546*	1.0000										
(6) Net interest income to non-interest Expenses	0.1089*	0.2227*	0.0521	0.0045	-0.2768*	1.0000									
(7) Equity to Assets	0.2461*	-0.0860*	-0.0206	-0.0485	0.2813*	-0.2278*	1.0000								
(8) Equity to Liabilities	0.2460*	-0.0827*	-0.0323	-0.0536	0.2822*	-0.2343*	0.9848*	1.0000							
(9) Equity to Net Loans	0.2453*	-0.0358	-0.0703*	-0.2750*	0.1659*	-0.1596*	0.6449*	0.6352*	1.0000						
(10) Loan to Assets	-0.1581*	-0.0379	0.0010	0.4220*	-0.0257	0.0774*	-0.1940*	-0.1867*	-0.5211*	1.0000					
(11) Fixed assets to Assets	0.1189*	0.0538	-0.1657*	-0.0619	-0.0428	-0.0395	0.0664*	0.0701*	0.0427	0.0073	1.0000				
(12) Net interest income to Total Assets	0.1200*	0.1562*	-0.1507*	-0.0276	-0.1645*	0.2243*	0.0106	-0.0003	0.0496	0.0375	0.1285*	1.0000			
(13) Inflation	0.0905*	0.0655*	-0.0985*	-0.0663*	-0.0052	0.0055	0.0354	0.0333	0.0869*	-0.1318*	0.0994*	0.1165*	0.9308		
(14) Discount interest rate	-0.1234*	-0.0937*	0.1419*	0.0689*	0.0056	-0.0156	-0.0464	-0.0447	-0.1019*	0.1296*	-0.1433*	-0.1833*	-0.6182*	0.8997	
(15) Bank Size	0.0552	0.1410*	-0.0932*	0.0514	-0.0922*	0.1005*	-0.1876*	-0.1750*	-0.2054*	0.1627*	-0.0401	-0.1128*	-0.0386	0.0446	1.0000

Table (18): Kendall Correlation for All Banks

Shows significance at the 0.05 level

Table (19): Spearman Correlation for All Banks

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Return on Assets	1.0000														
(2) Return on Equity	0.7894*	1.0000													
(3) Cash Deposit	-0.0430	-0.1387*	1.0000												
(4) Loan Deposit	-0.1295*	-0.1992*	0.3509*	1.0000											
(5) Net interest income to net Interest Expenses.	0.2101*	-0.0256	0.2476*	0.2161*	1.0000										
(6) Net interest income to net Interest Expenses.	0.1533*	0.3210*	0.0752	0.0156	-0.3814*	1.0000									
(7) Equity to Assets	0.3307*	-0.1303*	-0.0142	-0.0570	0.3891*	-0.3252*	1.0000								
(8) Equity to Liabilities	0.3324*	-0.1252*	-0.0306	-0.0638	0.3886*	-0.3336*	0.9940*	1.0000							
(9) Equity to Net Loans	0.3226*	-0.0651	-0.0878	-0.3548*	0.2332*	-0.2349*	0.7982*	0.7867*	1.0000						
(10) Loan to Assets	-0.2122*	-0.0420	0.0039	0.5398*	-0.0404	0.1233*	-0.2806*	-0.2702*	-0.7038*	1.0000					
(11) Fixed assets to Assets	0.1756*	0.0813	-0.2400*	-0.0839	-0.0650	-0.0558	0.0995*	0.1047*	0.0590	0.0137	1.0000				
(12) Net interest income to Total Assets	0.1672*	0.2247*	-0.2099*	-0.0346	-0.2320*	0.3169*	0.0064	-0.0088	0.0532	0.0500	0.1899*	1.0000			
(13) Inflation	0.1300*	0.0948	-0.1759*	-0.1119*	0.0009	0.0032	0.0590	0.0562	0.1422*	-0.2023*	0.1605*	0.1590*	1.0000		
(14) Discount interest rate	-0.1814*	-0.1361*	0.2109*	0.1089*	-0.0012	-0.0237	-0.0727	-0.0701	-0.1611*	0.1975*	-0.2201*	-0.2600*	-0.7642*	1.0000	
(15) Bank Size	0.0738	0.2050*	-0.1454*	0.0738	-0.1381*	0.1350*	-0.2717*	-0.2525*	-0.3108*	0.2523*	-0.0485	-0.1555*	-0.0654	0.0713	1.0000

Shows significance at the 0.05 level