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Does financial inclusion interact with Islamic banking industry? Evidence from Saudi Arabia

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**Does financial inclusion interact with Islamic banking industry? Evidence
from Saudi Arabia**

A Thesis Submitted in Partial Fulfillment of the
Requirements for the (Masters) Degree in
(Islamic Finance Management)

By
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(2/4/1438H – 31/12/2016G.)

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Jeddah, Saudi Arabia
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DEDICATION

Every challenging work needs self-efforts as well as guidance of elders especially those who were very close to our hearts

My humble effort I dedicate to my father who has been with me every step of the way, through good times and bad. Thank you for all the unconditional love, guidance and support thank you for everything.

I also would like to dedicate this work to my beloved mother whose affection, love, encouragement and prays of day and night make me able to get such success and honor.

Along with all hard working and respected Dr.

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Abstract

This thesis explores the interplay between financial inclusion and Islamic banking in Saudi Arabia. Recent empirical evidences, journal articles and policy reports showed the importance of financial inclusion in terms of access, usage and quality of financial services that financial institutions offer to individuals and businesses. An interesting question in this regard is: Does financial inclusion impact Islamic banking in Saudi Arabia. To answer this questions, I investigate whether the three aforementioned dimensions of financial inclusion matter to three challenges of Islamic banking, namely trust, product development and competition. Using a methodology based on a questionnaire, the results show that there is a limited impact of financial inclusion on Islamic banking in Saudi Arabia. However, the most striking fact is the clear dependence between the impact of quality of the three aspects of Islamic banking. This indicates that when Saudi Islamic banks improve the quality of products and services they offer their clients trust them more, they will be endowed with a higher product development ability, and can strengthen their competitive power.

1. INTRODUCTION

Recent empirical studies, policy reports and government and supra-governmental initiatives published interesting facts about financial inclusion and its far-reaching impacts not only on short-term value creation but also on the long-term well-being in developing and emerging economies. The G20 report on financial inclusion emphasizes that the three dimensions of financial inclusion, namely access, usage and quality, may face some regulatory obstacles to be enforced in the practice.

Although the Islamic banking industry is still in the stage of development and its percentage of global financial assets is very small (EY, 2016), several experts and analysts consider that there are several reasons to continue its growth at least in the Muslim countries. The example of the Saudi Islamic industry is illustrative in this context. Indeed, EY's (2016) report claim that Saudi Arabia has the lion's share in the Gulf Cooperation Countries (GCC) region. The large number of customers that are highly sensitive to religion-oriented financial products and services is one of the major advantages in the region.

The purpose of this thesis is to explore the relationship that might exist between financial inclusion and Islamic banking. Recent empirical studies (e.g., Ben Naceur et al. (2015) and Iqbal and Mirakhor (2012)) studied this dependence and found little impact of Islamic finance on financial inclusion in the Muslim countries under consideration. This thesis studies the opposite relationship by exploring whether the dimensions of financial inclusion impact the dimensions of Islamic banks.

Zulhibri (2016) examined the Islamic financial services in a sample of Muslim countries. The results of the author do not show that many individuals and businesses are still financially excluded. Demirguc-Kunt et al. (2013) study a large sample of 65,000 adult respondents from 64 countries to show to what extent the self-proclaimed Muslims have demand and saving deposit accounts with a formally

recognized financial institution. Their results show that Muslims are less likely to be financially inclusive relatively to non-Muslims.

The methodology I employ is based on the design of a questionnaire to be answered by adult Saudi males and females. The statistical techniques correspond to bivariate analysis, correlation analysis and a regression analysis. The main results show a limited impact of financial inclusion on Islamic banking. However, there is a remarkable impact of financial inclusion's quality dimension on the three aspects of Islamic banking. This result indicates that the improvement of products and services' quality results in an increased trust, a higher ability to innovate, and a stronger competitive posture of Islamic banks. These results confirm Ben Naceur et al. (2015) and Iqbal and Mirakhor (2012) in terms of the necessity to combine the sophistication and reference to *fiqh* rule in the improvement of products and services' quality. This can constitute an appeal to regulators to strengthen the ability of banks to enhance the quality dimension. In addition, local Saudi banks must focus on the remaining two dimensions of financial inclusion, namely access and usage, which results in optimal trust, product development, and competitive posture.

The remaining of this thesis is organized as follows. Section 2 provides the research questions. Sections 3 and 4 shed some light on Islamic banking and financial inclusion. Section 5 presents the hypotheses. Section 6 presents the results. Section 7 concludes and explores the policy implications.

2. RESEARCH QUESTION

Islamic banking industry emerged since the mid-1970s and, since then, has proclaimed to have specific sets of permissibles and prohibitions that characterize its own financial intermediation mode. Indeed, the theoretical foundations of the Islamic financial intermediation mode are specifically based on the ideas of the rejection of interest rate as an incentive mechanism and substituting it by return, the reduction of *gharar* in financial contracting, and the endorsement of risk-sharing instruments. In addition to these two sets, the *shariah* scholars, experts/practitioners/theoreticians of Islamic finance industry claim that there is a social and economic vision of all business operations that can be viewed from the prism of *maqasid al-shariah* (i.e., objectives of Islamic law).

The research question of this dissertation endeavors to study the interplay between financial inclusion and Islamic banking from a different perspective. Indeed, the recent empirical studies and policy reports remain silent about other interesting aspects to this interplay. The research question can be stated as follows:

To what extent financial inclusion is useful to the Islamic banking industry in Saudi Arabia in terms of trust, financial innovation (or product development), and competitiveness (or competitive posture)?

To the best of my knowledge, there are no previous studies that addressed this question by studying the impact on the three aforementioned dimensions.

3. ISLAMIC BANKING INDUSTRY

The Islamic banking industry is based on conceptual and *fiqh* foundations that stem from the Prophet's era. As Figure 1 shows, the modern trading of Islamic banks' financial products and services was preceded by the clarification of general rules to

all permissible and non-permissible transactions and the deep and detailed specifications of *shariah*-based rules that underlie all types of transactions.

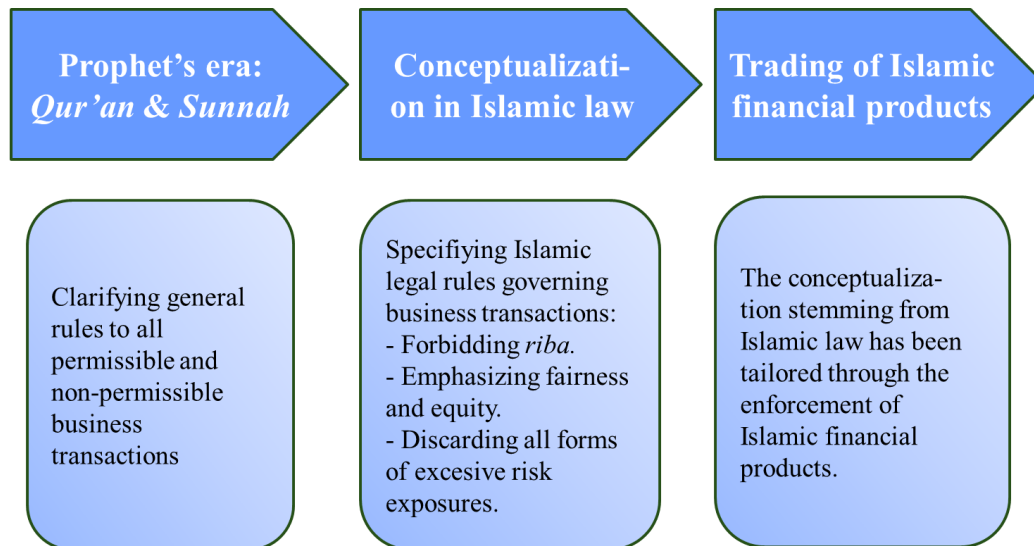
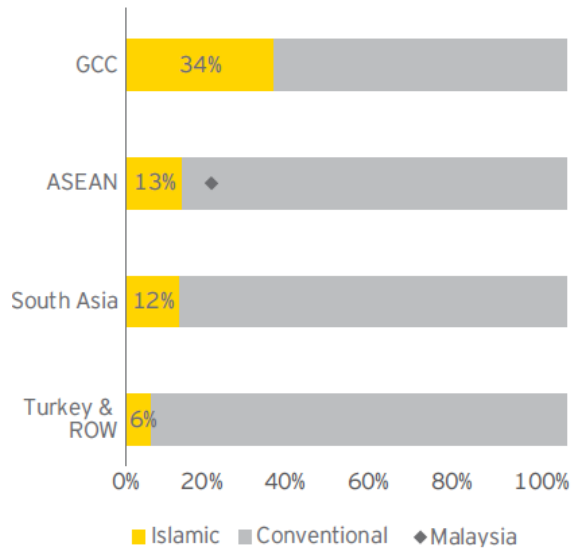


Figure 1. Genesis and development

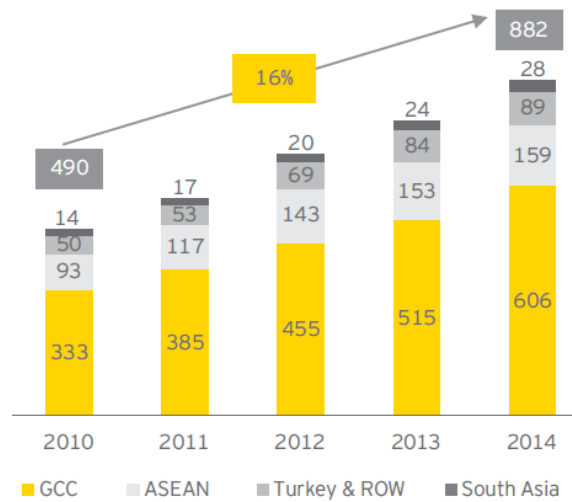
Source: Author

Although it is regarded by analysts and Islamic finance industrialists as an embryonic financial activity, the Islamic banking industry is considered as the alternative to the conventional banking industry. Indeed, the World Islamic Banking Competitiveness Report (2016) shows that the size of Islamic banking assets by 2014 is still dominated by the size of conventional banking assets. As an example, the report displays Figure 2 in which it is clear that, whilst GCC region holds the largest part of Islamic banking assets (34%), Turkey and the rest of the world (ROW) hold the smallest fraction (6%). The average growth rate of the Islamic banking assets over 2010-2014 is about 16%. Despite the economic, political and social troubles in the Muslim world, there is a steady growth.

The purpose of this section is to shed some light on the specificities of Islamic banking industry worldwide and give a particular attention to the Saudi context.



(a) Share of participation banking assets



(b) International Participation banking assets (US billion)

Figure 2. Distribution and growth of Islamic banking assets

Source: EY (2016)

3.1 Set of prohibitions¹

Islamic banking is compliant with the principles stemming from the two sources of jurisdiction in Islam, namely *Qur'an* and *Sunnah*. According to Ninehaus (2011), Islamic banks are oriented towards legal and mechanistic aspects of adherence to Islamic law rather than the promotion of Islamic ethical virtues. This means that the *de facto* behavior of Islamic banks does not seem to be consistently in accordance with the *de jure* behavior.

There is a set of prohibitions that Islamic banks must take into account not only when running their daily business activities but also when setting their strategic orientations. The prohibitions can be classified into two categories. Whilst the first category is related to the behavioral restrictions (e.g., prohibition of interest, *gharar*, *maysir* and complexity in contracts), the second category comprises the unethical policies and actions (e.g., unethical investment).

Prohibition of interest. Interest is considered as the central debate between conventional and Islamic banking. Ariss (2010) argues that the prohibition of interest (or usury) is not exclusive to the Islamic faith because it is also prohibited in Judaism and Christianity. The author claims that “although the Qur'an does not explicitly justify the prohibition of dealings based on a pre-determined rate of interest, it is believed that the primary reason for doing so is to remove any form of injustice in business transactions.” Mansour et al. (2015, p. 54) claim that “Islamic prohibits both payment and receipt of interest on the basis of a predetermined rate. In fact, money itself has no intrinsic value. It can only be a means of transaction.”

Chapra (2004, p. 2) proclaims that “four of the world's major religions (Judaism, Christianity, Hinduism and Islam), having a following of more than two-

¹ The set of prohibitions are not limited to the list presented in this section. Other types of prohibitions include practices such as short selling and risk shifting.

thirds of the world's population, have prohibited interest. In sharp contrast with this prohibition, the entire international financial system is now based on interest and has been so for more than two hundred years. However, protests have been, and continue to be, made against interest. These protests have been particularly prominent in the Muslim world where an effort is underway to replace the interest-based system of financial intermediation with the profit and loss-sharing (PLS) system.”

The fact that the payment and receipt of interest is prohibited (*haram* or sinful) means that it cannot be used as an incentive mechanism in financial contracting. Indeed, the process of conventional financial contracting involves interest as an incentive mechanism. As a typical example, assume that a lending institution receives a large number of loan applications, say 100, but only a few can be approved due to financial resources. Such lending institution can use the interest rate to filter the creditworthy customers from the risky customers by charging loans a hurdle rate. Islamic banks cannot use this incentive mechanism in this regard. It is noticeable that the prohibition of interest as a pre-determined remuneration that is not subject to fluctuations applies to both debt-like and equity-like instruments.

Prohibition of gharar. *Gharar* has two main interpretations. On the one hand, it is related to elements of uncertainty, principally in financial contracting. On the other hand, it is related to games of gambling. *Gharar* is frequently interpreted in terms of asymmetrical distribution of asymmetry between contracting parties. The typical example is when a bank's client misuses the funds (i.e., moral hazard) or hides the risk-return profile (i.e., adverse selection). The prohibition of *gharar* is not limited to financial transactions; it covers all kinds of transactions involving tangible and intangible assets. The main rationale behind prohibiting *gharar* is that it can lead to injustice and expropriation of efforts/benefits, which is *haram* in *shariah*. Scholars claim that contracts and techniques containing *gharar* are not valid (e.g., derivatives and short selling).

Prohibition of maysir. *Maysir* is closely related to *gharar*. Indeed, it is literally interpreted as games of gambling, which includes necessarily some amount of *gharar*. Indeed, games of gambling cannot lead to win-win games because they can bring forth unlimited losses and expropriation of wealth at the expense of the contracting partners.

Prohibition of unethical/illicit investment. *Shariah* rules restrict traders from earning income from unethical investments in illicit activities, such as the industries of alcohol, pork, drugs, and pornography. Islam preaches moral virtues that must be embedded into the design of products and services. The moral virtues imply an ethical dimension of the Islamic banking industry. Indeed, Ahmed (2010) claims that “the norms of a society residing at different levels as morals, ethics and laws have unique features and are interrelated. Whereas morals relate to individuals and are subjective, ethics is more rational and can change in the context of a group.”

3.2 Set of permissibles

Islamic banking is theoretically based on a set of permissibles that are endorsed by *fiqh* rules. *Shariah* scholars, Islamic finance experts, and industrialists in the field believe that if Islamic banks use the set of permissibles they will reach two important objectives. On the one side, they reduce all harmful aspects that are related to the excess of volatility and risk exposures. On the other hand, Islamic banks can increase their wealth and contribute more efficiently to society. The set of permissibles includes:

Profit-and-loss sharing principle. This principle states that profits and losses must be shared among contracting parties equitably. This entails that, for instance, a lender/borrower relationship must be shaped by the specificity of running risks and not guaranteeing a pre-determined remuneration. The principle applies basically to

the standard equity-like contracts (i.e., *musharakah* and *mudharabah*) and is extended to more sophisticated products such as *sukuk*.

Asset-backing principle. This principle postulates that financial transactions must be backed by tangible assets, which means that the financial sphere in the economy must not be disconnected from the real sphere. The role of money in Islamic is a simple tool of intermediation. It cannot be considered as a tradable asset. It is for this purpose that the link to real assets impedes the financial assets to grow independently of the real economy. Jobst (2007) illustrates the asset-backing principle by claiming that operating lease, as a typical example, provides instalment payments over a given period of time for the use of a tangible asset.

Ethical practices. Islamic banking is ethically founded on Islamic principles of equity, cooperation, and social justice. The three important constructs of Islamic ethics are *adl* (justice), *amanah* (trust), and *ihsan* (benevolence). The challenge for Islamic bankers is embedding these constructs into their designed financial products & services and business transactions.

3.3 Financial intermediation of Islamic banks

The financial intermediation of Islamic banks has various common and uncommon aspects with conventional banks. The common aspects include:

- ❖ The mobilization of funds to finance productive activities.
- ❖ Capital and risk allocation.
- ❖ Equitable distribution of wealth.
- ❖ Value creation and sustaining growth.
- ❖ Market control and governance mechanisms.

The set of dissimilarities include:

- ❖ Risk management.
- ❖ Connection between real and financial sphere.
- ❖ Certainty vs. uncertainty-laden financial products.
- ❖ The prohibition of financial instruments (i.e., derivatives) that involve *gharar*.
- ❖ Prioritization of risk sharing vs. risk shifting.

The co-existence of dissimilarities and dissimilarities means that the financial intermediation of Islamic banks must be based on the set of permissibles, does not employ any of the set of prohibitions and be oriented towards an ethical role. Figure 3 shows this fact:

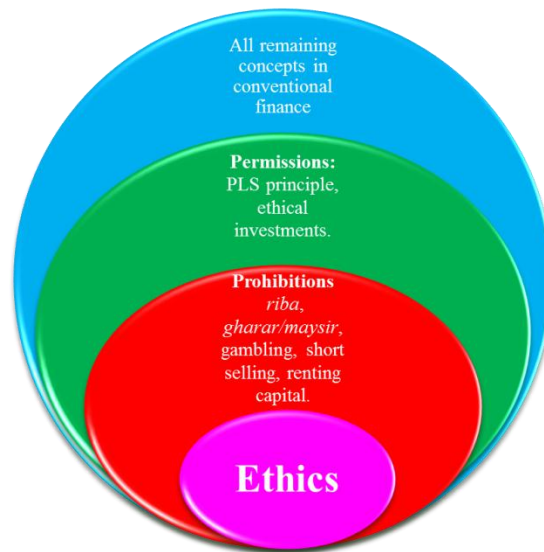


Figure 3. Specificities of Islamic banks' financial intermediation

Source: Author

Although Islamic banks play the standard role of conventional banks, namely the allocation of financial resources, they channel funds they collect from depositors through *shariah*-compliant instruments. The financial products and Islamic banks' can be classified into two main categories, namely debt-like and equity-like products, as it can be shown through Figure 4. The intermediation of

Islamic banks does not intend profit maximization *per se*. In contrast, Ahmed (2011, p.1) claims that this intermediation must “entail risk-sharing features and serve all categories of the population thereby bringing about equity, stability and growth.”

According to Mansour et al. (2015, p. 60), “*musharakah* contracts (joint venture profit-sharing) corresponds to active equity participation of an Islamic bank in the capital of a firm. The profits are distributed according to a predetermined portion while possible losses are borne by both parties in the invested capital. *Musharakah* is considered to be as the closest financial contract to the ideal Islamic mode of financing (Wilson (1997). Indeed, it brings less harm to both contracting parties relative to the standard debt contract. *Mudarabah* financing (trust profit-sharing) corresponds to the case in which an Islamic bank provides the funds, while an entrepreneur is in charge of the business management.”²

As for the debt-like instruments, they do not explicitly use interest as an incentive mechanism. This is the case for *murabaha* and *tawaruuq*, which are the most common instruments used by Islamic banks over the last three decades. *Murabaha* is a sale contract according to which the bank buys a commodity and sells it to a client at a higher price paid later (cost plus a margin or a mark-up). The client hands over to the bank a deferred payment with a mark-up either a series of installments or a lump sum payment. *Tawarruq* is a trie-partie debt contract that permits Islamic banks to allocate their excess of liquidity and corporations to survive situations of cash distress.

² For a detailed discussion of equity-like instruments, see Al-Suwailem (2005, 2009).

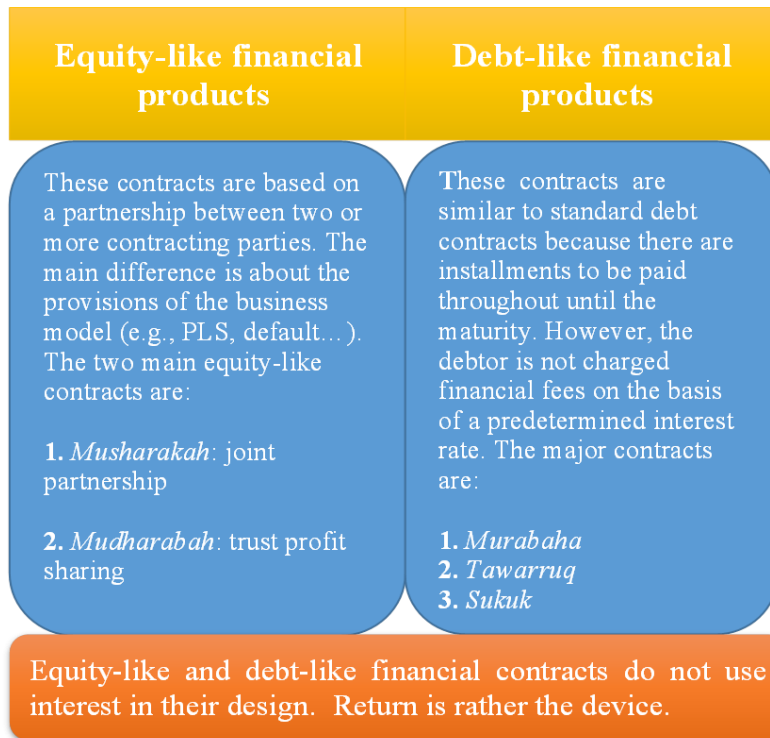


Figure 4. Classes of Islamic banks' products

Source: Author

Khan (2010) criticizes the portfolio choices of Islamic banks. Indeed, he studied a sample of banks from the GCC region, such as KSA and UAE, and Pakistan. His main finding is that Islamic banks are not genuinely Islamic because (i) they prioritize debt-like instruments and (ii) mimic conventional debt instruments. The following table illustrates some of Khan's (2005) results.

Table 1. Distribution of Islamic banks' financial products: selected examples*Source:* Khan (2010)

Financing/Investment Breakdown for Islamic Banks						
	2006			2005		
	% PLS	% Non-PLS	% Other	% PLS	% Non-PLS	% Other
Large Islamic Banks						
Al Rajhi Bank	0.0	99.5 ^a	0.5	0.0	99.7 ^a	0.3
Kuwait Finance House ^b	20.1	78.4	1.5	22.7	75.1	2.2
Dubai Islamic Bank	14.4	85.6	0.0	25.3	74.7	0.0
Bank Islam Malaysia	0.7	99.0	0.3	0.8	98.8	0.4
Pakistani Islamic Banks						
Meezan Bank	5.0	95.0 ^c	0.0	7.0	93.0 ^c	0.0
Al Baraka Islamic Bank	7.0	93.0	0.0	10.0	99.0	0.0
Faysal Bank	10.0	90.0	0.0	11.0	89.0	0.0

Source: Calculated from Bank Annual Reports.^a Includes 38.2% (2006) and 29.2% (2005) *Mutajara* trading.^b 2005 and 2004 data.^c 0.4% points lent interest free to bank employees.

3.4 Recent trends in Saudi Arabia: overview and challenges

The Saudi banking sectors contain twelve banks; four of them are fully fledged Islamic banks. The remaining banks offer both conventional and Islamic products. A recent Fitch's report³ shows that the Al-Rajhi Bank is the largest fully-fledged bank with assets amounting to 325.2 billion SAR by the end of 215 third quarter. National Commercial Bank (NCB) started in 2014 a conversion process to be fully fledged Islamic bank. Once fully converted, NCB will be endowed with the largest and most diversified portfolio of products. The report mentions also that Saudi Arabia has the largest Islamic bank base of any country in which Islamic and conventional banks co-exist.

Although no specific advantages (in terms of disclosure requirements and regulation) are given by the Saudi Arabian Monetary Agency (SAMA) to fully-fledged Islamic banks, experts and financial analysts consider that the industry of Islamic banking will continue growing at speeder pace.

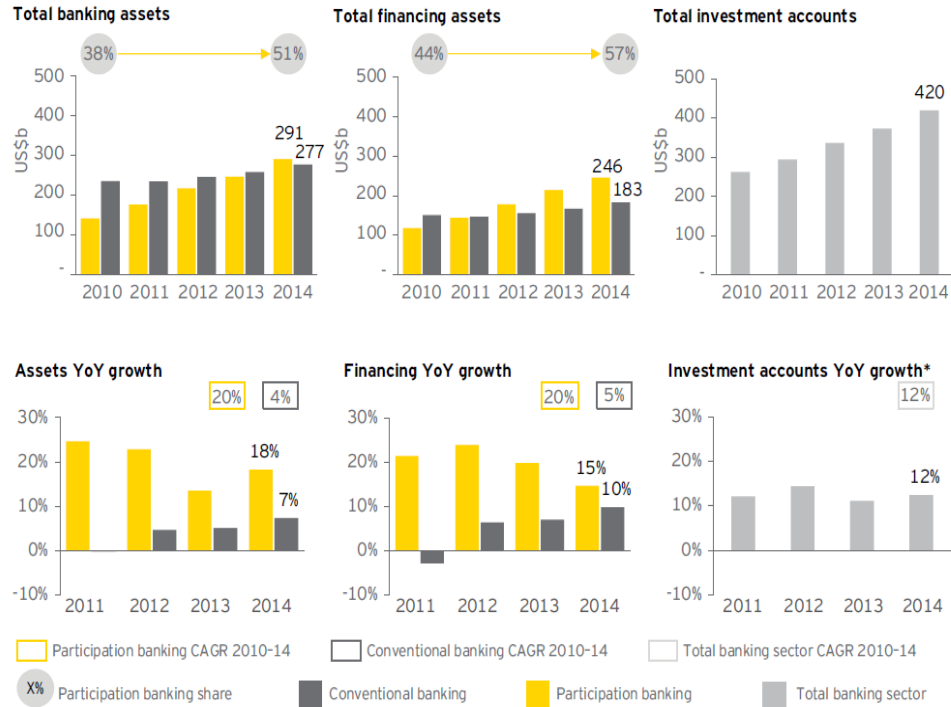
³ Available at: www.fitchratings.com

Table 2. Offered financial products in Saudi banking industry

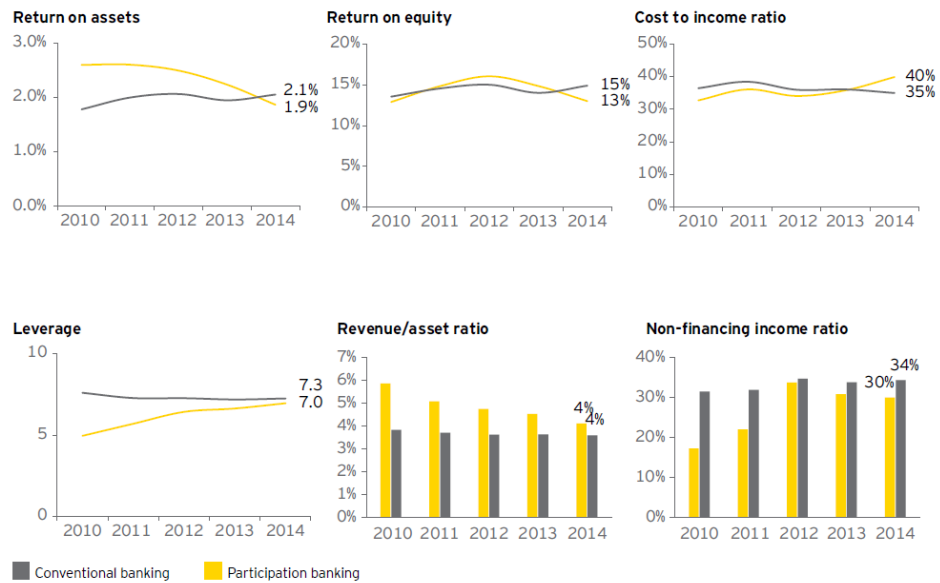
Source: Bintawim (2011)

	<i>Murabaha</i>	<i>Trading</i>	<i>Bei ajal</i>	<i>Installment</i>	<i>Istisna'a</i>	<i>Ijara</i>	<i>Tawarruq</i>	<i>Musharaka</i>	<i>Mudarabah</i>
National Commercial Bank	x					x	x	x	
Riyad Bank	x				x	x	x		
Alrajhi Bank	x	x		x	x				
Aljazira Bank	x				x		x		
Saudi Investment Bank	x				x	x			
Saudi Hollandi Bank									
Banque Saudi Fransi	x					x	x	x	x
Saudi Arabian British Bank									
Arab national Bank									
Samba Financial Group	x					x	x		x
Al-bilad Bank	x		x	x		x		x	
Al-Inma Bank	x								

Bintawim (2011) studies the variety of Islamic financial products and services that are offered by Saudi banks. Table 2 shows some facts about the distribution of offered Islamic financial products in Saudi Arabia. The striking fact is that the most offered product is *murabaha*. Indeed, this product provides immediate cash to corporations and permit banks to allocate their excess of liquidity into low-risk proportion of their portfolios. However, only three banks offer *musharakah* contracts and two banks only offer *mudarabah* contracts to customers and business customers. This testifies that Saudi banks tend to increase the proportion of secured financing in their portfolio of products. The question in this regard is: Does the offered portfolio meet the need of customers?



(a) Growth



(b) Performance indicators

Figure 5. Saudi Islamic banking industry: some performance indicators

Source: The 2016 World Islamic Banking Competitiveness Report

The 2016 World Islamic Banking Competitiveness Report considers that the recent phenomenal growth in Saudi Arabia Islamic banking industry gained the largest proportion of national market share of banking assets, which amounts to about 51.2%. The Report confirms that, despite the reduced government spending as a consequence of the fluctuation in oil market, the Islamic banking assets will continue to grow for at least one reason. Indeed, most of Saudi banks that are not fully fledged are willing to convert into Islamic banks.

Figure 5 shows some performance indicators of Islamic banking industry in Saudi Arabia. For example, the percentage of Islamic banking assets in total banking assets increased from 38% to 51% in about four years. Similarly, the total financing assets reached about 245 US billion in 2014, surpassing the size of conventional banking. Panel (b) of Figure 5 shows explicitly the extent to which the financial intermediation of Islamic banking can be more cost-efficient and more profitable. It is possible to infer the following performance characteristics of Islamic banks vs. conventional banks in Saudi Arabia:

- Islamic banks are more cost efficient. Indeed, the cost-to-income ratio is lower over 2010-2013. It became higher in 2014.
- Islamic banks use more efficiently their assets. This is testified by the return on assets (ROA) and the revenue-to-asset ratio.
- Stockholders receive a higher compensation of their invested funds when investing in Islamic banks. Indeed, the return on equity (ROE) is higher over 2010-2013.
- Islamic banks are weakly leveraged in comparison with conventional banks. This implies that the financial risk is less pronounced for the former.

Table 3. Failures and challenges of Islamic banking industry

Source: Mansour et al. (2016)

Failures	Challenges
1. Whilst Islamic finance experts do not 'like' conventional finance products and institutions, they simultaneously adopt very similar financing techniques that are close to being based on interest.	1. The Islamic finance industry has to develop new financial innovations and launch new institutions that simultaneously fit the <i>shari'ah</i> requirements and contribute to economic growth.
2. Islamic finance experts are unable to revolutionize the industry through new financial innovations.	2. Development of risk-hedging techniques and instruments that are compliant with <i>shari'ah</i> requirements.
3. The Islamic finance industry is a player with around 2 percent of the global finance industry.	3. New strategies must be developed to conquer new markets not only in Muslim countries but also in the West.
4. The Islamic finance industry does not contribute efficiently to economic development.	4. IFIs need to foster the microfinance environment by offering interest-free microcredits.
5. The social-oriented role is marginalized. Islamic financial institutions remain inactive in financing projects that contribute to social objectives.	5. Propelling the role of Islamic financial institutions in alleviating poverty and creating jobs (<i>maqasid al-shari'ah</i>).
6. Islamic finance and firm dynamics. The financial products and innovations offered by Islamic financial institutions did not take account of variables that affect positively firm dynamics.	6. More pronounced role of the interaction of Islamic finance with firm dynamics in terms of growth, survival, age, and profit.
7. Islamic finance is neither <i>de facto</i> ethical nor Islamic. The financial products offered by Islamic financial institutions are criticized because they are inconsistent with the claimed <i>maqasid al-shari'ah</i> (objectives of Islamic law).	7. Islamic financial institutions should be ethical in their business transactions and fulfill <i>maqasid al-shari'ah</i> , which qualifies Islamic financial institutions to meet the Islamic label.

Based on Mansour et al. (2016), Table 3 shows some failures and challenges for the Islamic banking industry, not only in Saudi Arabia but at the international level. It is noticeable that this table clarifies various failures and challenges that need to be enforced, but put stress upon the aspects of trust and product development, which strengthens Islamic banks' competitive power.

Kearney's (2016) policy report on the future of Islamic banking discusses similar challenges. The report mentions the following challenges:

- Size: Many Islamic banks worldwide have smaller size comparatively with their conventional counterparts.
- Competition: The *shariah* label cannot be taken as the only competitive advantage for Islamic banks.

- Standardization and regulation: This challenge aims at the unification of how *shariah*-compliant products can be uniformly interpreted by specialists in the Islamic banking industry.

4. FINANCIAL INCLUSION

4.1 Dimensions of financial inclusion

Financial inclusion has recently been considered by academic circles and industry practitioners as a comprehensive process that preaches unleashing sustainable economic growth in both emerging and developed countries. This process embeds various measures, techniques and strategic routes that aim at ensuring an inclusive growth. In order to better address the objective of inclusive growth, there are several short- and long-term objectives that need to be reached. Indeed, financial inclusion is considered as a reliable process that can lead to alleviation of poverty, social equality, and economic welfare.

According to the G20 report on financial inclusion indicators, there are three main dimensions:

- i.** Access to financial services.
- ii.** Usage of financial services.
- iii.** Quality of products and services delivery.

Several international efforts by national and supra-national institutions have done to measure and collect information about the indicators of financial inclusion. The 2015 Bank of International Settlements' report shows most of the international initiatives related to the collection and measurements of financial inclusion indicators. Figure 6 shows most of these initiatives.

AFI: the Alliance for Financial Inclusion aims at developing a common framework among its members for measuring financial inclusion. It shares lessons learned on survey methodologies, analysis, target-setting and usage of data to inform policymaking. It also promotes the adoption of the framework in a broader international context.

BIS/Basel Committee on Banking Supervision (BCBS): organisation of regular meetings with standard-setting bodies (SSBs) and stakeholders, in coordination with the UN Secretary General's Special Advocate for Inclusive Finance for Development.

BIS/Committee on Payments and Market Infrastructures (CPMI): financial inclusion is considered in relation to various aspects of payments systems and market infrastructure.

GPII data group: the Global Partnership for Financial Inclusion (GPII) is a platform for G20 and other countries and relevant stakeholders, to conduct work on financial inclusion, identify the existing data landscape, assess data gaps and develop key performance indicators.

OECD: the Organisation for Economic Cooperation and Development has a number of networks and projects in the area of financial inclusion, including:

- Financial Literacy Network.
- Financing SMEs and Entrepreneurs.
- Handbook on Constructing Composite Indicators.
- OECD/INFE pilot survey 2010/11 on measuring financial literacy. This was a demand-side survey which identified consumer vulnerabilities and education issues.
- Evidence-based initiatives to enhance financial literacy and promote financial inclusion.

International Association for Research on Income and Wealth: this Association promotes the furthering of research on national and economic and social accounting, and has in particular encouraged related work on financial inclusion issues.

Microfinance Information Exchange (MIX): a Washington-based non-profit international organisation that collects, validates, and analyses microfinance data. It has various private sector partner organisations.

Finmark/Finscope

- FinMark Trust is an independent trust set up in 2002 with initial funding from the UK Department for International Development.
- Finscope surveys are demand- and supply-side surveys conducted on consumers and small businesses.

Center for Financial Inclusion: a New York-based group of key industry participants.

Various regional initiatives: such as FinScope studies in the Southern African Development Community (SADC) region.

Various donor organisations: eg the Gates Foundation.

Figure 6. International measurement initiatives

Source: BIS (2015, p.5)

Table 4. Selected indicators of financial inclusions’ dimensions

Source: Author’s compilation *

Access	Usage	Quality
- SME deposit accounts (as a % of non-financial corporation borrowers) - SME loan accounts (as a % of non-financial corporation borrowers) - Regularity of using an account - Duration of using an account - Branches per 100,000 adults - ATMs per 100,000 adults	- Adults with an account - Number of accounts Deposit accounts per 1,000 adults - Mobile money transactions per 100,000 adults - Number of mobile money transactions per 100,000 adults - Outstanding loans per 1,000 adults - High frequency of account use (% age 15+)	- Financial knowledge score ⁴ - Use of savings for emergency funding - Quality of information disclosure - Percentage of SMEs required to provide collateral on their last bank loan - Easiness to access to credits - Effectiveness of collateral and bankruptcy laws in facilitating lending.

*The compilation is based on a selection of articles and BIS (2015)

Table 4 shows some examples of indicators that correspond to the three dimensions of financial inclusion. The three indicators converge all to the idea of facilitating the access to external funds at an acceptable cost and with a high-quality service. When financial institutions give top priorities to these three dimensions, two consequences can occur. From the customers’ side, the access to financial resources becomes less costly, low-income category of customers can be allocated funding, the loan process is smooth, and the quality of information is improved. From the banks’ side, the trust of customers improves, the quality of products and services improves, and the competitive posture becomes more advantageous.

⁴ An arithmetic score is the aggregate value of responses to questions about basic financial concepts that are related to inflation, interest rate, simple vs. compound interest, and risk.

4.2 Recent empirical results

The results show that the use of financial services (e.g., regulatory and duration) has not increased as quickly as the quality of financial services themselves.

Ben Naceur et al. (2015) analyze the relationship between the development of Islamic banking and financial inclusion. The authors start from the fact that various indicators of financial inclusion are low and the fact that a large number of excluded individuals from conventional banking because of their religious beliefs. They endeavor to examine whether the industry of Islamic banking in Muslim countries can influence financial inclusion in a way to increase the number of accounts, involve a higher number of customers and improving the quality of financial services. The results show that the use of financial services has not increased as quickly as the increase of financial services themselves. This testifies that Islamic banking does not influence financial inclusion. The authors conclude that there are no differences between Muslim countries with and without Islamic banks in terms of the relationship between Islamic banks and financial inclusion.

Iqbal and Mirakhor (2012) investigate a similar issue by studying whether Islamic finance modes (allowing for risk sharing and risk diversification) can overcome financial exclusion. Indeed, the authors show that, even after availability of micro-finance instruments and SME financing, little evidence shows that financial exclusion can be overcome. The authors recommend the need to use “Islam’s instruments of redistribution where mandated levies and recommended avenue of spending may play their role. They help reduce the poor’s income – consumption correlation.” They conclude that Islamic finance can constitute a suitable framework in Muslim countries to enhance financial inclusion. Indeed, they suggest that product development can be a relevant tool for this purpose through “principle of risk-sharing and through Islam’s redistributive channels which are grossly under-utilized in Muslim countries. The redistributive instruments may be developed as proper

institutions to optimize the function of such instruments. Application of financial engineering can device innovative ways to develop hybrids of risk-sharing and redistributive instruments to enhance access to finance to promote economic development.” (p. 35)

5. HYPOTHESES DEVELOPMENT

Recent empirical studies (e.g., Mansour et al. (2016)) show that there is trust confidence in the Islamic banking industry. Indeed, individual customers and business clients expressed a decrease in their trust in Islamic banks because they consider that the latter did not comply with the principles stemming from Sunnah and the Quran’s injunctions. Several so-called Islamic financial products (e.g., *tawarruq*) turned out to camouflage interest. There is a gap in the literature because there are no evidences about whether financial inclusion helps the Islamic finance industry to improve the trust. Accordingly, the first hypothesis can be stated as follows:

Hypothesis 1: *The interaction between financial inclusion and Islamic banking improves the individuals and businesses’ trust in Islamic banks.*

The financial innovative ability of Islamic financial institutions turned out to be weak. In effect, several specialists and academic contributors believe that the offered Islamic financial products and services do not meet the needs of their customers. Strictly speaking, the corporations wishing to use *shariah*-compliant instruments are not satisfied with the specificities of such instruments and do not see their risks managed with reliable, sophisticated risk-hedging instruments. The question that might arise from this factual idea is: Does financial inclusion improve the innovative ability of Islamic financial developments? In other words, does the process of

financial innovation contribute to the development of new, sophisticated Islamic financial products and services that meet the needs of customers? Accordingly, the second hypothesis can be stated as follows:

Hypothesis 2: *The process of financial inclusion contributes to the development of new, sophisticated Islamic financial products and services that meet the needs of customers.*

A supplementary dimension related to the strategic posture can be studied in the light of the interplay between Islamic finance and financial inclusion. As a matter of fact, Islamic financial institutions aim at enhancing their competitive power in order to better their competitive posture in the industry. The third hypothesis can be stated as follows:

Hypothesis 3: *The process of financial inclusion contributes to the enhancement of the Islamic banks' competitive posture.*

6. EMPIRICAL METHODOLOGY & RESULTS

The empirical methodology I will use is based on a questionnaire distributed to adult male and female Saudi respondents. The following table summarizes some aspects of the methodology.

6.1 Description of questionnaire design

The questionnaire is designed to reflect four main parts:

- Part I: Demographic information.
- Part II: Financial inclusion (hereafter, FININCL)
- Part III: Trust (hereafter, TRUST)

- Part IV: Islamic financial products development (hereafter, PRODEV)
- Part V: Competitive posture (hereafter, COMPOST)

Table 5: Specificities of empirical methodology

Element	Description
Country	The study will focus on the Saudi economy only. Policy implications will be inferred from our findings to generalize them to GCC countries.
Respondents	The respondents are male and female Saudi officers and customers of Islamic financial institutions. They will answer the questions of the questionnaire either through direct contact or online using Google.
Statistical tools	<ul style="list-style-type: none"> - Descriptive statistics. - Correlation analysis. - Partial correlation analysis. - Principal constructs analysis. - Regression analysis
Endogenous variables	<ul style="list-style-type: none"> - Trust (TRUST) - Islamic financial products development (PRODEV) - Competitive posture (COMPOST)
Exogenous variables	<p>Two indicators of financial inclusion:</p> <ul style="list-style-type: none"> - Usage (USAGE) - Quality (QUALITY)

The questionnaire is made up of 4 questions (part I), 12 questions (part II), 9 questions (part III), 9 questions (part IV), and 6 questions (part V), which amounts to 40 questions in total.

6.2 Some descriptive statistics

The questionnaire shows interesting results about the demographic features of the respondents. Figure 6 shows four panels that are related to age, gender, income and professional occupation. It is clear that the highest percentage of respondents is represented by males with ages dominated by the interval between 35 and 45.

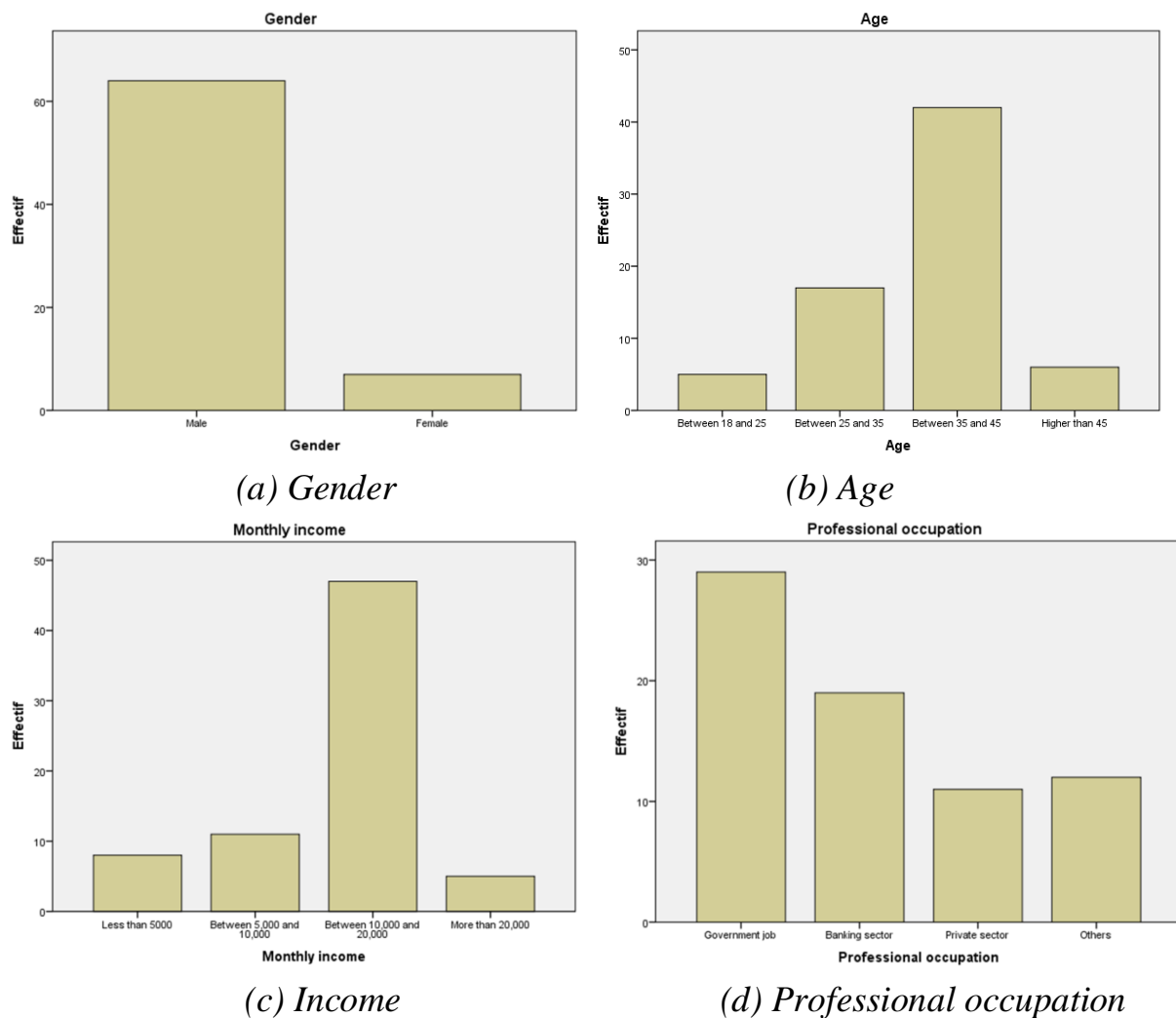


Figure 6. Demographic characteristics

Most of the respondents have professional occupations in governmental institutions while most of them earn between 10,000 and 20,000 SR. The respondents' profiles

indicate that they have stable professional occupations, medium annual earnings, and are below 45 years. Table 6 shows four panels that are related to these demographic characteristics.

Table 6. Demographic characteristics

(a) Age

	Number	Percentage	Valid percentage	Accumulation
Between 18 and 25	5	7,0	7,1	7,1
Between 25 and 35	17	23,9	24,3	31,4
Between 35 and 45	42	59,2	60,0	91,4
Higher than 45	6	8,5	8,6	100,0
Total	70	98,6	100,0	

(b) Gender

	Number	Percentage	Valid percentage	Accumulation
Male	64	90,1	90,1	90,1
Female	7	9,9	9,9	100,0
Total	71	100,0	100,0	

(c) Monthly income

	Number	Percentage	Valid percentage	Accumulation
Less than 5000	8	11,3	11,3	11,3
Between 5,000 and 10,000	11	15,5	15,5	26,8
Between 10,000 and 20,000	47	66,2	66,2	93,0
More than 20,000	5	7,0	7,0	100,0
Total	71	100,0	100,0	

(d) Professional occupation

	Number	Percentage	Valid percentage	Accumulation
Government job	29	40,8	40,8	40,8
Banking sector	19	26,8	26,8	67,6
Private sector	11	15,5	15,5	83,1
Others	12	16,9	16,9	100,0
Total	71	100,0	100,0	

6.3 Principal components analysis

This subsection involves the principal component analysis. The goal is to use the answer of the respondents in order to determine the relevant constructs, which leads later to regression analysis. The purpose is to use the information provided by the data in order to reduce the number of variables through rotation and extraction.

Table 7. Financial inclusion: loadings and matrix of constructs with varimax rotation

	Loadings	Construct	
		1: Quality	2: Usage
Q12 Do you consider that you and the clients of your bank are better off when using the offered products and services?	0.646	0.815	0.077
Q10 Do you consider that the staff helps you to have an easy access to the bank's products and services?	0.733	0.803	0.030
Q8 For how long you are using the services of your bank?	0.646	-0.121	0.847
Q6 Do you think that your bank was able to increase its number of accounts?	0.671	0.267	0.758

Based on the previous table, loadings of all questions are higher than 0.5, which is acceptable and is indicative that high percentages of the information are kept by the questions after extraction. Further, as it can be seen, Questions 12 and 10 are positively and highly correlated with construct 1, whilst Questions 6 and 8 are positively and highly correlated with construct 2. Construct 1 is better interpreted to reflect quality and construct 2 is better interpreted to reflect usage.

Table 8. Trust: loadings and matrix of constructs with varimax rotation

	Loadings	Construct	
		1: Access	2: Quality
Q1 Do you consider that your bank updates the offered products and services?	0.569	-0.091	0.749
Q2 You can rely on the efforts of your bank to satisfy your needs.	0.573	0.061	0.754
Q3 You trust that the products and services provided by this bank have an optimal quality-to-price ratio.	0.663	0.534	0.615
Q4 The bank shows a high interest to serve its customers.	0.691	0.821	0.131
Q5 Your relationship with staff of the bank is very close.	0.557	0.737	-0.119
Q6 The trust in the bank increases the number of customers.	0.214	0.460	0.051

Table 9. Product development: loadings and matrix of constructs with varimax rotation

	Loadings	Construct			
		1: Usage	2: Access	3: Quality1	4: Quality2
Q1 Your bank's offered products and services are sophisticated	0.604	0.822	-0.086	0.195	0.002
Q2 Your bank is using Islamic principles from Quran and Sunnah to develop and enhance the offered products and services	0.677	-0.767	-0.062	0.106	-0.032
Q3 There is a suspicion in the use of prohibited interest in any of your bank's offered products and services	0.758	0.144	0.771	0.094	0.232
	0.647	0.221	-0.705	0.187	0.265

Q4 The products and services offered by your bank cannot be developed	0.626	-0.027	0.227	-0.756	-0.112
Q5 Your bank must develop new products and services	0.636	0.097	0.407	-0.118	0.676
Q8 Your bank is doing enough efforts to develop new products and services that satisfy your needs	0.651	-0.091	-0.068	0.847	0.167
Q9 You believe that your bank was able to attract new customers because its products and services are sophisticated	0.722	0.621	0.131	-0.416	0.225
Q10 You continuously use the products and services of your bank because you think they are sophisticated					

Table 10. Competitive posture: loadings and matrix of constructs with varimax rotation

	Loadings	Construct	
		1: Access	2: Usage
Q1 Is your bank the main bank in the Saudi banking industry?	0.543	0.790	- 0.041
Q2 The features of the products and services of your bank are the most important to increase its market share.	0.626	0.733	0.072
Q3 Your bank can attract new customers because of the low costs as compared to its competitors.	0.688	-0.222	0.799
	0.579	-0.293	0.702

Q4 Using the products and services of your bank over a long period can attract new customers.			
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As for trust, the two constructs are as follows. On the one hand, access is reflected by Questions 4, 5, and 6, because they are highly and positively correlated with it. On the other hand, it is clear that Questions 1, 2, and 3 reflect quality for the same reason. As for product development and competitive posture, the determination of constructs is done using the same principle. It is noticeable however that product development has two items that reflect quality. Quality1 is reflected by Questions 2 and 9 and Quality2 is reflected by Questions 4 and 8. Each of the two items reflects a different type of quality. For example, Quality1 is related to the sophistication used when developing new products. However, Quality2 is related to the willingness and efforts per se to develop new financial products.

Table 11. Construct analysis

		Questions*	Kaiser-Meyer-Olkin**	Bartlett***
Financial inclusion	Finincl_Quality	10 & 12	0.535 (19.127)	(0.004)
	Finincl_Usage	6 & 8		
Trust	Trust_Access	4, 5 & 6	0.543 (56.502)	(0.000)
	Trust_Quality	1, 2 & 3		
Product development	Prodev_usage	1 & 10	0.478 (34.032)	(0.200)
	Prodev_quality1	2 & 9		
	Prodev_quality2	8 & 4		
	Prodev_access	3 & 5		
Competitive posture	Compost_access	1 & 2	0.507 (7.279)	(0.296)
	Compost_usage	3 & 4		

*The questions are related to the corresponding part in the questionnaire.

**The reported value in parenthesis corresponds to KHI-squared statistic.

***The reported value in parenthesis is the statistics that corresponds to Bartlett test.

Table 11 summarizes the constructs and the corresponding questions that represent the items. KMO and Bartlett tests indicate the degree of suitability of the collected data for structure detection. As an illustrative example, it is noticed that Bartlett is statistically significant (p -value = -0.004), which means that the data are suitable for factor analysis. In addition, KMO test shows that the return value is higher than 0.5

6.4 Bivariate analysis

The aim of bivariate analysis is the exploration of the correlation between the items under consideration. I will focus on the sign and statistical significance of coefficients of correlation between the items.

Table 12. Pearson correlations*

	FINANCIAL INCLUSION	
ISLAMIC BANKING⁵	Finincl_quality	Finincl_usage
TRUST		
Trust_access	-0.148 (0.222)	0.009 (0.943)
Trust_quality	0.352 (0.003)	-0.042 (0.733)
PRO DEVELOPMENT		
Prodev_usage	-0.090 (0.470)	0.056 (0.657)
Prodev_quality1	0.060 (0.632)	-0.002 (0.990)
Prodev_quality2	0.171 (0.169)	0.081 (0.520)
Prodev_access	0.205 (0.099)	-0.126 (0.315)
COMP POSTURE		
Compost_access	0.338 (0.004)	-0.145 (0.231)
Compost_usage	-0.020 (0.871)	-0.048 (0.693)

⁵ It is noticeable to mention that the items that correspond to the components of Islamic banking are associated with the closest aspect of the corresponding questions. For instance, the item Trust_quality is reflected by Questions 1, 2 and 3 (in Part II). This means that these questions reflect principally trust but indicate more specifically how trust can be improved by the quality of products. In addition, the item Trust_quality is reflected by Questions 4, 5 and 6 (in Part II). This means that these questions reflect principally trust but indicate more specifically how trust can be improved by the access to the products and services of the bank (e.g., number of accounts is considered as an indicator of penetration).

*Figures between parentheses represent the p -values that correspond to the correlation coefficients.

Pearson correlations show interesting facts:

- All correlation between Finincl_Usage and trust/competitive posture are either negative or positive and very low, but all correlation coefficients are not statistically significant.
- All correlations between Finincl_Usage and all items of product development are either negative or positive, but cannot be statistically accepted as correlated. This means that Saudi customers consider that usage, as a main aspect of financial inclusion, is not related to product development. In other terms, usage is not a main motive for Saudi banks to develop new Islamic financial products and services.
- All correlations between Finincl_Quality and all items of product development are positive, except Prodev_usage. However, there is a single Pearson correlation that is positive and statistically significant. This means that Saudi customers believe that the product development is closely related to the quality of offered products and services. In other words, Saudi customers believe that Saudi banks develop new products because they would to offer the quality of their array of products, and not necessarily for the purpose of increasing the usage of their customers over the long term. This result seems to reflect a particular interpretation by Saudi customers in a way that they believe that Saudi banks are willing to continuously improve the quality of their products, which indirectly increase the usage of their services. As a consequence, it is an order of priority in the process of incorporating the impact of financial inclusion on Saudi Islamic banking. Quality matters more than usage.

- There are three positive and statistically significant correlation coefficients between the first construct of financial inclusion, namely quality (i.e., Finincl_quality) and three items of Islamic banking, each belongs to a different construct.
- The highest correlation coefficient is between Finincl_quality and Trust_quality. This means that Saudi customers consider that the quality of products that are supposed to satisfy their needs is positively associated with their trust in the bank. In other words, they believe that when Saudi banks improve the quality of the products and services they offer, their trust increases.
- The second highest correlation coefficient is between Finincl_quality and Compost_access. This implies that when Saudi banks make efforts to enhance the quality of their products and services to meet the needs of their individual and business clients, their competitive posture tends to increase and be strengthened.
- The third highest correlation coefficient is between Finincl_quality and Prodev_access. This shows that Saudi banks make efforts to enhance the quality of their products and services, which is interpreted as a better ability of product development.

The overall correlation results can be summarized in two facts:

Fact 1: On the one hand, the usage dimension of financial inclusion does not seem to impact the three aspects of Islamic banking (trust, product development and strategic posture). In other words, this penetration indicator, as expressed for example in terms of the number of banking accounts, does not constitute a motive to Saudi Islamic banks to develop new products and cannot be regarded as a causal effect of their strategic posture and the trust of their customers.

Fact 2: There is clear evidence that the second dimension of financial inclusion has an immediate impact on the three aspects of Islamic banking. This means that improving the quality of products and services to meet the needs of individual and business customers increases their trust and improves the competitive power of the bank in the industry. Furthermore, the focus of the bank on this aspect enhances their ability to innovate and offer new financial Islamic financial products that are compliant to *shariah*.

6.5 Analysis of partial correlations

This subsection extends the results of the previous subsection by reexamining the correlations after taking into account the impact of financial inclusion on the link between the three aspects of Islamic banking. We notice that the majority of partial correlations are either positive (very low) or negative, but only four are statistically significant. This implies that the interference of financial inclusion with the three aspects of Islamic banking is limited. In other words, if Islamic banking in Saudi Arabia is enhancing such three aspects it is least likely to be the consequence of financial inclusion.

Table 13. Partial correlations^a

	TA	TQ	PU	PQ1	PQ2	PA	CA	CU
TA	1	0.039	0.039	0.123*	0.065	0.166	0.169	-0.005
TQ		1	-0.035	-0.312*	-0.103	0.005	-0.047	-0.115
PU			1		-	-	-0.105	0.021
PQ1				1	-	-	0.168	-0.146
PQ2					1	-	0.063	-0.204
PA						1	-0.203*	0.174*
CA							1	-
CU								1

^aWe take the following notations: Trust_access (TA); Trust_quality (TQ); Prodev_usage (PU); Prodev_quality1 (PQ1); Prodev_quality2 (PQ2); Prodev_access (PA); Compost_access (CA); Compost_usage (CU). *Statistically significant correlation.

There is sheer positive and statistical correlation between the trust (Trust_access and Trust_quality) and product development (Prodev_quality1). This indicates that financial inclusion seems to interfere positively with these two aspects in a way that when a Saudi bank pioneers sophisticated financial products and services that meet customers' needs the trust of the latter increase. This result is quite logical because trust cannot improve if the bank does not make supplementary efforts to provide more suitable products and services.

We noticed that trust is induced by access is positively correlated with product development 1, in addition, trust induced by quality is negatively correlated with product development 1. This fact can have a behavioral explanation because customers increase their trust (access to new services and products) as a consequences of sophisticated bank products. However, they do not seem to increase their trust induced by quality.

The variable Prodev_access is positively correlated with Compost_access, which means that the interference of financial inclusion renders the efforts made to develop new products and services simply to increase the number accounts (i.e., first dimension of financial inclusion, access) turns out to impact negatively the competitive posture. In other words, innovating new products and services for the simple purpose of increasing the competitive power cannot make it right. However, it is clear that such efforts can be fruitful when the aim is to improve the second dimension of financial inclusion (i.e., usage) in terms of expanding the customers' regularity and duration.

6.6 Regression analysis

The purpose of the regression is to confirm the financial implications documented in the previous analysis in terms of the interplay existing between the dimensions of

financial inclusion and the three aspects of Islamic banking, namely trust, product development, and strategic posture. The regression involves the two constructs of financial inclusion as the main regressors (independent variables) and the various constructs of the three aspects of Islamic banking.

Table 14. Regression results*

	Regressors	Constant	FinInclu_quality	FinInclu_usage	R²
TRUST	Trust_access	0.000 (0.120)	-0.147 (0.226)	0.008 (0.948)	0.022
	Trust_quality	-0.001 (0.995)	0.350 (0.003)	-0.40 (0.729)	0.126
PRODUCT DEVELOPMENT	Prodev_usage	0.001 (0.009)	-0.091 (0.469)	0.056 (0.652)	0.011
	Prodev_quality1	9,155E-005 (0.999)	0.060 (0.634)	-0.002 (0.985)	0.06
	Prodev_quality2	0.002 (0.985)	0.170 (0.174)	0.077 (0.529)	0.05
	Prodev_access	-0.003 (0.983)	0.206 (0.096)	-0.126 (0.298)	0.029
COMPETITIVE POSTURE	Compost_access	-0.003 (0.981)	0.335 (0.004)	-0.146 (0.211)	0.109
	Compost_usage	-0.001 (0.992)	-0.020 (0.871)	-0.049 (0.695)	0.003

*Figures in parentheses are *p*-values that correspond to *t*-test.

Table 15. Summary of results

	Acceptance/Rejection		Implications
	Quality*	Usage**	
Hypothesis 1 <i>Trust</i>	Partial acceptance	Rejection	The results show two main findings. On the one hand, the usage dimension of financial inclusion does not matter to the three aspects of Islamic banking. On the other hand, the quality dimension of financial inclusion matters to some extent to the three aspects of Islamic banking. This means that Saudi respondents in the sample believe that Saudi banks takes into account the quality dimension preached by financial inclusion to improve the trust of their customers, to innovate new
Hypothesis 2 <i>Product development</i>	Partial acceptance	Rejection	

			products according to <i>fiqh</i> rules, and improve their competitive power. Moreover, the results do not show that Saudi banks do the same by taking into account of the usage dimension of financial inclusion. A central recommendation is the urgent need to focus on the usage dimension (in terms of regularity and duration) to improve the three aspects of Islamic banking.
Hypothesis 3 <i>Competitive posture</i>	Partial acceptance	Rejection	

*Quality is one of the three dimensions of financial inclusion. It indicates whether the offered financial products and services meet the customers' needs. **Usage is one of the three dimensions of financial inclusion. It indicates the regularity and duration of using the offered financial products and services, among other aspects.

The overall regression results show that there is a limited impact of financial inclusion on the three aspects of Islamic banking, which corroborates the bivariate and partial correlation analyses. Indeed, it is clear from the previous table that at least one item corresponding to each of the three Islamic banking aspects is positive and statistically significant. This is striking for the aspect related to product development because only one item is positive and significant. An additional result is clearly shown through the weak relevance of the usage dimension and the relevance of the quality dimension of financial inclusion to the Islamic banking industry.

These results confirm totally our previous findings because it is clear that the quality dimension of financial inclusion seems to be the most informative about how the latter can have interplay with Islamic banking. The results indicate that Saudi customers consider that if banks focus on the various aspects of the quality of the products and services they offer, this will impact positively the whole industry of Islamic banking, as viewed from its three aforementioned aspects.

7. Conclusions and policy implications

The purpose of this thesis is the study of the relationship between Islamic banking and financial inclusion. Although there are several empirical studies that were

published over the recent past about this relationship, several of its aspects remain uninvestigated. Ben Naceur et al. (2015) study whether Islamic banking industry influence financial inclusion. Their results do not confirm explicitly the existence of a positive impact. This thesis endeavors to study the same relationship but from an inverse perspective.

The relationship under consideration is studied in order to show whether financial inclusion impacts the industry of Islamic banking. Strictly speaking, the question is whether financial inclusion impacts one or all of Islamic banking's selected three aspects, namely trust, product development and competition. The overall results show limited impact, which confirms much of Ben Naceul et al. (2015) and Iqbal and Mirakhor's (2012) findings. Financial inclusion seems to impact Islamic banking only in terms of the quality of products and services.

Some measures can be suggested as follows to improve the three aspects as viewed from the perspective of financial inclusion. Firstly, Saudi banks need to make financial innovation not only to improve the quality of financial services but also to improve the access (e.g., number of accounts) and usage (e.g., regularity and duration of accounts) dimensions of financial inclusion. Second, the access of a larger number of Saudi customers to the banks' financial services must take into account their religiosity. Indeed, this requires orienting the sophistication of financial products towards serving new untapped customers targets (e.g., young entrepreneurs), through a comprehensive innovation process that is based on *fiqh* rules. Thirdly, as the questionnaire results show that the financial inclusion dimension related to usage does not seem to be perfectly impacting the three aspects of Islamic banking, relevant measures can be taken to improve the regularity and customers in using their accounts and benefiting from the features of financial services offered to them (e.g., enhancing the process of information collection and simplifying the bank's own rules for an easy use). Fourthly, the improvement of

Saudi banks' competition can improve their profitability and render their customers better off.

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APPENDIX

A1: UNIVARIATE ANALYSIS

1- FinInclu

Do you consider that the staff helps you to have an easy access to the bank's products and services?

	Number	Percentage	Valid percentage	Cumulative
Disagree	8	11,3	11,3	11,3
Neutral	14	19,7	19,7	31,0
Valid Agree	48	67,6	67,6	98,6
Highly agree	1	1,4	1,4	100,0
Total	71	100,0	100,0	

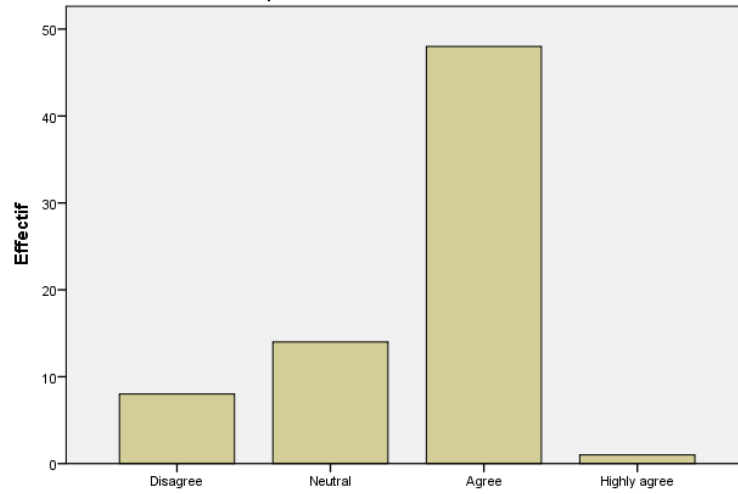
Do you consider that you and the clients of your bank are better off when using the offered products and services?

	Number	Percentage	Valid percentage	Cumulative
Highly disagree	4	5,6	5,6	5,6
Disagree	10	14,1	14,1	19,7
Valid Neutral	32	45,1	45,1	64,8
Agree	25	35,2	35,2	100,0
Total	71	100,0	100,0	

Do the products and services of your bank match your needs?

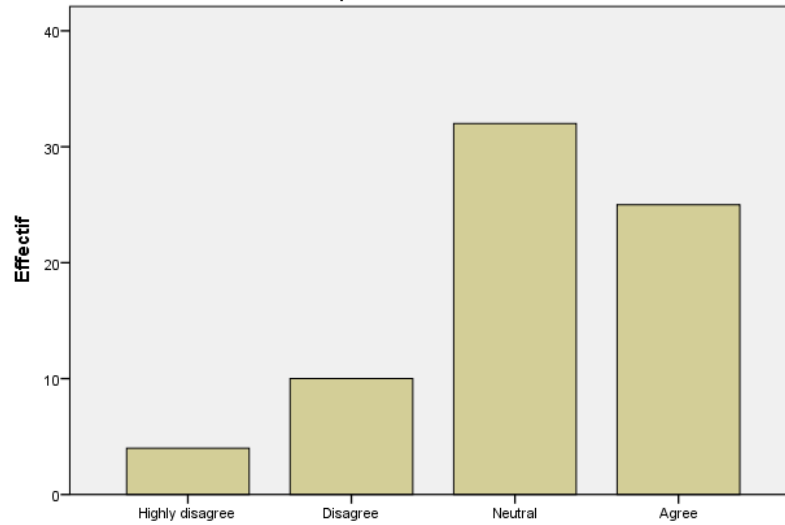
	Number	Percentage	Valid percentage	Cumulative
dissatisfied	5	7,0	7,0	7,0
Neutral	28	39,4	39,4	46,5
Valid satisfied	36	50,7	50,7	97,2
Highly satisfied	2	2,8	2,8	100,0
Total	71	100,0	100,0	

Do you consider that the staff helps you to have an easy access to the bank's products and services?



Do you consider that the staff helps you to have an easy access to the bank's products and services?

Do you consider that you and the clients of your bank are better off when using the offered products and services?



Do you consider that you and the clients of your bank are better off when using the offered products and services?



2- Trust

The bank shows a high interest to serve its customers

	Number	Percentage	Valid percentage	Cumulative
Disagree	8	11,3	11,3	11,3
Neutral	26	36,6	36,6	47,9
Valid Agree	36	50,7	50,7	98,6
Highly agree	1	1,4	1,4	100,0
Total	71	100,0	100,0	

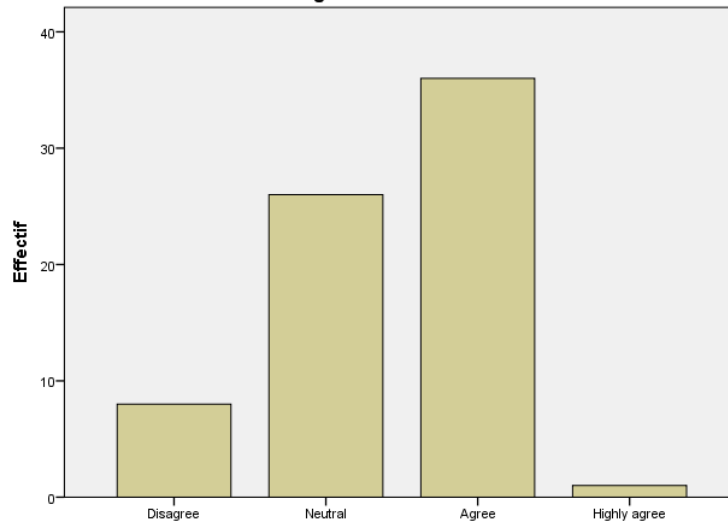
You trust that the products and services provided by this bank have an optimal quality-to-price ratio

	Number	Percentage	Valid percentage	Cumulative
Disagree	18	25,4	25,4	25,4
Valid Neutral	35	49,3	49,3	74,6
Agree	18	25,4	25,4	100,0
Total	71	100,0	100,0	

Your relationship with staff of the bank is very close

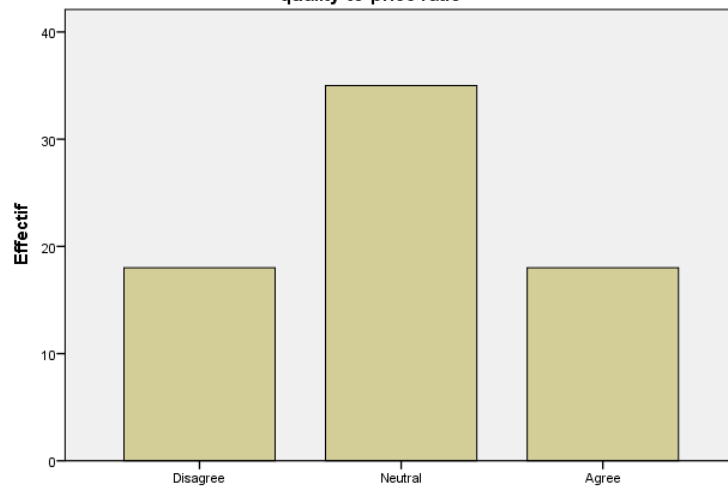
	Number	Percentage	Valid percentage	Cumulative
Valid Neutral	18	25,4	25,4	25,4
Valid Agree	53	74,6	74,6	100,0
Total	71	100,0	100,0	

The bank shows a high interest to serve its customers

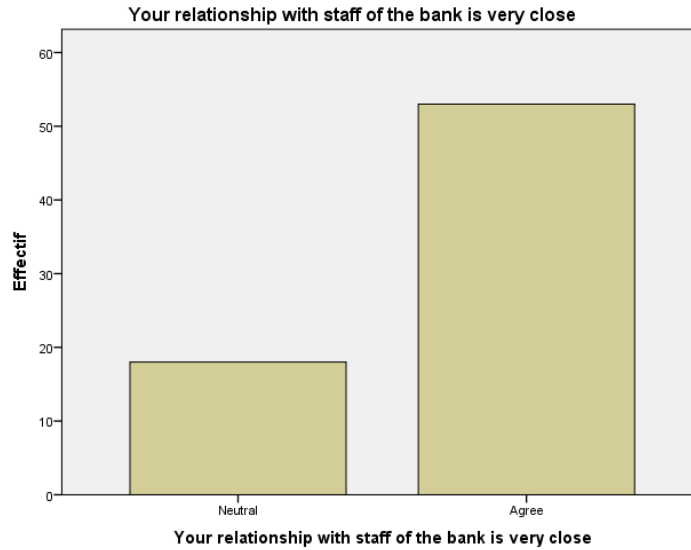


The bank shows a high interest to serve its customers

You trust that the products and services provided by this bank have an optimal quality-to-price ratio



You trust that the products and services provided by this bank have an optimal quality-to-price ratio



3- Prodev

3-1- Prodev1

The structure of the products and services that you use is clear

	Number	Percentage	Valid percentage	Cumulative
Valid	Highly disagree	18	25,4	26,1
	Disagree	28	39,4	66,7
	Neutral	15	21,1	88,4
	Agree	8	11,3	100,0
	Total	69	97,2	100,0
	Missing	2	2,8	
	Total	71	100,0	

You continuously use the products and services of your bank because you think they are sophisticated

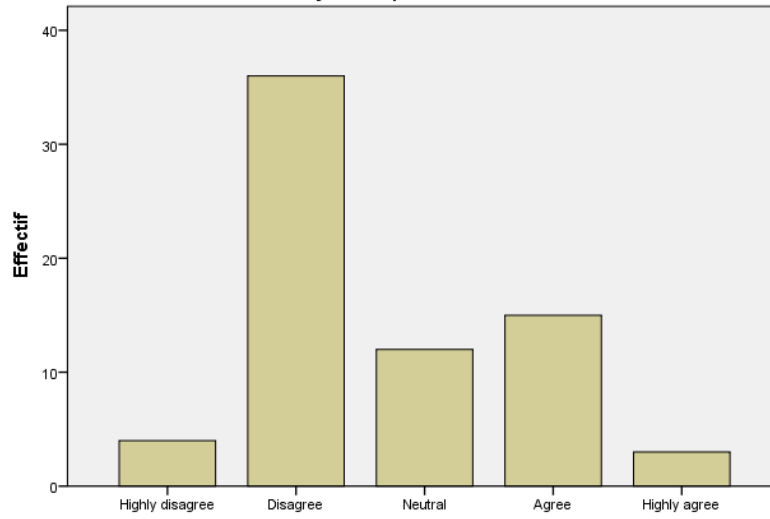
	Number	Percentage	Valid percentage	Cumulative
Valid	Highly disagree	4	5,6	5,7
	Disagree	36	50,7	57,1
	Neutral	12	16,9	74,3
	Agree	15	21,1	95,7
	Highly agree	3	4,2	100,0
	Total	70	98,6	100,0
	Missing	1	1,4	
Total	71	100,0		

You believe that your bank was able to attract new customers because its products and services are sophisticated

	Number	Percentage	Valid percentage	Cumulative
Valid Highly disagree	4	5,6	5,7	5,7
Valid Disagree	32	45,1	45,7	51,4
Valid Neutral	15	21,1	21,4	72,9
Valid Agree	15	21,1	21,4	94,3
Valid Highly agree	4	5,6	5,7	100,0
Total	70	98,6	100,0	
Missing	1	1,4		
Total	71	100,0		

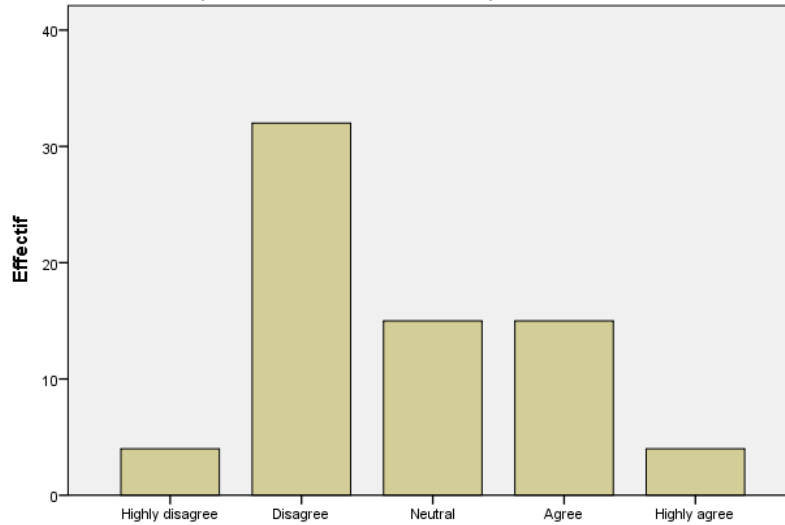


You continuously use the products and services of your bank because you think they are sophisticated



You continuously use the products and services of your bank because you think they are sophisticated

You believe that your bank was able to attract new customers because its products and services are sophisticated



You believe that your bank was able to attract new customers because its products and services are sophisticated

3-2- Prodev2

Your bank must develop new products and services

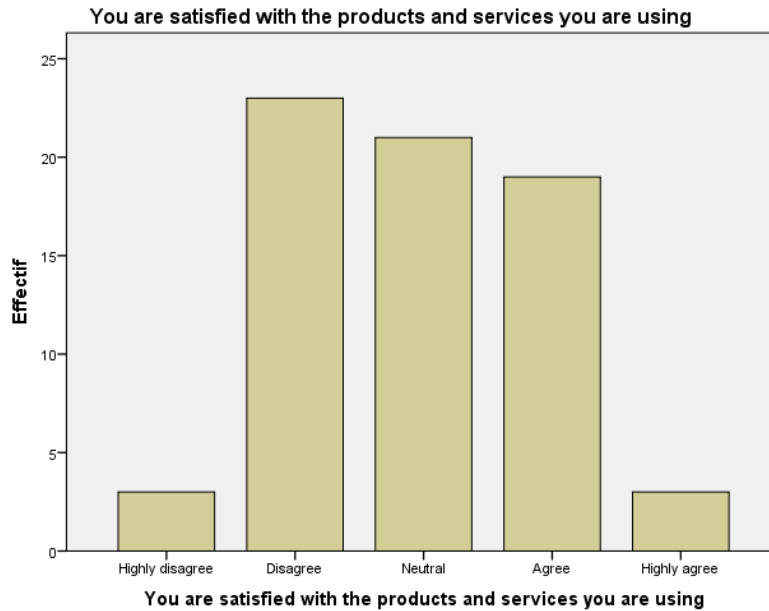
		Number	Percentage	Valid percentage	Cumulative
Valid	Agree	10	14,1	14,5	14,5
	Highly agree	59	83,1	85,5	100,0
	Total	69	97,2	100,0	
	Missing	2	2,8		
	Total	71	100,0		

You are satisfied with the products and services you are using

		Number	Percentage	Valid percentage	Cumulative
Valid	Highly disagree	3	4,2	4,3	4,3
	Disagree	23	32,4	33,3	37,7
	Neutral	21	29,6	30,4	68,1
	Agree	19	26,8	27,5	95,7
	Highly agree	3	4,2	4,3	100,0
	Total	69	97,2	100,0	
	Missing	2	2,8		
	Total	71	100,0		

Your bank must develop new products and services





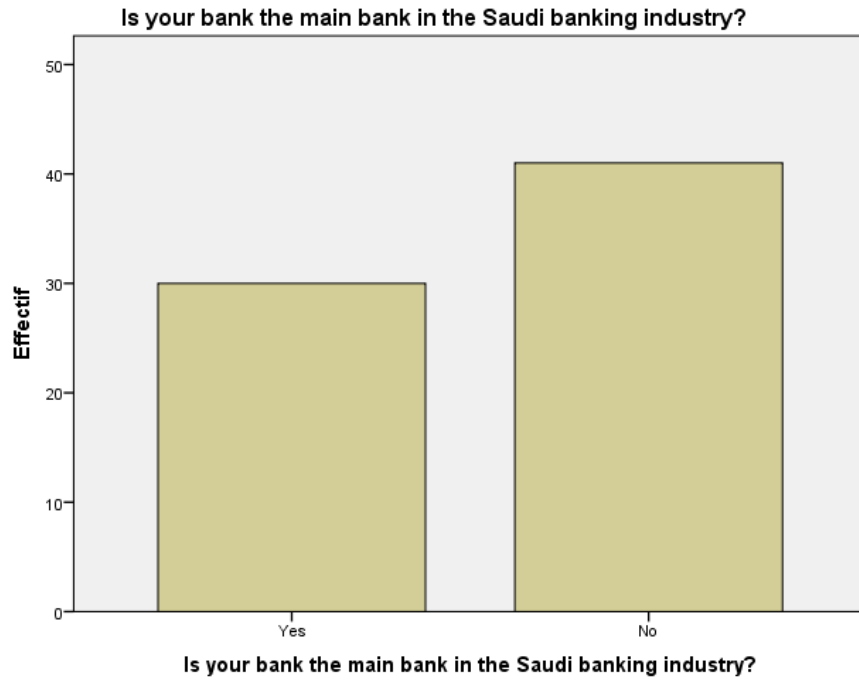
4- CompPost

Is your bank the main bank in the Saudi banking industry?

	Number	Percentage	Valid percentage	Cumulative
Valid Yes	30	42,3	42,3	42,3
Valid No	41	57,7	57,7	100,0
Total	71	100,0	100,0	

The features of the products and services of your bank are the most important to increase its market share

	Number	Percentage	Valid percentage	Cumulative
Valid Agree	44	62,0	62,0	62,0
Valid Highly agree	27	38,0	38,0	100,0
Total	71	100,0	100,0	



5- Additional variables

Age

	Number	Percentage	Valid percentage	Cumulative
Valid	Between 18 and 25	5	7,0	7,1
	Between 25 and 35	17	23,9	31,4
	Between 35 and 45	42	59,2	91,4
	Higher than 45	6	8,5	100,0
	Total	70	98,6	100,0
	Missing	1	1,4	
	Total	71	100,0	

Gender

	Number	Percentage	Valid percentage	Cumulative
Valid	Male	64	90,1	90,1
	Female	7	9,9	100,0
	Total	71	100,0	100,0

Professional occupation

	Number	Percentage	Valid percentage	Cumulative
Valid	Government job	29	40,8	40,8
	Banking sector	19	26,8	67,6
	Private sector	11	15,5	83,1
	Others	12	16,9	100,0
	Total	71	100,0	100,0

Monthly income

	Number	Percentage	Valid percentage	Cumulative
Valid	Less than 5000	8	11,3	11,3
	Between 5,000 and 10,000	11	15,5	26,8
	Between 10,000 and 20,000	47	66,2	93,0
	More than 20,000	5	7,0	100,0
	Total	71	100,0	100,0

A2. QUESTIONNAIRE

Examination of the impact of financial inclusion on Islamic banking industry

This questionnaire is related to the study of the impact of financial inclusion on the Islamic banking industry in Saudi Arabia. This study is conducted as a completion of the Master's studies at Effat University, Jeddah.

The idea of the study consists in examining the extent to which the major elements of financial inclusion can interact with the operations of Saudi Islamic banks. Financial inclusion has recently been considered by academic circles and industry practitioners as a comprehensive process that preaches unleashing sustainable economic growth in both emerging and developed countries. This process embeds various measures, techniques and strategic routes that aim at ensuring an inclusive growth. In order to better address the objective of inclusive growth, there are several short- and long-term objectives that need to be reached. Indeed, financial inclusion is considered as a reliable process that can lead to alleviation of poverty, social equality, and economic welfare.

The research question of this thesis endeavors to study the interplay between financial inclusion and Islamic banking from a different perspective. Indeed, the recent empirical studies and policy reports remain silent about other interesting aspects to this interplay. The research question of this thesis can be stated as follows: To what extent financial inclusion is useful to the Islamic financial industry in Saudi Arabia in terms of trust, financial innovation, and competitiveness?

The questions contained in this questionnaire try to provide an answer to this research question.

S. Aref

Master student

PART I: DEMOGRAPHIC INFORMATION

Name:
Family name:
Age: 1 Between 18 and 25 <input type="checkbox"/> 2 Between 25 and 35 <input type="checkbox"/> 3 Between 35 and 45 <input type="checkbox"/> 4 Higher than 45 <input type="checkbox"/>
Gender: 1 Male <input type="checkbox"/> 2 Female <input type="checkbox"/>
Professional occupation
Government job: <input type="checkbox"/> 1 Banking sector: <input type="checkbox"/> 2 Private sector: <input type="checkbox"/> 3 Others: <input type="checkbox"/> 4
Monthly income
Less than 5000 SR <input type="checkbox"/> 1 Between 5,000 and 10,000 SR <input type="checkbox"/> 2 Between 10,000 and 20,000 SR <input type="checkbox"/> 3 More than 20,000 SR <input type="checkbox"/> 4

PART II: FINANCIAL INCLUSION

1	Do you have a bank account? Finaincl1 Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2
2	Do you use many bank accounts? Finaincl2 Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2
3	Is the branch of your bank close enough to you? Finaincl3

	<p>Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2</p>
4	<p>Which type of accounts do you use? Finaincl4</p> <p>Profit-and-loss sharing deposit account 1 <input type="checkbox"/></p> <p>Savings account 2 <input type="checkbox"/></p> <p>Loan account 3 <input type="checkbox"/></p> <p>Transaction account 4 <input type="checkbox"/></p>
5	<p>How frequent do you ask for the advice of your banker? Finaincl5</p> <p>Many times in week <input type="checkbox"/> 1 Weekly <input type="checkbox"/> 2</p> <p>Monthly <input type="checkbox"/> 3 One time in more than a month <input type="checkbox"/> 4</p>
6	<p>Do you think that your bank was able to increase its number of accounts? Finaincl6</p> <p>Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2</p>
7	<p>Do consider that you regularly use the services provided to you by the bank? Finaincl7</p> <p>Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2</p>
8	<p>For how long you are using the services of your bank? Finaincl8</p> <p>Less than a year 1 <input type="checkbox"/></p> <p>Between 1 and 5 years 2 <input type="checkbox"/></p> <p>Between 5 and 10 years 3 <input type="checkbox"/></p> <p>More than 10 years 4 <input type="checkbox"/></p>
9	<p>Do you think that your access to the documentation showing the specificities of products and services is easy and available at any time? Finaincl9</p> <p>1. Highly disagree <input type="checkbox"/></p>

	<p>2. Disagree <input type="checkbox"/></p> <p>3. Neutral <input type="checkbox"/></p> <p>4. Agree <input type="checkbox"/></p> <p>5. Highly agree <input type="checkbox"/></p>
10	<p>Do you consider that the staff helps you to have an easy access to the bank's products and services? Finaincl10</p> <p>1. Highly disagree <input type="checkbox"/></p> <p>2. Disagree <input type="checkbox"/></p> <p>3. Neutral <input type="checkbox"/></p> <p>4. Agree <input type="checkbox"/></p> <p>5. Highly agree <input type="checkbox"/></p>
11	<p>Do the products and services of your bank match your needs? Finaincl11</p> <p>1. Highly dissatisfied <input type="checkbox"/></p> <p>2. Dissatisfied <input type="checkbox"/></p> <p>3. Neutral <input type="checkbox"/></p> <p>4. Satisfied <input type="checkbox"/></p> <p>5. Highly satisfied <input type="checkbox"/></p>
12	<p>Do you consider that you and the clients of your bank are better off when using the offered products and services? Finaincl12</p> <p>Highly disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Highly agree <input type="checkbox"/></p> <p>1 2 3 4 5</p>

ISLAMIC BANKING

PART III: TRUST

1	Do you consider that your bank updates the offered products and services? Highly disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Highly agree <input type="checkbox"/> 1 2 3 4 5
2	You can rely on the efforts of your bank to satisfy your needs. Highly disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Highly agree <input type="checkbox"/> 1 2 3 4 5
3	You trust that the products and services provided by this bank have an optimal quality-to-price ratio. Highly disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Highly agree <input type="checkbox"/> 1 2 3 4 5
4	The bank shows a high interest to serve its customers. Highly disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Highly agree <input type="checkbox"/> 1 2 3 4 5
5	Your relationship with staff of the bank is very close. Highly disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Highly agree <input type="checkbox"/> 1 2 3 4 5
6	The trust in the bank increases the number of customers. Highly disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Highly agree <input type="checkbox"/> 1 2 3 4 5
7	The trust in the bank improves the regularity of customers in using their accounts. Highly disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Highly agree <input type="checkbox"/> 1 2 3 4 5

	<input type="checkbox"/> 1	<input type="checkbox"/> 2	3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
8	The trust in the bank improves the duration of customers in using their accounts.				
	Highly disagree <input type="checkbox"/> 1	Disagree <input type="checkbox"/> 2	Neutral <input type="checkbox"/> 3	Agree <input type="checkbox"/> 4	Highly agree <input type="checkbox"/> 5
9	The trust in the bank improves when the quality of the bank's products and services is high.				
	Highly disagree <input type="checkbox"/> 1	Disagree <input type="checkbox"/> 2	Neutral <input type="checkbox"/> 3	Agree <input type="checkbox"/> 4	Highly agree <input type="checkbox"/> 5

PART IV: PRODUCT DEVELOPMENT

1	Your bank's offered products and services are sophisticated				
	Highly disagree <input type="checkbox"/> 1	Disagree <input type="checkbox"/> 2	Neutral <input type="checkbox"/> 3	Agree <input type="checkbox"/> 4	Highly agree <input type="checkbox"/> 5
2	Your bank is using Islamic principles from <i>Quran</i> and <i>Sunnah</i> to develop and enhance the offered products and services				
	Highly disagree <input type="checkbox"/> 1	Disagree <input type="checkbox"/> 2	Neutral <input type="checkbox"/> 3	Agree <input type="checkbox"/> 4	Highly agree <input type="checkbox"/> 5
3	There is a suspicion in the use of prohibited interest in any of your bank's offered products and services.				
	Highly disagree <input type="checkbox"/> 1	Disagree <input type="checkbox"/> 2	Neutral <input type="checkbox"/> 3	Agree <input type="checkbox"/> 4	Highly agree <input type="checkbox"/> 5
4	The products and services offered by your bank cannot be developed.				
	Highly disagree <input type="checkbox"/> 1	Disagree <input type="checkbox"/> 2	Neutral <input type="checkbox"/> 3	Agree <input type="checkbox"/> 4	Highly agree <input type="checkbox"/> 5
5	Your bank must develop new products and services.				

	<p>Highly disagree <input type="checkbox"/> 1 Disagree <input type="checkbox"/> 2 Neutral <input type="checkbox"/> 3 Agree <input type="checkbox"/> 4 Highly agree <input type="checkbox"/> 5</p>
6	<p>You are satisfied with the products and services you are using</p> <p>Highly disagree <input type="checkbox"/> 1 Disagree <input type="checkbox"/> 2 Neutral <input type="checkbox"/> 3 Agree <input type="checkbox"/> 4 Highly agree <input type="checkbox"/> 5</p>
7	<p>The structure of the products and services that you use is clear.</p> <p>Highly disagree <input type="checkbox"/> 1 Disagree <input type="checkbox"/> 2 Neutral <input type="checkbox"/> 3 Agree <input type="checkbox"/> 4 Highly agree <input type="checkbox"/> 5</p>
8	<p>Your bank is doing enough efforts to develop new products and services that satisfy your needs.</p> <p>Highly disagree <input type="checkbox"/> 1 Disagree <input type="checkbox"/> 2 Neutral <input type="checkbox"/> 3 Agree <input type="checkbox"/> 4 Highly agree <input type="checkbox"/> 5</p>
9	<p>You believe that your bank was able to attract new customers because its products and services are sophisticated.</p> <p>Highly agree <input type="checkbox"/> 1 Disagree <input type="checkbox"/> 2 Neutral <input type="checkbox"/> 3 Agree <input type="checkbox"/> 4 Highly agree <input type="checkbox"/> 5</p>
10	<p>You continuously use the products and services of your bank because you think they are sophisticated.</p> <p>Highly agree <input type="checkbox"/> 1 Disagree <input type="checkbox"/> 2 Neutral <input type="checkbox"/> 3 Agree <input type="checkbox"/> 4 Highly agree <input type="checkbox"/> 5</p>

PART V: COMPETITIVE POSTURE	
1	<p>Is your bank the main bank in the Saudi banking industry?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>

	<p style="text-align: center;">1 2</p>
2	<p>The features of the products and services of your bank are the most important to increase its market share.</p> <p>Highly disagree Disagree Neutral Agree Highly agree</p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </p> <p style="text-align: center;">1 2 3 4 5</p>
3	<p>Your bank can attract new customers because of the low costs as compared to its competitors.</p> <p>Highly disagree Disagree Neutral Agree Highly agree</p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </p> <p style="text-align: center;">1 2 3 4 5</p>
4	<p>Using the products and services of your bank over a long period can attract new customers.</p> <p>Highly agree Disagree Neutral Agree Highly agree</p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </p> <p style="text-align: center;">1 2 3 4 5</p>
5	<p>Using the products and services of your bank regularly can attract new customers</p> <p>Highly agree Disagree Neutral Agree Highly agree</p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </p> <p style="text-align: center;">1 2 3 4 5</p>
6	<p>The high quality of your bank's products and services can increase its market share.</p> <p>Highly agree Disagree Neutral Agree Highly agree</p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </p> <p style="text-align: center;">1 2 3 4 5</p>