

RELATIONSHIP BETWEEN FINANCIAL DEVELOPMENT  
INCLUDING ISLAMIC LOANS AND ECONOMIC GROWTH

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Master of Science

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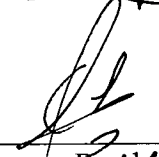
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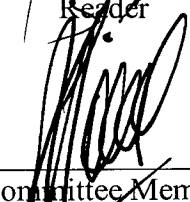
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## ABSTRACT

**Purpose** – The purpose of this study was to investigate empirically whether financial development including Islamic loans leads to economic growth

**Design/methodology/approach** – This study covered 13 countries from the MENA region during the period of 2001-2015. Multiple Fixed effect models were used on a balanced panel to check the impact of financial development variables on the GDP per capita.

**Findings** – Conventional loans and Islamic loans have significant positive relationship with economic growth. While bank asset concentration, stock market total traded value, stock market capitalization and non-performing loans have a significant negative relationship with economic growth. On another note, we concluded that the economic freedom index and the return on equity are not significant.

**Research limitations/implications** – The data of Islamic loans was not available through secondary data. Hence we were obliged to collect primary data and the collection of data took a lot of our time and we are obliged to present this study within a specific time, thus we were not able to do further analysis on the components of loans.

**Practical implications** – The stock markets playing a minor role in financing the private sector must be improved to allow more accessibility for financing. However, from another hand, regulators must adopt strict regulations to control the volatility of prices in the market. Moreover, banks in MENA having a high exposure to the public sector must increase their credits to the private sector, whether through conventional loans or Islamic loans in order to boost the economy

**Originality/value** – Provides a comprehensive study on financial development and especially Islamic loans. It also fills a gap in the empirical studies related to the MENA region.

**Keywords**– Financial development, economic growth, conventional loans, Islamic loans, stock market, Economic freedom, capital allocation.



## Chapter 1

### Introduction

#### 1.1 Introduction

"Finance is, as it were, the stomach of the country, from which all the other organs take their tone." William Gladston, the former British Prime minister, described with these words the importance of the financial sector for an economy (ECB, 2001). A financial sector's main role is to channel money from savers who have excess of money to investors who need to finance their projects. There are two ways for investors to finance their projects, with each having its advantages: some industries resort to capital markets to finance their activities, while others prefer to resort to banks. Apparently, countries that have well-developed banking sectors and capital markets are more likely to have higher growth rate.

The Department of International Development (2004) being a UK government department, defined the financial sector as "all the wholesale, retail, formal and informal institutions in an economy offering financial services to consumers, businesses and other financial institutions. In its broadest definition, it includes everything from banks, stock exchanges, and insurers, to credit unions, microfinance institutions and money lenders." A financial sector is considered developed when it is efficient, well-regulated and provides a broad access of financial services.

Well-developed financial markets can solve asymmetric information problems, allocate capital efficiently, increase purchasing power, decrease transaction costs, manage productivity and risk, and route capital towards profitable sectors (Levine, 1997).

In the Mid-1800, the efficiency of England's financial system led to a competitive economic environment. In the aftermath of World War II, politicians' decision to breakdown borders that steered them into globalization due to the belief that economic ties erode any potential political threat. Consequently, markets around the world witnessed lots of changes and were given a bigger role in the economies hoping to boost growth. At the same time, economists like McKinnon (1973) and Shaw (1973) developed studies that concluded that financial liberalization leads to more economic development. Following this, restrictions on financial markets and financial institutions were reduced furthermore, such as the liberalization of interest rates, the adoption of indirect instruments of monetary control, the setting of the open market operations, and the loosening of the legal framework. After decades of globalization and liberalization, peace in Europe is still declared and the desired growth was achieved.

When it comes to the MENA region, the link between financial development and growth is still foggy. The debate starts by questioning the degree of the impact of financial development on growth and continues to contemplate whether causality exists between them. Some studies found a positive impact such as Hamadi and Bassil (2015), Matallah et al. (2015) and Kutan et al. (2017), while others found a negative or even insignificant impact such as Naceur and Ghazouani (2006), Al Zubi et al. (2006), Goaid and Sassi (2011) and Kar et al. (2011). The financial and economic backgrounds are not similar to those found in Europe. According to IMF (2017), the size of Islamic finance worldwide reached around 1.5 trillion dollars in 2016. Although it constitutes a low share of the global banking assets, Islamic banking became systematically important in some countries and mainly Middle Eastern

countries. Hence, what is the link between financial development including Islamic loans and economic growth in the MENA region?

In order to answer the above, we review, based on economic and financial literature and historical data of the region, the link between financial development (including both conventional and Islamic loans) and growth.

## **1.2 Objective and importance of the study**

Nowadays, a lack of financial development can be a serious problem for any economy. Financial development and liberalization incorporate several reforms related to interest rate, reserves requirements, credit allocation, financial regulations, and several other factors

From the beginning of 1980, an increasing number of countries in the Middle East started to loosen up regulations and to come closer to financial liberalization. Therefore, it is worth studying the link between financial development and growth in the area. Did financial development help improve GDP rates?

In fact, this research will shed light over these two components. It will study empirically the impact of financial development (financial markets and banks) on growth in the MENA region. It will highlight the effect of Islamic financing and Islamic loans on the economy and will analyze the relationship linking it to improving the economic environment. While other papers considered that only Islamic banks are the provider of Islamic loans, what differentiates our study is that we considered a more comprehensive set of data. We know today that many conventional banks also provide Islamic loans, thus our data was manually collected from the audited financials of all the banks registered in MENA countries. We extracted the audited financials of the 227 banks considered in our study from a period starting from 2001

till 2015. Hence, in total, we checked 3405 financials. In each financial, we studied the amounts of loans granted to customers, then we checked the notes related to the composition of the loans to identify Islamic loans (in case of availability).

The outcome of our study will help to understand more the role played by the financial sector (emphasizing on Islamic finance) in the region. The value of the research is related to this outcome and the steps that should be adopted based on it, as it could be considered a starting point for understanding the connection between both components in order to boost economic growth effectively. Our aim is to recognize whether the structure of the financial sector that includes Islamic loans was able to promote economic growth and development.

In case our results found that the financial sector is playing a positive role in the economy and helped Middle Eastern countries progress, then the economic plans in these countries should focus more on the financial sector in order to benefit further from the advantages it will provide. On the other hand, if we concluded that the financial sector did not lead to the attended growth, we would note that this sector was underperforming. In this case, governments should revise their economic plans. The structure and regulations in the sector should be reviewed in order to win over in terms of growth and development.

### **1.3 Outline of the thesis**

Chapter 2 discusses the main theories related to financial development and economic growth. Most economists argue that financial development promotes economic growth mainly through efficient capital allocation, the improvement of purchasing power, the supply of capital for the private sector and the facilitation of fund transfers, the decrease of transaction costs, the management of productivity and

liquidity risk, the acquisition of or access to information, the allocation of resources, the collection of data, and the routing of capital toward profitable sectors.

Moreover, many empirical studies are discussed. Most researchers support the theories mentioned above throughout their empirical studies and prove that most developed and emerging countries have a positive relationship between financial development and economic growth. However, there is no consensus when it comes to the MENA region. Some researchers in MENA support this theory, while others concluded that there is no or even sometimes a negative relation. Moreover, results in the MENA region did not differentiate between Islamic and non-Islamic products, and while some papers do include Islamic products, the data retrieved in these papers remains non-comprehensive.

Chapter 3 reveals the methodology used in this thesis and sets the main hypothesis question, which states the following: “Will financial development that includes Islamic products lead to significant economic growth?” Independent and dependent variables are introduced in the data set. A small brief is also presented on the assumptions to be adopted in addition to the random and fixed effect models.

Chapter 4 presents the statistical work done, the tests we ran on the assumptions and the results. The fixed effect model is utilized after checking the Hausman test. The main results from the panel reveal that Bank asset concentration, Stock market total traded value, Stock market capitalization and non-performing loans have a significant negative relationship with economic growth. Islamic loans and Conventional loans have a significant positive relationship with economic growth. On another note, we conclude that Economic freedom index and return on equity are not significant.

Chapter 5, being the last chapter of this thesis, highlights a small briefing on the thesis and its conclusion. This study encountered several limitations, being mainly time and availability of data. Finally, two further studies are recommended to confirm if the political stability is essential for the development of the MENA region and to identify if the volatility is the reason behind the negative relationship between stock markets and economic growth.

## Chapter 2

### Literature

#### 2.1 Theoretical Part:

Harris (2007) argues that the definition of economic growth has developed over the years. The classical definition of growth, mainly presented by Adam Smith, Thomas Malthus and David Ricardo, was linked to “progress”. They define growth as an accumulation and productive investment. Ricardo explains growth as the increase in one of the factors of production: labour or capital. Few years later, SOLOW added an important factor to the theory: technological progress that leads to an increase in innovation. The theory of growth developed even further with the Austrian economist Joseph Schumpeter whereby “Innovation” became the core of the definition.

Throughout the years, many other factors were added to economic growth such as government activities and policies, population size, environment and equality. Yet one determinant drew the attention of many economists: “The development of financial sector”.

For a lot of economists, the development of financial sector is also considered as a main determinant of economic growth.

According to Bagehot (1873), England was one of the greatest countries in the world, with money being its main weapon. The available cash in English banks that could have been lent at any time were the highest in the world. It was its deposits in the banks that made England far richer than any other country. There was always enough money to lend any individual, company or country. Most poor countries used to visit England to collect funds to finance their infrastructure projects. On another hand, the availability of loans made the trading sector in England more competitive.

Traders could compete with prices by borrowing capital to finance their trades. A poor man who invests using a borrowed capital could compete with a rich man investing his owned capital. The return on equity of the poor's man would be greater than the return of equity of the rich man. Lombard Street in London, which was a financial hub, played the role of an intermediary between the districts in England. Bagehot realized that, in countries with not enough money to lend, trading would be rigid.

In brief, Bagehot agreed that the English banks played an essential role in the prosperity of England and emphasized on the importance of the well-developed financial sector, as money should be well managed to reach growth and avoid risks.

According to Schumpeter (1934), the purchasing power is very essential for the production of goods in any economy. In the absence of capital, giving credits leads to the creation of purchasing power. "By credit, entrepreneurs are given access to the social stream of goods, before they have acquired the normal claim to it" (P. 107). The creation of purchasing power through credits increases the supplies, thus entrepreneurs would not need to wait for the collection of their money to produce more goods. Hence, production can be always achievable. On the other hand, consumers are able to increase their purchasing power through credits as well, thus making demand always available. Schumpeter concluded that this phenomenon leads to economic development. He also highlighted the importance of the efficient capital allocation produced by the financial intermediaries that play a major role in economic development

On another note, Schumpeter believed that production must be improved. This could not be done through the increase of the production factors, and therefore, the solution is to innovate. To innovate, one must have enough resources, which are available



through credits. Schumpeter concludes that the future of evolution and the banking sector are interdependent, highlighting the pulse of the role of the financial and banking sector.

On the other hand, Goldsmith (1955) starts with a historical study to conclude that, the more the financial sector is developed, the more the country will be developed. Financial development leads to economic growth. For him, the superstructure of the financial sector stimulates the growth and improves the economic performance through the facilitation of the funds transfer. In his study, the economist worked on a ratio that measures the financial intensity of an economy, reflected on the existence of diversification in the financial sector, and whether the financial sector would transform the economy of the country into a developed economy.

Moreover, Goldsmith (1959) highlighted the importance of savings. The saving ratio is one of the most important factors related to economic growth and is described as the finance of capital formation. This ratio varies according to the financial structure of a country, confidence in the banking sector, accessibility and even the dominated religions in the country.

Goldsmith did not explain in his paper how religions could affect the saving ratio, yet this was clearly demonstrated by Renneboog & Spaenjers (2009) and Klobert (2010). Through their empirical studies, they found that, when it comes to saving, large differences are observed among Christians, non-Christians and non-religious people. Religious people are more likely to save than non-religious, with Jews saving the most. For Buddhism, wealth is considered a consequence of good karma. For Islam, it is clearly mentioned in the Quran that no one should accrue wealth more than he needs. For Christians, people who attend church are more likely

to save than Christians who don't attend church. Hence the authors concluded that religion highly affects an individual's behavior when it comes to saving.

According to Gerschenkron (1962), the government can intervene to supply capital and support technologies and innovations within limits, yet the main strategy for innovation is the establishment of big banks to support industries. Gerschenkron gives the examples of Germany, Italy, France and Russia. He gave Germany's example on industrialization and late development: To be in a competition with England, Germany needed huge investments that could not have been possible without the important role of the banking sector in providing the necessary funds. This example could be generalized for the cases of Austria, France and Switzerland whereby same developments took place. However, in Russia's example given by Gerschenkron (1962), the supply of capital for industries was mainly the role of the state. The lack of capital and the insufficiency of the banking sector in that country limited its development. Gerschenkron concludes that the more a country is late in development, the more the role of financial institution is important.

Hicks (1969), stressed on the significance of the financial market while talking about the industrial revolution and its motives. He contended that the revolution was not started due to the discovery of any new important technology. Most of innovations that appeared during the industrial revolution had been discovered before its beginning, however without being completely materialized. Hicks explained that the implementation of these technologies required a large scale of long term investments, and such investments couldn't have been financed without the existence of financial intermediaries that could provide liquidity for investors.

Subsequently, as indicated by Hicks, the decision of producing innovations was connected to the cost of trading in financial markets. Hence, it was fundamental that

the financial revolution represented by the fast development of the British financial markets happens before the industrial revolution to assure the necessary liquidity for the implementation of these technologies. Hicks concluded that the adoption of technologies relies heavily on the support of financial markets to provide the necessary liquidity and decrease transaction cost.

Shaw (1973), emphasized on the importance of financial deepening as a forum of financials being developed through his book “Financial Deepening in Economic Development”. Financial services should be available in a wide range with highly diversified instruments and financial assets must accumulate at a faster pace than non-financial wealth. Shaw, the expert of monetary policies, advises developing economies to implement liberalization in financial sectors. By financial liberalization, he meant that governments should decrease their intervention in the financial sector and interest rates should be liberalized. Competition in the financial sector and good strategy of money supply are beneficial for growth. Shaw pointed out on the significance of interest rates, its role in competing investment opportunities and in preventing capital from floating abroad. Finally the economist concluded that financial liberalization together with financial deepening in addition to a good strategy could boost growth and development.

Mckinon (1973) stressed on the importance of development of capital and financial markets in less-developed or non-developed countries. He considers that the lack of capital markets in non-developed countries obliges companies to rely on its own equity and personal fund, which lead to the loss of many investment opportunities, a lack of technological support and an increase of investment in low quality projects. Hence, to be on the right track, companies should have alternative access of financing such as external finance capital, financial markets and especially

banking sector, which represents the main financing tool for companies in non-developed countries.

Mickinon (1973), agrees that high interest rates increase the will to have more savings. Bank deposits will increase, the banking sector size will increase and, consequently, the economy will increase.

Mickinon took the Korean case and the rapid economic growth after 1960. Taking into consideration the lack of natural resources, the low domestic saving rate and the limited domestic market in South Korea, the country relied on exports to reach growth. The government encouraged companies to develop competitive products and new technologies. No sufficient capital was available to finance these investments due to the gap in domestic savings. Hence, to cover this gap, interest rates were increased, which attracted foreign capitals to the country, therefore covering the shortage of capital. On another hand, companies were granted subsidized loans related to export activities. Exports significantly increased and led to more capital inflow to the country, leading South Korea to witness a significant economic growth within few years.

Greenwood and Jovanovic (1990), state that economic growth boost investments, which in return lead to additional growth. Here came the role of financial institutions that facilitate trade by collecting and analysing data and information, which allowed investors to invest in the profitable investments, avoid bad investments and increase their returns. On another hand, financial institutions minimized the risks in diversifying and dividing their exposure to cover a wide number of investors. Hence, financial institutions allow investors to increase their profits and decrease their risks. The authors concluded that financial institution services and economic growth are highly linked to each other. Growth assists the development of the financial sector

and a developed financial structure leads to higher profits and more growth. As this process continues, growth increases and the gap of income between the poor and rich narrows.

According to Levine (1991), Stock markets have an important role in managing productivity and liquidity risk, which boosts economic growth. In the absence of stock markets, investors reluctant to take risks may be discouraged to invest in some firms or in risky investments. Financial markets allow investors to diversify their investments and mitigate their risks. This diversification increases the capital allocation to all types of investments and increase growth. On another hand, liquidity risk and shocks force some investors to withdraw their capital from some firms, which decrease the productivity of the firm. When the productivity of a firm decreases, other investors won't be attracted to invest in such a firm. Stock markets allow investors to sell their shares to other investors without affecting the liquidity or productivity of the firm.

Hence stock markets boost economic growth by decreasing the liquidity risk and productivity risk.

Pagano (1993) argues that several economists have proved that financial developments can affect growth, yet few of them explained how this is done. Pagano considers that the first function of financial intermediaries is channeling savings to investments. If savings increase, the investments of financial intermediaries increase, further leading to growth.

Second, financial developments improve the allocation of capital towards efficient and productive projects and investments. Usually, individuals invest only in liquid projects, while ignoring other investment that could be more productive yet illiquid. Banks can manage liquidity risk, thus they fill this gap and invest the depositors'

funds in more illiquid, yet profitable projects. On another hand, companies can increase their profits by diversifying their portfolios and reducing risks through the stock market.

Finally, financial developments affect the saving rate by reducing the spread between interest paid by investors and interest received by savers. Factually, bank loans are the first choice of companies for financing, followed by stock markets and bond markets. Yet, wherever the capital markets are more developed, individuals are more assured and consider investing instead of saving.

Levin (1997) highlighted the role of financial institutions and financial markets in acquiring information and allocating the resources. Savers do not invest in projects where no information is available or accessible. They would not have the time to collect information, or the required information could be expensive to be acquired, thus capital may be kept away from some high value investments. Without financial intermediaries, each investor would pay a huge amount to obtain certain information. Yet financial institutions can minimize this cost by collecting or buying this information and selling it to the concerned investors. This procedure can facilitate the acquisition of information, which would have positive effects on growth, now that capital will more likely be efficiently allocated.

Stock Markets play also a role in influencing the information acquisition process. A liquid and well-developed stock market attracts investors who will need to acquire information about companies to decide where and how to invest. The demand of information from many investors would incite agencies to collect and sell the required information, hence new data and information will be available in the market, which would improve the efficiency of capital allocation and, as stated previously, will have a positive impact on economic growth.

In addition to the decrease of the cost of the access to information, intermediaries reduce the cost of monitoring. Financial institutions collect the savings of investors and finance a certain project. Instead of each investor monitoring the project, it will be monitored by the financial institution.

Financial markets encourage also the monitoring of companies. Companies' owners can evaluate the performance of their companies through the listed share price in the stock market and link it directly to the bonuses of managers, which encourage managers to perform better. In this case, the threat of a take-over in stock markets also boosts managers to improve the performance of the company in order to secure their jobs.

Finally, Levine also talked about the role of financial institutions in reducing the cost of transaction, reflecting the economy of scale. Usually, transaction costs are very high, yet banks can invest in large amounts of stocks and shares, divide their portfolios to small portfolios and sell it to other investors. Reducing the transaction cost encourages individuals to invest more, which increases the productivity of capital.

Miller (1998) criticized how some people consider that the reason of the great depression in 1929 was the stock market crash. Miller believes that the main reason for this depression was the incompetent management of the Fed's monetary strategy. He also talked about the derivatives disaster in 1990 and blamed the mismanagement of derivatives market, not to the derivatives products itself. In the end, analysts blamed the financial market. In this case, Miller highlighted the importance of this market to reach economic growth.

Miller highlighted the importance of having a well-developed financial market consisting of banks, stock markets, and capital market. For him commercial banks are

very important in the process of liquidity creation and play a major role in financing illiquid assets through depositor's savings. He also suggests that financial markets should complete the banking sector. He talked about the money market role in acquiring liquid funds and then took the role of bonds and especially junk bonds that played a major role in financing many US firms to grow. Miller concluded that the stock and bond markets are very essential to assure an economic growth, yet of course an appropriate legal infrastructure should be built to assure the establishment and functioning of these markets.

Wurgler (1999) explained that, in order to reach a growth in the economy, capital should be efficiently allocated, i.e. capital should be routed towards profitable sectors. Financial markets and financial institutions have an essential role in improving capital allocation. For example, financial institutions distinguish bad and non-profitable projects. On another hand, secondary markets or stock markets help investors analyse the quality of investments through several ratios, whereby the author mentioned few of them. Wurgler concluded that a well-developed financial market improves the efficient capital allocation and routes the economy towards better growing investments.

Mishkin (2004) emphasized the role played by financial markets. Money Markets and capital markets improve the capital allocation and have essential roles in boosting the economic growth by channeling money from savers who have excess of money to investors who need it to finance their projects. A well-developed financial market is key for a country's development. For Mishkin, an undeveloped financial market is the reason why some countries stay poor. The economist talked about several researches and mentioned the example of Russia.



An important problem that could reduce investment is the presence of asymmetric information when a party does not have enough information related to the second party to take the best decision.

Asymmetric information creates moral hazard and adverse selection problems.

Mishkin argues that a well-developed financial market can eliminate or reduce these problems by playing the role of an intermediary that has enough information from both parties and by following up the financed projects and investments.

Finally, companies may also face “agency problem” which arises from moral hazard. This is when we face conflict of interest between the managers and other stakeholders. Venture capitals, which are wealthy companies that invest in small companies, firms can usually solve this problem by having representatives in the management board, which then allows them to monitor these companies and ensures the generation of profit. On another hand, debt contracts can also solve the agency problem. When companies have an excess of cash flow, managers could make some unnecessary expenses; however, when debt is imposed, this may restrain the managers’ position. They may fear that if they waste the available excess of cash flow, they may not be able to settle their dues.

As per Greenspan (2005), historically, the US financial system and mainly banks played a major role in boosting economic growth through capital allocation. This role did not change throughout the years despite the changes in regulations and in the complexity of the banking sector. However, it is worth to mention that the banking system should be well developed and regulated, otherwise possibly leading to instability instead of growth. Hence, financial soundness and financial health are very important factors. Many regulations were implemented in the previous years to assure the continuity of the positive role of banks and to avoid or minimize negative

consequences. Greenspan, the former chairman of the Federal Reserve, argued that banks could have major roles by contributing to the economy or leading towards economic instability. Finally, he concluded that banks benefit a lot from subsidies and supports granted by their government, yet in return they should adopt proper managerial and safety measures to protect the economy.

Yunus (2005), the Grameen Bank founder, found that the best way to reach development is through loans after working in developing countries. Mohamad Yunus won the Nobel Peace Prize, yet unfortunately declared: “today, if you look at financial systems around the globe, more than half the population of the world- out of six billion people, three billion- do not qualify to take a loan from a bank”. Yunus concluded in his interview that this is shameful. He found that the best way to reduce poverty is to innovate micro credits. The Grameen bank, Yunus’ innovation, “has reversed conventional banking practice by removing the need for collateral and created a banking system based on accountability, mutual trust, creativity and participation,” as explained on the United Nations website (UNPAN, 2010). This bank is defined as the bank of the poorest. Its positive impact is going over the poorest countries to help women in particular by providing them with small loans to start their small businesses.

Capasso (2006) argues that the movement of economies and financials markets seems to be almost symmetric. In poor economies, we witness a poor financial system where usually it is not worthy to mention the existence of stock markets. As long as the economy grows, financial systems develop and the market witness more complex financial instruments. Yet Professor Capasso claims that, although there is a positive correlation between economic growth and stock market development, the causal

relationship is not yet confirmed, with recently many economists attempting to solve this theory.

Bernanke (2007) highlighted the essential role played by the financial factors in the economy. A business man or any individual that has an idea or a project must find financing for his idea to implement it. His choices would be a bank, financial market or a venture capital firm. Companies need the intermediary of financial institutions or financial markets to expend their operations. The best choice for families' for buying a house is to obtain a mortgage from financial institutions. In brief, a healthy financial market helps the economy achieve its development. Bernanke, the formal chairman of the Federal Reserve, argues that an unhealthy financial sector struggling with non-performing loans and a gap of capital may freeze the economic development, similarly to what happened in Japan in the Lost Decade in late 1991. He concluded that the road of economic growth and development starts by establishing a well-developed financial system.

Nowadays, regulators and economists are aiming to make financial services reachable and inexpensive for all categories of people (rich and poor, men and women, youths and adults...). They believe that by doing so, they can reduce poverty and boost economic development. The process of making financial services reachable at affordable costs is known as "Financial Inclusion"

The World Bank (2017), defines the financial inclusion as the accessibility of all individuals (poor, adults and women) to financial services. It starts by having a bank account, access to bank services and - one of the most important factors - access to credit that allows them to invest in education and business opportunities. Although there is still no sufficient data to assess the exact impact of financial inclusion on inequality and economic growth, the World Bank (2017) believes that, on the long

run, financial inclusion could boost the economy and prosperity and decrease poverty and inequality.

As per the World Bank (2017): “Around 2 billion people don’t use formal financial services and more than 50% of adults in the poorest households are unbanked. Financial inclusion is a key enabler to reducing poverty and boosting prosperity.”

In addition to financial inclusion, many other reforms took place. As per Hamdi (2015), in the previous years, several countries have applied financial reforms aiming to raise the role of financial institutions in the economy. However, in some countries where the financial sector was under developed and no reforms were introduced, the financial sector was not able to support the growth in the economy.

Hence, regulators are always aiming to enhance and improve the financial sectors in their countries due to the important role played by financial markets and financial institutions in the economy.

## 2.2 Empirical Studies

King and Levine (1993) studied the relationship between financial development and economic growth. They used the data of 80 countries over a period of 30 years (from 1960 to 1989). They found that the financial development indicators, which are the importance of banks relative to the central bank ( $\frac{\text{banks domestic assets}}{\text{banks domestic assets} + \text{central bank domestic assets}}$ ), the allocation of credits to Private sector over GDP and the size of financial sector over GDP ( $\frac{\text{liquid liabilities}}{\text{GDP}}$ ), were strongly and positively correlated with economic growth, capital accumulation and the efficiency of allocation of capital. The results were supporting the theory that financial development increases capital accumulations and improve the efficiency of capital allocation, which leads to economic growth. The authors concluded that Schumpeter was right when he talked about the important role of financial development towards economic growth.

Rajan and Zingales (1998) studied the impact of financial developments on economic growth. They made their study based on a sample of US listed companies extracted from Standard and Poor compustat from 1980 to 1990. To avoid biased results, they took into consideration the differences between industries by using some industries indicators. Through their study, the authors found that financial development decreases the cost of external financing which in return boosts economic growth. Moreover, financial development can increase the establishment of firms and support innovation, which also indirectly has a positive effect on economic growth. Finally, the authors suggested that the presence of a well-developed financial market has positive advantages for a country, especially for industries that rely on external financing. Financial development can encourage new entrants to industries, thus it plays a role in determining the size of an industry.

For Levine and Zervos (1998), economists have concentrated their research on the relation between banks and growth, yet there was no much evidence on the relation between stock markets and growth. So they decided to study the relation between economic growth and both stock market development and banks development. They used an 18 years data (from 1976 to 1993) of 47 countries and examined whether stock markets development represented by its size, volatility and liquidity are linked to economic growth, capital accumulation and productivity. Moreover, they also studied if bank development represented by credit to private sector/GDP is also linked to the same mentioned dependent variables.

They found a robust positive correlation between both stock market liquidity and banks development from a part, with future rates of growth, capital accumulation and productivity. Moreover, the results suggest that the financial factors and financial services are an essential part of any development process. The authors concluded that the development and the well-functioning of the financial sector leads to economic growth.

Rousseau and Wachtel (1998) studied the link between the financial sector and economic performance. They used a 30-year data (from 1870 to 1929) of 5 industrial countries, being the United Kingdom, Norway, Canada, Sweden and the United States. As a dependent variable, the authors used the real per capita growth, and as independent variables, they used financial institutions assets/output and financial institutions assets + corporate stocks + corporate bonds / total assets. By measuring the intensity of intermediation and using the granger causality test and VECM model, the study reveals that the development of the financial sector was the main cause of the industrial revolution experiences in these countries prior 1929. The authors

concluded that the development of financial sectors can improve the allocation of resources and boost economic growth.

Beck et al. (2000) assessed the impact of financial intermediaries' development on the economic growth and its sources (productivity, saving rates, capital accumulation and economic growth). They used a cross country data for 63 countries (from 1960 to 1995) to evaluate the long run impact of the independent variables related to financial development on economic growth and created a panel data and used specific techniques (Generalized-Method-of-Moments) to extract the nature of time series of the data. At the end of their study, they found a significant positive relationship between Real GDP per capital and productivity growth from a part with financial development from another part. Yet the relationship between physical capital growth and savings rates from a part with financial development was not confirmed due to unclear results. The economists concluded that financial development boosts economic growth by improving the resource allocation and improving productivity.

Beck and Levine (2002), studied the impact of financial development on economic growth through a panel data covering the period of 1976-1998 of 40 countries. To focus on long run relation, they used a shifting average period of 5 years. They used bank credits as a variable to measure banks and turnover ratio for stock markets. Their results support the theories that claim that financial development boosts economic growth.

As an example, the study showed that if banks' credits or stock markets turnover ratio in Mexico were near OECD countries average, growth in Mexico would had been higher during the studied period. Ultimately, the economists concluded that banks and stock markets separately and jointly have a large impact on economic growth.

Rousseau and Sylla (2003) tried to answer a main question: “what is the relation between financial market and economic growth? “ Through their paper and by using a cross country regression (Panel data) of 17 countries from 1850 to 1997, they concluded a positive correlation between financial factors and economic growth. They found that the diversification of products in the financial sector lead to more trades. The results also show that financial sector had an impact on economic growth and the globalization of several countries. In brief, the authors concluded that financial development stimulates the inflows of capitals to the country. Moreover, banking promoted industrialization, and financial markets promoted banks since the latter takes advantage of these markets by raising their own capitals and providing a variety of instruments and products. Finally, they ended their paper by asking if there is a case where a well-developed financial market did not lead to growth. They did not believe that there was such a case; however, they did not confirm it since they assumed that more investigations should be done to answer this question.

Calderon and Liu (2003) studied the nexus between financial development and economic growth. The main purpose of their study was to find the direction of causality. They applied the Geweke decomposition test on 109 developing countries and industrial countries from 1960 to 1994. As a result, they first found that financial development boosts economic growth. However, a cyclical causality exists, which means that financial development boost economic growth, which in return improves the financial development. Moreover, financial development plays a bigger role in developing countries than in industrial countries. Finally, they explained that technology and capital accumulation are the tools of financial development that lead to economic growth.



Demirguc-Kun et al. (2012) agree that financial development boosts economic growth; however, they believe that empirical studies were unable to explain the importance of the financial sector during growth periods. Thus, they tried to assess the evolving role of markets and banks during growth periods. To reach their results, they prepared an empirical study based on several financial and economic parameters covering 72 countries from 1980 to 2008. Through their study, they found that during economic growth periods, the financial sector becomes more developed. However, they also found that, as the economy increases, the relation between economic growth and banks is negative, while the relation between financial markets and economic growth is positive. Therefore, they concluded that, within developed economies, the services provided by financial markets have more impact than those provided by banks.

Farahani and Dastan (2013), used a panel co-integration approach to assess the relationship between Islamic finance and economic growth and to show whether the financial development of Islamic finance has an impact on the economic growth on the short and long term. They used the data of 9 countries from 2000 to 2010. In brief, they assessed the relation between growth in these countries as a dependent variable, and Islamic financing, trade activities and investments as independent variables. The results showed a significant and positive correlation between growth and Islamic finance and that the development of Islamic finance leads to economic growth. The authors concluded that Islamic banking in these countries played their roles as intermediaries between savers and borrowers and that the development of Islamic banks in these countries would lead to more growth.

Imam and Kpodar (2015) published an IMF working paper on Islamic banking. Literatures have shown that financial developments lead to growth, so they were

concerned whether it is the same case for Islamic banking. They used the data of 59 countries from 1990 to 2010. They found that, after disregarding the other factors of economic growth, the countries that had Islamic banks witnessed a faster growth than other countries. However they were not sure about the part of this growth caused by Islamic finance. It was also mentioned that conventional banking has many weaknesses such as leverage, which is not the case for Islamic banking since it is based on risk sharing principles. Moreover, Islamic banks not only boost economic growth, but also tend to manage or minimize the risk of speculative bubbles. It was then concluded that poor Islamic countries could start by developing this sector and implementing the proper regulations to possibly boost their economies.

Nicolae et al. (2016) also studied the direction of relationship and correlation between financial development and economic growth. They did a study on 70 developed countries from 1988 to 2011 and divided them into 7 regions: “East Asia & the Pacific, South Asia, Europe & Central Asia, Sub-Saharan Africa, Middle East & North Africa, Latin America & the Caribbean and the Arab World.” Throughout their study, they found different results for each region. While financial development leads to growth in some regions, in others it was economic growth that led to financial development. However, the strongest correlation was found in Sub-Saharan African countries, where they found a bi-directional relationship between economic growth and financial development.

## **MENA Region**

Naceur and Ghazouani (2006) were interested in both the banking sector and stock market impacts on economic growth in the MENA region. They prepared an empirical study based on 11 countries from the MENA covering the period of 1973-2003, yet with different observations for each country based on the available data. As a result, they found that the financial sector in the MENA region does not play a role in boosting the economy, and sometimes even plays a negative role. Ultimately, they concluded that this might be due to the under-development of financial sector in these countries. These countries need to enhance their financial sectors, improve the capital allocation, privatize state owned banks and enhance regulations to boost the economic growth and avoid a negative impact from these markets.

For Al Zubi et al. (2006), the Arab world made many reforms to its financial sectors, thus it was necessary to assess the impact of financial development on economic growth in these countries. They used data of only 11 Arab Countries since data was not available for all the countries and covered a period of 1980-2001. As a result, the financial indicators used (covering the size of intermediaries and the domestic credits allocated to the private sector) were not positively correlated and significant with economic growth represented by GDP. In fact, it was indicated that banks in Arab countries lent more to the government and the public sector than to the private sector, which might be due to the weakness of the private sector and the lack of innovations. Al Zubi et al. concluded that Arab countries should witness a restructuring in their financial sectors in order to become more efficient.

Goaied and Sassi (2011), studied the impact of financial development on economic growth while taking into consideration the impact of Islamic banking separately. They found no data published concerning Islamic banking, so they made a

list of Islamic banks in the MENA and assumed that all credits granted to by these banks were granted to the private sector and finally removed the part of Islamic loans from total loans to separate between conventional loans and Islamic loans. As a result, they found that financial development has no effect on economic growth in the MENA region, which supports the theories reflecting the failure of the banking sector in the MENA region. Loans to the private sector were seen as negative contributors to growth, while Islamic banks were seen as positive contributors yet with a low significance level.

Kar et al. (2011) studied the causality direction between economic growth and financial development in the MENA region. They used a data of 15 MENA countries from 1980 to 2007. They used GDP as a dependent variable and 6 variables related to financial development as independent variables. The results related to Sudan, Egypt, Iran and Algeria show that none of financial development indicators leads to growth. For Morocco, the results support the theories that financial development boosts economic growth. For the other countries, the results did not show any constant structure. The researchers concluded that financial development and economic growth in MENA region are interrelated; however, there was no strong evidence for causality.

Falahaty and Hook (2013) examined the impact of the financial sectors in 9 MENA Region countries on their economic growth. Some empirical studies were done for the MENA region, however relying only on the banking sector. The authors tried to fill the gap by also studying the impact of stock markets. They used a panel data spreading from 1991 to 2013, considering 3 variables for banking development, being credits to private sector, liquid liabilities and domestic credit provided to private sector. For stock markets indicators, they used the total value of traded shares, stock capitalization and turnover ratio.

As a result, Falahany and Hook (2013) concluded that financial development has a positive impact on growth, noting that the impact of stock market was slightly greater. The study also showed a negative correlation between economic growth and some indicators related to banking sector. For the economists, this might be due to the government intervention in these countries, inefficient capital allocation and lack of regulations.

Hamady and Bassil (2015) agree that financial intermediaries by efficiently allocating capital, minimizing risks, decreasing transaction and information cost boost the economic growth. The MENA region in the previous years has adopted several reforms to develop the financial sector, yet there was still no evidence on the impact of financial development on economic growth. Hence, they examined the impact of financial development on economic growth in 13 MENA countries by using a panel data from 1988 to 2009.

As a dependent variable the authors used the natural logarithm of real GDP per capita. For independent variables they used variables related to stock market and banks developments represented as follow: turnover ratio being total shares traded /market capitalization, bank credit to private sector variable, liquid liabilities variable being liquid liabilities of the financial system/ GDP. Finally, they included some control variables and dummy variables to control other determinant factors of economic growth in their study.

As a result, the findings of this paper show that stock market development and bank development variables were shown to be significant with positive relations. Hence, the financial markets in the MENA region have a positive impact on economic growth during stability periods, which is consistent with theories that emphasize on the important role of financial developments towards economic growth.

Matallah et al. (2015), studied the impact of financial development, FDI and economic freedom on economic growth in the MENA region. They based their study on a set of 12 countries from 1995 to 2012 by using OLS and Panel data. As for the variables, they used the GDP as a dependent variables, economic freedom indicator from heritage for economic freedom, liquid liabilities and private credits for financial development and net amount of FDI as % of GDP for FDI. The study shows that the 3 variables were positively corrected and significant with growth. Economic freedom enhances the competition, thus boosting economic growth, and financial development enhances the capital allocation and increases savings, which also boosts economic growth. Finally, they concluded that MENA region countries could improve their economies by encouraging FDI, removing economic freedom barriers and developing the financial sector.

Kutan et al. (2017) examined the impact of institutional quality on financial development and economic growth in the MENA region for a period spreading from 1980-2012. For the institutional quality indicator, they used the institutional quality index covering order, law and corruption indicators extracted from the international country risk guide. As results, they found that financial development leads to economic growth. Yet in the absence of institutional quality, not all financial development variables contribute positively to the economy. For example, in the absence of institutional quality, money supply delays economic growth. They concluded that MENA countries should enhance its institutional quality and financial development to accelerate its economic growth.

### 2.3 Brief Overview

Schumpeter (1934), Goldsmith (1955), Gerschenkron (1962), Shaw (1973), Levine (1997), Mishkin (2004), Greenspan (2005), Bernanke (2007) and most economists agree that the development of financial sectors can improve growth. This impact is achieved mainly by boosting foreign capital inflows and pooling savings, efficiently allocating capital, and producing reliable information about the market. Having a well-developed financial market and institutions with a complete diversity of financial products serves the needs of both lenders and borrowers, and hence the overall economy.

King and Levine (1993), Levine and Zervos (1998), Rousseau and Wacziarg (1998), Beck et al. (2000) and many other researchers supported this theory through their empirical studies and proved that most developed and emerging countries have a positive relationship between financial development and economic growth.

However, there was no consensus on the level of the MENA region. Hamadi and Bassil (2015), Matallah et al. (2015) and Kutan et al. (2017) support the theory that financial development leads to economic growth; yet, the studies done by Naceur and Ghazouani (2006), Al Zubi et al. (2006), Goaid and Sassi (2011) and Kar et al. (2011) show that there is no relationship and sometimes negative relation between financial development and growth. Thus financial development in the MENA region may not have a contribution to the economy such as in developing countries.

Still, many of the papers related to the MENA region ignore important elements such as stock market, bond market and other important factors such as the trust in the financial system. Although many recent papers included stock market as part of financial development such as Falahaty and Hook (2013) and Hamadi and Bassil (2015), most of these papers don't differentiate between Islamic and non-Islamic

product. Ignoring these indicators may lead to biased results. In fact, as per IMF (2017), the size of Islamic finance worldwide reached around 1.5 trillion dollars in 2016 and is currently available in almost 60 countries. Although it's a low share of around 2% of the global banking assets, Islamic finance became systematically important in many countries and mainly in the Middle East. Shabsigh et al. (2017) agree that "Islamic banking has the potential to make financial services more widely available to people who are currently underserved and to support economic development."

Despite the fact that some papers do include Islamic products such as Farahani and Dastan (2013), Imam and Kpodar (2015) and Goaid and Sassi (2011), the data retrieved in these papers was not accurate since the authors considered that Islamic banks were the only providers of Islamic products, while some conventional banks might also offer Islamic products but were not taken into consideration. For example, the National commercial bank in Saudi Arabia (the biggest bank in term of assets) is not an Islamic bank, yet 82% of its granted loans in 2016 were Islamic loans.

Accordingly, this thesis will try to bridge this job in the literature by including an in depth investigation of Islamic loans. In addition, it will include other important factors such as economic freedom, financial quality, the degree of competition in the banking market, the concentration of assets in the banking sector, the probability of default of a country's commercial banking system, the degree to which bankruptcy laws facilitate lending by protecting the rights of borrowers and lenders and country risk. Unfortunately, this paper will not include the debt market, since its size is very small in the MENA and is mainly restricted for the government.



## Chapter 3

### Methodology

#### 3.1 Introduction

The previous chapter revealed that studies on developed and developing countries showed a strong evidence of a positive relationship between financial development and economic growth. Schumpeter (1934), Goldsmith (1955), Gerschenkron (1962), Shaw (1973) and Levine (1997) support the notion that the activities of financial development would allocate resources efficiently and hence increases economic growth. However, when it comes to the MENA region, the literature revealed mixed results, while some studies showed that there is either a weak or no positive relationship between financial development and economic growth (Naceur and Ghazouani (2006), Al Zubi et al. (2006), Goaid and Sassi (2011)). Some other studies even showed a negative relationship, indicating that the activities of financial development contribute negatively to economic growth (Awdeh, 2012). Others showed that financial development could generate economic growth under certain circumstances (Hamadi and Bassil, 2015). Therefore, it can be concluded that there is no consensus in the literature of financial development and economic growth when it comes to the MENA region. Moreover, what seems to be ignored in most of the literature in the MENA region is the effect that Islamic activities would have on the relationship between financial development and economic growth. Most papers, such as those of Hamadi and Bassil (2015), Matallah et al. (2015) and Kutan et al. (2017), have completely ignored the effect of Islamic finance in economic growth. In addition, while some papers took into consideration Islamic finance when studying financial development and economic growth, a major shortcoming of these papers is

that the data collection regarding Islamic financing was not comprehensive. What follows is an attempt to cover this gap in the literature by covering the comprehensive financial activities in financial development. This may lead to a more proper assessment of the relation between financial development and economic growth. Accordingly, the main research question will be as follows:

Will financial development including Islamic products lead to significant economic growth?

### **3.2 Hypotheses:**

Accordingly, we are going to hypothesize the following:

Financial development including Islamic products should lead to better Economic Growth

H0: There is no relationship between financial development including Islamic loans and economic growth

H1: There is a positive relationship between financial development including Islamic loans and economic growth.

### **3.3 Data:**

This section describes the population and the sample used, in addition to the variables, their definitions and sources. For the variables, we used an annual data ranging from December 2001 till December 2015, a Total of 15 observations per variable.

The population chosen for this study are the countries of Middle East and North Africa region (MENA). Although the MENA region consists of 20 countries, the sample in this study contains only 13 countries: Saudi Arabia, Jordan, Turkey,

Kuwait, Egypt, United Arab Emirates, Qatar, Oman, Iran, Algeria, Tunisia, Morocco and Lebanon. The other countries of MENA were not included in this study due to the lack of information needed to achieve our results.

### **3.4 Definition of Variables:**

In this section, we present and define the variables used in the regression and cite their sources.

#### **3.4.1 Dependent Variable:**

**GDP Per Capita:** The gross domestic product is defined by IMF (2018) as the monetary value of all the services and finished goods produced during a specific time within a certain country. It gives an idea about the overall national economy. GDP per capita is the Gross domestic product divided by the population number in the country and is more commonly used than GDP as an indicator of the economic health of a country since it reflects the performance of a country taking into consideration the size of the population. The data of this variable was extracted from the Global finance development indicator (October 2017) from the World Bank official website.

#### **3.4.2 Independent variables:**

Many empirical studies studying the relationship between financial development and economic growth use the amount of money supply or money in circulation such as M2 or M3 as variables reflecting the size of the financial sector. However, according to Ang & Mckibbin (2007), these variables reflect more the range of transactions provided through financial institutions rather than the capability of these institutions to play their main intermediary role between borrowers and depositors. Moreover,

Khan & Senhadji (2003), also agree that monetary aggregates do not reflect the ability of financial institutions to channel funds from savers to investors. In addition, sometimes a huge amount of money supply can be due to the underdevelopment of financial sector. Thus, these variables are not considered as good proxies for financial development. We believe that domestic credits granted to the private sector as a percentage of GDP can reflect more the depth of financial development noting that it was used in many empirical studies such as Beck, Levine, & Loayza, (2000) ; King & Levine (1993) and Rousseau and Watchel (1998). Since this variable disregards the intervention of the central bank and the credits granted to the public sector, it can more adequately measure the efficiency of capital allocation between depositors and investors.

Although domestic credits granted to the private sector as a percentage of GDP can be a good proxy reflecting financial development, we thought that it is a must to differentiate between Islamic and non-Islamic product. As mentioned previously, ignoring these indicators may lead to biased results. As per IMF (2017), the size of Islamic finance worldwide reached around 1.5 trillion dollars in 2016 and currently it is available in almost 60 countries. Shabsigh at al. (2017) agree that “Islamic banking has the potential to make financial services more widely available to people who are currently underserved and to support economic development.” Thus, we divided domestic credits granted to private sector by conventional loans and Islamic loans.

**Conventional loans/GDP:** This variable represents the amount of conventional domestic credits granted to the private sector by all conventional banks in the country and divided by the country’s GDP. Conventional loans are the act of lending money to a party in order to finance a project or a business in exchange of returning this

principal amount in addition to a percentage of interest as profits for the lender. Conventional loans can be divided between retail and commercial loans, as well as revolving and non-revolving loans. The data was collected from the audited financials of the banks registered in MENA countries. All the audited financials from 2001 to 2015 are available in Orbis Bank focus database (previously known as bankscope).

**Islamic loans/GDP:** This variable represents the amount of Islamic domestic credits granted to the private sector by all conventional banks and Islamic banks in the country and divided by the country's GDP. Islamic loans or Islamic finance describe the loans in compliance with Islamic law. Islamic law prohibits speculation, asymmetric information and uncertainty and the return through interests. Any return must be related to an investment or participation in an asset. The basic instruments of Islamic finance include: Murabaha, Ijara, Mudaraba, Musharaka, Sukuk and sales contracts.

The data of Islamic loans retrieved in other papers such as Farahani and Dastan (2013), Imam and Kpodar (2015) and Goaid and Sassi (2011) was not accurate since the authors considered that Islamic banks were the only providers of Islamic products, while some conventional banks that were not taken into consideration might also offer Islamic products. For example, National commercial bank in KSA (The biggest bank in term of assets) is not an Islamic bank, yet 82% of its granted loans in 2016 were Islamic loans. Thus, our data was collected from the audited financials of all the banks registered in MENA countries. We extracted the audited financials of the 227 banks taken in our study from 2001 till 2015. Hence, in total we checked 3405 financials. In each financial, we studied the amounts of loans granted to customers, then the notes

related to the composition of the loans to separate between conventional and Islamic loans (in case of availability).

N.B: All the audited financial from 2001 to 2015 are available in Orbis Bank focus database (previously known as bankscope).

**Economic Freedom index:** Economic Freedom represents the right of each person to control work, investments and property with the least intervention of the government. For many economists and researchers such as Easterly and Levine (1997), Hanke and Walters (1997) and Stanley (2001), economic freedom reflects the living standards of a society and has an impact on economic growth. According to Doucouliagos and Ulubasoglu (2006), more than 50 studies assessed the relationship between economic freedom and economic growth whereby they used their data from Fraser Institute, the Heritage Foundation, Freedom House and Scully and Slottje (1991). Heritage and Fraser institute were produced on a continuous basis. In this study, we refer to Heritage Foundation (Heritage.com being the Heritage Foundation's Center for International Trade and Economics website) since it contains more data related to our projected countries and years.

The index published by Heritage grades the countries from 0 to 100. The highest economic freedom was witnessed in Hong Kong in 2018 having an overall grade of 90.2/100. The grade is measured by taking into consideration 12 factors: trade freedom, investment freedom, financial freedom, government spending, tax burden, fiscal health, government spending, tax burden, fiscal health, property rights, government integrity and judicial effectiveness.

**5 bank assets concentration:** This ratio represents the assets of the largest 5 banks as a percentage of the total assets of all the commercial banks in the country. As reflected in the MENA region, the top 5 banks in each country represent the majority of the assets of all the banking sector in the country. The increase of the concentration leads to monopoly of some banks in the market; conversely, the decrease of concentration may increase the competition and can lead to more activities in the financial market. Moreover, if this ratio is too high, a default of a bank from the top 5 banks could have huge negative effects on the overall economy. According to Abuzayed and AL-Fayoumi, bank concentration supports the economy, yet according to Deidda (2005), the relationship between banks concentration and economic growth differs across countries. In case of underdeveloped countries, concentration may have a negative effect on the economy. Hence, the assets concentration of the banking sector must be taken into consideration in our study. The data was collected from The IMF data base and it represents the assets of the biggest 5 banks in the sector as a percentage of all the banking sector assets.

**Stock market variables:**

Market capitalization of listed companies (as % of GDP): Market capitalization or market value is the total amount of listed shares of domestic companies times their share prices. According to Capasso (2006), this is a good variable to measure the size of stock market in comparison with the size of the economy.

Total value traded (as % of GDP): this variable represents the total traded shares times their sale price. Total value traded reflects the liquidity of the stock market.

Market capitalization of listed companies (as % of GDP) and total value traded (as % of GDP) are the main variables used in many researches such as Levine (1997), watchel (2001) and vine and Zervos (1998) to measure the liquidity and the size of the stock market.

The data of both variables was collected from The IMF data base.

**Non-performing loans/Gross loans:** This ratio represents the percentage of loans available in the balance sheet of the banks and is considered impaired meaning that the borrower may not be able to settle his dues. In this case these loans would not be collected. Banks holding high percentage of non-performing loans are considered unhealthy, having a high credit risk and could face huge losses. Espinoza and Prasad (2010) agree that there is a negative relationship between non-performing loans and economic growth. Moreover, according to Beck et al. (2013), the main influencer on non-performing loans is economic growth. Yet, other factors might also affect it such as the exchange rate, interest rate and stock price. Hence, in this case this would have a negative effect on economic growth.

The level of non-performing loans in each country was taken into consideration in our study and the data of this variable was extracted from the World Bank data base (official website).

**Trade openness (TO):** According to Yanikkaya (2002), the relation between economic growth and trade openness is very debatable. Researchers have provided different studies whereby trade restrictions can boost economic growth in some cases and decrease it in others. According to Beck (2002), it is noteworthy to check also the relation between financial development and trade openness, whereby the possibility of



financial development having an impact on trade openness would emphasize the role of financial development in emphasizing economic growth. Hence, Trade openness might have an impact on both economic growth and financial development, and therefore must be taken into consideration in our regression.

Trade/GDP or (Import+export)/GDP is the most used variable by many researchers such as Yanikkaya (2002), Menyah et al. (2014) and Ayad & Belmokaddem (2017) to reflect trade openness. The data of this variable was extracted from the Global finance development indicator (October 2017) from the World Bank official website.

**Banks performance:** Several studies assessed the relationship between banks profitability and economic growth. Combey and Togbenou (2017), Adekolo (2016), Alkhazaleh (2017) and Tan & Floros (2012) took respectively the cases of Togo, Nigeria, Jordan and China.

These papers show a significant negative relationship between banks profitability and economic growth on the long run. The main variables used in their studies were Return on assets (ROA) and Return on equity (ROE). In our study, we will take banks profitability into consideration through ROA and ROE in addition to cost to income, which we believe can also reflect the operational expenses of the banks that directly affect their performance, and hence would have an indirect impact on economic growth.

ROE: Return of Equity represents the net income generated by banks over the shareholders equity, in other ways it represents the percentage of income on the initial investment of shareholders. This indicator can assess if management is effectively using shareholders equity to finance operations.

The data of this variable was extracted from the Global finance development indicator (October 2017) from the World Bank official website.

ROA: Return on assets represents the net income generated by banks over the total assets of these banks. ROA gives an idea whether management is effectively using the assets of the banks to generate profits.

The data of this variable was extracted from the Global finance development indicator (October 2017) from the World Bank official website.

Cost to Income: This ratio is another indicator that represents how efficiently banks are managed. It is obtained by dividing the operating income over operating expenses. If this ratio increases during the years, then expenses are increasing more than income; hence this ratio is preferable to remain low and stable.

The data of this variable was extracted from the Global finance development indicator (October 2017) from the World Bank official website.

### **3.5 Data Analysis**

The research has approached data from different dimensions. However, the most common tools of data analysis lie through three main statistical methods of data structure: time series, cross-sectional and panel data. Nevertheless, each method has certain restrictions and is respectively suitable for a different study and analysis.

#### **3.5.1 Cross Sectional Analysis**

The cross-sectional method of data collection entails that the sample is selected at any given point in time (Wooldridge, 2010). In other words, Thisted (2006) explains that cross-sectional study observes the population at a single point in time. Wooldridge (2010) highlights that, mathematically, the cross-section data can be written as a

vector in terms of  $i$  for each observation represented. Hulley *et al.* (2013) remarked that cross sectional approach is particularly beneficial for describing variables and patterns. This design is suited for observing associations and deducting a specific characteristic in the population (Visser *et al.*, 2000). It is also used to determine the relationship between subgroups in the population. Hulley *et al.* (2013) continued to note that one of the advantages of the cross-sectional design is that there is no follow-up and waiting time, since time is constant. Hence, this causes the study to be inexpensive. Moreover, Thisted (2006) remarked that this approach has control and precision over the measurement. Nevertheless, Wooldridge (2010) remarked that the samples are often chosen using stratified sampling. Hence, the cross-sectional method of data collection is not based on random selection. Yet, as noted by Barreiro and Albandoz (2001), this type of sampling targets populations where the strata are easily formed due to the distinctiveness of each group. Furthermore, Thisted (2006) remarked that the sample size should be large enough, particularly if one is studying rare outcomes. The latter continued to note that a potential for selection bias can also arise through this approach. Additionally, Thisted (2006) and Hulley *et al.* (2013) noted that it is difficult to develop causality from the cross-sectional design.

### **3.5.2 Time Series Analysis**

Time series method overcomes several limitations of the cross-sectional design including that of the causality development. The time series in general is based on collecting data over time in order to build a model that inherits the characteristics of past observation (Adhikari and Agrawal, 2013). This system is then used to predict future events through understanding past events. It was originally applied to collecting data for engineering and environmental science studies (Shumway and Stoffer, 2017).

Today, however, this method of collecting data is used in different areas including finance, economics, science, etc. Mathematically, the time series design is defined as a vector of function of  $(t)$ , where  $(t)$  represents time. Ikaha (2005) continued to note that recoding data can either be a continuous function or discrete observation. The discrete time series measure the flow of data at an equally spaced time interval, whereas the continuous time series observe data at every instance in time (Adhikari and Agrawal, 2013). Moreover, Adhikari and Agrawal (2013) noted that, in general, there are four components that affect the time series:

- Trend: the movement of the time series over a long period, such as the tendency to increase, decrease or stagnate over time.
- Cyclical variation: this monitors the cyclical repetition of the function, triggered by certain conditions over the medium-term.
- Seasonal Variation: this is the general tendency of a time series to fluctuate during a given season; this is highly related to weather, climate, traditional habits etc.
- Random Variation: the variation in a time series can be generated by unanticipated circumstances which are not only irregular but also do not have a precise pattern to follow.

Nevertheless, Kocenda and Černý (2015) noted that there are several characteristics to be considered when studying a time series. For instance, the time series data are ordered through time built upon one variable or what is known as univariate time series. This case flourishes the lag effect or the dependence of the variable on its past behavior. Thus, the phenomenon of auto regression arises as the variable regresses over time on its own past values. Another crucial aspect of the time series described by Kocenda and Černý (2015) is the stationarity. This specification entails that any

shock that has occurred has a diminishing effect over time and disappears in  $t + s$  as  $s$  tends to infinity. However, in the non-stationary time series, the shock remains with the same intensity over time. Yet, those series should be converted to become a stationary time series. Kocenda and Černý (2015) noted that the most common approach is to take the natural logarithm of the data to reduce the exponential effect and sort non-linearity. Next, the concept of differencing is applied in which the transformation of  $\Delta y_t = y_t - y_{t-1}$  is applied where  $\Delta y_t$  is considered the first differencing (Kocenda and Černý, 2015). Through this approach, part of the information contained in the data is lost with each differencing along with one observation. Therefore, according to Adhikari and Agrawal (2013), one of the underlying assumptions of time series is that the series is expected to be stationary to construct future forecasting.

Furthermore, Adhikari and Agrawal (2013) echoed that the time series model is particularly valuable in strategic decision making and precautionary measure. The researchers added that this method is especially crucial when there is limited information about the pattern or when the satisfactory explanatory variables are missing.

### **3.5.3 Panel Data**

The panel data captures both characteristics previously discussed. Hsiao (2007) outlined that panel data or longitudinal data encompasses cross-sectional units,  $i$ , over time,  $t$ . Greene (2010) noted that this model allows the researcher to study causality while considering both heterogeneity across different variables that are missing in the time series model and the dynamic effect that is absent from the cross-sectional method. Although this approach is more complicated and is argued to be costlier, it

has become widely adopted in different regions in the world. Hsiao (2007, p.3) also noted that the “*panel data is more accurate since it contains more degrees of freedom and more sample variability than cross-sectional data which may be viewed as a panel with  $T = 1$ , or time series data which is a panel with  $N = 1$ , hence improving the efficiency of econometric estimates*”. In addition, the researcher argued that the panel data has the capacity to study the complexity of human behavior better than the cross-section or time series. This type of data collection contains more information and controls the impact of excluded variables. In other words, the panel data has information on the individuality of entities and the “intertemporal dynamics”. Moreover, this approach can simplify computation and analysis in certain situations, such as analysis of non-stationary time series. In this case, Hsiao (2007) argued that in non-stationary data, several techniques that were highly applied in the computation and analysis of the data, such as least-squares or maximum likelihood estimator - which have an underlying assumption of normality of the data -, cease to be effective. Hence, panel data can help to overcome this issue.

To address the research question and test the hypothesis previously outlined, the best approach would be to adopt the panel data design.

### **3.6 Empirical Methodology:**

This part describes the use of panel data and the 3 regression models that can be performed. In addition, it introduces the assumptions that must be tested and taken into consideration before running the regression and shifting to the empirical findings analysis.

### **Classical Linear Regression Model Assumptions**

Since we are using a panel data, three regression models can be performed, namely the pooled Ordinary Least Squares (OLS), the fixed effect, and the random effect. While pooled OLS assumes homogeneity across banks, the fixed and the random effect assume unobserved heterogeneity between banks. The fixed effect is a statistical model in which the model parameters are non-random quantities. It is used to “study the causes of changes within a person or entity since time invariant characteristics cannot cause such a change because they are constant for each person or entity” (Torres-Reyna, 2007, p.23). This is in contrast with the random effect in which all or some of the model parameters are considered as random variables/quantities. If a researcher feels that he did not leave out any variables that may be uncorrelated with the independent variables in the model, then a random effect model is nominated to be used, because “it will produce unbiased estimates of the coefficients, use all the data available, and produce the smallest standard errors” (Williams, 2017, p.1). Conversely, if there are omitted variables that are correlated with the variables in the model, “then fixed effects models may provide a means for controlling for omitted variable bias” (Williams, 2017, p.1). The Hausman test via statistical software Eviews will be used to choose between fixed and random effect for our model.

Before we run a regression and make inferences from its output, some classical linear regression model (CLRM) assumptions should be tested (Poole, 1970).

#### 1- **Assumption 1**: Linearity is Present

Linearity is the assumption initially taken by a researcher that a linear relationship exists between the specified dependent variables and the explanatory variables. i.e.:

The dependent variables chosen as  $Y$  are a linear combination of the independent variables  $X$  and the error term  $\epsilon$ . The first approach to test for linearity will be a graphical test known as the matrix scatterplot method, since we have more than one independent variable in the model. The second recommended approach is a parametric statistical test known as the Pearson correlation matrix (PCM), which is used to verify (with statistical confidence) the direction and degree/strength of linear association between any two variables. If linearity at a significant level is not present between variables, linear regression is not the correct statistical tool and results will not be robust or valid.

2- **Assumption 2:** Multicollinearity is not Present

Multicollinearity occurs when one or more independent variables ( $X$ 's) are highly correlated with another, leading to a distortion of results. The presence of multicollinearity will be tested using Pearson Correlation Matrix (PCM), where any coefficient higher than 0.7 indicates a strong correlation, and Variance Inflation Factors (VIF), where a value of 1 indicates no multicollinearity and a value greater than 1 indicates increasing collinearity (Akinwande, Dikko and Samson, 2015). If Pearson correlation is higher than 0.7, then multicollinearity is a serious problem that needs to be solved (Anderson et al, 2008). If VIF is near or greater than 5, then the correlation between independent variables becomes troublesome and multicollinearity needs to be rectified (Martz, 2013).

3- **Assumption 3:** Autocorrelation is not Present

Autocorrelation, also known as serial correlation, is used to describe the phenomenon where the error term (today) is correlated with itself back in the past (yesterday) or at



any other time interval. It is the same as calculating the correlation between two different time series, except that the same time series is used twice: once in its original form and once lagged one (or more) time periods. This means that errors or shocks from the past have a direct effect on the results of today. Although it does not leave the coefficient estimates unbiased, the presence of autocorrelation in the error term might yield to several problems:

- 1- The standard error of the regression coefficients may seriously underestimate the true standard deviation of the estimated regression coefficients (betas), which ultimately affects hypothesis-testing methods because t-test and f-tests have been jeopardized.
- 2- Statistical inferences can no longer be strictly applicable since p-values may be affected (Drukker, 2003).

Serial correlation causes the standard errors of the coefficients to be smaller than they are and higher R-squared. Since this research involves a panel data rather than a time series data, Durbon Watson method will be used to test serial correlation. It is an attractive test since it requires few assumptions and it is easy to implement. The Durbon Watson uses a statistical regression analysis to test the autocorrelation in errors. For no autocorrelation, a value of 2 is required. Otherwise positive autocorrelation is present if the values are between 0 and 2; and negative autocorrelation is present is the value is between 2 and 4.

### **3.7 The Statistical Package**

There are several statistical packages that are usually used to conduct similar empirical analysis. Some of those popular programs include Statistical Package for the Social Sciences or what is known as SPSS and Stata. SPSS contains several features and is user-friendly. It is used by market researchers, social scientists,

government agencies and education researchers, among others. This software is used for both quantitative and qualitative data analysis and contains multiple functionalities for managing, analyzing and measuring data. However, since SPSS contains a drawback for panel data analysis, it is not adopted in this study.

An alternative program is the Eviews. This program is popular for managing data, performing econometrics and statistical analysis. This package is employed by financial analysts, market researchers, economists and policy analysts. Eviews can be used to carry a wide range of tasks from building models, conducting regression analysis, generating models and estimating new policies and investment changes. This software overcomes the limitations of SPSS and offers tools for time series, cross sectional analysis and panel data analysis. In addition, Eviews can support multiple linear and nonlinear least squares, ARMA, nonstationary regression, and auto regression. Accordingly, Eviews contains all the tools that are required to test the data gathered and help develop the model. Hence, this program will be used in this study.

## Chapter 4

### Findings

#### 4.1 Descriptive Statistic

The below table shows the aggregated descriptive statistics for each variable over 2001-2015 noting that all the conventional banks and Islamic banks available in the selected countries were covered in our study.

**Table 4.1 Descriptive Statistic**

	<b>5BAC</b>	<b>NPL</b>	<b>CLGDP</b>	<b>CTI</b>	<b>TTVGDP</b>	<b>ISGDP</b>
<b>Mean</b>	81.86956	8.549155	47.07339	45.1885	28.2678	13.51936
<b>Median</b>	82.24	6.75	41.36542	45.57	10.5106	3.440162
<b>Maximum</b>	100	29.3	133.5237	136.68	372.259	165.0695
<b>Minimum</b>	54.68	1.1	0	22.72	0.29802	0
<b>Std. Dev.</b>	14.06018	6.281682	30.1031	13.972	49.9216	24.04688
<b>Skewness</b>	-0.236262	0.944083	0.504765	1.86518	4.29623	3.220302
<b>Kurtosis</b>	1.703171	3.130244	2.705167	12.3894	25.871	15.53001
<b>Jarque-Bera</b>						
	14.28784	27.46301	9.586022	765.582	3904.9	1720.183
<b>Probability</b>						
	0.00079	0.000001	0.008287	0	0	0
<b>Sum</b>						
	14736.52	1573.044	9791.265	8133.93	4438.0	2812.027
<b>Sum Sq. Dev.</b>						
	35386.26	7221.094	187582.7	34943.8	388779	119698.2
<b>Observations</b>						
	180	184	208	180	157	208

**Table 4.1: Descriptive Statistics (Continued)**

	<b>GDP</b>	<b>NGDP</b>	<b>ROA</b>	<b>ROE</b>	<b>MCGDP</b>	<b>TO</b>	<b>EFI</b>
<b>Mean</b>	6804647	11.1907	1.479444	13.4873	52.426	84.2137	60.3495
<b>Median</b>	22024.2	9.99990	1.425	13.065	39.8	85.2035	60.95
<b>Maximum</b>	86152249	18.2716	4.02	31.62	229.56	205.261	74.9
<b>Minimum</b>	1098.337	7.00155	-4.87	-45.08	6.59	30.0336	35.9
<b>Std. Dev.</b>	20422011	2.98166	0.978328	7.3393	41.47511	31.6354	7.38832
<b>Skewness</b>	3.10406	1.04987	-1.05977	-2.4914	1.770131	1.07927	-0.84699
<b>Kurtosis</b>	10.96224	3.30838	11.81157	24.2272	7.047161	4.98189	3.83414
<b>Jarque-Bera</b>							
	879.2157	38.8472	616.0214	3565.68	210.8237	74.4228	30.9002
<b>Probability</b>	0	0	0	0	0	0	0
<b>Sum</b>							
	1.41E+09	2316.47	266.3	2427.72	9174.55	17516.46	12552.7
<b>Sum Sq. Dev</b>							
	8.59E+16	1831.4	171.3255	9641.89	299312.1	207165.7	11299.58
<b>Observations</b>							
	207	207	180	180	175	208	208

Table 4.1 presents a summary of descriptive statistics of the variables used in the study.

As per World Bank, the mean of domestic credits to private sector as a % of GDP in the world is around 123%. While conventional loans and Islamic loans in MENA region represented a lower % being respectively 47.07% and 13.52%. This shows that MENA region in terms of private lending is far below the world's average.

Moreover, the mean of the 5 banks assets concentration ratio is around 82%. This means that the top 5 banks in each of these countries control around 82% of the total assets of the banking system.

The below table shows the correlation between all the variables used in this study.

**Table 4.2 Correlation:**

	5BAC	NPL	CLGDP	CTI	EFI	ISGDP	NGDP	ROA	ROE	MCGDP	TTVGDP	TO
5BAC	1.00	-0.33	0.05	-0.42	0.67	0.53	-0.39	0.60	0.29	0.20	0.39	0.48
NPL	-0.33	1.00	-0.07	0.43	-0.50	-0.29	-0.31	-0.66	-0.41	-0.06	-0.17	-0.40
CLGDP	0.05	-0.07	1.00	0.28	0.31	0.12	-0.07	-0.20	-0.32	0.36	0.57	0.72
CTI	-0.42	0.43	0.28	1.00	-0.27	-0.57	-0.21	-0.68	-0.56	-0.18	-0.23	-0.04
EFI	0.67	-0.50	0.31	-0.27	1.00	0.45	-0.26	0.41	0.05	0.02	0.29	0.66
ISGDP	0.53	-0.29	0.12	-0.57	0.45	1.00	-0.08	0.32	0.14	0.15	0.36	0.23
NGDP	-0.39	-0.31	-0.07	-0.21	-0.26	-0.08	1.00	0.20	0.37	-0.30	-0.37	-0.27
ROA	0.60	-0.66	-0.20	-0.68	0.41	0.32	0.20	1.00	0.85	0.18	0.23	0.18
ROE	0.29	-0.41	-0.32	-0.56	0.05	0.14	0.37	0.85	1.00	0.10	-0.01	-0.18
MCGDP	0.20	-0.06	0.36	-0.18	0.02	0.15	-0.30	0.18	0.10	1.00	0.85	0.45
TTVGDP	0.39	-0.17	0.57	-0.23	0.29	0.36	-0.37	0.23	-0.01	0.85	1.00	0.68
TO	0.48	-0.40	0.72	-0.04	0.66	0.23	-0.27	0.18	-0.18	0.45	0.68	1.00

The correlation table shows a high correlation between the following variables:

85% between ROA and ROE.

72% between conventional loans as % of GDP and trade openness as % of GDP.

68% between cost to income and ROA.

68% between Stock market capitalization as % of GDP and trade openness as % of GDP.

67% between economic freedom and 5 bank assets concentration.

66% between bank's non-performing loans and ROA.

66% between economic freedom and trade openness.

The below table, shows the comparison of means of each variables between the countries investigated in this research:

**Table 4.3 Mean Comparison:**

<b>Mean</b>	<b>Min</b>		<b>Max</b>	
5-bank asset concentration	Tunisia	63.63	Kuwait	100.00
Bank nonperforming loans to gross loans (%)	Saudi Arabia	3.11	Tunisia	17.73
Conventional loans as % of GDP	Algeria	14.44	102.49	102.49
Cost to income (%)	Qatar	29.70	Tunisia	59.08
Economic Freedom index	Iran, Islamic Rep.	42.81	United Arab Emirates	68.64
Islamic loans as % of GDP (%)	Turkey	1.50	Iran, Islamic Rep.	76.27
ROA (%)	Tunisia	0.60	Qatar	2.54
ROE (%)	Tunisia	8.29	Saudi Arabia	19.68
Stock market capitalization to GDP (%)	Tunisia	14.86	Jordan	124.94
Stocks traded, total value (% of GDP)	Tunisia	2.42	Saudi Arabia	107.94
Trade (% of GDP)	Iran, Islamic Rep.	46.98	United Arab Emirates	148.06

The table below represents a summary statistics of each variable by country.

**Table 4.4 Summary Statistics:**

Country	Stat	5BAC	NPL	CLGDP	CTI	EFI
Algeria	Mean	92.35	13.32	14.44	38.48	54.43
	SD	3.27	4.3	3.97	6.07	3.61
	Min	87.66	9.2	8.01	31.2	48.9
	Max	97.78	21.1	23.02	53.2	61
Egypt, Arab Rep.	Mean	69.48	15.18	33.11	47.83	55.7
	SD	1.73	6.38	6.72	5.39	2.28
	Min	65.82	6	23.41	38.62	51.5
	Max	72.45	26.5	42.08	56.82	59.1
Iran, Islamic Rep.	Mean	NA	NA	0	NA	42.81
	SD	NA	NA	0	NA	3.41
	Min	NA	NA	0	NA	35.9
	Max	NA	NA	0	NA	50.5
Jordan	Mean	91.22	8.39	102.49	51.16	67.03
	SD	3.68	4.81	15.59	9.29	2.17
	Min	85.57	4.1	80.88	42.38	63.7
	Max	96.14	19.3	133.52	73.11	70.4
Kuwait	Mean	100	5.99	48.74	31.23	65.05
	SD	0	2.57	13.01	8.33	2.09
	Min	100	2.8	35.2	22.72	62.3
	Max	100	11.5	79.43	51.06	68.2
Lebanon	Mean	63.63	8.45	84.94	54.72	58.89
	SD	14.78	4.84	11.4	4.33	1.41
	Min	54.68	3.8	70.36	47.75	56.7
	Max	99.78	17.7	107.25	61.41	61
Morocco	Mean	83.04	10.03	56.79	55.06	58.07
	SD	3.02	5.5	11.99	7.9	3.15
	Min	79.05	4.8	40.58	47.92	51.5
	Max	89.97	19.4	71.64	73.51	63.9

**Table 4.4: Summary Statistics (Continued):**

Country	Stat	5BAC	NPL	CLGDP	CTI	EFI
Oman	Mean	95.55	4.82	40.44	46.6	66.76
	SD	3.47	3.82	11.09	7.45	1.58
	Min	91.76	1.8	26.46	36.13	63.7
	Max	100	12.5	68.02	64.09	69.8
Qatar	Mean	98.06	3.71	56.21	29.7	66.62
	SD	1.94	3.4	25.52	3.48	4.06
	Min	95.46	1.2	30.09	25.61	60
	Max	100	11.2	128.65	36.05	71.3
Saudi Arabia	Mean	78.66	3.11	18.37	36.92	62.79
	SD	1.42	2.71	4.95	6.33	1.59
	Min	76.33	1.1	11.54	27.51	60.4
	Max	80.8	10.1	26.26	50.71	66.2
Tunisia	Mean	63.97	17.73	67.28	59.08	58.4
	SD	1.6	3.81	9.08	12.74	1.42
	Min	61.03	13	57.33	48.26	55.4
	Max	66.75	24.2	81.16	91.69	60.8
Turkey	Mean	71.76	6.29	33.85	56.75	59.35
	SD	12.03	6.86	5.76	24.15	4.74
	Min	59.76	2.6	23.11	37.48	50.6
	Max	91.59	29.3	41.89	136.68	64.9
United Arab Emirates	Mean	74.72	7.95	55.31	34.72	68.64
	SD	4.68	4.28	22.79	6.04	4.3
	Min	66.73	2.3	23.33	24.49	62.2
	Max	80.9	15.7	89.83	49.59	74.9



**Table 4.4: Summary Statistics (Continued):**

Country	Stat	ISGDP	ROA	ROE	MCGDP	TTVGDP	TO
Algeria	mean	0	0.89	11.31	NA	NA	65.88
	SD	0	0.54	5.6	NA	NA	5.73
	min	0	0.15	2.99	NA	NA	56.27
	max	0	1.61	18.73	NA	NA	76.68
Egypt, Arab Rep.	Mean	3.14	0.83	12.13	42.02	21.88	48.67
	SD	1.12	0.4	4.19	24.42	21.18	12.32
	Min	1.6	0.4	7.1	18.72	3	30.03
	Max	5.39	1.73	21.22	88.73	58.86	71.68
Iran, Islamic Rep.	Mean	76.27	NA	NA	18.19	3.44	46.98
	SD	40.37	NA	NA	10.04	2.01	4.54
	Min	27.97	NA	NA	6.59	1.24	39.02
	Max	165.07	NA	NA	43.84	8.66	54.44
Jordan	Mean	10.91	1.25	9.71	124.94	49.11	122.41
	SD	2.18	0.35	2.23	61.18	56.27	15.93
	Min	8.69	0.73	6.3	62.9	6.69	98.08
	Max	14.33	1.74	14.89	229.56	189.18	147.54
Kuwait	Mean	30.87	1.84	14.95	87.55	35.85	92.96
	SD	14.18	0.91	7.5	23.47	39.35	5.69
	Min	18.21	0.29	2.62	56.74	3.34	81.23
	Max	65.25	3.35	26.06	136.96	114.32	101.01
Lebanon	Mean	0	1.03	12.8	22.77	2.69	84.74
	SD	0	0.51	4.72	11.47	2.66	18
	Min	0	0.37	9.63	6.67	0.3	51.04
	Max	0	2.59	28.75	43.72	9.22	106.96
Morocco	Mean	0	0.99	11.7	52.27	7.75	73.41
	SD	0	0.29	3.87	20.56	7.11	9.62
	Min	0	0.28	3.51	22.25	2.36	58.33
	Max	0	1.44	18.3	85.2	29.32	85.67
Oman	Mean	0.95	1.66	12.85	38.48	7.74	94.08
	SD	1.98	0.74	5.29	11.04	4.41	12.66
	Min	0	0.16	1.37	16.34	1.79	77.02
	Max	6.58	2.78	20.05	56.38	16.42	116.55
Qatar	Mean	15.84	2.54	17.6	96.71	22.01	93.51
	SD	10.21	0.57	2.48	27.26	11.64	6.54
	Min	5.93	1.81	13.31	66.18	10.35	80.14
	Max	40.42	3.94	21.47	156.25	41.8	105.75

**Table 4.4: Summary Statistics (Continued):**

Country	Stat	ISGDP	ROA	ROE	MCGDP	TTVGDP	TO
Saudi Arabia	Mean	21.04	2.37	19.68	73.09	107.94	79.31
	SD	11.58	0.64	6.04	30.99	106.56	10.7
	Min	5.85	1.79	13.77	38.26	12.11	60.86
	Max	43.93	3.95	31.62	144.11	372.26	96.1
Tunisia	Mean	0	0.6	8.29	14.86	2.42	96.28
	SD	0	0.42	3.5	5.39	1.18	9.16
	Min	0	-0.33	0.08	8.34	1	82.39
	Max	0	1.16	13.44	23.76	4.17	114.35
Turkey	Mean	1.5	1.64	15.19	26.93	39.03	48.5
	SD	1.03	1.93	17.66	5.91	6.98	2.36
	Min	0.23	-4.87	-45.08	16.67	28.51	45.44
	Max	3.24	3.43	27.24	37.35	52.24	52.66
United Arab Emirates	Mean	15.22	2.11	15.64	38.27	11.54	148.06
	SD	9.21	0.68	4.6	10.41	7.61	38.25
	Min	3.45	1.26	10.76	20.38	0.78	89.86
	Max	33.51	4.02	27.54	54.09	25.95	205.26

**4.2 Assumptions tests:**

It is crucial to test if the assumptions mentioned in the methodology are respected before we proceed with the regression model. The assumptions that will be tested are: linearity, Multicollinearity and Autocorrelation.

**Assumption 1: Linearity**

We can test linearity through Pearson correlation matrix or graphically. In this study we will use the first method to validate the significance and degree of linear correlation between the dependent variable and independent variables. All results will be presented in one table in order to facilitate the analysis.

**Table 4. 5 Linearity test:**

<b>Pearson Correlation Matrix</b>	<b>GDP</b>	<b>Probability</b>	<b>NGDP</b>	<b>Probability</b>
CLGDP (conventional loans)	-0.40***	0	-0.31***	0
ILGDP (Islamic loans)	0.69***	0	0.49***	0
EFI (economic freedom)	-0.68***	0	-0.52***	0
IRS ( Interest rate spread)	-0.60***	0	-0.53***	0
5BAC (Bank concentration)	-0.38***	0	-0.25***	0
MCGDP (market cap)	-0.28***	0	-0.34***	0
TVTGDGP (traded value)	-0.18**	0.02	-0.19**	0.01
TO (Trade openness)	-0.34***	0	-0.25***	0
INF (Inflation)	0.45***	0	0.29***	0
NPL (Non-performing loans)	-0.03	0.67	-0.16**	0.02
ROE (ROE)	-0.01	0.83	0.17**	0.02
ROA (ROA)	-0.12	0.109	0.12	0.105
CTI (cost to income)	0.18***	0.01	-0.16**	0.02
BZS (Z score)	-0.01	0.91	0	0.98

\*, \*\*, \*\*\* will represent the significance at 10%, 5% and 1%.

Table 4.5 shows that all the variables except NPL, ROE, ROA and BZS were significantly linearly correlated with the GDP per capita and almost all the variables except ROA and BZS were significantly linearly correlated with the natural logarithm of GDP per capita.

### **Assumption 2: Multicollinearity**

Multicollinearity exists when a dependent variable is highly correlated with another one which leads to biased results. Multicollinearity will be tested by the Pearson correlation matrix. If the coefficient is higher than 0.7, then one of the variables should be eliminated from the model to avoid problems.

The multicollinearity test was completed in the descriptive statistics part (Table 4.2).

The test shows that collinearity exists between the below dependent variables since the correlation coefficient is significant and higher than 0.7:

- IRS and NPL showing a coefficient of 0.82
- TO and CLGDP showing a coefficient of 0.72
- ROE and ROA showing a coefficient of 0.85
- TTVGDP and MCGDP showing a coefficient of 0.85

### Assumption 3: Autocorrelation

Autocorrelation or serial correlation will be tested by using Durbin Watson test that detects the autocorrelation of residuals at first lag.

**Table 4.6 Durbin Watson test**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
5BAC	-0.072429	0.037997	-1.906165	0.062
BZS	0.2175	0.058462	3.720361	0.0005
CLGDP	-0.003104	0.023174	-0.133943	0.8939
CTI	-0.035317	0.037141	-0.950886	0.3459
EFI	0.182525	0.06439	2.834691	0.0064
Inf	0.079044	0.064645	1.222737	0.2267
IRS	-0.668793	0.297473	-2.248252	0.0287
ILGDP	0.044158	0.047126	0.93703	0.3529
ROA	-3.747125	1.623887	-2.307504	0.0249
ROE	0.678793	0.180354	3.763678	0.0004
MCGDP	-0.02218	0.01696	-1.307767	0.1965
TVGDP	-0.001603	0.017412	-0.092067	0.927
TO	0.016198	0.032428	0.499504	0.6195
<b>Durbin-Watson stat</b>			0.500564	

From Durbin Watson test we can see that the test statistic is 0.5 being far below 2 which means that there is a serial correlation. This does not respects the Classical linear regression model assumptions. However, according to Torres-Reyna (2007), the autocorrelation is seen as problem for panel data with observations greater than 30 years. Hence since we are dealing with a data of 15 years, autocorrelation at first lag is not considered to be a major problem.

#### **Hausman test:**

In case of panel data, fixed effect model and random effect model can be used. However, to check which one is better for a specific database, the Hausman test should be applied. Hence below is the result of the Hausman test.

**Table 4.7 Hausman Test:**

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		25.726913	8	0.0012
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
ISLOANS	0.000828	0.00078	0	0.6816
CVLOANS	-0.001723	-0.001661	0	0.316
BAC	-0.004948	-0.005139	0	0.0873
MKTCAP	0.002587	0.002534	0	0.0821
MKTVALUE	-0.000754	-0.000745	0	0.1642
TOPENESS	-0.001981	-0.001942	0	0.3018
EFI	0.013068	0.012792	0	0.1972
ROE	0.003612	0.003641	0	0.1953

The probability of the Hausman test is 0, hence we reject the null hypothesis and we shall use the fixed effect model in our study which may provide a means for controlling for omitted variable bias.

#### **4.3 Fixed effect Model:**

The below table represents the statistical model generated to assess the impact of financial development on economic growth. Trade Openness variable was not included due to its high correlation with Conventional loans. Moreover, concerning the 3 variables related to banks' performances (ROE, ROA and cost to income), we included only one variable being ROE having the least correlation with the remaining independent variables. Finally, we wanted to check the relationship of both market capitalization and Total traded value with the economic growth, yet due to the correlation of these two variables we couldn't include them both in the same model, hence we run two models in order to avoid biased results and in each model we included one of them.

**Table 4.8: The impact of financial development on economic growth:**

Column 1 model: $\text{LOGGDP}_{i,t} = \alpha_0 + \alpha_1 \text{BAC}_{i,t} + \alpha_2 \text{CLGDP}_{i,t} + \alpha_3 \text{EFI}_{i,t} + \alpha_4 \text{ISLOANS}_{i,t} + \alpha_5 \text{MKTCAP}_{i,t} + \alpha_6 \text{NPL}_{i,t} + \alpha_7 \text{ROE}_{i,t} + u_{i,t}$		
Column 2 model: $\text{LOGGDP}_{i,t} = \alpha_0 + \alpha_1 \text{BAC}_{i,t} + \alpha_2 \text{CLGDP}_{i,t} + \alpha_3 \text{EFI}_{i,t} + \alpha_4 \text{ISLOANS}_{i,t} + \alpha_5 \text{MKTVALUE}_{i,t} + \alpha_6 \text{NPL}_{i,t} + \alpha_7 \text{ROE}_{i,t} + u_{i,t}$		
	(1)	(2)
Intercept	20.168*** (7.828)	24.19*** (8.727)
BAC	-0.062*** (-2.822)	-0.119*** (-5.390)
CLGDP	0.029*** (3.046)	0.013* (1.505)
EFI	-0.049 (-1.421)	-0.050 (-1.223)
ISLOANS	0.053*** (3.558)	0.072*** (5.927)
MKTCAP	-0.027*** (-4.151)	-
MKTVALUE	-	-0.016*** (-3.369)
NPL	-0.254*** (-5.076)	-0.225*** (-3.555)
ROE	-0.005 (-0.108)	0.001 (0.010)
R-squared	0.367	0.418
Adjusted R-squared	0.272	0.308
S.E of regression	2.02	2.03
DW stat	0.114	0.020
Nb of observations	160	134

\*Significant at 10%. \*\* Significant at 5%. \*\*\* Significant at 1%

#### **4.4 Analysis of the results:**

##### **Non-Performing Loans:**

The results show a significant negative relationship between non-performing loans and economic growth. In fact, this was recently the case in many countries, such as Cyprus, Greece, Nigeria, Ghana and many other countries. We noticed that, when the economy in MENA countries deteriorates, non-performing loans were very high.

As per Anastasio et al. (2016), the high non-performing loans in Europe after the crisis were mainly related to the worsening of macro-economic situation in the area.

According to Balgova et al (2016), a high percentage of non-performing loans has a negative effect on economic growth. It reduces the capacity of lending by banks and makes banks more cautious which let the economy suffer. Moreover, high non-performing loans can lead to a misallocation of funds. Banks start to allocate funds toward the troubled sector to avoid a failure; however this would prevent funds to be allocated toward more productive sectors. At the end, they concluded that reducing non-performing loans have a positive effect on economic growth.

##### **Banks Assets Concentration:**

The results also show a negative relationship between banks assets concentrations and economic growth, which means that when few banks control the bulk of assets in the banking sector, this would harm the economy and vis versa; if the banking sector is diversified and big banks are not limited, this might boost the economy. Our results were convenient with many other researches and papers such as Ferreira (2012), Diallo and Coach (2014) and Liu and Mizraei (2013). In fact, the increase of this ratio decreases competition which has a direct effect on the economy. Several



empirical studies showed that high assets concentration increase the fees and costs of borrowing and hence decrease the access of credits.

From another hand, Berger et al (2003) found no direct relationship between bank assets concentration and economic growth. However, they found that competition is good for the economy noting that generally high assets concentration is associated with lower completion.

### **Stock Market Variables:**

Market capitalization of listed companies (as % of GDP) and Total value traded (as % of GDP) have both a significant negative relationship with GDP per capita.

Naceur and Ghazouani (2006) found that stock market variables in the MENA region have no impact on growth. In fact, these variables were negatively correlated with the economy yet not significant. Naceur and Ghazouani (2006) explained that the stock market in the MENA is too small to contribute to the economy and they added that the negative relationship might be due to the route of capital from the real sector to the stock market for speculation purposes. Moreover, for Singh (1997), stock markets can play a major role in the economy in condition that the market is well regulated and regulators take adequate measures to avoid high volatility. Singh (1997) claims that in some of developed countries the stock market does not perform very well. In emerging countries and non-developed countries, it is even worse due to the non developed infrastructure. Small stock markets lead to high volatilities which harm the development. This is the case of most transitional economies and we believe that it is also the case of the MENA region

**ROE:**

Several studies assessed the relationship between banks profitability and economic growth. Combey and Togbenou (2017), Adekolo (2016), Alkhazaleh (2017) and Tan & Floros (2012) studied respectively the cases of Togo, Nigeria, Jordan and China. High interest rates margin and high profits are usually associated with high interest rates which in return have a negative effect on economic growth.

The results of our study showed a negative coefficient related relationship between banks performance and economic growth. However, this relationship was not significant.

**Conventional loans:**

Many economists confirmed a positive relationship between loans to private sectors and GDP such as Schumpeter (1934), Goldsmith (1955), Greenspan (2005) and this was supported by several empirical studies whereby we mention King and Levine (1993) and Levine and Zervos (1998).

Our results also showed a significant positive relationship with growth in the MENA region being in convenience with Hamady and Bassil (2015), Matallah et al. (2015) and Kutan et al. (2017).

**Islamic Loans:**

As mentioned previously, there are no enough studies related to the relation between Islamic loans and GDP. Despite that some papers do include Islamic products and find that Islamic loans are good for growth, yet the data retrieved in these papers were not comprehensive since the authors considered that Islamic banks were the only

providers of Islamic products, however, some conventional banks might also offer Islamic products and these banks were not taken into consideration.

Our comprehensive data also revealed a positive relationship between Islamic loans and economic growth being in convenience with MENA Region studies done by Farahnai and Dastan (2013), Imam and Kpodar (2015) and Goaiied and Sassi (2011).

## Chapter 5

### Conclusion

#### 5.1 Introduction

Initially, the classical economists related growth to “progress”, this was mainly developed by Adam Smith, Thomas Malthus and David Ricardo. Through the years, the definition was further developed to include other determinants such as government activities and policies, population size, environment and equality. Yet the development of the financial sector drew the attention of many economists. Schumpeter (1934), Goldsmith (1955), Gerschenkron (1962), Shaw (1973), Levine (1997), Mishkin (2004), Greenspan (2005) and Bernanke (2007), agree that the development of financial sector can lead to growth.

Philosophers and researchers like Rousseau and Wachel (1998), King and Levine (1993), Levine and Zervos (1998), Beck et al. (2000), argued that the financial sector can lead to growth and this theory was proved in their empirical papers. They explained that the most developed and emerging countries had shown a positive relationship between financial development and economic growth.

However, the direct impact of the financial sector on growth in the MENA region remains controversial. In fact, Hamadi and Bassil (2015), Matallah et al. (2015) and Kutan et al. (2017) support the idea that financial development leads to economic growth, yet studies done by Naceur and Ghazouani (2006), Al Zubi et al. (2006), Goaid and Sassi (2011) and Kar et al. (2011) proved otherwise: sometimes there is a negative relation between financial development and growth.

Most of the above results in the MENA region did not differentiate between Islamic and non-Islamic product and despite that some of the papers do include Islamic

products, the data retrieved in these papers was not comprehensive since the authors considered that Islamic banks were the only providers of Islamic products, while some conventional banks might also offer Islamic products yet they were not taken into consideration.

Accordingly, we tried to cover the gap in the literature by including an in-depth investigation of Islamic loans through collecting the data of Islamic loans granted by commercial banks and adding them to the study, trying to answer the main hypothesis question which states the following:

“Will financial development that includes Islamic products lead to significant economic growth?”

We also added some important factors such as ROE, non-performing loans, banks' assets concentration, stock market capitalization and total traded value. We used the GDP per capita as a dependent variable representing economic growth. The main results from panel fix effect model revealed that conventional loans and Islamic loans have significant positive relationship with economic growth. While bank asset concentration, stock market total traded value, stock market capitalization and non-performing loans have a significant negative relationship with economic growth. On another note, we concluded that the economic freedom index and the return on equity are not significant.

## **5.2 Managerial Implication**

The results of this study confirm the studies highlighting the role of the financial sector in promoting economic growth.

Although stock market variables had a negative relationship with GDP, yet the stock market represents a low share in the financial sector and some countries do not even have a financial sector. Conventional loans and Islamic loans being the main variables

of the banking sector dominating the financial sector were significant and positively correlated with economic growth. Finally, bank performance represented by return on equity and the economic freedom index had no impact on growth.

During our study, political instability was not taken into consideration. This factor might play a negative role in financial development and in the economy.

As a matter of recommendation, the political instability might be difficult to control, yet the financial sectors can be improved. The stock markets playing a minor role in financing the private sector must be improved to allow more accessibility for financing. However, from another hand, regulators must adopt strict regulations to control the volatility of prices in the market.

Finally, the most important implication is that banks in MENA having a high exposure to the public sector must increase their credits to the private sector (whether through conventional loans or Islamic loans) in order to boost the economy

### **5.3 Limitation of the study**

This study encountered several limitations. The data of Islamic loans was not available through secondary data. Hence, we had to collect primary data. Islamic loans of more than 1000 conventional and Islamic banks were collected by visiting the annual report of each bank from 2001 till 2016 and by checking the notes to understand whether each bank has in his portfolio Islamic loans. Moreover, not all annual reports can be found easily, thus we considered Orbis database (Previously known as bankscope) to collect the annual reports. However, the most commonly dates available in Orbis were from 2001 till 2016, so we were obliged to maintain this time frame for all our study. Finally, the collection of data took a lot of our time and

as we are obliged to present this study within a specific time, hence we were not able to do further analysis on the components of loans.

#### **5.4 Further Studies**

For further studies, we recommend two further detailed studies:

- 1- A research on the impact of political stability in the MENA region on financial development and economic growth. MENA region encounters a high political instability and as previously mentioned this might harm the economy. This will confirm if the political stability is essential for the development of the MENA region.
- 2- A new study showing the volatility of the stock markets in the MENA region and its relationship with economic growth. As we mentioned, the potential high volatility of prices in the stock markets might be the reason for the negative relationship between stock market variables and economic growth.

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