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**Exploring the Demand and Supply Conditions of
E-Commerce and E-Banking Services in Saudi Arabian
Conventional and Islamic Banks**

By

Mohammed Naif A Al-Otaibi

A Doctoral Thesis

Submitted in partial fulfilment of the requirements for the award of
The Degree of Doctor of Philosophy at the Durham University Business School

February 2015

DEDICATION

To my parents:

For their support and endless guidance during the duration of my studies

To my Wife, my Daughter and my Son

For your sacrifices and tolerances throughout the period of my studies

To All my Brothers and Sisters

For their support during the duration of my studies

ACKNOWLEDGEMENTS

In the name of ALLAH, the Compassionate, the Merciful, Alhamdulillah, and blessings and peace on Mohammed (peace be upon him).

First and foremost, I give sincere and deep thanks, to Almighty ALLAH, for providing me with the patience, guidance, inspiration, and perseverance needed through my study.

The process of accomplishing this thesis been achieved with the assistance and support of a number of people and I would like to express my special thanks for their assistance. My special thanks and appreciation go to my sponsor the Government of Saudi Arabia for providing the necessary financial support to complete this research. It is also my pleasure to dedicate my thanks and appreciation to, my supervisor Professor Mehmet Asutay for his utmost support, endless guidance, and assistance to complete this research.

I would like express deepest gratitude to my eldest brother Ayedh Bin Naif Al-Otaibi for his support and assistance during the duration of my studies. Special thanks also go to His Eminence, Dr. Abdulrahman Bin Saleh Al-Atram the chairman of *Shari'ah* Committee at Alinma bank for his help.

I would also like to extend my grateful to H.E. Dr. Fahad Al-Mubarak, the governor of the Central Bank of Saudi Arabia (SAMA) for helping me to obtain permission to collect the data for this research. Also, my heartfelt thanks to my friends Dr. Ahmed Albar, Dr. Ahmed Al-Thobaiti and Dr. Bahaaeldin Allam for their support.

Finally, I would like to thank all the participants in the survey questionnaire and interviews for their useful contributions.

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ABSTRACT

Exploring the Demand and Supply Conditions of E-Commerce and E-Banking Services in Saudi Arabian Conventional and Islamic Banks

Mohammed Naif A Alotaibi

The extensive use of technology by banks and financial institutions aims to respond to customers' demands by providing efficient, speedy and convenient financial services. After developing the e-banking services, banks have also expanded their online services into e-commerce. Developments of e-banking services and e-commerce have been the case with the majority of banks including Islamic banks in the GCC region.

The main aim of this research is to explore the demand and supply conditions of e-commerce through e-banking services in Saudi Arabian conventional and Islamic banks. In doing so, this research aims to assess the level of customer awareness of e-commerce and to explore customers' motivation in Saudi Arabian conventional and Islamic banks. In addition, this research further explores and evaluates customers' use of e-commerce and e-channels banking services, and the obstacles faced including security issues. In an attempt to locate the supply side related issues, the study aims also to explore perceptions of the IT managers in the six banks.

In the study, data were collected through a survey questionnaire to measure the opinions and perceptions of bank customers, and interview surveys were utilised for assessing the supply conditions. To achieve the aims of this research, firstly, this research presents the initial findings with the objective of developing a better understanding of customers' preferences based on their opinions and perceptions, expressed through a questionnaire survey with a sample of 198 Islamic and conventional bank customers representing six banks in the country; secondly, to further the analysis of this research, an empirical study is presented by using a series of semi-structured interviews with IT managers at three different levels of the sampled banks in Saudi Arabia.

The findings over five empirical chapters demonstrate that the majority of the respondents from both the banks appear to understand and have awareness of the importance of e-commerce especially and e-banking services in particular. The findings also indicate that the majority of the respondents from both banks tend to be equally motivated to deal with e-commerce using banking facilities available for them. In search of motivational factors, this research found that the benefits and the 24/7 availability of e-commerce and e-banking services were the main factors motivating participants to deal with e-commerce and use e-banking services. The findings also indicate that the customers of Islamic banks have a better understanding of using e-commerce and e-banking services. Furthermore, the findings show that customers experienced personal, institutional and macro level obstacles to using e-commerce in both the bank types. Moreover, the customers of Islamic and conventional banks appear to understand the importance of security issues in e-commerce through e-banking services as well as banks. The findings also show that the government of Saudi Arabia has played a key role to improve the environment of e-banking services in Saudi banks. Finally, the interviewees' analysis indicates the weaknesses in the telecommunication infrastructure.

Based on the findings this study suggests that e-commerce through e-banking services can play an important role in expanding business opportunities in Saudi Arabia, while they facilitate individual engagement with commercial activities. Since the technology is expanding and advancing rapidly, and to address the future challenges in IT especially in the e-banking services, it is essential that the necessary infrastructure should be developed to take advantage of the opportunity.

PUBLICATIONS

This conference paper has been presented based on this PhD research:

1. Alotaibi, M and Asutay, M (2014) “Aspects of E-commerce Services in Saudi Arabia: Comparing Islamic and Conventional Banks on Demand and Supply Conditions”. Paper presented at the Kyoto-Durham International Workshop in Islamic Economics and Finance, organised by Durham Business School, Durham University on 25th August 2014 Durham, UK.

The following papers have been published based on this thesis:

2. Alotaibi, M. and Asutay, M. (2015). “The It Infrastructure and E-Banking Facilities in Saudi Banking System Environment”. *International Journal of Economics, Commerce and Management*, 3, (4).
3. Alotaibi, M. and Asutay, M. (2015). “Islamic Banking and Islamic E-Commerce: Principles and Realities”. *International Journal of Economics, Commerce and Management*, 3, (4).

The following papers under review with well-ranked academic journal:

4. Alotaibi, M. and Asutay, M. (2015). “Awareness and Knowledge of e-Commerce through e-Banking Services: Comparing the Perceptions of Saudi Arabian Islamic and Conventional Bank Customers”: *A Quantitative Approach*.
5. Alotaibi, M. and Asutay, M. (2015). “E-Commerce Activities through E-Banking Services: A Comparative Analysis of the Perceptions of Saudi Islamic and Conventional Banks Customers”: *A Quantitative Approach*.
6. Alotaibi, M. and Asutay, M. (2015). “A Comparative Study of The Customers’ Motivation and Satisfaction with E-Commerce through E-Banking Services of Saudi Islamic and Conventional Banks Customers”: *A Quantitative Approach*.
7. Alotaibi, M. and Asutay, M. (2015). “Security Issues in e-Commerce through e-Banking Services: Comparing the Perceptions of Saudi Arabian Islamic and Conventional Bank Customers”: *A Quantitative Approach*.

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GLOSSARY OF ARABIC TERMS USED IN ISLAMIC FINANCE

Transliteration	Translation
<i>Al-Quran</i>	The Holy Book of the Muslims consisting of the revelations made by Allah to the Prophet Muhammad (PBUH).
<i>Al-Hadith</i>	The practices attributed to the Prophet Muhammad (PBUH) that includes his saying, acts, and approval or disapproval. The Muslims regard Al-Hadith as a major source of religious law and moral direction.
<i>Riba</i>	The common word means the interest, according to the Shari'ah, and not permitted to practice.
<i>Shari'ah</i>	In legal terms, the law is extracted from the Qur'an and the Sunnah of Prophet Muhammad (PBUH).
<i>Sukuk</i>	Commonly refers to the Islamic equivalent of bonds which is structured in accordance with the Islamic law and may be traded in the market.
<i>Sunnah</i>	The way of the prophet Muhammad (PBUH) traditions in terms of practice and conduct.
<i>Fiqh al-muamalat</i>	The Principles of Islamic Jurisprudence that covers the aspects of economics.
<i>Al-Hadith</i>	The collection of traditions attributed to the Prophet Muhammad (PBUH) that includes the narrative record of his sayings concerning approval or disapproval.
<i>Gharar</i>	(Uncertainty, risk, and speculation) is an ambiguity in the consideration or terms of a contract, for example the contract would not be valid that covers certain types of 'haram' (forbidden) uncertainty in a contract.
<i>Shura</i>	An Islamic principle; literally means a consultation.
<i>Maysir</i>	The prohibited action of gambling or playing competitions of chance with the intention of making an easy or unearned profit.
<i>Khilafa</i>	He represents God on the Earth and rules the human beings.
<i>Falah</i>	An Arabic word that reflects success, happiness and welfare. In Shari'ah, actions like conforming to Allah, not taking intoxicants, not gambling and establishing the system of Zakat will lead to <i>Falah</i> .
<i>Usury</i>	The Arabic word used for 'interest' in the Quran which means <i>Riba</i> . In Shari'ah (Islamic Law) it is not permitted to practice.
<i>Shura</i>	This is an Arabic word refers to the act of "consultation".

ABBREVIATIONS

Abbreviations	Meaning
AAOIFI	Accounting and Auditing Organization for Islamic Financial Institutions
ANB	Arab National Bank
ARPANET	Advanced Research Projects Agency Network
ATM	Automatic Teller Machine
B2B	Business-to-Business
B2C	Business-To-Consumer
B2G	Business-to-Government
BAJ	Bank Aljazira
BC	Before Christ
C2B	Customer-to-Business
C2C	Customer-to- Customer
C2G	Customer -to-Government
C-Commerce	Collaborative Commerce
CDSI	Central Department of Statistics and Information
E-Banking	Electronic banking
E-Commerce	Electronic Commerce
G2B	Government-to- Business
G2C	Government-to- Customer
G2G	Government-to-Government
GCC	Gulf Cooperation Council
IB	Internet banking
IBF	Islamic Banking and Finance
ICT	Information and Communication Technology
IME	Islamic Moral Economy
Intra-Business	Internally E-Commerce Inside Organizations
IT	Information Technology
ITC	Information Technology and Telecommunication
KACST	King Abdul Aziz City for Science and Technology
KFUPM	King Fahd University of Petroleum and Minerals
KW Test	Kruskal-Wallis Test
MADA	The Newest Saudi Network for Payments
MCIT	Ministry of Communications and Information Technology
M-commerce	Mobile Commerce
MWU Test	Mann-Whitney U Test
NCB	National Commercial Bank
OECD	the Organisation for Economic Co-operation and Development
OLR	Ordinal Logistic Regression
OPX	Operational Expenses
PC	Personal Computer
POS	Point-of-Sale
RSA	Saudi Riyal (1US\$ = 3.75 Saudi Riyal, pegged since 1986)
SADAD	The Saudi System of Payments
SAIB	Saudi Investment Bank
SAMA	Saudi Arabia Monetary Agency

SAR	Saudi Arabian Riyal
SARIE	The Saudi System for Fast Money Transfers
SPAN	The Saudi Network for Payments
SPSS	Statistical Package for Social Science
STC	Saudi Telecommunication Company
Tadawul	The Saudi Stock Exchange
TAM	Technology Acceptance Model
UAE	United Arab Emirate
UN	United Nation
USD	United States Dollar
UTAUT	Unified Theory Of Acceptance And Use Of Technology
WTO	World Trade Organisation
WWW	World Wide Web

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

With technological development, the way we conduct our economic and financial affairs has changed. The extensive use of technology by banks and financial institutions aims to respond to customers' demands by providing efficient, fast and convenient financial services. The extensive use of e-banking services has also expanded into electronic commerce (e-commerce) areas.

E-commerce is the use of IT as a tool to boost business dealings and communication with the managers, suppliers, customers, government regulators, financial institutions, employees and as a tool for electronic payment (Yasen and Al-alaq, 2009). Hence, the way in which business dealings worldwide are being undertaken has changed with the influence of e-commerce as an element of e-management.

Businesses are gaining advantages through deploying information technology (IT) services which permit access for the purchase of commercial goods and services 24/7. In Saudi Arabia, these services are facilitated by banks and financial institutions associated with the Saudi Communication and Information Technology Commission (CITC IT Report, 2010). In this process, the internet has resulted in e-commerce becoming one of the most significant areas of commerce (as well as in other parts of life) in the twenty-first century. By using the infrastructure provided through the internet, retailers can now expand their e-commerce activities (Kolsaker and Payne, 2002). This includes small and medium sized businesses which are obtaining rapid growth by using e-commerce as a strategy (Grandón *et al.*, 2011).

The developments in IT not only affect business environment, they also impact on social life across the globe. The customers need easy and convenient ways which have been resolved by the use of the internet. Overall, IT has changed business models and approaches and industry sectors are the main beneficiaries (IT Report CITC, 2010). The highly successful companies rely upon the internet to lower overheads, enhance

productivity, quality and higher efficiency (Deans, 2005). The extensive use of technology and its application has resulted in replacing traditional methods of doing business with the internet (Wymbs, 2000:466). Bill Gates, CEO of Microsoft while talking about the issue said “The Internet changes everything” (cited in Wymbs, 2000:466). The internet and world wide web (www) have driven e-commerce to be one of the most significant media in the twenty-first century for facilitating the sharing of business information within businesses and between business partners (Yasen and Al-alaaq, 2009).

The issue of how to bring the customer closer to the organisation/companies can be easily resolved through the application of e-commerce. The customers are provided with the alternatives and specific options and this has strengthened the relationships between the two actors in a market (Barnes and Hinton, 2007). The success of e-commerce is supported by the use of e-banking channels, and the combination of the two created e-services for the businesses. E-payment is the outcome of e-services, and businesses cannot grow further now onward if they do not get the advantage of such facilities (Al Saud and Abdallah, 2004). As a result, the evolution of business designs has even forced the specialists to change within the technologies; for example, the advent of advanced wireless technologies has resulted in the need for businesses to change.

The factors, which forced the planners, implementers and researchers, were the increase in the competitive environment and the drive to remain at the competitive edge. The changing scenarios added a new feature towards the growth of e-commerce. The new age did face the challenge of determining the success or failure of organisations that were doing businesses across the borders. Therefore, organisations are required to undertake the threats of competition and to adopt ways to take share from the markets. The business organisations also need to identify their weaknesses and provide training so that the future challenges can efficiently be faced. Finally, potential competitors’ pressures, mainly due to internet use in business-to-business as well as business-to-consumer environment, have been on the increase (Gillenson *et al.*, 1999).

Table 1.1 highlights the important and significant cornerstones of development of the Global Internet Ecosystem from 1969 until 2014 in order to help understand the

trajectories of the e-commerce and e-banking system.

Table 1.1: Development of the Global Internet Ecosystem

Year	Event
1969	Due to Internet facility, Advanced Research Projects Agency Network (ARPANET) developed.
Late 1970s	The government and corporations took advantage of transferring money practically via electronically (Electronic Data Interchange/Electronic Funds Transfer).
1973	World Wide Web was adopted along with Mosaic Web browser, in addition first graphic browser was introduced.
1982	Internet Protocol standards were introduced -through the architect of the Internet
1990s	The US was the first country that adopted e-commerce protocol in the businesses, and with a guarantee of securing data. This attracted the businesses to use this over the globe. This further facilitated the users to go on eBay via Amazon.com in 1994.
1998	Google founded with radical changes in search engines, which proved their effectiveness. Later, advertising became easy and accessible though Google.
2000	The start of Dot-com boom, but many Internet oriented businesses collapsed in 2001.
2000s	Although some businesses crashed, B2B transactions were increased rapidly and millions were buying and selling through e-bay. This growth paved the way for other companies to grow and compete.
2004	Facebook introduced, as this the first social networking site.
2005	1Billion Internet users.
2008	Developing countries have more than 50% of the world's Internet users.
2010	500 million fixed broadband subscribers and 2 billion Internet users.
2012	Developing countries have more than 50% of the world's mobile broadband subscribers.
2014	3 Billion Internet users.

Sources: IT Report (2010:14) www.citc.gov.sa, Internetlivestats.com and www.internetsociety.org/.

It is worthwhile noting that e-commerce can help companies to achieve their targets through the application of IT to enhance new techniques in customer care. Companies need to understand customers' needs and consequently to make changes in their product development techniques. This is possible if the management of companies sets out an agenda of being superior to other competitors. Therefore, creating new ideas and sustainability in product development could help companies increase market share and eventually double revenues.

Thus, the application of technological innovation at the right time can satisfy the market needs, and companies must change from their traditional styles towards new

avenues and innovation (Barnes and Hinton, 2007). In addition, e-commerce has also provided benefits to organisations, consumers and society (Tassabehji, 2003) through diverse strategies in the form of business-to-business, business-to-consumer, business-to-administration and consumer-to-administration (Yasen and Al-alaq, 2009).

Keeping in view the importance of IT and e-commerce, therefore this research focuses on the provision of e-commerce through e-banking services and identifies the factors of and barriers to success in Saudi Arabia. The first decade of twenty-first century witnessed a tremendous growth of e-commerce in the Saudi context (SAMA, 2013).

1.2 AN OVERVIEW OF IT, E-BANKING AND E-COMMERCE IN SAUDI ARABIA

Saudi Arabia, which is at the centre of the GCC region both economically and politically, dominates the global production and export of oil. According to the Central Department of Statistics and Information (CDSI, 2014), the population in Saudi Arabia is almost 30 million. The significantly large percentage of young people and high levels of income make Saudi Arabia the fastest growing large market in the Middle East (<http://www.cdsi.gov.sa/>).

In this context, Saudi government has taken important steps and significant strides to promote and develop the IT environment, to spread the awareness of informatics to its population and to encourage different government departments and companies to make use of the information revolution in their everyday operations. The main objective is to establish a strong IT infrastructure that facilitates and develops the efficiency and effectiveness of the operations of all private and public institutions (Al-Maliki, 2013). In responding to the changing nature of the business and IT technology, the Saudi Arabian national plan clearly indicates the priority of having in place IT services and infrastructure especially in the financial system in the country. Consequently, Saudi Arabia is the top spender on IT among the GCC countries; with expenditures of SAR27 (USD7.2) billion in 2013, which are forecast to reach SAR 46.3 (USD12.3) billion by the end of 2015 (IT Report CITC, 2013).

Since the internet was first introduced in Saudi Arabia in 1994, the Saudi government has made significant efforts in relation to introducing technology and improving the environment for that purpose. In this regard, what are known as the five-year state

plans mainly aim at the promotion and development of IT across the country, including all government organizations and the private sector. In the current economic plan (The 9th National Plan), the IT sector has witnessed significant development particularly with regard to telephony, including both mobile and landlines. It is important to note that the National Plan for Telecommunication and Information Technology, covering 2010-15, has been approved within the 9th National Plan, 2010). Table 1.2 depicts the important cornerstones in the development of Saudi Internet Ecosystem since 1993 until 2014.

According to the statistics in the CITC IT Report (2013), the number of internet users in Saudi Arabia reached an estimated 16.5 million at the end of 2013 from around 1 million in 2001, which corresponds to a compound annual growth rate of 55.1%. Moreover, based on Internet World States website (2014) the penetration rate of internet users in Saudi Arabia is above the world average. In Saudi Arabia, 66.9% of the population are Internet users, higher than the Middle East average of 48.3% and the World average of 42.3%. However, this is lower than Europe average of 70.5% (CITC IT Report, 2013).

Table 1.2: Development of Saudi Internet Ecosystem

Year	Event
1993	Internet first introduced in the King Fahd University of Petroleum and Minerals (KFUPM) in Dhahran city.
1994	The domain for Internet was launched in King Abdulaziz City for Science and Technology (KACST) to coordinate the services within the Kingdom.
1999	Academic institutions started connecting to the Internet in improve the quality of education and allow for general use of the Internet
2004	Information and Communication Technology (ICT) access was liberalised and new licenses were issued for telecom services.
2004	SADAD system started production.
2005	The first e-government program was established by the Ministry of Communications and Information Technology (MCIT).
2006	Internet responsibilities transferred from KACST to CITC.
2007	New legislation for electronics was promulgated by the Saudi government.
2010	41.6% of the total population are Internet users in Saudi Arabia.
2010	Saudi Post addressing system certified as viable.
2010	To create confidence, Arabic domain names under "Saudi" were started.
2014	MADA services for banking services started
2014	The global ranking of e-Government of Saudi Arabia is 36.
2014	Saudi Arabia one of the top 20 countries in online service delivery globally.

Sources: Adapted from: IT Report, (2010:15) www.citc.gov.sa and www.Internet.gov.sa.

Table 1.3 shows the growth of internet usage in Saudi Arabia. As can be seen in 2002,

only 6% of the population had access to internet, which reached to 66.9% at 2014. This clearly suggests that the public was encouraged to use the facility.

Table 1.3: Internet Growth in Saudi Arabia, 2002-2014

Year	Internet Users	Population	Penetration Rate
2002	1,400,000	21,494,813	6%
2005	3,000,000	23,329,584	13%
2008	9,300,000	25,787,025	36%
2011	13,600,000	28,376,355	48%
2014	20,070,000	30,000,000	66.9%

Sources: www.cdsi.gov.sa/, www.citc.gov.sa, www.Internet.gov.sa, and www.internetworldstats.com/

According to a study compiled by ASBAR Centre (2004) the use of the internet in Saudi Arabia was estimated at 51.2% and that the age group 25-34 were the top users with 56.5%, while 50.1% used the service for shopping purposes. This share of young internet users has increased significantly since 2004. In addition, the majority of users in Saudi Arabia were in the age group 15-24 years-old according to the CITC report (2009).

In addition, in a report highlighting indicators of IT and telecommunications in 138 countries including 15 Arab countries, Saudi Arabia is rated fourth among Arab countries and 33rd internationally regarding the adequacy of digital installations. The report establishes links between the adequacy of digital installations and the capability of the state to compete internationally. Furthermore, the report highlights the obstacles that impede individuals, organizations and governments from gaining the maximum benefit from modern technologies (<http://marketpublishers.com>, 2011).

In addition to the growing internet use, the use of e-commerce and e-banking services has shown corresponding growth. According to the website of the Saudi Minister of Commerce and Industry (2007), based on the findings of a study conducted within the GCC countries, internet shoppers in Saudi Arabia spend more than other GCC countries (<http://mci.gov.sa/>).

While the development in internet sphere and its usage has been highly successful, ASBAR Centre (2004) found that the conditions for using the internet in Saudi Arabia require the following:

- (i). Proficiency of the English language;

- (ii). Good level of education;
- (iii). Availability of internet services;
- (iv). Reasonable level of income;
- (v). The right environment to encourage users;
- (vi). Freedom of expression; and
- (vii). Availability of leisure time particularly for women.

Access and inclusiveness in internet usage is an essential concern, as the rate of internet usage is considered to be one of the most important indicators of human development in the sense of having consumer access to both e-government and the commercial sectors.

Recent studies have focused on the development of e-banking services in Saudi Arabia by highlighting the fact that e-banking services tends to improve the performance and capabilities of banks (*see*: Ben-Jadeed and Molina, 2004; Alwabel, 2005; and Al-Somali *et al.*, 2009). Nonetheless these studies point to the fact that, as far as e-banking is concerned, several psychological and behavioural aspects need to be addressed of which the most important are issues of trust and security.

According to Al-Somali *et al.*, (2009) Saudi Arabia is a regional leader in relation to Internet banking.

In terms of e-commerce in Saudi Arabia, given the relatively open market economy in Saudi Arabia, the business environment has been impacted by the effects of globalisation and its associated developments, such as e-commerce and the IT revolution resulting in mergers of major companies and the emergence of multinational companies with feverish competition. It should be noted that online purchases in Saudi Arabia in 2010 were estimated at 6% out of the total commercial activity compared to 13% in the Czech Republic and 58% in the USA. Nonetheless, as identified above, online shopping is becoming popular among internet users in Saudi Arabia, and the future looks promising for the business (IT Report, 2010).

The Saudi government has attempted to develop strategies to cope with these new developments and make the maximum use of the modern technology particularly following the introduction of internet service to the Saudi market (IT Report, 2009). Moreover, the Saudi government has encouraged the various public organisations to

introduce the electronic governance, which has been made possible as a result of a number of measures.

In 1999, a high level permanent technical committee was established headed by Ministry of Finance with the membership of other ministries and state organisations, most importantly the Ministry of Trade, the Ministry of Communications and Saudi Arabian Monetary Agency (SAMA). The purpose of the committee was to monitor and encourage the development of e-commerce by drafting the suitable legislation. Then, in 2004, the government established the Telecommunication and Information Technology Authority to set out the appropriate standards for electronic activities as a part of ongoing expansion (<http://www.cdsi.gov.sa/>). In 2006 a publically owned electronic system was launched under the name 'Yusr' for electronic interactions between the various government ministries. Through this system, a new service was launched in 2008, titled 'SADAD', with the objective of boosting electronic services by coordinating with the Saudi Arabian Central Bank and other commercial and Islamic banks with the purpose of facilitating the payment of customs and fees and the payment of bills including electricity and telephones (<http://www.yesser.gov.sa/>). Moreover, in 2008 the Saudi government issued a new law related to electronic interactions which aimed at controlling and organising electronic interactions (<http://mci.gov.sa/>).

According to CITC, despite the lack of products displayed on the internet the number of internet shoppers is on the increase. Research showed that only 8% of the businesses surveyed sold their products online. However, CITC research shows that half of the companies that presently did not use the internet for selling have future plans to go online. This was particularly the case among large companies where 70% of those surveyed had plans to sell online. In addition, 68% of the companies surveyed accepted credit cards for payment, 50% accepted cash or cheque on delivery, and one-third accepted debit cards. However, in the meantime SADAD and PayPal-type services are less common among companies (IT Report, 2010). The most likely explanation is that compared the highest number of internet users in Internet banking services is found among the young generation (Eze, 2011).

Importantly, given the high percentage of youth in the Saudi population, research studies indicate that this generation is the most adaptable to modern technology, it

becomes obvious that the electronic trade has made significant strides forward, and that the situation is more promising for future development. However, the existence of the appropriate legislation that organises the activities of electronic trade coupled with the developed infrastructure, and awareness among business organizations and consumers of the benefits of electronic trade through banking services (the subject of this study) is an indication that the use of electronic trade is expected to increase.

Considering the dynamics of developments in Saudi Arabia, this study, as explained below, explores the demand and supply conditions of e-commerce usage through e-banking services in the country.

1.3 RESEARCH AIM, OBJECTIVES AND RESEARCH QUESTIONS

This research examines the demand and supply conditions of e-commerce provided through e-banking platforms by the Saudi Arabian Islamic and conventional banks in the sense of investigating the fundamental factors that influence customers' adoption of e-commerce through the electronic services and facilities in Saudi banks. In addition, this research explores the e-commerce related strategies including security strategies adopted or envisaged by Islamic and conventional banks in Saudi Arabia. Furthermore, the obstacles in relation to demand for and supply of e-commerce services provided by the Saudi Arabian banking system are explored.

It should be noted that the aims of the study are fulfilled through exploring the perceptions of the respective customers in the form of primary data, which is then analysed comparatively between conventional and Islamic banks.

To fulfil the aims of this research, the following research objectives are developed:

- (i). to develop an advanced understanding of e-commerce as a service and concept;
- (ii). to examine the role of e-commerce in developing Islamic and conventional banking services in Saudi Arabia;
- (iii). to design a questionnaire and interview schedule for determining demand conditions of and supply conditions for e-commerce services through e-banking in both Islamic and conventional banking services in Saudi Arabia;

- (iv). to identify fundamental factors that influence Saudi Arabian customers' adoption, usage, knowledge of and motivation for e-commerce in Saudi banks;
- (v). to determine the most important factors hindering the implementation of e-commerce in both Islamic and conventional banking services in Saudi Arabia;
- (vi). to determine customers' satisfaction of e-commerce services through e-banking services in both Islamic and conventional banking services in Saudi Arabia;
- (vii). to identify the perceived security issues in using e-commerce through e-banking services;
- (viii). to examine service providers' perspectives on the aspects of e-commerce and e-banking through the IT managers of the sampled banks; and
- (ix). to propose recommendations based on the findings derived from customers and IT managers in Saudi banks.

In relation to the research aims and objectives, the following research questions are investigated:

- (i). What are the banking behaviours and attributes of the customers of Saudi Arabian Islamic and conventional banks?
- (ii). What experiences of e-commerce through e-banking services do Saudi Arabian Islamic and conventional bank customers have?
- (iii). What is the knowledge level of customers of Saudi Arabian Islamic and conventional banks about e-commerce through e-banking services?
- (iv). What factors motivate the customers of Saudi Arabian Islamic and conventional banks to use e-commerce through e-banking services?
- (v). What critical success factors are necessary for the adoption of e-commerce through e-banking services in relation to the perceptions of the customers and the IT managers of the Saudi Arabian Islamic and conventional banks?

- (vi). What are the determinants of the use of e-commerce and e-channels as expressed by the customers of the Saudi Arabian Islamic and conventional banks?
- (vii). What are the most important factors hindering the implementation of e-commerce in both Islamic and conventional banking services in Saudi Arabia from the supply side?
- (viii). What barriers have the Saudi Arabian Islamic and conventional banks experienced during the adoption of e-commerce through e-banking services?
- (ix). Which factors determine the satisfaction of the customers of Islamic and conventional banks in Saudi Arabia?
- (x). What are the perceived security issues in using e-commerce through e-banking?

In order to systematise the research, the chapters, in which individual and respective research questions are explored and their findings are presented, are noted below:

Research Questions (i), (ii) and (ix) are explored and their findings are presented in Chapter 6 and Chapter 11;

Research Questions (iii), (iv), (v) and (vi) are explored and their findings are presented in Chapter 7 and Chapter 11;

Research Questions (vii) and (viii) are explored and their respective findings are presented in Chapter 8 and Chapter 10, respectively, and further reflections are provided in Chapter 11; and lastly

Research Question (x) is explored and its findings are presented in Chapter 9 with further reflections in Chapter 11.

It should be noted that this study considers e-banking in broader sense including all ICT modes such as online banking, ATMs, tele-banking, and point of sales.

1.4 RATIONALE AND SIGNIFICANCE OF THE RESEARCH

This study attempts to find out the extent of the use of e-commerce by the customers

of conventional and Islamic banks in Saudi Arabia with the objective of locating the demand and supply conditions.

The research rationale derives from the developments reached by the informatics revolution and its wide usage in completing trade exchange processes in standard time periods, hence reducing costs. Progressive development and a noticeable expansion in the use of the internet have enabled it to play the main role in the development of new processes to conduct and complete business through internet based interfaces. While research in the field of e-commerce through the use of case studies is available in many countries, this is not the case for the Arab countries, and in particular Saudi Arabia.

Furthermore, the importance of the research is based on the importance of the banking sector in Saudi Arabia, and therefore the importance of e-commerce to the Saudi economy, as well as the growing significance of e-business and e-services in general.

It can, therefore, be suggested that the rapid change with which countries are becoming integrated in the global economy, as well as the challenges imposed by the World Trade Organization (WTO) on Saudi Arabia, the Kingdom now needs the support of the competitive power of its companies. This can be achieved through rapidly developing e-commerce performance, by activating the role which can be played by e-commerce in developing e-commerce strategies in Saudi banks. Therefore, it is important to explore the current conditions and behaviours which shape the demand for and supply of e-commerce through e-banking platforms in the Saudi Arabian banking system.

In addition to the preceding reasons, there are other important motivating factors for undertaking the research including:

- (i). to develop an understanding of the actual practice of Saudi banks and the extent of their adoption of e-commerce with e-banking services;
- (ii). to contribute to literature on the role of e-commerce through e-banking services in Saudi banks; and
- (iii).to contribute to the pool of empirical findings which is currently lacking in the

case of Saudi Arabia.

This study makes a contribution to both the academic field in general and a Saudi business practice in particular, as to date no one has undertaken research to cover the area of e-commerce with e-banking services in Saudi Arabia Islamic and conventional banks. Thus, the research helps to fill the gap in the literature of e-commerce and e-banking and the banking industry by highlighting its findings. To reiterate, there is no published study regarding to the implementation of e-commerce through e-banking services in Islamic banking in general or in particular in Saudi Arabia. The aim of the present study, hence, is to fill this gap in the current literature.

This study argues that despite the importance of the increasing role of e-commerce in the context of globalization, Saudi Arabian banks still need to improve their e-commerce and e-banking services in order to remain at the cutting edge of technology in business.

1.5 RESEARCH METHODOLOGY

The research methodology pursued in this study is primarily qualitative, as it aims to fulfil the research aims and objectives through perception analysis for which the data are collected from questionnaire and interview survey methods.

The first primary data collection phase targeted the customers of Islamic and conventional banks in Saudi Arabia, who have dealt with e-commerce or have used e-banking services, through the use of a structured questionnaire. The administration of questionnaire resulted in 250 questionnaires being returned, with 125 each in Islamic and conventional banks. These are used to assess the demand conditions of e-commerce usage through e-banking. The second data collection phase involved interviews with six respondents at the managerial level (general managers of IT banking, assistant general managers of IT banking and regional managers of IT banking) from Islamic banks and three from conventional banks. The interviews help assess the supply side conditions of e-commerce usage through e-banking.

The data obtained from questionnaires were analysed through the use of SPSS. The calculations were drawn statistically for descriptive statistics. The data were also tested by using non-parametric tests for inferential statistics, such as the Mann-

Whitney U-Test and the Kruskal-Wallis Test. In addition, logistic regression was used in this study, albeit only for one case. It should be noted that all these are explained in details in the research methodology chapter.

1.6 AN OVERVIEW OF THE RESEARCH

This research study is structured through eleven chapters.

Chapter 1 presents an overview and background to the topic, states the research problem and objectives, provides the research justification, briefly explains the research methodology employed and highlights the outline of the research.

Chapter 2, which presents a literature survey, focuses on the historical context and types of e-commerce as well as its development, modern practices of e-commerce. Furthermore, the ways in which the Islamic and conventional banks services can overcome difficulties and exploit the benefits of e-commerce and e-business are explored. In addition, it presents information about the adoption of e-commerce as a case study in Saudi Arabia, including e-services and e-banking.

Chapter 3 covers an overview of Islamic banking characteristics in general and in Saudi Arabia in particular. In addition, the chapter explores the aspects of e-commerce in Islamic law, highlighting the growth of Islamic banking and finance.

Chapter 4 focuses upon the Saudi Arabian banking environment and the current position of IT service in Saudi Arabia.

Chapter 5 focuses on the research methodology, as well as the research design employed in the research. In addition, it discusses the rationale and justification for the chosen research method and design. It explains the specific steps adopted in carrying out the data collection exercise as well as the data analysis methods. Finally, it shows the measurement of variables, as well as the limitation of chosen methodology.

Chapter 6 represents the first part of the empirical findings relating to profile analysis and also the core variables for the research by analysing the primary data of the Saudi Arabian Islamic and conventional banks by developing statistical inferences drawn using descriptive statistics, including the mean, frequency tables, standard deviations, and percentages, as well as inferential statistical analysis using the Kruskal-Wallis Test

and the Mann Whitney-U test. It also presents the logistic regression estimates.

Chapter 7 offers statistical analysis on knowledge of and motivation for using e-commerce in Islamic and conventional banks in Saudi Arabia. The chapter presents statistical analysis as descriptive statistics, as well as inferential analysis including Kruskal-Wallis Test and Mann Whitney-U Test.

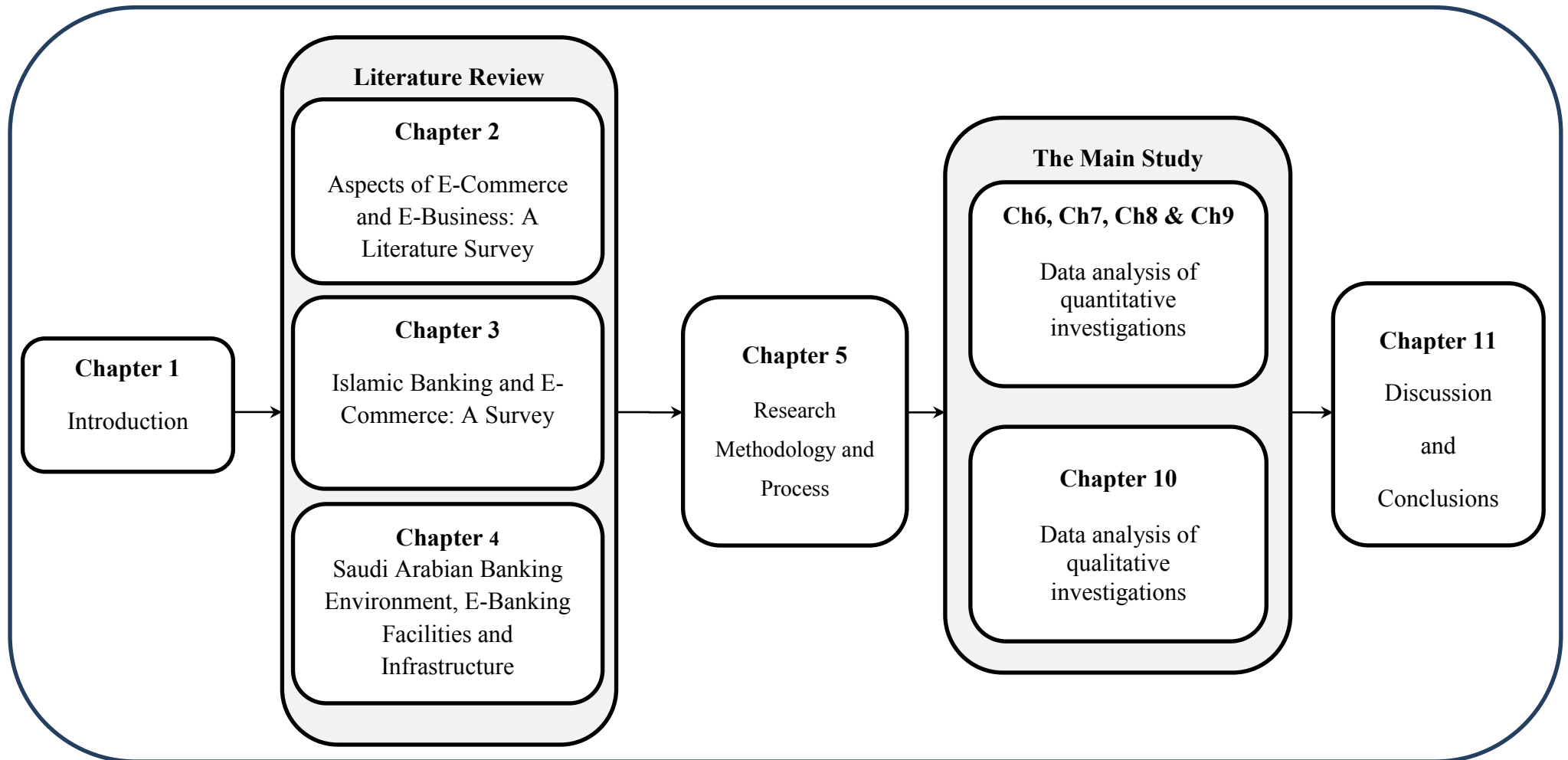
Chapter 8 offers statistical analysis on the use of e-commerce and the obstacles faced when using e-commerce in Islamic and conventional banks of Saudi Arabia. These aspects were tested through descriptive statistics as well as inferential analysis including Kruskal-Wallis Test and Mann Whitney-U Tests.

Chapter 9 shifts the empirical attention to security issues in e-commerce and e-banking in Islamic and conventional banks of Saudi Arabia. To present and test the parameters in this chapter, a similar approach to the earlier chapters was used, with descriptive statistics, inferential analysis and Kruskal-Wallis Test and Mann Whitney-U tests being adopted.

Chapter 10 presents an examination of the data developed through interviews with the e-commerce service providers in the form of IT managers of the sampled banks through a narrative and textual method.

Chapter 11 is the concluding chapter, which offers overall reflections on the results also comments on the implications of the research and recommendations. The structure and investigation procedures of thesis are presented in figure 1.

Figure 1.1 Map of Structure of thesis and Investigation Procedures



CHAPTER 2

ASPECTS OF E-COMMERCE AND E-BUSINESS: A LITERATURE SURVEY

2.1 INTRODUCTION

With the help of globalisation and technology, businesses all over the world are now seen to be taking advantage of expanded e-commerce activities (Kolsaker and Payne, 2002). Similarly, small and medium sized businesses are obtaining rapid growth by using e-commerce as a strategy (Grandón *et al.*, 2011).

E-commerce like the World Wide Web possesses many functions and facilitates activities of business trading, including internal and external processes for buying, selling, hiring, planning and many more activities. As a result, people use e-commerce globally in their businesses. However, IBM defines e-business as “the transformation of key business processes through the use of Internet technologies”. Most people use the terms ‘electronic commerce’ and ‘electronic business’ reciprocally (Schneider, 2011: 4).

Since the emergence of the internet, a revolution in the field of computerization and information technology has taken place, impacting every aspect of life. The application of the internet has helped to develop e-commerce and e-government, and it has provided the chance to deal in things in digital forms (Ahmed, 2009).

The IT technology is expanding apparently continually, the end users are being benefitted in varying ways, through business, maintaining accounts, and above all, the government departments’ data. This technology has helped the customer through online shopping, and saved time at local and international levels. The payment methods use the same technology, so in a real sense, it has implications for saving resources and expanding opportunities beyond national borders (Ismaeal, 2010).

Every era is marked by a particular technology: earlier, in the beginning of the 20th century, radio reached hardly 50 million people in over 40 years or so. The use of the

telephone took 75 years to reach 50 million users after its invention. However, since its introduction and within only 4 years, the internet had managed to break through to up to 50 million users (Wood and Smith, 2005 and United Nations, 2005).

The internet technology has created immense opportunities in the banking sector as well. In responding, the banks have upgraded their systems in terms of online banking, internet banking, or any other form of transfer, like direct debits. This saves the time of banks and also of clients. Technology has also brought competition in amongst the banks and financial institutions. This competition has now forced the bank managements to provide quality service to the customers (Ben-Jadded and Molina, 2004).

This chapter, hence, aims to present a literature survey on concepts and aspects of e-commerce and e-banking, focusing on the following issues:

- (i). to present a conceptual definition of e-commerce, and e-commerce types;
- (ii). to present information about developments in the conceptualisation of e-commerce;
- (iii). the customers' needs and wants in e-commerce;
- (iv). to highlight the importance of modern business- e-commerce;
- (v). to explain how e-commerce helps marketers;
- (vi). to discuss the role of e-commerce and e-services in banks;
- (vii). the demand and supply factors affecting the use of e-commerce and e-banking services.

2.2 THE REQUIREMENTS OF INTERNET USAGE

The users need a kind of device to communicate with the Internet (Nelson and Coleman, 2000). Such as (PC) personal computer, Laptop or mobile device likes tablet or smart phone. Also the users need an account with an Internet service provider to connect with the Internet (Nelson and Coleman, 2000; and Cadenhead, 2002). In addition, and most importantly, users need to have access to programs such as

Microsoft Internet Explorer or other internet engines to enable them to connect to the Internet (Cadenhead, 2002).

The research by ASBAR Centre (2004) found that in addition to the above requirements, the conditions for using the internet in Saudi Arabia demands the following:

- (i). Proficiency of the English language;
- (ii). Good level of education;
- (iii). Availability of internet services;
- (iv). Reasonable level of income;
- (v). The right environment to encourage users;
- (vi). Freedom of expression; and
- (vii). Availability of leisure time particularly for women.

As for English language, it appears not to be a significant obstacle as a large number of websites offer Arabic language particularly official websites; and that a big percentage of the population have a good level of education, however. The latest figures suggest that literacy rate in Saudi Arabia is 97% for male and 91% for female in Saudi Arabia (<http://wdi.worldbank.org/table/2.13>, 2015). Nevertheless, English language is presented as a second-language in almost all Saudi schools (Sait, *et al.*, 2007). Moreover, Saudi Arabia provides free education provision to all its people in the country (Niblock and Malik, 2007). For the availability of internet services, according to Plunkett (2010), nowadays the internet service has become available for almost everyone at very low cost, and that modern technology has made it easy to develop and maintain fast and cheap websites by ensuring efficiency. As for the income level, Saudi Arabia being a rentier-based welfare or distributive state (Niblock and Malik, 2007; Hertog, 2011), where the GDP per capita being (\$) 24,847, as of 2014 (http://www.opec.org/opec_web/en/index.htm, 2015).

In provision of the right environment to encourage users, the Saudi government's attempt has paid as the global ranking shows that Saudi Arabia moved from being ranked 70 in 2008 to 58 in 2010 (Al-Nauim, 2011). It is further highlighted by Al-Nauim (2011) that Saudi government has placed the enhancement and efficient

delivery of technology to end users on top of its policy agenda. According to the United Nations' E-Government Survey (2014) Saudi Arabia one of the best 20 countries in the world in providing e-services. In addition, in a report highlighting indicators of IT and telecommunications in 138 countries including 15 Arab countries, Saudi Arabia is rated fourth among Arab countries and 33rd worldwide (<http://marketpublishers.com>, 2011). Moreover, according to the 9th National Plan (2010), the scheme aims at closing the gap between Saudi Arabia and other states in terms of digital technology (<http://www.mcit.gov.sa/en/Pages/default.aspx>, 2014).

Regarding the freedom of expression, Saudi Arabia ensures that the freedom of expression and freedom of choice of religion and belief is respected without prejudice to its identity (<http://www.shura.gov.sa/>, 2015). Finally, as for the availability of leisure time for women in Saudi Arabia, according to CITC research (2009), based on main reasons for women using the internet for simple purposes like browsing, communication, getting information and for entertainment. The entertainment was a stronger reason for women in their use of internet, as they tend to spend more time on such activity than men. For more details about the provision of IT services in Saudi Arabia, see chapter 3.

2.3 DEFINING E-COMMERCE

While e-commerce is a very new aspect of managing businesses by the practice of information technology, there are several definitions offered of it. Zwass (2003: 8) defines e-commerce as “the sharing of business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks”.

Furthermore, Ruikar (2004: 2), employing a service perspective, defines e-commerce as “a tool that addresses the desire of firms, consumers and management to cut service costs while improving the quality of goods and increasing the speed of service delivery. From an online perspective, e-commerce provides the capability of buying and selling products and information on the Internet and other online services”. In supporting this description, Bidgoli (2002) defines e-commerce through its functional

meaning as the purchasing and sale of merchandise and services over the internet.

In an institutional manner, the Organisation for Economic Co-operation and Development (OECD) defines e-commerce as “the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders” (OECD, 2011:72). Gasrawi (2001) defines e-commerce trade through a functionalist approach as a commercial activity featuring distribution, marketing, selling, and delivery of goods including services through electronic means. In referring to other aspects of e-commerce, there are a number of definitions available in the literature. Chaffey (2009:10) defines e-commerce as “all electronically mediated information exchanges between an organization and its external stakeholders”. Therefore e-commerce is deemed to be the façade of e-business (Gasrawi, 2001).

Tassabehji (2003) finds three interlinked aspects of the use of the internet and e-commerce, which are: electronic trading, electronic services, and electronic support. Thus, when companies deal and trade for the purchase of physical goods; they manage to make payments and strengthen the marketing by paying the amounts which they owe during the trading process; there could be problems such as disputes between the trading partners, the electronic service provides online solutions. The third aspect refers to collaboration between or among the companies. Therefore this aspect categorically eases companies online in providing designs and in addition provides consultancy through the trustworthy teams.

As this section evidences, researchers and academicians have presented many definitions of e-commerce; however, it is simply related to conducting business through online systems.

2.4 TYPES OF E-COMMERCE

As has been highlighted by several studies, there are different e-commerce types, referring to the relationships between customers, businesses and government. Table 2.1 illustrates a summary of some of the most relevant studies that have classified types of e-commerce.

Table 2.1: Review of Research on the Types of E-Commerce

Author(s)	Comment and Categories	Definition of Categories
Kalakota and Whinston (1997)	B2C, B2B, C2B, C2C, G2C, C-Commerce, Intra-Business and M-commerce.	C2C: Customer-to- Customer; C2B: Customer-to-Business; C2G: Customer -to-Government; B2C: Business-to- Customer; B2B: Business-to-Business; B2G: Business-to-Government; G2C: Government-to- Customer; G2B: Government-to- Business; G2G: Government-to-Government; M-commerce: Mobile Commerce; C-Commerce: collaborative commerce; Intra-Business: internally e-commerce inside organizations.
Qin (2009)	B2B, B2C, B2G, G2G, and C2C.	
Schneider (2011)	B2C, B2B, BP, C2C and B2G.	
Chaffey (2009)	C2C, C2B, C2G, B2C, B2B, B2G, G2C, G2B and G2G.	
Bhalekar (2014)	B2B, B2C, C2B and C2C.	
Gupta (2014)	B2B, B2C, B2G, C2C and M-commerce.	

Source: Developed by the author.

Table 2.2 displays the outlines and the examples of transaction alternatives between businesses, consumers and governmental organizations (Chaffey, 2009:26).

Table 2.2: Summary and Examples of Transaction Alternatives between Businesses, Consumers and Governmental Organizations

From: Supplier of content/service			
	Consumer or citizen	Business (organization)	Government
Government	Consumer-to-Consumer (C2C) <ul style="list-style-type: none"> • eBay • Peer-to-Peer (Skype) • Blogs and communities • Product recommendations • Social networks: MySpace, Bebo 	Business-to-Consumer (B2C) <ul style="list-style-type: none"> • Transactional: Amazon • Relationship-building: BP • Brand-building: Unilever • Media owner: News Corp • Comparison intermediary: Kelkoo, Pricerunner 	Government-to-Consumer (G2C) <ul style="list-style-type: none"> • National government transactional: Tax -inland revenue • National government information • Local government services
	Consumer-to-Business (C2B) <ul style="list-style-type: none"> • Priceline • Consumer-feedback, communities or campaigns 	Business-to-Business (B2B) <ul style="list-style-type: none"> • Transactional: Eurooffice • Relationship-building: BP • Media owned: Emap business publications • B2B marketplaces: EC21 	Government-to-Business (G2B) <ul style="list-style-type: none"> • Government services and transactions: tax • Legal regulations
	Consumer-to-Government (C2G) <ul style="list-style-type: none"> • Feedback to government through pressure group or individual sites 	Business-to-Government (B2G) <ul style="list-style-type: none"> • Feedback to government businesses and non-governmental organizations 	Government-to-Government (G2G) <ul style="list-style-type: none"> • Inter-government services • Exchange of information

Source: Adapted from Chaffey (2009: 26).

As this table shows, online businesses such as eBay and Amazon are good examples of C2C and B2C respectively. Moreover, the relationship between government and

customers/businesses, as shown in this table, primarily relates to taxation and benefits.

2.5 DEVELOPMENTS IN CONCEPTUALISATION OF E-COMMERCE

This section aims to present the developments that have been witnessed in the conceptualisation and practice of e-commerce.

Since its evolution in the 1970s, e-commerce has developed rapidly, involving a number of distinct stages. In its early stages of development, however, the internet featured a package of communication disciplines compiled by Leiner *et al.*, (2009) as part of a programme sponsored by the US Department of Defence. Eventually, the first internet activity emerged in 1973 and was fully developed in 1983. According to Plunkett (2010), the stages for the wider spread of internet use were developed in 1993 in creating the Web, where customers could use the service for entertainment, shopping, trading and viewing published data. Finally, nowadays the internet service has become available for almost everyone at very low cost, and modern technology has made it easy to develop and maintain fast and cheap websites by ensuring efficiency.

Ariguzo *et al.*, (2006) reviewed the first decade of e-commerce, during which users were not confident about the efficiency of the internet, and considering this as a threat forced the executives to think about competitive advantage in their businesses. The scholars have provided a sound basis, where there is no way left to duplicate the work already conducted about the e-commerce models.

An important aspect of internet use for e-commerce and e-banking is the security issues, as Suh and Han (2003), who investigated the perceptions of customers about e-commerce acceptance, revealed that internet users were reluctant to share personal information to Web sites due to security issues. In their study, the statistical analysis of 502 cases showed that privacy protection had a significant impact on trusting e-commerce. Thus, the trust of customers plays a central role in keeping the customers with a bank. Mezian and Kasiran (2008) inferred that the customers, when they were asked online to provide their details in the initial stages, normally declined and did not go ahead with processing their transactions. Therefore, later a model was developed

on trust in e-commerce and the application of such models has increased confidence among customers. E-commerce provides security to its customers for all the transactions in their businesses. However, threats to its security cannot be denied (Niranjanamurthy and Chahar 2013).

It is therefore important to identify the factors that actually affect the customers' satisfaction in relation to their transactions in the banks. In such an attempt, Kumbhar (2011) gathered data from the customers of e-banks through a survey questionnaire in India. The results indicate that the majority were concerned about cost effectiveness, ease of use, problem handling, and security assurance, and that they were satisfied with the use e-banking, while contact facilities and system efficiency were of the least concern for the majority. However, overall, the customers were clear about and accepted the advantages of e-banking in India.

2.6 E-COMMERCE: TOWARDS A MODERN BUSINESS

Nearly two decades ago, the majority of people on this planet did not think the way they do today. Warkentin (2002) noted that the e-commerce was growing steadily and the internet itself was the medium to convince the customers, which paved the way for other companies to grow and compete. This made it easy for the end-users to get online access and buy everything from the smallest item to the biggest one, from groceries to airline tickets, though this had significantly impacted upon the middleman businesses. However, clearly e-payment methods become important and necessary for e-commerce activities to achieve volume online transactions (Wang, 2001).

The increasing competition and intensive processes of globalisation have given rise to electronic business. The traditional ways of doing business are no longer efficient in relation to the changing nature of buying and selling in the market as well as that of providing services. Thus, it is recognised worldwide that business development has been changed due to the application of communication technologies (Jovarauskiene, 2009).

There are several definitions offered of e-business. Chaffey (2009:13) defined e-

business as “All electronically mediated information exchanges, both within an organization and with external stakeholders supporting the range of business processes”. In a simple manner, e-business means doing and acting about the business online or in any other media but not less than the internet.

The recession of 2008 has had its effects on e-commerce, as both prices and sales were down so that companies like Amazon, known for their quality products at low prices, have managed to prosper. Yet, despite the recession internet users continued to grow worldwide to reach around 1.7 billion. In the USA the internet has become further popular and easy to use with fewer security risks in terms of business transactions. For example, in 2009 online advertising represented 10% of the total commercials in the US, worth US\$ 25 billion, and US\$ 50 billion worldwide at the same rate. The same could be said about other businesses such as online sales including travel sales (Plunkett, 2010).

The technology further helped both suppliers and customers in many ways. The marketers used e-commerce and managed the products in their outlets. The customers bought the items online which led them to save money and time. In addition, there is no doubt that the businesses gain advantages from e-commerce. The developments in e-commerce can be seen between and within countries. The technology is communicating directly by crossing all barriers, this is indeed a big breakthrough in our lives (Altiti, 2008), despite the fact that the increasing use of diverse approaches by the customers has made e-commerce highly competitive (Alotaibi, 2013).

Global competition and communication, if bridged together, could make changes and obtain benefits. To obtain the advantages of IT, Mermod (2011) concluded that globalisation did force the institutions, banks, and companies to access and practice IT communication systems. There are many reasons which govern the use of online services, but apparently competition, quality and having more customers were the main reasons. Categorically, e-commerce assists customers through enabling them to reduce costs without incurring any travel expenses. Consequently, there has been an immense impact upon businesses and many activities are now becoming available for companies, such as, marketing services and advertising, various banking services,

health services, money markets and stocks, tourism, travel and hotel services, and others (Altiti, 2008).

Kraeuter (2002) illustrated that scepticism and suspicious attitudes are threats to the use of e-commerce. This is causing hindrances to the companies as well as others. Therefore, it is important to analyse the role of consumer trust for diffusion of e-commerce. However, it is simple and recognizable that the trust of the customers is going in disarray, and needs to be built by proving services, not through the fake communication. The internet firms can use certain facilities and instruments, to build and maintain the confidence of the alienated customers.

There are many examples and cases where the customers have faced problems and issues. There is one clear example: when users buy online programmes, what specifications are provided and in what ways does the web site guide, or misguide. In the case that the users do not get answers to their hidden questions, how would the efficiency and reliability of the surfcasting survive? The companies take the details and process the payments; this is an easy and balanced procedure, failing in that, would be a failure of the system. The users face risks on one side, whereas the companies take risks from the suppliers as well as from the customers. Therefore a viable mechanism is highly needed.

Surjadaja *et al.*, (2003) discuss the growth of the internet, and how the service companies can extend services. In broader terms, quality in competition makes tremendous changes. The overall issue refers to reducing the costs to the customers but through efficient services. The results argue that the companies should create e-service operations. Sweeney (2007) argues that the previous century was the period when the technology forced the planners to accept changes and act competitively in order to be in the market.

Treese and Stewart (2003) have reported on the issues of business in relationship to internet commerce. They found that the use of the internet, from the businesses' perspective, generates more revenues, and that this is inversely related to the customers' interests. The obvious problem that triggers the business might be the

application of technology. The technical knowhow is important; if the applicants are not well aware of the ongoing technologies, this increases the danger of the wastage of resources.

The technologies in relation to e-businesses have their uniqueness in dealing with the opportunities, including handling of challenges in the business; the main idea of this approach refers to the nature of the business, not the size of the firms/organizations. However, Abu Abid *et al.*, (2011) concluded that SME suppliers needed to gain assurance so they could use e-business technology with full confidence and commitment. The results noted that indeed the SMEs did have impediments and that there was a need to help the SMEs so that they could take full advantage of e-business technologies. The suppliers were well conversant with the e-business benefits beyond just cost saving.

2.7 E-COMMERCE AND E-SERVICES IN BANKS

Due to the internet and advances in IT including telecommunications, there have been undoubtedly significant impacts upon the financial markets. Obviously, those who use the transfers, make payments online, or pay the bills of utilities are in few a numbers compare to those who go to banks.

E-banking services are the most important pillar of e-commerce because without e-payment mechanisms, which are carried out through e-banking services, the commercial transactions could not take place (Al Saud and Abdallah, 2004). There is a wide range of e-services offered to the users through the internet in relation to banking, finance and commerce: banking, loans, stock trading, *etc.*

There are many benefits where banks are the most advantaged by the use of internet banking. Firstly trust in banks themselves as reliable service providers is being built. It is noticeable that banks' own staff's capabilities have been increased through the understanding and application of technology. The next benefit concerns the leadership in the financial markets, as those who adopted technology first will always remain in the main stream of competition, as electronic services are bringing more customers and hence more profits than before (Luššik, 2003).

Enders *et al.*, (2006) found that financial services providers were innovative users of IT in their business. The banks have been using IT to increase their efficiency on the one hand through improving the customer services and creating competition, but also the results indicated that the banks were using IT in the financial applications. For example Nordea Bank, in Stockholm, Sweden, augmented e-services and e-business for differentiation. However, it is worthwhile to note that there were seven lessons that are IT initiatives with a modest investment, combining of high tech and high touch, existence of technologies and their use, as well as other lesson which are closely related clearly to customer services. Nevertheless, the use of IT encouraged the managements in the banking system to introduce e-services for the customers. It having been known that there are crucial factors that are being encountered by the e-services, scholars like Al Saud and Abdallah (2004) presented a framework that can address such issues within the banking system. They described a number of things related to e-commerce and e-businesses, country, brand and culture. Therefore a framework was suggested to implement an offer of e-banking, and how the banks can develop their capabilities, and in what ways the users can be benefitted.

The introduction of the internet into business, particularly e-commerce, marks a new era of fierce competition in trade worldwide. However, with regard to internet banking many studies have been conducted to verify its effectiveness in the world of business (*e.g.* Aldawani 2001, Lušćik 2003, Luis 2008, Ismaeal 2010, Al-Majali 2010 and Alotaibi 2013).

The banking activities have been greatly influenced by the technological advance, so that banks have to cope with the challenges associated with the new technology. Electronic banking has made it possible for banks to extend their services beyond time and space. They can effectively provide direct services at the minimum cost possible. On the other hand, clients have got options to choose the appropriate channel to receive the appropriate service. Moreover, through electronic banking fast money transfer has become possible locally and abroad. Thus banks have become increasingly dependent on technology in order to survive in such a competitive environment (E-Banking Rules, 2010).

There are several definitions offered of e-banking. The Basel Committee Report on Banking Supervision (1998) (as cited in Ben-Jadded and Molina, 2004: 91) defines e-banking as

“the provision of retail and small value banking products and services through electronic channels. Such products and services can include deposit-taking, lending, account management, the provision of financial advice, electronic bill payment, and the provision of other electronic payment products and services such as electronic money”.

Abu Farwa (2009) perceives those banks as electronic means for transferring traditional and modern banking products and services to clients through the internet. By doing so, they provide their clients with easy access to their accounts, and enable them to acquire information without the need for physical movement between the branches of banks. Similar definitions are also provided by Al-Wadi *et al.*, (2014) and Nitsure (2003:5377), each of which refers to the provision of financial and banking services through online systems. Within the Saudi Arabian context, SAMA defines e-banking as electronic banking services provided and sanctioned by banks or their representatives through systems directly controlled by the appropriate bank or otherwise by another body in accordance with the terms of an agreement between the two sides (E-Banking Rules, 2010).

Basically the internet assists the electronic communication between the customer and the bank, and therefore e-banking is explained as the activity which provides the chance for the seller to receive his/her money through this service. The e-banking helps many customers in transferring their payments and directly assisting the businesses in terms of cash and kind. The banks have been offering many opportunities and facilities to their customers such as online security, credit cards, online accounts, online bank statements, and online payments to third party.

In relation to e-banking services, banks have faced many layers of problems, such as how to take advantage of the technology, including introducing e-developments to their customers, and how to build the confidence of the customers. It should be noted that e-banking reduces the transaction costs in the shortest time, including transforming the banking system in a very highly competitive environment.

Quality of services remains important, in adopting e-services. Similarly, Raman, *et al.*, (2008) investigated the role of internet banking while focusing on e-service but on the basis of quality. The results suggested that there were remarkable differences between the internet banking users and non-users among the Malaysian customers. However, the majority of customers preferred quality from e-services; if this is not provided, then it is likely that customers might not adopt internet banking. In addition, Hway-Boon and Yu (2003) studied e-channel success factors in the Malaysian banking sector, and their findings suggest that the bank management is only responsible for the success of ATMs, personal computer (PC), knowledge development and innovation of new products. It should be noted that there is an increasing popularity of e-channels provided and managed by the banks.

A number of studies have shown that technological accessibility and awareness of it can change the attitudes of people towards adoption. For example, Al-Majali and Nik (2010) in their research on Jordanian banking found that the technology would be adopted if there were certain attitudes and behaviours that could be accommodated by the customers. Earlier, Aladwani (2001) noted that online banking was the quite new delivery channel for retail banking services. In his study of banks executives, IT managers and customers, Aladwani found that infrastructure, skills and confidence could bring changes in the online banking sector in Kuwait.

In addition, Kadir *et al.*, (2011) tested the impacts of service quality upon the customers, where data from a large number of respondents in Malaysia was gathered. The main question in their research was about the satisfaction with the use of ATM online. As a matter of fact, this research focused on service quality in relationship to the satisfaction of the customers, and what their expectations were. There were varying responses from the respondents, but still overall results indicate that the majority remained highly satisfied.

In an earlier study, Altintas and Guesakal (2007) explored the internet banking in Turkey, where phishing attacks and internet fraud were the issues to be tested among the respondents regarding service quality. Their research noted that the theft of personal details of the customers was the reason that the customers lost their

confidence in using IB services. However, it is important to note that the majority of customers experienced problems during money transfers, and this was due to the internet fraud.

In the last few years, the internet economy for business using web portals has spread vastly and there are advantages and disadvantages of practicing or using a technology. However, there are only a few attempts at the study of the gross impacts of the internet in the economic arenas. The main aspects that persuade users to adopt internet technology are security and trust, cross buying services and transactions support and the quality of the service provision. There is still a need to determine the problems associated with the services provision. This all requires building the confidence of the customers while offering the internet economy (Bauer *et al.*, 2005).

The survey results of Yee and Faziharudean (2011) indicate that trust, habit and internet reputation were the factors which prevented the customers from using the services. However, reputation was the strongest factor compared to habit and trust. Service quality remained highly important as it could attract and convince the customers to use the service, but did not have a significant effect upon the customers; it means the need to change their way of working.

Claessens *et al.*, (2002) in exploring data from World Bank found that in the USA 56 % of the total clients traded by the facility of online trading and banking *vice versa*; Sweden is the second in the list, while South Koreans were at the top in dealing and handling trades through online trading, as there 65% of customers/traders used online trading. The study also suggests how the banks in USA and South Korea, where the traders have a trust and confidence, upgraded their systems. With regard to security issues, Furst *et al.*, (2002) in their study highlight the significance of the internet banking, and further advocate that the clients must take into account their details. They found out that some of the clients did face many problems and instead of being the beneficiaries they were the victims of using the internet banking. Hence they suggested that the clients be provided with some kind of programmes or software so that they could trust and benefit from internet banking.

Allen *et al.*, (2002) emphasise the importance of security and legal issues, pointing out that the private companies providing services to the banks or financial institutions must observe the laws. Their services particularly should be very reliable and the company's data be also protected. The companies can get more business if the company reputation is maintained. Otherwise, the investors would stop dealing in e-finance, and eventually the loser would be e-finance by missing a customer in the competitive market. By the laws of the land, irrespective of place, e-finance and IT companies must be answerable to their counterparts, who are their clients. The use of IT and its validity in the e-finance aspects could bring more people as new investors.

2.8 DEMAND AND SUPPLY FACTORS AFFECTING THE USE OF E-COMMERCE AND E-BANKING SERVICES: A SURVEY OF EMPIRICAL STUDIES IN GENERAL AND IN THE CASE OF SAUDI ARABIA

This section briefly highlights the demand and supply factors affecting the use of e-commerce and e-banking services in general and in particular relating to the case of Saudi Arabian case studies. In fact, the link between e-commerce and e-services is very clear and important; without e-payment, e-commerce would not be possible (Al Saud and Abdallah, 2004).

2.8.1 Demand and Supply Factors Affecting the Use of E-Commerce and E-Banking Services

As regards the demand side of e-commerce and e-banking services, the access to the internet has given rise to the customers using the internet to find options available for them. In reality, this is more related to the customer's experiences, where e-services, e-payments, and e-transactions are managed. However, the role of e-service is directly related to B2C e-commerce. Hence, quality can be managed by bringing B2C e-commerce closer to the customers (Singh, 2002).

As an empirical study to measure the demand side related issues, Flavia *et al.*, (2004) studied the impact of internet banking, based upon whether or not the banks are using it or the clients in the banks are provided with the facility of internet banking. The results indicated that internet banking requires a multidimensional approach, which

makes the client happy, and that his/her security should also be protected, and it was found that saving time and facilitating shorter processes should be considered as important contributions and benefits of the e-banking.

Liao and Wong (2008) studied the determinants of customers' demand conditions for e-banking services, which showed that there were significant variations among the customers regarding ease of use, security, convenience and responsiveness in internet-enabled e-banking systems. The factor analysis indicated that the customers' concerns were relevant and reliable; however, a prompt response to them by the e-banking sector can encourage the customers to use internet banking services.

Customer satisfaction is important, when judging the efficiency of any new technology. Though e-service is now quite an old concept in the western world, this is still new in the developing countries. Nasier *et al.*, (2010), in an empirical study in Jordan, attempted to explore the effects of e-banking service quality on the customers' satisfaction. In their research, they obtained data from 457 customers who had made transactions through e-service. The research results indicate that the customers trusted the websites and used them without facing risks and that they were satisfied with the e-services extended by the Jordanian banks. In addition, Estonia banks when adopted the technology did achieve significant success and the customers for the banks are satisfied in having e-banking and the efficiency of the services is acceptable. The technology advent has attracted the customers in a different way, where people are using mobile –banking, and this is getting highly popular (Luššik, 2003).

On the supply side, e-commerce can save money, increase efficiency and protect the brand image. This can take place in a controlled manner so as to transform the image of the item into the digital form, and even more importantly, the system is capable of fully recovering the original image with all the important features through the internet (Gasrawi, 2001).

Ahmed (2009) stresses for the use of e-commerce, as it offers much greater benefits. This way is comparatively cheap, and runs around the clock, at 24\7. The companies across the borders just need to know the difference of time and get accessed by this

link. The networks supply enormous information to the shoppers and including marketers. This builds the good relationship with customers and they can have more options. Most of the companies did have tremendous benefits.

Magutu *et al.*, (2011) in their study found that the three important reasons for which the banks started using e-commerce were globalization, collaborations, and technologies. The research targeted the question of why the Kenyan banks were not implementing the technologies in their operations. The results also showed a low level of technology adoption in the majority banks, who, on the demand side, found that though there were many factors, customer service, confidence, and trust were the dominating factors. They also noted that the laws of the land were the incentive for banks to introduce changes, including non-reliability of the telecommunications.

2.8.2 Demand and Supply Factors Affecting the Use of E-Commerce and E-Banking Services in Saudi Arabia

In consideration of demand for E-commerce and E-banking services in Saudi Arabia, according to SAMA (2013) Saudi Arabia ranks at the top in the field of information technology amongst the Arabian states. In addition, Bahaddad *et al.*, (2013) stated that 54% of Saudi companies have websites to present their products. In further providing evidence, Al-Somali *et al.*, (2011) conducted research about the Saudi SMEs' adoption of e-commerce, which showed that the level of adoption of e-commerce has not reached to an acceptable level of maturity. The results tend to emphasise that there is a need to improve internet shopping in Saudi SMEs. However, the level of adoption in the Saudi context is not comparable to that in the other regions of the world. Furthermore, Elseoud (2014) has focused on national economic growth from 2001-2013 and found that there is a need to increase investment in the infrastructure, to have more users of the internet, and to offer more credit cards to the users in Saudi Arabia.

In an earlier study, Shafi and Forde (2001) assessed the impacts of internet technology use in Saudi business organisations, through a quantitative approach based on a questionnaire covering 450 business organisations. The results revealed that internet

use among the businesses was growing rapidly, and indicated that there was potential to grow more in days to come. The results further indicated that the Saudi businesses used the internet for the usual tasks, which was restricted to communication and obtaining information. He found that Saudi businesses were less likely to use technology in sales and purchases due to major issue related to security and access to the internet. However, it should be noted that observation at the present time shows that he has been proved to be wrong.

Verily, Al-Hudhaif and Alkubeyyer (2011) have noted that internal and external factors were the obvious reasons for not adopting e-commerce technologies in some sectors. However, Eid (2011) argues that the long term growth of the business is closely associated with the customer trust, satisfaction, and loyalty; and noted that these factors are equally important in building the confidence of the customers. In addition, the B2C approach also suggests the use of technology for customer satisfaction.

In addition, Information and Communication Technology (ICT) adoption has become one of the key factors explaining growth discrepancies across the world in general, but particularly in Saudi Arabia. It is argued that investments in ICT can increase economic growth (Al-Maliki, 2013). Moreover, Ahmed *et al.*, (2006) did investigate the global benchmarking for internet and e-commerce applications in Saudi organisations and found that the Saudi organisations faced a number of issues, such as reliance upon the face-to-face contact, charges for using services being too high, mismanagement of information, lack of management commitment including the need to have reliable technical support, as well as understanding of information technology. The authors have recommended that these issues need to be considered by the executives in adopting e-business to maximise the opportunities.

A decade ago, it was envisaged seriously that Saudi Arabia must use the IT services in its commercial sectors, such as banks, education, health and retailing. Therefore a study was undertaken by Al-Sudairy and Tang (1999), wherein IT in Saudi Arabia's supermarket chains was evaluated. With the expansion in population, Saudi Arabia's small corner shops turned into big food stores and then stores were replaced by the

supermarket chains. The needs and requirements of the consumers were increasing, and this convinced the managements in the retail industry to act quickly and differently. They found that the Saudi supermarket chains were using IT in their operations. The results suggest that there was a lack of technical infrastructure, and that this was due to shortage of technical staff. Therefore, Saudi companies were recommended to make a decision on poor infrastructure and staff shortages.

Almogbil *et al.*, (2005), while researching the adoption of online banking in Saudi Arabia, observed that security perceptions were unclear among the users. The users who had enough education to deal with the online banking were not confident. The other issue to note is that knowledge of how to use the internet is not necessarily satisfactory among the customers in Saudi Arabian banks. The poor and weak infrastructure including higher costs of using the internet contributed to not attracting account holders to use online banking. The interesting results of the research investigation though are contrary to the pedagogy theories as those who are highly educated are generally more concerned with security, cultural and social issues. The conclusion drawn here is that there have been indeed constraints regarding the banking system in Saudi Arabia due to the existence of Shari'ah law.

In another study, Al-Gahtani *et al.*, (2007) expanded that the cultural differences and the similarities between North American and Saudi Arabian customers' validations of the unified theory of acceptance and use of technology (UTAUT). The main findings indicate that IT in the organisational perspectives entirely affected both societies in terms of cultural differences. In diversifying economic activities, the Saudi government took some concrete steps in establishing an information technology sector to facilitate B2C and B2B for increasing market systems. The Saudi annual growth rate in e-commerce is still steady and could only target 0.04% globally (Elseoud, 2014).

To establish an e-commerce society in Saudi Arabia, the government introduced another reliable service, the 'e-mall' service, which is offered by the Saudi Post in both Arabic and English languages. The users are from different countries, cultures and professions and the service is meant for buying and selling products under strict

surveillance. The service also manages the issues of shipping and payment with the following goals (<http://www.e-mall.com.sa/english/pages/default.aspx>):

- (i). The service provides quality and reliability to the customers through the website especially as;
- (ii). The website satisfies the needs of customers ranging from clothes to electrical appliances;
- (iii). The website arranges delivery of purchased commodities with details of prices.

In further exploring the Saudi context, Sait *et al.*, (2004) illustrated that a clear concept of e-commerce is important, as its misunderstanding could not benefit the business and market models. His results indicated that the government of Saudi Arabia fully recognises the importance of e-commerce with the objective of linking businesses to e-commerce.

In an attempt to develop an informed understanding and provide empirical evidence, Ben-Jadded and Molina (2004) conducted a research on the role of online banking in a commercial bank, namely Samba, in Saudi Arabia, the results of which clearly showed that the bank had been using all external technologies to make their customers satisfied. The Samba administration's pivotal role in the inter-organisational aspects shows balance, and the purpose was to strengthen the abilities and capabilities. The results also indicate that the bank did change gradually in response to rapid developments of increasing internal capabilities. In an inference, it can be seen that the Samba group firstly implemented the inter-organisational developments and then assisted in providing the services to their clients in the country. It is also worthwhile to see that initially Samba group installed 24/7 ATMs in the different cities throughout the whole country.

Sohail and Sheikh (2008) explored how banks provided online banking and their results showed that there were four factors which had an impact, efficiency, security, fulfilment and responsiveness.

Al-Somali *et al.*, (2009) concluded in their study that Saudi Arabia was a leader in the

region for internet banking, but recognized that the banks had to do more on improving customer relationships. The study explored the factors that motivate customers to adopt online banking. The research focused upon the technology acceptance model (TAM), including control variables alongside the motivational factors such as internet quality, awareness of online banking, social influence and computer efficacy. The results indicated that the pre-mentioned factors had significant effects on the functioning of online banking among the customers.

2.9 CONCLUSION

The technologies have broken down the barriers and virtually this can be witnessed across the national borders in relation to the business world. The increasing importance of e-commerce has forced the banks around the world to assist the traders, account holders, and other clients to create reasonable, dependable and sustainable services. The increasing needs of market, marketers, and consumers basically have added fuel to establishing the e-banking.

This chapter has explored e-banking services and e-commerce to show their increasing importance, as the majority of businesses now are using online business models. This way the customers or users are dealing with the traders either through online banking or finalising deals through the use of e-mail. The IT companies on the one hand help the banks, traders and customers, and on the other hand these companies are contributing towards the national outputs.

It should be noted that e-commerce has a positive role in developing, establishing and creating opportunities for businesses. However, the success rates of e-commerce might vary between the developed and developing countries as this chapter has shown, the growth and development of e-commerce in Saudi Arabia has been recently remarkable due to the development of telecommunication networks as well as banks having been mobilised to furnish the demand from e-commerce customers.

CHAPTER 3

ISLAMIC BANKING AND E-COMMERCE: A SURVEY

3.1 INTRODUCTION

The period when scholars were deeply concerned with jurisprudence of business transactions (*fiqh al-muamalat*) is considered as the heyday of the financial system in Islam. That period started from the days of the Prophet Mohamed until 1492, an era which marked the end of the Andalusian legacy (Millar, 2008). Even today, what is known as *fiqh al-muamalat* features all the laws which organize economic and business relationships between people within the framework of the Islamic financial principles and this provides a strong base for modern business transactions.

Islam, as a religion, has specific implications for business transactions through Islamic law or *Shari'ah* law, which forbids interest (usury) in order to avoid exploitation and unjust dealings, whether the beneficiary is the lender or the borrower. *Shari'ah* law also restricts some business activities which are considered illegal according to Islamic standards. Nonetheless, the general rule in *Shari'ah* is that every economic activity is allowed as long as it does not explicitly contradict *Shari'ah* law (Millar, 2008). On the other hand, Roy (1991), in providing a social justice based perspective states that, by restricting usury (*riba*) and its associated practices the Islamic system tends to protect the poor from exploitation by the rich, which sooner or later would lead to social instability. Islamic Banking and Finance (IBF) has become popular throughout the globe in recent years after having emerged in the 1970s from the foundational discourse of Islamic moral economy (IME). This is basically a modern way of explaining the rules and guidance related to economic and financial procedures, including contracts and other workable choices. The main principles that maintain and regulate the IBF are enshrined in the Holy Book of Islam, the Qur'an, and other epistemological sources such as *Hadith* and *Sunnah* of the Prophet Muhammad, his sayings and legacy. Therefore, IBF has to comply with these three sources (Asutay, 2010).

3.2 DEFINITION OF ISLAMIC BANKING AND FINANCE

There are several definitions offered for Islamic bank. Al-Magribi (2000) defines an Islamic bank as an economic and social organisation dealing with money and providing banking services to facilitate the flow and investment of money in accordance with Islamic principles. Eagle (2009) defines Islamic banking as being synonymous with full reserve banking while being Shari'ah compliant, which includes the prohibition of the practice of *riba*, and Al-Rufai (2004) defines an Islamic bank as a banking organisation dealing in interest-free transactions. In other words, Islamic banks neither pay their clients any interest for making deposits nor do they take interest for loans. Furthermore, in referring to the nature of the law they follow, Al-Wadi *et al.*, (2014) defines an Islamic bank as a financial organisation, which observes Shari'ah law in all its business and investment transactions. This definition is further referred to by Al-Tayar (1994) who views an Islamic bank as any organisation that performs banking activities on the basis of Shari'ah law. Islamic banks, hence, are considered unique compared to other banks as they exclude interest from their transactions, and instead social responsibility becomes their main concern as the theory of Islamic moral economy suggests.

Hence, overall there are many characteristics of Islamic banking and according to Al-Tayar (1994) and Asutay (2010) the most important are as follows:

- (i). Interest-free transactions are unique to Islamic banks;
- (ii). They focus on development through investment. Compared to commercial banks, which provide loans for interest, Islamic banks invest in various ways, e.g. direct investment or investment through partnership whereby the bank becomes a partner in the business by sharing its profits and losses; thus, IBF operations are marked with profit-and-loss sharing, and hence risk sharing mechanisms;
- (iii). The role of money in Islamic banking is not to be created through a credit system, which offers another rationale for the prohibition of interest;
- (iv). The principle of profit-and-loss sharing is considered as an essential part of theoretical imagination of Islamic banking and finance, in which the risk

emerging from the business is shared by the lender and investor (depending on their contribution to the capital);

- (v). Arising from profit-and-loss sharing is the principle of shura, where capital and labour are merged to establish a consultative method of governing the business;
- (vi). Consequently, the principle of gharar prohibits speculation and gambling in business; hence, in short, IME based on Qur'anic injunction allows trade but prohibits interest.

With regards to the differences between IBF and conventional finance, Hanif (2011) argues that Islamic banking is not an exact copy of the conventional banking system, and that conventional banks increase their assets through interest-based transactions, whereas Islamic banks operate on a profit and loss basis.

Abdul Wahab *et al.*, (2014) offer a comparative analysis of Islamic and conventional finance systems and show that there are significant differences between the two systems. This is due to the role of Islamic finance, which acts as an alternative to the conventional finance system. However, it cannot be over-emphasised that Islamic finance is governed by Islamic law and finance cannot be provided for any products prohibited by *Shari'ah*.

To sum up, based on what has been stated earlier, whilst the conventional financial system is based on the so called “rationalist” school of thought, Islamic finance is primarily derived from “moral” economics (Asutay, 2010). The economic morality law upon, which Islamic finance is based, follows the principle of socially optimum production rather than speculative rule, which is common in the conventional system of finance and banking.

3.3 FOUNDATIONAL PRINCIPLES OF ISLAMIC BANKING AND FINANCE

Prior to discussing the Islamic principles, it is essential to understand how Islamic economies work. From the Islamic perspective, all property belongs to Almighty God, and Muslims are obliged to obey the *Khilafa*, and are ultimately accountable to Allah for their assets and how they manage them. In Christianity, a similar idea that corresponds to Islamic law is stewardship (Wilson, 2006).

Asutay (2008), while discussing IBF, presents the following as the foundational principles of Islamic moral economy informing IBF:

- (i). *Tawhid* is the most important aspect in practising belief in the oneness of God, therefore during economic and financial activities, one must take this into account;
- (ii). *Al-adl wa l-ihsan* means that when someone gives something, the receiver must recognize this in her/his heart. It also teaches justice while dealing with money matters in the banks;
- (iii). *Ikhtiyar* is a very specific aspect, which means one has the right to return the purchased commodities, and specifically this is concerned with free will;
- (iv). *Fard* highlights the responsibilities of the individual during financial and economic activities;
- (v). *Rububbiyyah* relates to nourishment and sustenance. Those who deal in Islamic finance must recognize this, and if they do then they are unlikely to become the victims of wrongdoings;
- (vi). *Tazkiyah* focuses on those who take part in financial and economic activities dealing with issues with ethical and moral considerations;
- (vii). *Khilafa*, is the representative of God, and hence should act in a balanced way.

The understanding of the above activities is not a simple matter and anyone wishing to do so need to be aware of the laws and rules mentioned in both the Qur'an and the Hadith.

As for Islamic finance, it is based on principles featuring Islamic economy defined by Mahmoud (2000: 18) as "the economy based on the principles of Islamic *Shari'ah* as defined by scholars". These principles should control economic practice between individuals which is a combination of economic behaviours and Islamic moralistic behaviours which favour social welfare (Mahmoud, 2000).

In essence the principles may be summarized as follows:

- (i). All people are born equal;
- (ii). Although people vary in terms of their earnings, everybody has the right to work;

- (iii). Apart from the principle of class struggle, people should cooperate with each other;
- (iv). Spending of resources should be rational;
- (v). The idea of ownership in Islam is socially oriented, which means it aims for the welfare of individuals as well as the society at large;
- (vi). Economic freedom in Islam is restricted in a way that favours individuals but at the same time does not harm the society;
- (vii). Economic development is encouraged based on the principle of the fair distribution of wealth.

Al-Tayar (1996) on the other hand, indicates that the Islamic economic system seeks *falah* or happiness for all individuals as it is based on the principles of social good and justice with social care and attention to community, mutuality, redistribution and charity. In his view, the Islamic economic system should be based on the following principles:

- (i). Private ownership should be allowed for all individuals;
- (ii). Every individual has the right to spend his wealth in a way that generates more profit for him, as long as his behaviour is legal and does not in any way go against *Shari'ah* law;
- (iii). The rich have to allocate a certain share of their wealth to help the poor;
- (iv). The rich should always be encouraged to spend money for charity with the promise that they will be generously rewarded by God.

According to Mahmoud (2000), the most significant feature of the Islamic financial system is the fact that money should not be hoarded by individuals, but should rather be spent for the welfare of the society. For this reason people are encouraged to develop their wealth as that will be to the benefit of the society through creating jobs. Hence, Islam always makes it incumbent on individuals to observe Islamic principles regarding money in terms of earning, investing and spending. These principles include the following points:

- (i). One should not exploit others nor harm their dignity as humans;
- (ii). Wealth should circulate rather than remain confined to a few individuals;

(iii). Any surplus should favour the society at large.

The three financial features prohibited by Islamic finance are *riba* (interest), *gharar* (uncertainty, risk, and speculation), and *maysir* (gambling). Islam embraces profit and loss but rejects interest-based economies. Islamic finance satisfies investors and then expects them to invest their money. While encouraging profit, Islam places emphasis on the premise that profits from immoral activities are not allowed (Rehman, 2010).

Shanmugam and Zahari (2009) argue that Islamic banking brings communities together so that people feel ethically and socially equal and take part in its activities. The following form the main principles:

- (i). Free from *riba*: The Qur'an states, 'O You who believe! Fear Allah and give up what remains of your demand for usury, if you are indeed believers';
- (ii). Risk-and-return sharing: Islam clearly maintains that mutually agreed business/shares is the way to avoid risks, and beyond this it is not permitted;
- (iii). *Shari'ah*-approved activities: Islamic banks only fund those activities in which basic rules remain intact;
- (iv). Sanctity of contract: Islam regards the contract as highly important, but it must be signed in the presence of witnesses;
- (v). Avoidance of *gharar*: Islamic *Shari'ah* clearly suggests that open, not hidden trade is allowed. Basically visibility and quality control remain pre-requisite to trading.

In critically reflecting, Asutay (2010) maintains that the last three decades have shown tremendous changes in IBF operations. This fact has been acknowledged by global economic players, including international financial institutions, and refers to the application of basic principles for the customers of Islamic banks. Following in the footsteps of commercialisation, the IBF has seriously looked to increase the efficiency and profitability of its existing projects. In reality, there is an urgent need to shift from the existing paradigm towards the highly trustable, dependable and sustainable future of the IBF, as Islamic finance is no longer seen as an alternative system but has now become part of the global financial system in the form of heterogeneous products. In sum, there is a difference between theory and practice of Islamic finance; as

mentioned, the practice of Islamic banking resembles ‘commercial banking’ as usual, while the theory essentialisms individual and social development, social justice, environmental concerns, good governance practices etc. The observed divergence between the imagination and realities of Islamic finance has led to the emergence of debate simply summarised as ‘Islam based Islamic finance’ vs. ‘*Shari’ah* based Islamic finance’.

3.4 ISLAMIC COMMERCE AND E-COMMERCE: *SHARI’AH* AND FINANCIAL ASPECTS

According to the Islamic business concept, Muslims must practise basic regulations in any trade. As stated in the Qur’an, “God has permitted trade and forbidden usury. Those who after receiving direction from their Lord, desist, shall be pardoned for the past; their case is for God; but those who repeat the offence are Companions of Fire: they will abide therein forever”. From this it is clear that Qur’an regards trade and business as lawful and beneficial, both for the individual and for the whole community/society, country/nation, but that it should be fair trade, based on honesty in dealings (Zainul *et al.*, 2004).

3.4.1 E-Commerce and E-Business in Islam

Islam has its own business ethics, which govern all aspects of business as well as everyday life. Within the ethical framework of Islam, trade takes place through mutual consent in the market, with an emphasis on contractual certainty, and directly facilitates openness and eliminates ambiguity (Wilson, 2006).

Among other Islamic scholars, Al-Zahrani (2009), Al-Ajluni (2002), Al-Momani (2004), Bakar and Jafar (2000), and Al-Zuhaili (2001) issued rulings and explored the matters in relations to the necessity of understanding information technology. IT is becoming relevant to both small and large businesses, therefore to meet the customers’ needs the scholars made certain rulings which are in line with *Shari’ah*. By making sure that e-commerce as a model is *Shari’ah* compliant, people in many countries, including Saudi Arabia, can take advantage of technology by using e-commerce banking (Ben-Jadeed and Molina, 2004).

Amin (2008) discusses e-business from the Islamic perspective with particular focus on e-business concepts and the legality of e-businesses, focusing on the Malaysian environment, where he infers that e-business is performed within the framework of *Shari'ah* Islamiyyah. In addition, he also notes that, in accordance with the religion of Islam, transactions are free from *gharar* and deceit. In addition, Amin (2008) mentions four factors that make Islamic e-business successful. The first refers to *homoIslamicus* (Islamic man) as opposed to *homoeconomicus* (economy man) in expanding Islamic e-business, indicating that being a morally motivated individual is the essence of Islamic business. The second concerns the way in which the business environment can affect Islamic e-business, referring to the importance of large stakeholders in the society. The third relates to the application of rules and regulations, as Islamic e-business must be practised strictly to ensure successful, but most importantly *Shari'ah* compliant, transactions. The last one relates to the role of governments, in that governments should encourage the people to use e-business opportunities due to its safety and, above all because it is without any wrongdoings according to Islam (Amin, 2008).

Hence, in reflecting, e-business is related to trade and under Islamic laws trade is permitted but through clear and visible means. This means it should be dealt with according to Islamic principles. In Islamic business, as the *homoIslamicus* concept suggests, Muslims should be honest, faithful, and God fearing. The Qur'an not only permits and allows individuals to be productive, it also enjoins them to as a responsibility upon Muslims. For example, to avoid any wrongdoings, Islam advocates writing a contract in business in the presence of witnesses (Zainul *et al.*, 2004).

In addition, people who want to enjoy the benefits of information technology have the opportunity now to remain competitive in the market. There is another impact of e-commerce banking, that trading is equally trusted and its functions clearly target customers across the globe. People's needs are increasing and companies are procuring goods for people simply through accessing web-sites and making payments (E-Banking Rules, 2010).

Due to the recognition of IT in respect to businesses, companies need to have strong rules where Muslims can also obtain similar benefits. Accordingly, the Accounting and Auditing Organization for Islamic Finance Institutions (AAOIFI, 2010) has provided easy and trustable solutions to facilitate e-commerce through e-banking.

Since in Islam anything is permissible or *halal* unless prohibited by *Shari'ah*, after lengthy deliberations, dealing with business by internet is considered as *Shari'ah* compliant by the verdict given by *Shari'ah* scholars. Thus, commercial dealing via the internet has been accepted, and consequently, AAOIFI (2010) established standards, each one labelled by number; for example internet dealing in money matters is standard number 38, under which one can design a business website, with the sole condition that no objectionable materials are used which are against Islam or Islamic laws. One can make a financial contract on the internet by chat or e-mail or by accessing websites. Again there is a pre-condition that it should be *Shari'ah* compliant. Identification can be verified through electronic signatures, with the additional condition that adaptation of signatures should be governed by corporate laws.

One of the most eminent scholars, Saleh (1992), explains how *Shari'ah* law works with the Islamic banking sector. From the Islamic perspective, it is a pre-requisite that each transaction should be fair, free, and balanced. Therefore, it is vitally important that the banks deal according to these conditions. The *Shari'ah* Law of Contract states that the parties involved in any contract are free to understand and implement the ways and procedures presented, which also ensures that no party should suffer due to the *Shari'ah* implications. In addition the law further considers that transactions are protected from *riba* and *gharar*. The legal system fully supports the people and the people are free to take/borrow funds from the banks as has already been exercised by small and large businesses. Over time, various Islamic scholars have declared their support for the introduction of IT in banking, but have made it clear that there is no way of permitting *riba* in transactions.

Zainul *et al.*, (2004) whilst studying e-commerce from the Islamic perspective notes that many were not clear about accepting the new technology from the *Shari'ah* point

of view. Their view is that Islam gives paramount importance to trade and encourages it; thus, e-commerce is permitted, but must be governed by Islamic laws and regulations.

3.5 DEVELOPMENTS AND TRENDS IN ISLAMIC BANKING AND FINANCE

As has been highlighted in Shanmugam and Zahari (2009), the first money exchangers as a precursor for banks ever to be introduced were near the Mediterranean Sea. They also state that Iran was perhaps the first country where dealing in silver was used; and gold was also used in dealing as early as the 4th century. Later, other cultures including Islam, especially under the Ottomans, also contributed towards money transactions. The merchants who used to deal in gold brought about changes in the styles of trading.

The word ‘bank’ is derived from the Italian word *banco*, which means desk, as in medieval ages cashiers used to sit at desks in public places to buy and sell various currencies (Shubeir, 2007). Banks emerged in association with the banking business in a number of ancient civilizations. Historically speaking, the first legislation that organized the banking business can be traced back to the Laws of Hammurabi in the 18th century BC (Nasseef, 1988). However, some studies point out that the island of Sicily, where most of the people were engaged in the fishing industry, witnessed the first banking business. When the people went fishing they entrusted goldsmiths with their money and valuables in return for a charge. Moreover, those goldsmiths also used to provide loans from the money with which they were entrusted in return for interest (Al-Wadi *et al.*, 2014). In this regard the first proper bank was established in 1157 in Venice. That was followed by the establishment of another bank in 1587 in Venice called Banco della Piazza di Rialto, which marked the beginning of the modern banking business (Shubeir, 2007).

The Bank of Amsterdam in Holland was established in 1609 and became a model for most banks in Europe. After that the banking business gradually developed until the Industrial Revolution when significant progress in business took place (Al-Tayar,

1994).

According to Al-Tayar (1994) there are two types of bank:

- (i). Commercial banks, which deal in all kinds of trade as well as cash deposits from individuals and companies;
- (ii). Specialised banks, purpose of which is to fund business activities such as housing, agriculture and industry. Accepting deposits is not an important activity of such banks.

Islamic banks represent a combination of these two as they are mostly commercial banks, but also specialized due to their particularities regarding commercial transactions, the development of which is presented below.

3.5.1 Islamic Banking: Historical Overview

As opposed to the nature of the historical experience in the West, the financing experience in the Muslim world developed without the institution of banking until the 19th century. The winter and summer trips made by the merchants of Mecca in the 7th century marked the beginning of banking activities in the Islamic era. In the aftermath of those trips various forms of transactions emerged in terms of entrusting and investing money, as people used to put their money and valuables with those who they believed to be trustworthy (Nasseef, 1988). The traditional form of Islamic financing is based on short-term projects and financing; and therefore, there was no need to develop an institution in the form of banking in the Muslim world. However, in the modern era from the 19th century onward, banking as an institution became a central institution diffusing slowly from the centre to the periphery.

With the emergence of Islamic identity in the post-colonial period in Muslim lands, Islamic economics and banking was considered as an essential part of reconstructing the Muslim identity. Debate on the nature of Islamic economics and finance took a positive turn in the 1960s in terms of practical development. Then, in 1963 Egypt witnessed the first attempt at Islamic banking in the form of a social bank established by Ahmed Al-Najar in the town of Mit Ghamr. However, mainly due to political reasons, the experiment lasted for only three years (Al-Magribi, 2000).

While the 1963 experiment constitutes an important cornerstone in the development of modern Islamic banking, the historians suggest that many decades ago there was an interest-free economy, especially in Muslim areas or countries. An example from the Indian sub-continent can be found where, in the 1890s, Muslims operated an interest-free economy. This was followed by another organisation in India in 1923, and within 20 years its estimated value rose to US\$2,240; that bank gave access to customers and provided loans worth US\$100-US\$135 on a monthly basis. However, there was no bar on non-Muslims becoming members of the bank, and their numbers rose to 1000, and by 1944, it had reserves amounting to US\$67,000. The company was lending money at a smaller proportion (Shanmugam and Zahari, 2009).

The trials in the development of Islamic banks went on to include Pakistan and then later Egypt again, with the establishment of the Naser Social Bank in 1971. The Islamic Bank for Development in Saudi Arabia and Dubai Islamic Bank were established in 1974 and 1975 respectively to pave the way for the appearance of modern Islamic banks in commercial form. After that more Islamic banks followed in quick succession (Al-Magribi, 2000). Iqbal and Molyneux (2004) argue that Islamic banks provided an opportunity for Muslims to invest their money in a *Shari'ah* compliant manner, as people expect *halal* returns upon their investments. It should be noted that over a forty year period, Islamic banking expanded, internationalised and has become recognised all over the world, with an asset base of about \$2 trillion by 2013, with over 500 major Islamic banks and financial institutions (see: The Banker, 2013).

Asutay (2007) maintains that since its inception forty years ago, the growth of Islamic banking has had a lasting impact on businesses and trading across the globe. Though the industry has grown, it still has not achieved the true aspirations of Islamic economics so that the people can see the difference (Asutay, 2012). However, *Shari'ah* rule, which governs Islamic finance, means that the authenticity of the system cannot be exploited; Islamic economies and financial institutions must be developed in a way that contributes to social justice and development. This further reveals the divergence between Islamic economics and IBF.

3.5.2 IBF Worldwide Growth

Islamic banking has been recognised as the fastest-growing segment of the financial industry, with more than 500 Islamic banks now operating in almost 75 countries (see The Banker, 2013). It is indicated that everyday worldwide participation has reached \$180 billion. In addition, its assets are growing 25-40% annually (Eagle, 2009).

Three regions of the world, namely the GCC, South Asia and Southeast Asia have shown exponential growth in IBF, which is the fastest growing industry in the financial markets. However, in the African region, Sudan is reported to have been suffering from IBF issues since the 1980s. IBF is rapidly taking its place in the financial hubs of Europe and Australia, although it has not had an impact on other parts of the globe (Khan and Bhatti, 2008). Moreover, the availability of services in Islamic banking and finance is growing very fast in both Muslim and western countries. This sector alone reached a value of US\$ 660 billion in 2007 with 30% growth annually (Kasri, 2010).

Asutay (2010) notes that it is highly remarkable that the IBF industry, after going through the niche and critical stages, is now classed as a fast growing industry. Its growth can be seen in double digits. Egypt is a clear example, where loans are being given to artisans including small and medium industries. In 1971, the Nasser Social in Egypt was unable to offer loans to small and medium sized industries due to political unrest in the country. In addition, a new experiment was carried out in 1967 in Malaysia where savings were spent upon the pilgrimages. Pressure from Muslim populations forced governments to comply and hence in 1975, the Dubai Islamic Bank, as the first Islamic commercial bank, was established, followed by the Kuwait Finance House in 1977. This trend continued to increase and, in the 1990s, IBF showed unprecedented records of success in many countries of the world. The data shows that by 2009, there was massive increase in IBF which was operating globally in both Arab and non-Arab countries. With a proactive development strategy, worldwide financial institutions and companies recognise Islamic finance and although the world is facing crises every day, including low growth and recessions which cause serious limitations, it is still hoped that IBF will continue to grow in the

future (Asutay, 2010).

Table 3.1 shows regional and global growth changes in terms of comparison between 2007 and 2013. The comparison is based upon the data available in GCC and non-GCC countries, and globally. It shows IBF performance at both regional and global levels. Over the period 2007 to 2013, the figures are indicative of year on year growth at significantly high rates. In particular, the GCC has experienced annual growth rates well in excess of 20% in most years. However, since 2010, the rates of growth appear to have been reduced but are still significantly high (The Banker, 2013).

In short, it can be seen from Table 3.1 that there has been rapid growth in IBF, across the globe. There could be many arguments for and against, but this clearly highlights a sector, which is quite positive and satisfies criteria determined by the Islamic laws of *Shari'ah*.

Table 3.1: IBF-Regional and Global Growth Totals (\$ M)

	2007	2008	% Change	2009	% Change	2010	% Change	2011	% Change	2012	% Change	2013
GCC	178,129.	262,66 5.40	47.5	353,23 7.50	34.5	372,484.20	5.5	434,893.10	16.75	404896	22.73	496942
Non-GCC MENA	176,822. 20	248,26 4	40.4	315,09 0.50	26.9	337,948.20	7.3	416,382.20	23.21	487426	0.48	489755
MENA Total	354,951. 70	510,92 9.40	43.9	668,32 8.50	30.8	710,434.00	6.3	851,275.30	19.82	892323	10.58	986698
Sub-Saharan Africa	4708	6662.1	41.5	8369.7	25.6	10,765.10	28.6	13,711.10	27.37	10733	-3.42	10365
Asia	119,346. 50	86,360. 30	-27.6	106,79 7.30	23.7	130,904.10	22.6	166,652.80	27.31	208482	19.24	248586
Australia/Euro pe/America	21,475.7 0	35,105. 20	63.5	38,654. 80	10.1	42,779.50	10.7	53,939.10	26.09	54716	-60.33	21704
Global Total	500,481. 90	639,07 6.90	27.7	822,13 5.10	28.6	894,882.70	8.9	1,086,462.90	21.41	1166255	8.67	1267355
% of MENA total to Global Total	70.9	79.9		81.3		79.39		78.35				

Source: The Banker (various issues)

3.6 CONCLUSION

In this chapter, IBF has been introduced and examined. The process of adopting *Shari'ah* Law in modern banking and finance has been highlighted, with reference made to its tremendous growth across the globe. It can be seen that IBF is now practised in about 75 countries in the world. Over the years, banking systems have taken advantage of IT systems and introduced services under Islamic governance. Various developments have been introduced by the banking system in terms of banking services, and this has led to the growth of successful Islamic commerce. As for e-commerce through Islamic banking, the banks have made sure that their services are *Shari'ah* compliant, which was a source of debate by Islamic scholars who supported the implementation of such laws.

Based on Qur'anic injunction Islamic finance can be summed up as a system in which trade is allowed but interest, speculation and any form of gambling is prohibited. In short, whilst the conventional banking and financial system is based on the principle of rationality and interest, the Islamic financial system is based on morality and social justice which prohibits interest as a means of speculation and injustice. Finally, it should be noted that the AAOIFI has been very proactive in the adoption and inclusion of the advancement of technology and the number of customers who use the e-banking services and e-commerce offered by Islamic banks is on the increase.

CHAPTER 4

SAUDI ARABIAN BANKING ENVIRONMENT, E-BANKING FACILITIES AND INFRASTRUCTURE

4.1 INTRODUCTION

People have been using banks to assist with the financing of their trade, business dealing, and other matters relating to saving and borrowing for centuries. However, the delay in transferring transactions has tended to seriously undermine the trust of the customers, which has prompted banks to search for alternatives. With the introduction of sophisticated communication technologies, companies across the globe have expanded the reach of their businesses through the use of IT services. Thus banks worldwide have taken advantage of the new technologies to facilitate interactions with their customers. This includes the introduction of internet banking technology, which has benefited customers by speeding up their financial transactions (Alwabel, 2005).

Saudi Arabia, with its wealth created through oil exploitation, is a financially rich country with well-developed financial services and infrastructure. The country has been very successful in transferring and adopting technology including in the financial sectors. It is therefore important to look into the financial and environmental contexts before analysing the adoption of such technologies in the Saudi financial sector.

Therefore this chapter presents an overview of Saudi Arabia in order that the research can be contextualised. In addition, an overview of the historical developments in Saudi Arabian financial and banking services is also provided, as it represents a pivotal part of the research. Finally, the chapter describes the prevalence of IT applications and government policy in supporting the banking system environment and IT services in order to understand the Saudi Arabian e-commerce and e-banking environment.

4.2 AN OVERVIEW OF SAUDI ARABIA

Saudi Arabia is the largest country in the Arabian Peninsula, covering an area of 2.25 million square kilometres, and occupying around 80% of the entire peninsula. It lies at the crossroads of three continents, Asia, Africa, and Europe. With a population of around 30 million, Saudi Arabia is bordered to the west by the Red Sea, to the south by Yemen and Oman, to the east by the Gulf, Bahrain, Qatar and UAE, and to the North by Kuwait, Iraq and Jordan. Saudi Arabia houses the two most holy cities of the Muslim World, Makkah and Madinah, which centres of pilgrimage for the Muslim world, while Makkah is the direction faced for daily prayers of Muslims.

Table 4.1: A Summary of Saudi Arabia's Socio-Economic Characteristics

Capital	Riyadh
Population	According to July 2010, est, there are 28.7 million people in the Kingdom, including 8.4 million foreign residents, with 1.8% population growth rate.
Area	2,250,000 square kilometres.
Type of Government	Kingdom with Council of Ministers.
Legal System	Islamic Law (Shari'ah).
Language	Arabic (Official), and English in some of the companies.
Religion	Islam is the main religion, with other religions permitted for foreigners.
Education	Literacy Rate: 86.13% of the total population in Saudi Arabia (2009 est.).
Currency	The currency of the Kingdom is Saudi Riyal which is gold-plated, convertible and divided into 100 Halalas. The exchange rate is 3.75 Saudi Riyals per 1 U.S. Dollar (pegged since 1986).
GDP	In 2010, est; the annual growth rate is 3.8% and per capita GDP, \$24,200.
Natural resources	Petroleum, natural gas, gold, uranium, bauxite, coal, iron, phosphate, tungsten, zinc, silver, and copper.
Industry	Petroleum, petrochemicals, cement, fertilizer, and light industry.
Trade	According to estimated figures, Saudi exported \$253 billion of oil and imported goods and services worth of \$99 billion. This included manufactured goods, transportation equipment, clothing and textiles, processed food products. The Kingdoms deals with many countries including China, France, Germany, India, Japan, Singapore, South Korea, Taiwan, U.K., and U.S.

Sources: www.cdsi.gov.sa/, www.citc.gov.sa/, <http://mci.gov.sa/>, www.cdsi.gov.sa/, and Statistical Yearbook (2010).

Table 4.1 presents a summary of the Saudi Arabian socio-economic environment. Administratively, Saudi Arabia is divided into 13 provinces, each with a provincial centre. Being a rentier-based welfare or distributive state (Niblock and Malik, 2007; Hertog, 2011) Saudi Arabia provides free education and health provision to all the people in the country among other welfare services and financial distribution.

The main economic source of the country is oil, followed by religious tourism. Currently, Saudi Arabia has one-quarter of the world's oil reserves and consequently is the world's largest oil producer and exporter. It also has the world's largest petrochemical industry. The wealth generated from oil export since the first oil shock in 1973 resulted in huge levels of public investment in infrastructure with the aim of boosting development and economic growth, including. The oil wealth means that Saudi Arabia is one of the largest economies in the Middle East.

Saudi Arabia is a member of many international cultural, political and economic organisations (see Table 4.2).

Table 4.2: Saudi Membership of Major International Organisations

The Gulf Cooperation Council (GCC) since 1981.
The Organization of Petroleum Exporting Countries (OPEC).
The Organization of Arab Petroleum Exporting Countries (OAPEC).
The World Trade Organisation (WTO) since 2005.
The Group of 20 (G20).
The International Monetary Fund with 3% share.
The World Bank with 3% share.
The Islamic Development Bank with 23.6% share.
The Arab Monetary Fund with 15% share.

Sources: www.cdsi.gov.sa/, www.worldbank.org/, <http://mci.gov.sa/>, www.cdsi.gov.sa, and Statistical Yearbook (2010).

4.3 THE SAUDI ARABIAN BANKING ENVIRONMENT

In the Saudi context, there are two types of banks, conventional and Islamic. The business community can work with either or both types of banks. Saudi Arabian Monetary Agency (SAMA) is the authority that regulates the banks and introduces new laws. The Saudi Arabian financial system is well-developed through its human resources and extensive and sophisticated infrastructure, as well as the enormous liquidity available in the country.

4.3.1 Saudi Arabian Monetary Agency (SAMA): A Short Historical Background

SAMA is the Central Bank of Saudi Arabia; and is an autonomous body and independent body. In simple terms, SAMA implements the laws and standards for all the banks and provides the necessary regulatory environment. In addition, SAMA

supports the banking system in order that both customers and banks are well protected. Table 4.3 presents the most important historic events in the development of SAMA.

Table 4.3: SAMA's Main Events

Date and Year	The Event
22 Oct 1952	The first gold coins were issued in Saudi Arabia.
1956	Under the authority of Saudi Arab Monetary Corporation, SAMA issued its first coins featuring one-piaster, two-piaster and four-piaster.
16 Jul 1957	The second monetary system was issued, together with the monetary control system.
15 Nov 1957	From 1955 the Kingdom faced a severe financial crisis and as a precaution, the corporation amended its monetary policy. This gave rise to the corporation as an independent entity.
15 Dec 1957	Followed the crises, the authority issued the third version of monetary system
1958	The authority agreed to issue the Saudi golden Guinea carrying the label "King Saud".
31 Dec 1959	Under the orders of the corporation, the fourth (current) monetary system was issued and implemented. Banks were permitted to print the banknotes.
14 Jun 1961	The corporation permitted to print formal banknotes featuring one, five, ten, fifty and hundred riyals.
11 Jun 1966	The corporation introduced a system of bank control.
1980	The First ATMs in Saudi banks
1984	Many changes introduced by the corporation, such as the daily activities of the share market and registering of Saudi shares. The main aim of the company was clearing transactions associated with shares.
Apr 1990	The corporation agreed to introduce IT systems in the banking system. The Saudi payment network (SPAN) was established by SAMA. In addition, electronic banking was introduced to the traders and customers.
15 May 1997	The Saudi System for fast money transfers known as "SARIEA" started to operate.
1 Jul 2004	Supervision of the stock exchange was given to the Financial Market Corporation instead of SAMA.
3 Oct 2004	The system of payment "SADAD" started operating.
2004	SAMA launches e-Trust Center supporting the banking technology services.
19 Mar 2007	The Saudi stock company was established under the name "the Saudi Stock Exchange"
2014	MADA services for banking services started

Sources: www.sama.gov.sa/ and Ali, (2001).

The first monetary system in Saudi Arabia was approved in 1928 under the name 'Hijaz and Najd Monetary System'. The Saudi Arabian Riyal was initially issued as an equivalent of the widely circulated silver Ottoman Riyal in terms of size, weight and standard. From 1927; the Ottoman Riyal was replaced by the Saudi Riyal. However, in 1935 the government decided to issue a new silver Riyal carrying the label 'the Kingdom of Saudi Arabia' mimicking the silver Indian Rupee in terms of size, weight and standard (Ali, 2001).

SAMA, which is the second oldest central bank in the Arab world, commenced its activities in the city of Jeddah on 4 October 1952. These duties include (www.sama.gov.sa/):

- (i). Issuing national currency (Saudi Riyal);
- (ii). Undertaking the duties of a central bank;
- (iii). Controlling banks;
- (iv). Managing foreign currency reserves;
- (v). Planning monetary policies to the effect of stabilising prices of commodities and foreign exchange;
- (vi). Encouraging the development of monetary system and ensuring its security; and foreign exchange;
- (vii). Supervising insurance companies.

In order to make life easier for the pilgrims, SAMA replaced the heavy silver coins with what were known as pilgrimage receipts. These were launched on 25th July 1953 with the value of 10 Riyals. Around 5 million receipts were issued with labels in Arabic as well as in Persian, English, Urdu, Turkish, and Malaya. The experiment was successful, with the receipts accepted by the pilgrimage population as well as winning the trust of both businessmen and local citizens (Ali, 2001).

4.3.2 The Saudi Stock Exchange (*Tadawul*)

As part of the financial development in the country, the Saudi Stock Exchange (*Tadawul*) company commenced its activities in the mid-1930s. The Saudi Auto Company was the first joint-stock company in Saudi Arabia; and by 1975 14 joint-stock companies were established. Thereafter, rapid economic growth coupled with the partial nationalization of foreign banks in the 1970s resulted in the establishment of a huge number of joint-stock companies and banks.

The Saudi financial market operated informally until the early 1980s, when the government formalised the establishment of an organized market with all the required systems in place. Thus, in 1984 a Ministerial Committee drawn from the Ministry of Finance and National Economy, the Ministry of Trade and the Saudi Arabian

Monetary Corporation was formed with the aim of organising and developing the market. The Monetary Corporation was the government body entrusted with organising and controlling the market until the establishment of the Financial Market Authority on 31 July 2003. Finally, on 19 March 2007 a Saudi stock company was established under the name ‘the Saudi Stock Exchange’ (*Tadawul*). It should be noted that the Saudi Stock Exchange is the main body, which officially deals with the issuing, selling and buying of shares. Thousands of shareholders use e-commerce to trade millions of dollars of business every day (www.tadawul.com.sa) and is the largest sector of e-commerce in the country. The Saudi stock exchange performs efficiently despite a crash a decade ago. As an indication of this growth, it should be noted that the daily total average transaction in Saudi stock exchange are SAR4.4bn (http://www.aleqt.com/2012/03/12/article_635545.html).

4.4 SAUDI ARABIAN BANKS

In addition to domestic banks, there are several foreign banks, which operate in Saudi Arabia. This research, however, only focuses on Saudi Arabian domestic banks, as they have much greater networks of branches than the foreign bank (SAMA Annual Report, 2011). The data and information of Saudi banks were collected through the banks’ websites, Bankscope, banks’ brochures, SAMA annual reports, SAMA website and one-to-one interviews with the IT managers of the concerned banks.

4.4.1 Saudi Arabian Conventional Banks

Saudi Arabia has eight conventional banks:

- (i). Riyadh Bank: This is one of the leading banks in the financial market, which has introduced a website called ‘RiyadNet’, which has proven to be highly efficient and attractive to customers. Riyadh Bank has branches 318 including branches in London, Houston and Singapore, with 2,542 ATMs and 10,713 point of sales (POS). (<http://www.riyadbank.com/>, Bankscope and www.sama.gov.sa/).
- (ii). Arab National Bank (ANB): The ANB was established in 1979, and is one of the leading banks in Saudi Arabia and the Middle East. ANB, through 78 Tele-

money centres, is the second service provider. ANB has 203 branches including an office in United Kingdom, with 1,200 ATM and 11,000 POS. (<http://www.anb.com.sa/>, Bankscope and www.sama.gov.sa/).

- (iii). National Commercial Bank (NCB): The NCB was the first financial institution in Saudi Arabia when established in 1953. It is one of the Arab world's largest financial institutions, with head office in Jeddah. It provides several banking products and services and e-banking services such as online trading, electronic payment, phone banking. The bank owns 64.68% of Turkiye Finans Islamic Bank (TFKB) in Turkey. It should also be noted that the NCB is the largest provider of foreign exchange in the Kingdom. It has 329 branches within Saudi Arabia, and more than 23,000 POS as well as 2,252 ATMs (<http://www.alahli.com>, Bankscope and www.sama.gov.sa/). It should be noted that the retail banking of NCB is Shari'ah compliant; while the main identity of the bank remains as conventional bank; and therefore it is classified as conventional bank in this study.
- (iv). Samba Financial Group: Samba is one of the largest banks in the Middle East and offers banking services through more than 80 branches, 512 ATMs and 5,381 POS. During early 1980s, Samba Financial Group took over the branches of Citibank which were first opened in 1955 and 1966 respectively. The bank took the advantage of a decision made by the government during 1970s, that foreign banks could sell their majority shares to Saudi nationals. (www.samba.com, Bankscope and www.sama.gov.sa/).
- (v). Saudi British Bank: The Saudi British Bank was established in January 1978 with its head office in Riyadh to take over the operation of the British Bank in the Middle East. The bank, which formally commenced activities in July 1978, provides various banking services through a network of 80 branches and Internet and telephone banking services. It has 510 ATMs and 7,069 POS (<http://www.sabb.com>, Bankscope and www.sama.gov.sa/).
- (vi). Banque Saudi Fransi: The bank was established in June 1977 as a Saudi-French joint venture. The bank is an important provider of comprehensive financial services in Saudi Arabia, including online-banking and call-centre services. The bank operates 83 branches, and has 576 ATMs and 8,634 POS

(<http://www.alfransi.com.sa/>, Bankscope and www.sama.gov.sa/).

(vii). Saudi Hollandi Bank: It was founded in 1926 as the Netherlands Trading Society, the first bank in Saudi Arabia. It was originally established in Jeddah to serve the pilgrims from Indonesia. It provides a wide array of banking services, including e-banking, telephone banking, and wire or e-transfers. The bank has 1,417 employees, 44 branches, 265 ATMs and 7,190 POS (www.shb.com.sa/, Bankscope and www.sama.gov.sa/).

(viii). Saudi Investment Bank (SAIB): SAIB was established in 1976, but became functional in March 1977. The shareholders are J.P. Morgan Chase, and Mizuho Corporate Bank (formerly the Industrial Bank of Japan), along with Saudi public and private institutions as well as Saudi nationals. SAIB is particularly strong in the area of providing assistance for exports and increasing revenues for the government. It also targets individuals in arranging their investments in mortgages, and other credit activities, but under *Shari'ah*. SAIB has 45 branches, 324 ATMs and 154 POS (www.saib.com.sa/, Bankscope and www.sama.gov.sa/).

4.4.2 Islamic Finance and Banking in Saudi Arabia

Saudi Arabia is the biggest market for Islamic finance in terms of size, and is also home to the biggest concentration of Islamic funds. Moreover, the largest multinational Islamic bank in the world is located in Saudi Arabia, namely the Islamic Development Bank in Jeddah and nearly all other banks operating in Saudi Arabia provide Islamic banking and financial products (Iqbal, 2011). In addition, Saudi Arabia has two big players in the Islamic banking: Al Rajhi Banking and Investment Corporation, and Bank Al Jazira (Khan and Bhatti, 2008).

Despite the government's responsibility to ensure the implementation of *Shari'ah* in the country, it was only in 1983, that Islamic banking commenced in Saudi Arabia with the Al-Rajhi group starting the first Islamic commercial bank. With its continuous growth, by 2000 Al-Rajhi had become the largest Islamic bank with total assets worth \$10bn (Wilson, 2000:159).

Saudi Arabia has major four Islamic banks out of its twelve domestic banks:

- (i). Bank Albilad: This bank is a Saudi joint stock, and was established in 2004 from the merger of eight Money Exchange Companies, with an initial capital of SAR3bn. The bank offers e-banking services, and has 102 branches across the country, with 829 ATMs and well over 900 POS. The bank has a strong department dealing with *Shari'ah* compliancy (<http://www.bankalbilad.com>, Bankscope and www.sama.gov.sa/).
- (ii). Alinma Bank: It is a Saudi joint stock company established in 2007 with headquarters in Riyadh, and is the newest Islamic bank. Alinma was established with share capital of SAR15bn. At the moment, it has 55 branches with 1,000 ATMs (www.alinma.com, Bankscope and www.sama.gov.sa/)
- (iii). Bank Aljazira (BAJ): It is one of the leading Islamic financial institutions in Saudi Arabia, which opened its first branch in 1975. BAJ took over the branches of the National Bank of Pakistan. BAJ is regarded as a leading *Shari'ah* compliant institution. This followed the 1998 strategic decision by the BAJ's Board of Directors to change the bank into a *Shari'ah*-compliant entity. By 2002 all the bank's branches were transformed into Islamic banking. BAJ introduced Internet banking, including mobile transfers and provides services to thousands of customers on line. Moreover, BAJ was the first banking institution in Saudi Arabia to introduce *takaful ta'awuni* (TT) in 2002 as a full-fledged *Shari'ah*-compliant alternative solution for the traditional life insurance. This approach helped BAJ to increase the trust and confidence of its customers. BAJ has 66 branches, 308 ATMs and total capital of SAR3bn (<http://www.baj.com.sa/>, Bankscope and www.sama.gov.sa/).
- (iv). Al Rajhi Bank: Al Rajhi Bank is the largest Islamic bank in the world (The Banker, various issues), and has more than 8,400 employees. The bank was founded in 1957, and is committed to work under *Shari'ah*. The bank is involved in trading, and is an independent organisation under the name of 'Al Rajhi Trading and Exchange Corporation' in 1978. It was in 1988 that the bank

was established as a Saudi share holding company. It commands great respect in applying Islamic principles in its activities. The bank has more than 500 branches, and more than 3,600 ATMs and over 28,000 POS (www.alrajhibank.com.sa, Bankscope and www.sama.gov.sa/).

Table 4.4: Details of the Saudi banks within Saudi Arabia

Bank	Branches	Online-Banking	Call-centre	ATM	POS	Capital (SARbn)
Conventional Banks						
Al-Riyad	318	✓	✓	2542	10713	30
Arab National	203	✓	✓	1200	11000	10
NCB	329	✓	✓	2252	23000	20
Samba	68	✓	✓	512	5381	12
Saudi British	80	✓	✓	510	7069	10
Saudi Fransi	83	✓	✓	576	8634	12.05
Saudi Hollandi	44	✓	✓	265	7190	4.76
Saudi Investment	45	✓	✓	324	154	6
Islamic Banks						
Al-Bilad	102	✓	✓	829	925	4
Al-Inma	55	✓	✓	1000	N.A	15
Al-Jazira	66	✓	✓	308	N.A	4
Al-Rajhi	500	✓	✓	3600	28000	16.250

Source: www.cdsi.gov.sa/, Bankscope, www.sama.gov.sa and SAMA annual report, 2013.

Table 4.4 shows the details of Saudi Islamic and conventional banks, including information on branches, ATMs, POS and capital. It worthwhile to compare NCB to Al-Rajhi bank, whereas with the capital, the difference in ATMs is quite wider in between the two. It is important to note that Al Rajhi bank has the highest number of ATMs, whereas Al-Riyad is closely competing with the same capital. Overall, there are eight conventional banks and four Islamic banks.

4.5 THE PROVISION OF IT SERVICES IN SAUDI ARABIA

The government of Saudi Arabia has played a significant role in introducing IT into the Kingdom (The National 9th Plan, 2010). All public offices in the Kingdom were the first beneficiaries of the IT system, which helped the public solve their issues and save time. The National Policy on Science and Technology in the Kingdom supports the expansion and development of IT technology and closely monitors the IT services in the country.

Due to the efforts of the National Policy, a framework exists in Saudi Arabia within which the banks are obliged to work. The policy links to the national plans and is fully

acknowledged by the government (KACST, 2011). The 9th Development Plan (2009-2014) focuses on the prospect of the “transformation into an information-technology-based society and a digital economy to increase production and provide services of telecommunication and information technology to all sections of the society all over the country, and in effect establish a strong industrial base to become one of the major sources of national income” (The National 9th Plan, 2010).

The plan focuses on the execution and completion of the programme featuring the National Plan for Telecommunication and Information Technology. The plan also aims to implement unrestricted services and opens the door for competition in the area of Information Technology and Telecommunication (ITC) in order that those services are available in all parts of the country through the promotion of broadband services. Furthermore, the plan aims at completing the infrastructure for the government’s electronic transactions, by augmenting its services as well as promoting those services at all levels. The plan also focuses on projects to establish a knowledge economy. Most importantly the projects include Wadi Al-Riyadh for Technology, the University of King Abdullah for Science and Knowledge, Information Technology and Telecommunication Garden, and the City of Economic Knowledge in Al-Medina. According to the government by 2024 the Saudi economy will have made significant strides towards its ambitious goal to become a knowledge-based economy (The National 9th Plan, 2010).

ASBAR Centre (2004) highlights several factors that are responsible for the public’s willingness to use online services in Saudi Arabia. The study was based on responses from 2,160 males and females. The results show that 51.2% of citizens who were utilising the Internet services lived in the Eastern region which consequently had the highest users of the technology. In addition, it was found that 56.7% of government officials and 58.5% of the private sector were the beneficiaries of the internet. The major age group represented was 25-34 years. The data also showed that majority of users had access to internet from their homes. It can be seen that 82% males and 91% females were using internet, and internet cafes were found to be providing services to 53.3% users across the country. However, it is important to note that the reason

behind the increased trend in internet use was directly related to levels of the users. This also justifies the government's commitment to educating to their citizens.

4.5.1 The National Plan for Telecommunication and IT

The National Plan for Telecommunication and IT was approved in 2007. According to the 9th National Plan (2010), the scheme aims at closing the gap between Saudi Arabia and other states in terms of digital technology. The scheme also incorporates programmes featuring the implementation of IT in areas such as e-trade, e-government, e-education etc. The main objectives of the scheme are as follows:

- (i). Improving the performance of the technology and telecommunication sector to include all government services, the social and health services;
- (ii). Establish a reliable telecommunication and information sector up to international standards, capable of attracting investment;
- (iii). Provide a chance for all social sectors to benefit effectively from the telecommunication and information technology services;
- (iv). Provide a trained human cadre from both genders in all areas of information technology (<http://www.mcit.gov.sa/en/Pages/default.aspx>, 2014).

4.5.2 E-Government in Saudi Arabia

In 2006, the first stage of the e-education programme was launched through the National Centre for Electronic and Distance Learning. Then, in 2008 the government launched the e-health programme that aims at providing the health service electronically (the National Centre for Electronic Learning). In a major move to support the technology sector in the country, the government issued instructions that all government departments and organisations should allocate senior jobs for IT from within its ranks (Yesser Annual Report, 2009).

Al-Maliki (2014) highlights that Saudi Arabia has played a leading role in the Middle East in terms of providing effective e-government services and encouraging their adoption during the past five years. However, the vast majority of Saudis still visit government departments in order to obtain information instead of using the government websites. Furthermore, the global average for the usage of government

portals is about 30%.

The global ranking shows that the implementation of Saudi e-government has progressed smoothly, as it moved from being ranked 70 in 2008 to 58 in 2010 (Al-Nauim, 2011). This clearly shows the commitment of the government to its e-government programme. Al-Nauim (2011) agrees that this was due to the fact that technology needs to be delivered to the end users. Al-Solbi and Al-Harbi (2008) indicates that the existence and application of regulations can bridge any gaps in the assessment of e-government. In their research, they found that internet was the most important barrier to implementing e-readiness. According to the UN E-Government Survey (2014) Saudi Arabia ranked 36 of 193 countries in e-government development and one of the best 20 countries in the world in providing e-services.

Given the benefits to the national economy, the Saudi Arabian government is committed to transform its transactions into e-transactions. Furthermore, the Saudi government is considering a plan to provide e-services with the help of the Ministry of Telecommunication and Information Technology. This implies that in order to achieve information society cooperation is of paramount importance, and that government departments should join together to achieve the end goal. In this regard the Ministry of Telecommunication and Information Technology established the programme of government e-transactions in 2006 in partnership with the Ministry of Finance and the Authority for Telecommunication and Information Technology. The programme encourages the implementation of government e-transactions. It aims to keep centralisation to a minimum regarding these types of transactions and provides the minimum coordination possible between government bodies. The aims of the programme are (www.yesser.gov.sa/, 2015):

- (i). Improving the performance and productivity of the public sector;
- (ii). Providing easy and better service to individuals and the business sector;
- (iii). Increasing investment revenues; and
- (iv). Providing accurate information at the right time as required.

In support of the system, a national portal was created acting as an electronic gate through which citizens, visitors and companies would be able to use the e-government

service from anywhere in the country, with the required efficiency and speed. The gate makes it possible to access the e-service either through integration with other government organisations or through electronic links between those organisations and the associated services and the gate. Furthermore, the gate constitutes an important information conduit for news propagation and other activities associated with e-services and the government bodies that provide those services. Thus, (www.saudi.gov.sa, 2015):

- (i). It is a central channel of Saudi Arabia news and events;
- (ii). It provides a guide for government bodies;
- (iii). It provides a great number of system links, regulations, laws, and Saudi plans and initiatives;
- (iv). It provides a special section featuring information on Saudi Arabia.

In maintaining the working of e-government, the intermediary systems feature an integrated structure of systems and programmes used for e-transactions ‘Yesser’. The programme primarily provides a common infrastructure to facilitate government e-services in order to perform the required level of integration. It works as an integral intermediary system, which provides a number of common services for the different government bodies, such as user identification, protecting information, e-payment and notification, and exchange of information between different government bodies in order that this information can boost government e-services in a secure, prompt and accurate manner (Yesser Annual Report 2009).

4.6 E- SERVICES IN SAUDI BANKS

According to the SAMA website, all Saudi banks have websites and all of them provide e-services to their clients (SAMA, 2015). The number of POS in Saudi Arabia in the first half of 2011 was 84,473, a significant rise from 1,274 in 1993. In addition, the numbers of ATMs have increased to 11,300 in the same period (SAMA Annual Report, 2011).

In order to protect clients from electronic deception associated with e-banking, and to encourage banks to offer e-banking facilities, SAMA issued the ‘Electronic Banking

Rules'. As a precautionary measure the rules regulate e-banking activities, as well as provide advice for banks in relation to risk control with regard to e-banking in order to ensure the protection of clients by raising awareness and protection of privacy and by providing the minimum level of security possible (E-Banking Rules, 2010).

According to the Capital Market Authority Annual Report (2010) in 2010 around 91% of clients have used the internet to buy shares in new or existing companies as compared to 8.1% who used the traditional method by visiting branches (www.sama.gov.sa; Accessed 27/04/2012). Moreover, the Saudi Fransi Capital Company (2012) points out that around 82.26% of Saudi clients used the e-channels banking to buy shares in Najran Cement Company while the remainder used a different approach, namely in person (www.fransi-tadawul.com; Accessed 28/4/2012).

SAMA supports the e-commerce banking environments, the purpose of which is to promote the use of e-finance by all customers. SAMA helps e-commerce through three systems: the Saudi System for Fast Money Transfers (SARIE), the Saudi Network for Payments (SPAN), and the Saudi System of Payments (SADAD). It is worth mentioning that SAMA has also introduced e-trust centre, which provides a safety system for dealing with the banks through sources such as internet. It should be noted that e-banking services is the most important pillar of e-commerce, because without e-payment which is enabled through e-banking services the growth in e-commerce could not have been achieved (Al Saud and Abdallah, 2004).

In short, SAMA has been in control of advanced banking systems of payments for over 20 years by linking all banks in the kingdom including their ATMS and other relevant bodies through a single network in a secured and effective manner based on the following networks:

- (i). The Saudi System for Fast Money Transfers (SARIE);
- (ii). The Saudi Network for Payments (SPAN);
- (iii). The Saudi System of Payments (SADAD).

4.6.1 The Saudi System for Fast Money Transfers (SARIE)

The Saudi Arabian System for Fast Money Transfers (SARIE), which has been operating since 14 May 1997, is one of the most sophisticated systems in terms of credit clearing. The system concludes a decade of major achievements in the country with regard to the banking business.

SARIE, which has been designed in accordance with the concept of total simultaneous clearing, is considered a revolutionary invention in e-banking and commercial transactions in the country. It constitutes the infrastructure for a number of advanced systems of payment and credit clearance. These systems include automatic clearance houses (ACH), systems for automatic clearance of cheques, and Saudi Network for Payments (SPAN) which links all cash machines and transfers money electronically at the sale centres (EFTPOS). It also facilitates the clearance of foreign exchange (TADAWL). The technological step coupled with the modern banking service associated with SARIE in relation to the banking sector in Saudi Arabia is considered as a landmark achievement in the history of payment systems in the country (www.sama.gov.sa).

The main objectives of SARIE are (<http://www.sarie.gov.sa/>, 2014):

- (i). Automatic transfers of money with the assurance that they reach clients promptly;
- (ii). Provide state of the art banking products and services to clients;
- (iii). Minimise the risk of transferring funds between banks;
- (iv). Minimise the cost of banking services;
- (v). Improve financial performance through organising payments in relation to the banking sector;
- (vi). Pave the way for future developments such as e-trade in terms of procedure and technology.

4.6.2 The Saudi Network for Payments (SPAN)

In April 1990, the Saudi Arabian Network for Payments (SPAN), which was established by SAMA, links ATMS and POS. This technology processes financial

transactions by card users to the card issuers. SPAN also provides services outside the Kingdom via networks such as GCC Net Member Switches.

The Saudi banks are obliged to issue ATM cards compatible to the network, and these cards are issued free of cost to the customers. The purpose of this has been to encourage the customers to use the system. This technology has eased the banks dependence on notes as means of transactions. SAMA reports that this has made a significant impact on increasing banks' deposits. Due to this facility, the number of bank customers has been increasing. According to 2008 data, the transactions through SPAN were SAR459m (<http://www.sama.gov.sa/>).

4.6.3 The Saudi System of Payments (SADAD)

SADAD is one of SAMA's systems which feature a central arrangement for undertaking all billings and payments in Saudi Arabia through electronic means. The main purpose of the process is to make the payment of bills and other payments faster and easier through the banking channels available in the country (branches of banks, cash machines, internet banking, telephone banking). Before the system of e-payment, the payment of bills in Saudi Arabia placed a heavy burden on banks, as it was slow and impractical. For this reason, SAMA made it an obligation for all banks to accept payment of bills by individuals no matter if the individual is a client of that particular bank or not. Thus, it is not necessary that the person who pays the bill is a client of the bank. Previously, banks used to cover part of their costs by keeping the payments for a period ranging from 7 to 30 days (<http://www.sama.gov.sa/>, 2014).

A study made by SAMA on the payment of bills in Saudi Arabia concluded that between 60% and 70% were paid in cash at the banks. However, the huge number of bills issued in the country has become a liability to banks regarding the high costs in terms of reception desks, processing, IT, and matching the bills. This does not include the costs associated with loss of time that consumers have to wait in branches before they are able to pay their bills.

As local banks provide payment services to companies such as Saudi Telecommunications Company (STC) and the Electricity Company through direct

links to their systems, government and non-government organizations have tended to make use of such arrangements. As a result of the above, the need emerged for a competent and fair central system, which lives up to the challenge of providing a strong base for future developments. Accordingly, SAMA took the initiative to introduce a technical solution that was easier for all parties. In order to do so the multiple links of the old system were replaced by a single link joining the banks to the companies concerned. Thus, SADAD mediates between the two sides and in effect ensures financial arrangements, as well as the distribution of costs and profits. For this reason, SADAD has the advantage over the current systems in terms of services, as it provides a mechanism for paying different bills to various parties, and provides a mechanism for giving direct information on payment. This system has encouraged clients to use electronic channels as those channels provide a wider option for payments (<http://www.sadad.com>).

4.7 SECURITY AND THE E-TRUST CENTRE IN E-COMMERCE

Security is one of four factors that have infused on online banking in Saudi Arabia (Sohail and Sheikh, 2008). SAMA is the supervisory body for e-banking services and provides guidance to banks on security in e-banking services, and for that reason it published in 2010 a new set of rules, 'E-Banking Rules', governing e-banking services in Saudi Arabia (E-Banking Rules, 2010).

To maintain the standards in the provision of services and customers' confidence, SAMA, in consultation with the Saudi banks, introduced the E-Trust Centre. The purpose of this facility is to help satisfy customers, as there were some confusion between the banks and customers. SAMA brought the customers and banks closer together. In simple terms, customers need protection for their transactions, while banks need customers. SAMA bridged the gap through the use of the internet. Online applications have boosted the business-to-business (B2B) environment globally, but the marketplace has already gone to the next stage, which is business-to-consumer (B2C). Basically, SAMA's objective is to utilize internet technology to enable efficient payments systems. The banks developed infrastructures in compliance with SAMA's instructions. The E-Trust Centre will also establish the following facilities in

order that the public in the Kingdom can use technology with confidence:

- (i). To ensure security in the information systems;
- (ii). To ensure e-commerce is helpful for the public;
- (iii). To ensure secure communication as well as e-mail.

In addition, the E-Trust Centre introduced the 'identrust' scheme through which the Saudi banks can have compatibility and deployment (SAMA, e-Trust Centre, 2010).

4.8 CONCLUSION

This chapter outlines the banking environment and the IT infrastructure in Saudi Arabia. IT is globally acknowledged as an important factor for economic growth. Thus, the Saudi government has recognised its role in the local environment. Saudi companies, which have been playing a leading role in IT development, have taken advantage by setting up their businesses through e-commerce. The government made the banks responsible to help customers who deal with bigger transactions. The Saudi government's role is very clear as it has created and supported the practices of e-service in order that Saudi businesses could take advantage of the technology.

In addition, SAMA, the financial authority in Saudi Arabia, has introduced important changes that have encouraged the Saudi banks, both Islamic and commercial, to introduce e-services into their operations.

SAMA has made it possible for customer transactions to be secure by creating security codes so that transactions cannot be hacked. Overall, it appears that the Saudi banks have introduced an e-service, with an efficiency and reliability that is compatible with international systems. For example, on a daily basis customers access the stock exchange to buy and selling their shares through the Internet. However, the acclaimed successes need to be verified through independent research which this study aims to conduct.

CHAPTER 5

RESEARCH METHODOLOGY AND PROCESS

5.1 INTRODUCTION: AIMS, OBJECTIVES AND THE RESEARCH QUESTIONS

Since a great deal of academic enquiry is based on some form of evaluation, methodological approaches form a fundamental part of any social science research to achieve such aims and/or objectives. Indeed, whatever the method of investigation, the aim of any enquiry is to arrive at a solution for the problem posed. A scientific approach to solving a problem, however, rests on three main characteristics – being systematic, sceptical and ethical (Robson, 2002). Briefly, a systematic approach is one in which the research identifies a series of thoughts, what has to be done and how to perform it. With a sceptical approach, the researcher attempts to subject his ideas and findings to scrutiny and critical analysis. An ethical approach, on the other hand, attempts to follow a series of codes of conduct concerning the rights of the research participants.

The overall objective of this chapter is to investigate and provide a rationale for the choice of research design and method adopted throughout this research, as well as to characterize the processes utilised in collecting data.

It is recognised that the selected methodology must be related to the main aim of the study and the research questions. The main aim of this research is to evaluate and compare the effectiveness and efficiency of the e-commerce strategies adopted in the Islamic and conventional banking sectors in Saudi Arabia. As mentioned in Chapter 1, to fulfil this aim, the research proposes the following questions:

- (i). What are the banking behaviours and attributes of the customers of Saudi Arabian Islamic and conventional banks?
- (ii). What experiences of e-commerce through e-banking services do Saudi

Arabian Islamic and conventional bank customers have?

- (iii). What is the knowledge level of customers of Saudi Arabian Islamic and conventional banks about e-commerce through e-banking?
- (iv). What factors motivate the customers of Saudi Arabian Islamic and conventional banks to use e-commerce through e-banking?
- (v). What critical success factors are necessary for the adoption of e-commerce through e-banking in relation to the perceptions of the customers and the managers of the Saudi Arabian Islamic and conventional banks?
- (vi). What are the determinants of the use of e-commerce and e-channels as expressed by the customers of the Saudi Arabian Islamic and conventional banks?
- (vii). What are the most important factors hindering the implementation of e-commerce in both Islamic and conventional banking services in Saudi Arabia from the supply side?
- (viii). What barriers have the Saudi Arabian Islamic and conventional banks experienced during the adoption of e-commerce through e-banking services?
- (ix). Which factors determine the satisfaction of the customers of Islamic and conventional banks in Saudi Arabia?
- (x). What are the perceived security issues in using e-commerce through e-banking?

5.2 RESEARCH PHILOSOPHY

The research philosophy contains important assumptions about the way in which one views the world and through which research is constructed in a particular area. These assumptions support the research strategy and the methodology chosen as part of that strategy (Saunders *et al*, 2007). Research philosophy, therefore, shapes the way in which the whole research is designed and through which knowledge is constructed

and gained.

It should be noted that there are three major ways of thinking about research philosophy: epistemology, ontology and axiology, each containing important differences which influence the way in which the research is processed.

Epistemology is concerned with what is regarded as acceptable knowledge in a given field, which includes positivism, realism and interpretivism. Accordingly, positivism refers to research working with an observable social reality where the end product of the research is similar to that produced by physical and natural scientists (Remenyi *et al.*, 1998). In this type of research, the researcher takes a position as an outsider who is not affected by and does not affect the subject under study (Remenyi *et al.*, 2005). Thus, positivism is a paradigm in relation to the creation of knowledge through research that places its emphasis on the model of natural science, based on a chain of causality (Noor, 2008). In other words, the positivist approach tests a hypothesis using relevant data based on a theoretical foundation.

Realism is similar to positivism in that it assumes a scientific approach to the development of knowledge (Saunders *et al.*, 2007). Interpretivism, on the other hand, refers to research which aims to interpret the social world around us, without attempting to generalise (Saunders *et al.*, 2007). An interpretive approach usually involves describing, understanding and making interpretations; the researcher focuses on meanings that the research subject attaches to social phenomena, hence attempting to understand what is happening and why it is happening (Al-Khattab, 2011). However, as has been highlighted in Johnson *et al.*, (2006), the major difference between the positivist and the interpretive paradigms of scientific inquiry can be seen through the overall approach followed by each of them, with regard to the generation of knowledge. On the other hand, the most significant distinguishing feature between the two approaches is that adopting either one leads the researcher to employ a specific research methodology. Adopting the positivistic approach requires a research methodology that is concerned with hypothesis testing by collecting and analysing quantitative data in order to arrive at a set of generalizable inferences, which are often based on statistical analysis (Saunders *et al.*, 2007). In contrast, adopting the

interpretive approach requires a research methodology that is concerned with generating theories by collecting and analysing data/information in order to describe and discuss a phenomenon in its context.

Ontology, on the other hand, consisting of objectivism and subjectivism, is concerned with the nature of reality (Remenyi *et al.*, 1998). While objectivism represents the real state of the world, subjectivism refers to the views expressed through the research findings. It is inevitable that there are differences between subjective and objective views.

Finally, axiology, another pillar of research methodology philosophy, studies the formation of axioms, which shape our values (Heron, 1996). This implies that axiology is related to how the values of the researcher involves and defines social research; and therefore it is very much related to interpretivism where social sciences are concerned, and relates to realism and positivism where natural sciences are concerned.

Naturally, each approach under each of these paradigms has its own strengths and weaknesses, which have been highlighted in several studies (Amaratunga and Baldry, 2002). For example, in exploring consumers' adoption of the e-payment system, Mallet (2007) highlights the use of the interpretive paradigm; primarily due to lack of published data, he resorts to the interpretation of findings from a series of focus group interviews. Similarly, the approach taken by Ang (2010) in his study of private banking challenges in Asia lends itself to the use of mixed methods of interviews and case studies. Moreover, due to the lack of a rigorous theoretical framework, Tihanyi and Hegarty (2007) employ the interpretive approach in their study of commercial banks in East Europe.

On the other hand, in an examination of risk management by corporate managers in Jordan, Al-Khattab (2011) conducted a survey using a questionnaire to collect quantitative data, promoting the idea of positivist approach in the area of risk management. Similarly, on examination of the possible adoption of e-banking in Bangladesh, Hassan *et al.*, (2010) maintained a positivist approach by constructing

and distributing a questionnaire to up to 150 banks customers. Their findings, based on a use of cost-benefit analysis, indicate that there is a limited willingness in the use of internet banking primarily due to lack of trust in the banking system. Likewise, based on a positivist approach, the study by Laukkanen *et al.*, (2008) on consumer resistance to e-banking in Finland reports similar but slightly differentiated views of participants in their research.

In the light of the aims and the questions of the research, this study therefore employs a mix of epistemologically realist and interpretive approach and ontologically subjectivist philosophy. The current research is realist and interpretive in the epistemological sense, as the investigation into the adoption of e-commerce through e-banking services in Saudi banks will be approached in a scientific manner, and the findings derived from the investigation will be interpreted to make meaning out of the research. The research is also subjective as the findings from it represent only a narrow view of the objective world according to participants' perceptions as well as the interpretation of those socially-constructed views of the participants by the researcher.

Thus, in terms of the approaches utilised, the research follows a triangular philosophical approach, which is applied throughout the study.

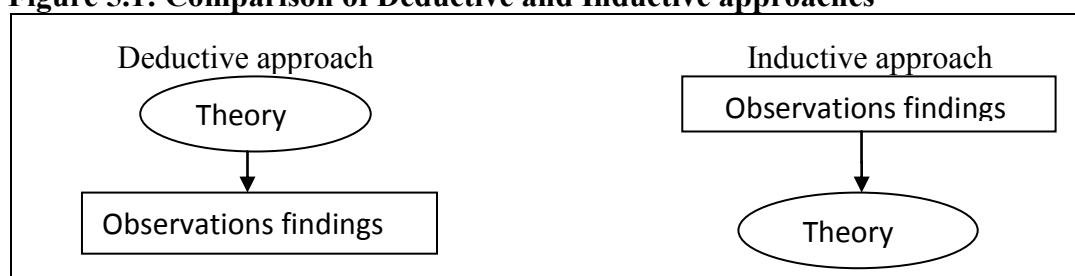
5.3 RESEARCH STRATEGY

In relation to research strategy there are two general approaches, deductive and inductive approach, denoting the overall nature of the link between the research and its underpinning theory (Bryman, 2004). According to Saunders *et al.*, (2003), both these approaches are linked to a number of different philosophies: deductive is related to positivism, and inductive strategy to interpretivism.

Under the deductive approach, researchers base their research questions on known facts (theories), and then translate them into operational terms and test them in empirical ways using statistical methods (Saunders *et al.*, 2007). The inductive approach, on the other hand, starts from a set of observations to build a theory. In this regard, a theory may be introduced by making a number of general suggestions

concerning what has been observed during a particular timescale, and their nature by identifying the general patterns governing the field of that particular research (Anderson, 2004). Moreover, the deductive approach involves moving from the general (theoretical position) to the specific (inquiry of the research), whereas the inductive approach involves moving from the specific to the general (Collis and Hussey, 2009). Figure 5.1 depicts a summary of the features of the two approaches in relation to theory and research.

Figure 5.1: Comparison of Deductive and Inductive approaches



Source: Bryman, (2004: 10)

In justification of the use of appropriate research strategy, it should be noted that since there has been no theoretical setting for the main questions of this research, this study therefore uses an inductive approach, with a set of observations derived from a case study-based survey, consisting of questionnaires and interviews. Thus, the research commences with a field research through questionnaires and interviews to identify the general pattern governing participants' opinions and perceptions in relation to e-banking and e-commerce.

5.4 RESEARCH METHODOLOGY

After locating a research in a particular philosophical frame, research methodology should be established in relation to the chosen philosophical position. Research methodology refers to “how research should be undertaken, including the theoretical and philosophical assumptions upon which research is based and the implications of these for the method or methods adopted” (Saunders *et al.*, 2007). Research methodology, as elaborated on by Collis and Hussey (2003), is therefore concerned with the general process of the study, ranging from the general theoretical foundation through to data gathering and analysis. Consequently, researchers should exercise care

when selecting a consistent research methodology, as it must be appropriate for the research objectives and questions. The nature of the research aims, objectives and research questions determine the nature of research methodology, research design and strategy.

A research methodology can be either qualitative or quantitative in relation to the identified research philosophy. In qualitative methodology, the researcher predominantly uses any form of data collection technique, for instance an interview, or data analysis procedure, such as categorising data, that generates or uses non-numerical data. On the other hand, a quantitative approach, being a realistic and positivist approach in philosophy, predominantly uses a data collection technique, such as a questionnaire, or data analysis procedure, such as graphs or statistics, that generates or uses numerical data (Saunders *et al.*, 2007).

Another issue relevant to research design relates to the time horizon in which the researcher aims to collect the appropriate data. Time horizon can be either longitudinal or cross-sectional. While longitudinal research is concerned with the identification of changes over time (Remenyi, 2005) cross-sectional research produces a ‘snapshot’ of a population at a particular point in time. The choice of which of these types is to be undertaken is influenced by three factors: purpose of research, research strategy (Churchill, 2001) and time available to the researcher (Saunders *et al.*, 2003). This current research is defined as cross-sectional research, the reasons for which are as follows:

- (i) Cross-sectional studies usually serve the purpose of descriptive studies that aim to describe a detailed picture of an existing issue, or to provide a description of business elements at a given point in time (Saunders *et al.*, 2007; Hair *et al.*, 2003);
- (ii) Cross-sectional studies are usually employed when the survey strategy is used on a nationwide scale (Hair *et al.*, 2003; and Easterby-Smith *et al.*, 2002). Therefore, they are also known as social survey design (Bryman and Bell, 2007). This type of study helps to explain how different factors are related in different organizations from a sizable population at a particular time, which in

turn, helps to achieve the research objectives (Saunders *et al.*, 2000).

In short, as far as this study is concerned, the cross-sectional approach is highly suitable as it would prove extremely difficult, in administering our survey, to track the same respondents over time. The same problem would be faced regarding interviewees.

Table 5.2 demonstrates the main characteristics of the two research methods, as summarised in Hancock (1998). A thorough examination of the features of the two methods indicates that the qualitative aspect of this research follows all the characteristics of a typical qualitative research as it aims to measure perceptions through questionnaires and interviews. However, regarding the quantitative methodology, the features such as, objectivism, positivism and deductive strategy do not apply.

Table 5.1: Qualitative and Quantitative Research

Qualitative Research	Quantitative Research
Subjective	Objective
Holistic	Reductionist
Phenomenological	Scientific
Anti-positivist	Positivist
Descriptive	Experimental
Naturalistic	Contrived
Inductive	Deductive

Source: Hancock (1998:10).

In short, since this study aims to discover the opinions and perceptions of the participants in relation to the research questions raised in it, the research is framed as qualitative research. This is also due to the fact that the conveyed perceptions and opinions are further subjected to meaning-making analysis through interpretative method, which also makes this study a qualitative research method study.

5.5 RESEARCH DESIGN: TRIANGULATION APPROACH

The research design can be viewed as a combination of art and science involved in the planning processes to carry out the study in an attempt to garner the most conclusive outcome (Saunders *et al.*, 2009). It is an art as the design requires careful presentation and wording of the appropriate statements relating to the research objectives. It is also

a science as it comes up with a number of logical and scientific approaches. Notably, the decision on the design of the research is highly crucial here, as it has a significant impact on the entire study, owing to the fact that it delivers a detailed overview of how the study should be guided and the areas on which it should direct emphasis (Collis and Hussey, 2009). Moreover, establishing the research design involves creating a detailed plan to aid the researcher to overcome any obstacles associated with the study.

The research design, therefore, is the plan that guides the researcher in the process of collecting, analysing and interpreting observations (Stiles, 2003). Moreover, it is noted by Creswell (2003) that the researcher should select the research design during the initial phases of the study, as the design is able to establish a number of other important elements, including the methodology, data collection methods, and data analysis techniques. However, it is highlighted by Hussey and Hussey (1997) that the research design process should be reviewed in order not only to establish any problems in the study, but also to create a theoretical structure, establish the aim and study questions, select the most appropriate methodology, predict the results, and give consideration to study limitations. In the light of what has been discussed, the research design is one of triangulation approach as it leans on all the three approaches, exploratory, descriptive and explanatory.

Easterby-Smith *et al.*, (1991: 33) define research designs as “about organising research activity, including the collection of data in ways that are most likely to achieve research aims”. The most common categories of research design are associated with three types of investigation: exploratory research, descriptive research, and explanatory research (Neuman, 2014). In developing an insight into the problem of any study, it is customary to conduct an exploratory research; hence it helps the researcher to solve a problem which has not been addressed before. Generally speaking, a problem associated with any exploratory research can be related to lack of clarity and definition of the variables and the data used in the research, leading to unstructured research framework. This problem may not necessarily imply that the research is non-systemic, rather it can be a qualitative nature and hence

require interpretative clarification (Creswell and Clark, 2007). In an environment where the research is either focusing on something unknown, or there is not much information available, exploratory research would be expected to be conducted (Saunders *et al.*, 2007; Sekaran, 2003).

On the other hand, by definition, descriptive research is a form of research where past events and information are used to explain the current available outcomes; hence the need for emphasis on the importance of clear definition of the research problem. In other words, as defined in Johnson and Christensen (2007), research should provide a correct description of the features of an event or phenomenon. Descriptive research leads to research design incorporating planning and use of statistical methods (Bryman, 2008).

The last category is referred to as explanatory research design, which aims to explain the nature of causal relationships between a number of variables and the possible outcomes arising from such relationships. An example of explanatory study, as suggested in Saunders *et al.*, (2007) is when the relationship between outputs of a particular production machinery and its effective age is considered. Thus, explanatory studies tend to establish quantitative relationships, such as correlation, between various variables.

Other research designs include case studies and survey design. The former refers to in-depth and contextual analysis about a particular case, such as an organisation, a country *etc.*, with the objective of uncovering the unknown, as in this study, which aims to search for the demand and supply conditions of e-commerce use through e-banking in Saudi Arabia, which has not previously been studied as such. A search of the relevant literature indicates that some studies have been undertaken in Saudi Arabia on e-commerce; however none of these has investigated e-commerce through e-banking services specifically.

Bryman (2004) states that case studies can be better researched by combining qualitative and quantitative approaches in terms of data collection process or research method. In this research investigation, the quantitative approach was used through

survey questionnaires, while interviews were convened in order to obtain in-depth information about e-commerce through e-banking services, which is qualitative approach. Thus, another aspect of the research in this study is that it is designed as a survey study, as the data were collected through questionnaire and interview survey methods.

Overall, this research is exploratory as it aims to explore a particular case study, through the sampled participants' opinions and preferences on demanding e-commerce and e-banking services provided by Saudi Arabian Islamic and conventional banks. In addition, it explores the supply conditions through the IT managers of Saudi Arabian banks. Furthermore, as explained, it is also designed as a survey as well as a case study.

5.6 RESEARCH METHOD: DATA COLLECTION

As mentioned previously, for the most part quantitative methods are used to collect the required data, though qualitative research methodology is used as a frame.

The research issues are addressed through an approach in research projects, known as methodology. Bryman (2008) defines methodology as the combination of processes that collect data and interpretation which are then used to test the relevant hypotheses and theories in the social sciences.

There are two types of research approach, namely quantitative and qualitative, and together they form the research methodology (Kumar, 2008). The use of numerical data in arriving at a number of statistical inferences and relationships amongst variables falls within the domain of quantitative analysis (Creswell, 2009). The inferences derived from such data can help explain the issues in the research. In other words, a quantitative research offers information in the form of numbers, hence it measures the quantity (Remenyi *et al.*, 1998). However, as presented in Creswell and Clark (2007) qualitative approach interprets events and incidents; but in specific terms, qualitative approach is exploratory and evaluative. Therefore, it can be said that in social sciences data is collected either through qualitative or quantitative

approaches, or the combination of the two which can produce more reliable and comparable data (Hussey and Hussey, 1997).

In quantitative approach, the observations are recorded and then quantified for statistical analysis (Kumar, 2008). In contrast, as highlighted in Bryman (2008) qualitative approach emphasises the information rather than quantification, which is analysed to develop the theory. Furthermore, quantitative methods establish the relationships between independent and dependent variables using a sample that is applicable to a population at large. On the other hand, qualitative methods provide the proof that governs the phenomenon to investigate issues through quantitative approach (Elliott, 2005).

Qualitative methods involve information being obtained through interviews or from reports. The collected information is then analysed and explained in line with the research question and objectives (Van Maanen, 1983). The purpose of qualitative approach is to obtain information about a specific issue or phenomenon through a process that identifies the attributes and uniqueness of the matter in question. On the other hand, quantitative approach addresses the issues in developing hypotheses and data is obtained through the numbers (Novikov and Navikov, 2013).

Methods of data gathering are a fundamental consideration when taking into account study design. The appropriate selection of data collection methods enables the researcher to achieve the objectives of the study. This is further explained by Ang (2010), who states that there are two key types of data: primary and secondary. In this regard, it is noted that primary data is new or original data which is gathered by the researcher in consideration of the study aim; such information is commonly garnered through the use of experiments, interviews, observations and questionnaires and is generally known as a survey (Eldabi *et al.*, 2002).

Zikmund *et al.*, (2013: 136) explain the differences between qualitative and quantitative research approaches which cover a number of key dissimilarities in the Table 5.2 below.

Table 5.2: Comparing Qualitative and Quantitative Research

Qualitative Research	Research Aspect	Quantitative Research
Discover ideas. Used in exploratory research with general research objects	Common purpose	Test hypotheses or specific research questions
Observe and interpret	Approach	Measure and test
Unstructured, free-form	Data collection approach	Structured response Categories provided
Researcher is intimately involved. Results are subjective.	Researcher independence	Researcher uninvolved observer. Results are objective.
Small samples - often in natural settings	Samples	Large samples to produce generalizable results (results that apply to other situations)
Exploratory research designs	Most often used	Descriptive and causal research designs

Source: Adapted from Zikmund *et al.* (2013: 136).

On the other hand, secondary data is a type of data, which is gathered by someone else with another aim (Hox and Boeije, 2005).

The triangulation concept was initially developed by Denzin (1970) and suggests the application of various techniques one study. The purpose of triangulation is to generate data which is credible and reliable to support the inferences of issues.

As far as the current study is concerned, a thorough examination of case studies and relevant literature in the area of e-commerce and e-banking services suggests that a mixed approach using both questionnaires and interviews will strengthen the quality of the findings and their analysis. Moreover, in the light of this inductive approach, chosen by the current study, one needs to be in a position to collect as much information as possible. These two methods of investigation form our triangulation approach for collection of information and will enable us to conduct scientific checks and balances in arriving at more concrete findings. It is worth noting that triangulation can also be used to enhance the effectiveness of research methods.

Bryman (2004) suggests that triangulation can be understood as a concept of combining different methodological techniques to overcome weaknesses in specific techniques. Traditional methods based on the positivism paradigm will not necessarily

yield the result that the researcher expects or wants. Human beings are not static, and research methods used should therefore be able to accommodate social interaction and dynamism (Bryman, 1988). Moreover, Marshall and Rossman (2006) argue that the reliability and validity of any data can be judged or tested through triangulation. In addition, Denzin and Lincoln (2005) suggest the multiple methods approach to understand the reality and facts about an issue. In short, triangulation approach in data collection is a means of developing and enhancing such social interaction and dynamism.

To achieve the objectives of this research investigation and bearing in mind the importance of research methods, this study adopted triangulation methods to increase the credibility, reliability and confidence in the findings using a mixture of the following methods:

- (i). Quantitative: Structured survey questionnaires for customers for both types of bank and;
- (ii). Qualitative: Semi-structured interviews with the top IT managers in both types of bank, Islamic and conventional.

Structured survey questionnaires along with semi-structured interviews are mostly applied in order to obtain agreeable results, regardless of variation in data gathering and interpretations (Harris and Brown, 2010). In addition, Kendal (2008) differentiates the survey questionnaire and qualitative interviews as large populations are tested through the questionnaires, and interviews are conducted to collect insight information about the attitudes, beliefs, and thoughts.

Hence, overall a mixed method approach has been practised in this research. Sekaran (2003) describes research processes which have a systematic enquiry base or scientific base, or where issues are managed through a methodology as a research based approach. This simply means that there is a discipline and logical standpoint in the social sciences. The current study aims to collect information from two sources: interviews and questionnaires, hence it requires the use of both methods. In short, the study employs a mixed method of investigation, hence lending itself to a triangular method of research. In justification of the approach chosen in this study, as has been

highlighted earlier, it is argued that the triangulation method of research is both popular and appropriate in research relating to banking studies (Hasan *et al*, 2010).

5.6.1 Questionnaire: Quantitative Method of Data Collection

In collecting data one of the main instruments used by social scientists is the means of questionnaire. A large number of scholars in social sciences (*e.g.* Oppenheim, 2000; Easterby-Smith *et al.*, 2002; Sekaran, 2003; Brace, 2008; and Collis and Hussy, 2009) have highlighted questionnaires as being the most popular approach when seeking to gather people-related data. They are recognised as a highly valuable aspect of the survey strategy, which has long been acknowledged as playing a key role in conducting studies.

5.6.1.1 Design of the questionnaire

Depending on the degree of structure and design, questionnaires can be categorised as structured and unstructured. However, a questionnaire can be designed to incorporate both structures in the questions posed. Identifying the nature of questions and then designing the questionnaire structure is of utmost importance in research (Zikmund *et al.*, 2013).

The questionnaire in this research was designed after reviewing the literature on e-commerce and e-banking services and examining relevant methodologies. If a questionnaire is not designed according to a particular logic, it is likely that the data cannot be trusted. The questionnaire was devised to comprise of four parts. Part 1 deals with the personal characteristics and general background of respondents in terms of their banking history. Part 2 covers questions relating to the knowledge of respondents about e-commerce, including motivation to deal with e-commerce, obstacles and possible reasons for not dealing with e-commerce, and general customer satisfaction in relation to e-commerce. Part 3 asks participants to rank e-channel banking services and dealings with e-commerce through e-banking services. Finally, part 4 deals with e-commerce security and cases where problems may arise when using e-channel banking services or dealing with e-commerce, and whether such cases may affect their inclination to use e-banking services or deal with e-commerce.

The designing of self-administered survey questionnaires is highly important. The survey questionnaires are either self-administered or involve personal interviewers or online methods. The respondents are given a number of choices in the survey questionnaire. The purpose of offering more choices is to obtain the right answer for a specific question. The respondents should relate to the problems and issues according to their capacity. Therefore, Hair *et al.*, (2003: 422) define the Likert scale as “an interval scale that is used to ask respondents to indicate whether they agree or disagree about a given subject by rating a series of mental belief or behavioural belief statements”.

However, some questions in this research investigation requested only basic information such as the number of times respondents used the bank services, or just a ‘yes’ or ‘no’ answer. It should be noted that in this research ‘neutral’ responses are considered very important. On the one hand, they suggest that the policy makers were not right in implementing their policies, while on the other hand, the policy makers can find a way to change their managerial roles.

In sum, a detailed questionnaire for the banks’ customers in Saudi Arabia was constructed in association with the literature review and research questions, covering personal details, attitudes towards e-commerce and their views about the use of e-commerce through e-banking services in Saudi banks. The full questionnaire is presented in Appendix 1.

On the whole there are 25 general questions presented in the questionnaire. However, some questions are composed of several sub-questions. For example, whilst Question 14 has 2 items, Question 18 poses 15 different sub-questions. In addition, the scaling is based on Likert approach taking different values between 1 and 3, 1 and 4 or 1 and 5, depending on the range established and on the nature of the questions.

5.6.1.2 Administration of the questionnaire

The administration of the questionnaire refers to the actual conducting of the questionnaire schedule in the field, which can be a time-consuming and expensive

exercise. Researcher-administered questionnaires are recognised as being far more time-consuming than self-administered ones. Considering the time limitations in regard to this study, self-administered questionnaires were recognised as being more appropriate, and they are also considered to offer a much greater degree of freedom and reduced bias (Oppenheim, 2000). On the other hand, it may be argued that the location and choice of respondents can be limited by this approach, hence leading to serious biases. On the whole, however, the self-administered questionnaire tends to offer far more advantages than disadvantages.

For the purpose of time-saving and efficiency, a detailed questionnaire was designed and distributed to be self-administered at the selected banks, a copy of which can be found in the Appendix Section.

Self-administered questionnaires are further divided into three types: mail questionnaires, online questionnaires, and personally administered questionnaires. In this study, the personally administered questionnaire method is chosen as the instrument of the empirical survey, as it gives the researcher the opportunity to explain the aims of the study and offer any possible assistance with completing the questionnaire when required by the respondents. There are two main reasons behind the rejection of the other two methods, highlighted as follows:

- (i). The utilisation of online questionnaires necessitates that the target sample has full access to websites and e-mail, which may not be the case for all Saudi bank customers. In addition, the email addresses of the respondents may be required for this method, and the bank may decline to provide the researcher with such sensitive information. The author's preliminary investigation revealed that banks were generally reluctant to agree to send their customers a copy of the questionnaire and to ask them to complete it online;
- (ii). When utilising mail questionnaires, it is recognised that such a method delivers minimal control in terms of achieving respondents' feedback, as well as a lack of control over the speed of responses and the time taken for completed questionnaires to be received by the researcher (Hair, 2003). Once again, this would require the postal addresses of the respondents, which the

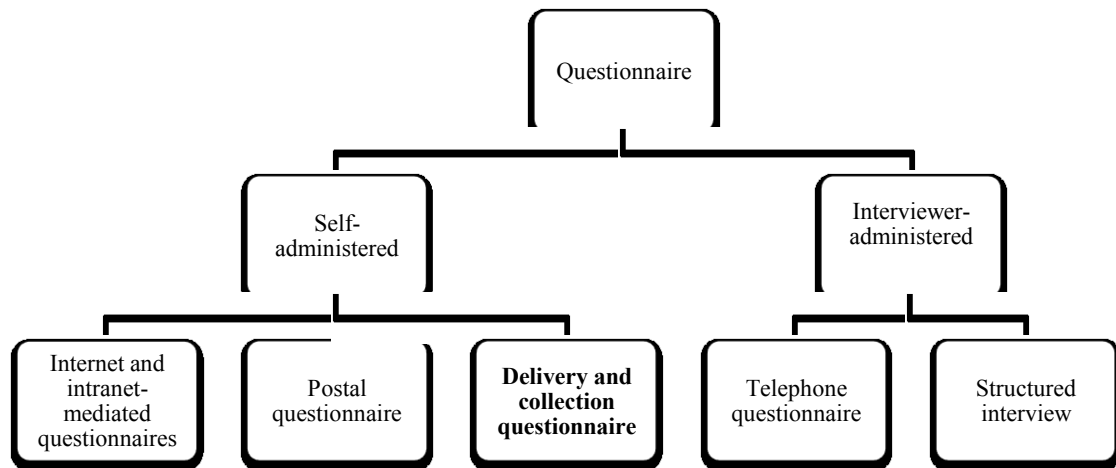
banks could decline to divulge to the researcher.

In short, self-administered questionnaires are cost-effective to conduct and the key benefits associated with their use include:

- (i). the opportunity to provide respondents with an introduction to the research topic, thereby facilitating honest, accurate answers;
- (ii). it only requires a short period of time to facilitate the collection of data;
- (iii). There is the opportunity to ensure clarification of any unclear answers, as well as to clear up any misunderstanding (Sekaran, 2003).

According to Saunders *et al.*, (2007) and Saunders *et al.*, (2009) the way in which a questionnaire is carried out can be classified into two types: self-administered, and researcher-administered (see figure 5.2).

Figure 5.2 : Types of Questionnaire



Source: Saunders *et al.*, (2009: 362)

The self-administered method of questionnaire administration refers to the case where the respondents are asked to complete the questionnaires on their own and in their own time. The researcher-administered questionnaire, on the other hand, refers to the case where the researcher presents the questions to the respondents and completes the

questions on their behalf. One drawback of researcher-administered questionnaires is the difficulty in finding a suitable time to meet with respondents. Thus, self-administered questionnaires are usually carried out by the target sample and distributed and returned electronically or by post.

It should be noted that this study opted for a self-administered questionnaire in the selected banks.

The survey questionnaire was administrated during May-July, 2012. Instead of focusing on respondents in the branches of the sampled the banks, the researcher used a different approach, as it is believed that customers who use e-banking services would not normally visit the branch. Therefore, friends, colleagues, and others were given the survey questionnaire to distribute among people they knew. Another justification for using such a distribution method relates to the participation of females, as in Saudi Arabia there are certain norms and customs that prohibit men from associating with women who are un-related, which means that the researcher did not have direct contact with female participants during the time of completing the questionnaire.

Finally, the issues relating to informed consent and confidentiality of the information within the framework of academic ethics followed throughout the survey.

5.6.1.3 Sampling approach and sample size: Questionnaire

Kemper *et al.*, (2003) support purposive sampling and mixed methods. Where the sample is the subset of any population, as indicated by (Wiersma, 2000), this gives rise to the researcher presenting the results in general terms.

A sample selection from a large population constitutes a crucial part of any social science research. A sample is selected to adequately represent the population at large. Sampling must be based on logical criteria; but in the absence of such order, random selection is highly advised. Ideally, sample selection should be made in different stages (Oliver, 1964). These stages are sometimes referred to as ‘strata’ or layers. Normally, the first stage relates to the identification of the ‘target’ population. Whilst

population represents the total set of elements, the target population is a small part of the population identified to represent the whole population (Hair *et al.*, 2000). Once the target population is identified, the next stages/strata can be based on the researcher's choice on, say, gender, race, income, size of household, location and any other relevant socio-economic indicators (Scheaffer, *et al.*, 2012).

In order to improve the consistency and effectiveness of the findings, it is intended that a relatively large sample size of bank customers and IT managers will be considered.

In the first stage of the sample selection for this research six banks out of a possible 12 were selected (three Islamic banks and three conventional). They were chosen due to the similarities in their market shares, point-of-sale, e-banking infrastructure, and customer-based criteria. Table 5.3 shows the main characteristics of the selected banks, based on number of branches, POS, cash machines, equity capital, and share of total Saudi banking assets. It shows that there appear to be significant differences in POS and branches between the Islamic and conventional banks (SAMA, 2012).

Table 5.3: Details of Selected Banks

Bank	Branchs	Online-Banking	Call-centre	ATM	POS	Capital (SARbn)
Islamic Banks						
Al-Inma	55	✓	✓	1000	N.A	15
Al-Jazira	66	✓	✓	308	N.A	4
Al-Rajhi	500	✓	✓	3600	28000	16.250
Conventional Banks						
Arab National	203	✓	✓	1200	11000	10
Saudi Fransi	83	✓	✓	576	8634	12.05
Samba	68	✓	✓	512	5381	12

Source: www.cdsi.gov.sa/, Bankscope, www.sama.gov.sa, SAMA annual report, 2013.

The target population, based on Table 5.3, is therefore the population of customers of these banks. In the final stage of stratification, the research targets, namely the customers of these banks are located in three main regions of Saudi Arabia: the central, the eastern and the western provinces. The areas included in the research are very familiar to the researcher because he works and lives in that area. The final target population of customers is therefore confined to those living in the above-mentioned regions who deal with the banks stated in Table 5.3; this is estimated to be around four million people.

As regards the sample size, it must be noted that a representative sample should be large enough to satisfy the needs of the study and should be chosen at random and be unbiased (Hussey and Hussey, 1997). As for the respondents, as mentioned, the sample includes officials, businessmen, university staff, *etc.* from different cities including Riyadh, Alkarj, Jeddah, Makkah, Taif, Dammam, and Alkubr. A total of 250 questionnaires were distributed (125 each in Islamic and conventional banks). It should be noted that the whole process, from distribution to collection of questionnaires took nearly three months.

As part of the field research, the researcher was available in Saudi Arabia in order to answer any possible questions raised by the respondents. By the end of August 2012, all 250 questionnaires had been returned; however, 52 of them were excluded due to non-completion, leaving 198 questionnaires with complete information ready for data analysis, representing a significant response rate of 79%. As researchers including Kamel (2006) report a low response rate in studies carried out in the Middle East at 30% to 50%, the 79% response rate in this study is very encouraging. Table 5.4 illustrates the rate of distribution and collection of the questionnaire.

Table 5.4: The Rate of Distribution and Collection of Questionnaire

Bank type	Distributed	Received	Incompletion	% Completion
Islamic	125	104	21	83.2%
Conventional	125	94	31	75.2%
Total	250	198	52	79%

Regarding non-response rate, Tabachnick and Fidell (2007) point out the significance of missing data. However, in this data collection, all 198 survey questionnaires were fully complete which means there was no data missing from the research investigation. The reason for the high response rate is that the researcher used the confidence of coordinators in the banks, and the coordinators either helped the respondents to fill in the questionnaires on time or chased up the respondents to fill them in quickly and return them.

5.6.2 Interviews: Qualitative Data Collection Method

Leading personnel in both types of bank were interviewed about e-banking. The

purpose of interviewing managers about e-banking was to test their knowledge on the subject matter. In addition, the interviews provided a means of extracting information from the key players face to face. An accurate picture, as perceived by the interviewees, was obtained of the impact of e-banking services in Saudi banks on encouraging their customers to adopt e-commerce through e-banking services.

There are three types of interview: fully structured, semi-structured, and unstructured (Saunders *et al.*, 2009 and Robson, 2011). In a fully structured interview, the researcher sets aside, from the outset, a series of relevant questions for interviewee(s) and attempts to confine himself to these questions. This method may prove advantageous as it is straightforward and efficient in time-saving. However, it may also have its disadvantages, as any snowball questions derived from the main questions would not be considered.

The semi-structured interview is proven to be one of the most popular methods of primary data collection as it allows for any snowball effect arising from the structured questions; hence, it enriches the quantity and quality of information collected by the researcher. Jankowicz (2005) indicates that the semi-structured interview approach can obtain personal data and data about attitudes, and value orientation. In addition, sensitive issues can only be addressed through the semi-structured approach. In reality, small queries, such as why, when, and who, can bridge the distance between the interviewer and interviewee.

With this method, the researcher may benefit from the so-called ‘snowball effect’ whereby open-ended questions may lead to the discovery of further information that would have been ignored otherwise.

Finally, one of the least popular forms of interview is the unstructured interview, in which the researcher has no set or predetermined questions in mind and expects the interviewee to come up with some general ideas about the main issues (Saunders *et al.*, 2007).

Interviews are also subject to potential biases, resulting from the nature of the research, the researcher, and the respondents who agree to be interviewed

(Oppenheim, 1992). In order to avoid bias, Malhotra and Birks (2007) warn of the following nine important key points which the researcher needs to consider prior to conducting interviews:

- (i). The researcher needs to be prepared and knowledgeable about the organisational or situational context in which he/she embarks on conducting interviews;
- (ii). The researcher must be prepared to provide respondents with a list of the interview themes before the event; this promotes validity and reliability by enabling the interviewee to consider the information being requested;
- (iii). The researcher's appearance may affect the perception of the interviewee, where this has an adverse effect on the researcher's credibility in the view of interviewee; this resulting bias may affect the reliability of the information provided;
- (iv). The nature of the opening comments is crucial as the interviewee has not met the researcher before. The first few minutes of conversation may have a significant impact on the outcome of the interview. The interview is likely to occur in a setting that is unfamiliar to the researcher, but it will nevertheless be the researcher's responsibility to shape the start of the discussion;
- (v). The approach to questioning that the researcher takes can reduce the scope for bias during the interview and increase the reliability of the information obtained. The questions need to be clearly phrased, so that the respondent can understand them, and the researcher should ask them in a neutral tone of voice. It is usually best to leave sensitive questions until near the end of an interview because this allows more time for the respondent to build up trust and confidence in the researcher;
- (vi). The nature and the impact of the interviewer's behaviour during the course of the interview can also reduce the scope for bias during the interview. Comments or non-verbal behaviour, such as gestures, which indicate any bias, should be avoided. The researcher should enjoy the experience, or at least appear to do so;
- (vii). Demonstration of attentive listening skills is highly important and allows the researcher to identify comments that are significant to the research topic.

- Although it is necessary for the researcher to explore and probe explanations and meaning, respondents must be provided with reasonable time to develop their responses, and the researcher must avoid projecting her/his own views;
- (viii). The researcher may check their understanding by summarising an explanation provided by the respondent. This will also allow the respondent to evaluate the adequacy of the interpretation and correct it where necessary;
 - (ix). A correct approach to recording data is paramount to the interviewer, so a full record of the interview should be compiled as soon as possible after it has taken place. Where the researcher does not do this, the exact nature of explanations provided may be lost as well as general points of value, as there is the possibility that the researcher may mix up data from different interviews.

The interviews were conducted in May-August, 2012, at six selected banks representing different areas of Jeddah and Riyadh, the capital of Saudi Arabia. Detailed themes and questions designed to address essential issues related to the study in association with the literature review and research questions, were structured for the purpose of the interviews of IT managers of the sampled banks in Saudi Arabia, and presented in the Appendix 2. It should be noted that nine IT managers from all six banks were interviewed for this research.

Regarding the sample, nine respondents were interviewed in the two main cities of Riyadh and Jeddah, Saudi Arabia, from different managerial positions: headquarter managers of e-banking services; branch and headquarter assistant managers of e-banking services; heads of e-banking services in both branch and their headquarters.

Finally, it should be noted that the researcher used a semi-structured approach during the interviews. This approach was chosen because it provided the researcher with the means of asking supplementary questions to strengthen the qualitative data. The benefits of this approach were highlighted earlier in this chapter.

With regards to the administration of the interviews, to obtain the information from

the respondents of both types of bank, certain arrangements were made such as the use of tape recorders. Each bank interview took one-to-two hours and the tapes were transcribed afterwards. It is important to mention that there were variations between the interviewees in language, experience and skills. The researcher was respectful when asking the questions in order to maintain a good rapport with the respondents, and obtain un-biased data. The aim was to ensure reliability and validity of data gathered through the interviews.

5.6.3 The Pilot Study

In order to test the clarity of the questionnaire's language and the interview questions, it is a pre-requisite to conduct a pilot study (Oppenheim, 2001). In conducting the pilot study, the researcher involved friends and colleagues who had a background in the Saudi banking system. They all took part in the pilot study voluntarily. The aim was to determine the validity, reliability and practicality. It is important to mention that the respondents who tested the survey questionnaire were from Durham Business School. Suggestions were given by the respondents in the pilot questionnaire, which were useful in finalising the design of the questionnaire.

A total of 30 respondents were involved in testing the questionnaire, and of the total 24 were returned with suggestions and comments. The number of respondents was higher than that suggested by Fink (1995), who envisages that at least 10 respondents will be enough to test the questionnaire. The researcher made the suggested modifications to the survey questionnaire and interview questions suggested by the pilot research respondents, in consultation with his supervisor. This shaped the final version used for the questionnaire and interview in this research investigation.

5.7 RESEARCH METHODS: DATA ANALYSIS

Due to the nature of the data, both quantitative and qualitative data analysis methods were utilised whereby triangulation was achieved. In other words, as stated earlier, the method of investigation in this study is based on a triangulation approach; hence it covers a mix of quantitative (using questionnaires' findings) and qualitative (using interviews) approaches.

The overall data and information was collected from both the questionnaires and the interviews, and the data gathered from completed questionnaires were coded and details entered in SPSS package for derivation of relevant statistical inferences. The data analysis from the interviews is presented in Chapter 10, which is a supporting source of the results derived from the questionnaire.

5.7.1 Quantitative Data Analysis for Questionnaire Data

The data were subjected to statistical analysis through Statistical Package for Social Sciences (SPSS), version 20. The calculations were drawn statistically for descriptive statistics such as means, standard deviations, frequencies, including ranking of various questions. In addition, inferential statistics are utilised to develop further meaning as well as regression analysis. However, it is essential to determine the nature of the data, namely whether it is parametric or non-parametric, as this will determine the type of tests that can be used.

In exploring the normality test, the following hypotheses were established:

H_0 : Distribution is normal

H_1 : Distribution is not-normal (non-parametric)

In checking the normality test, SPSS functions were used to produce the Kolmogorov Smirnova and Shapiro-Wilk test results, and for this only the variables with Likert scale are used. The results are depicted in Table 5.5.

Table 5.5: Normality Test Results

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Q14.1	.229	198	.000	.864	198	.000
Q14.2	.196	198	.000	.865	198	.000
Q18.1	.283	198	.000	.836	198	.000
Q18.2	.238	198	.000	.886	198	.000
Q18.3	.257	198	.000	.880	198	.000
Q18.4	.198	198	.000	.905	198	.000
Q18.5	.213	198	.000	.896	198	.000

Q18.6	.188	198	.000	.900	198	.000
Q18.7	.265	198	.000	.877	198	.000
Q18.8	.246	198	.000	.873	198	.000
Q18.9	.174	198	.000	.910	198	.000
Q18.10	.173	198	.000	.914	198	.000
Q18.11	.244	198	.000	.871	198	.000
Q18.12	.225	198	.000	.888	198	.000
Q18.13	.203	198	.000	.881	198	.000
Q18.14	.224	198	.000	.866	198	.000
Q18.15	.223	198	.000	.855	198	.000
Q19.1	.157	198	.000	.912	198	.000
Q19.2	.209	198	.000	.899	198	.000
Q19.3	.232	198	.000	.882	198	.000
Q19.4	.208	198	.000	.849	198	.000
Q19.5	.240	198	.000	.877	198	.000
Q19.6	.238	198	.000	.870	198	.000
Q19.7	.213	198	.000	.901	198	.000
Q19.8	.172	198	.000	.913	198	.000
Q19.9	.208	198	.000	.885	198	.000
Q19.10	.207	198	.000	.907	198	.000
Q19.11	.212	198	.000	.900	198	.000
Q19.12	.196	198	.000	.900	198	.000
Q20.1	.189	198	.000	.902	198	.000
Q20.2	.175	198	.000	.914	198	.000
Q20.3	.244	198	.000	.888	198	.000
Q20.4	.254	198	.000	.889	198	.000
Q20.5	.185	198	.000	.892	198	.000
Q20.6	.167	198	.000	.909	198	.000
Q20.7	.205	198	.000	.908	198	.000
Q20.8	.184	198	.000	.888	198	.000
Q20.9	.256	198	.000	.851	198	.000
Q20.10	.283	198	.000	.841	198	.000
Q20.11	.464	198	.000	.486	198	.000
Q21.1	.238	198	.000	.853	198	.000
Q21.2	.246	198	.000	.821	198	.000
Q21.3	.172	198	.000	.903	198	.000
Q21.4	.255	198	.000	.840	198	.000
Q21.5	.181	198	.000	.856	198	.000
Q22.1	.210	198	.000	.874	198	.000

Q22.2	.238	198	.000	.884	198	.000
Q22.3	.237	198	.000	.867	198	.000
Q22.4	.287	198	.000	.762	198	.000
Q22.5	.315	198	.000	.727	198	.000
Q22.6	.221	198	.000	.825	198	.000
Q23.1	.209	198	.000	.904	198	.000
Q23.2	.204	198	.000	.897	198	.000
Q23.3	.235	198	.000	.895	198	.000
Q23.4	.213	198	.000	.894	198	.000
Q23.5	.237	198	.000	.891	198	.000
Q23.6	.195	198	.000	.899	198	.000

a. Lilliefors Significance Correction

As can be seen from Table 5.5, all the variables in the case of Kolmogorov Smirnova and Shapiro-Wilk tests produced p -values less than the tabular value of 0.05 which, therefore, suggests rejection of the H_0 that the distribution is normal. As a result, it can be concluded that all the variables are non-normal, which implies that non-parametric tests must be used to produce efficient analysis and results, including Mann-Whitney U and Kruskal and Wallis tests as well as ordinal logistic regression (OLR) analysis.

As part of the non-parametric tests, mean calculations were utilised to determine the understanding of respondents in both the conventional and Islamic banks. Non-parametric tests including the inferential statistics such as KW tests and MWU tests are distribution free in the sense that their distribution has no dependence on the distribution of errors (Hettmansperger and McKean, 2011).

Thus, the data were tested using inferential statistics by use of non-parametric tests: MWU test, a non-parametric test, which is equal to the t -test, was used as an independent test to note the differences between the groups (Field, 2009; Pallant, 2010). In addition, the KW test, as a non-parametric test, is used for more than two subgroup control variables (Field, 2009; Pallant, 2010). Thus, to test the level of awareness, knowledge, attitudes, and perceptions across groups in the same category, the KW test was used in this research investigation. The tests were carried out to establish the significant differences, if any, for 'gender', 'nationality', 'age', 'monthly

income', 'highest educational qualifications', 'occupation' and 'region' categories as control variables. The use of various tests such as the MWU test and the KW in this research enables us to identify whether such control variables are significant in explaining the potential variations in the answers given to the statements by the users of conventional or Islamic banks.

In developing the inferential analysis, Ordinal Logistic Regression (OLR), as the non-parametric regression test, was used to identify significant explanatory variables to explain the variation in dependent variable. The OLR is opted for, as there are more than two categories in the dependent variable as well as having non-parametric data. In addition, there is an order in the categories of the dependent variable: 'always', 'very often', 'often', 'occasionally' and 'never' to the questions asked (Field, 2009). Furthermore, where there are only two categories, 'yes' and 'no', in the dependent variable, the research favours binary logistic regression (Field, 2009). As in the non-parametric tests, right key variables were also used in the OLR ('gender', 'nationality', 'age', 'monthly income', 'highest educational qualifications', 'occupation' and 'region'). Use of logistic regression analysis here is part and parcel of the application of the KW test for a number of variables included in the research.

It should be noted that statistically significance level of $p=0.10$ (90% confidence level) is considered as the significance level in Chapter 6, while a test of $p=0.05$ (95% confidence level) is used in Chapters 7, 8 and 9. The standard way to test the level of significance is 5% but to commute the results higher than 5% or nearer 10%, the confidence interval is extended to 10%. In a broader sense, these types of confidence level are acceptable in statistical terms. Thus, by expanding the confidence level to 10%, the results, which are on the edge of the 5% confidence level, can also be accepted.

5.7.2 Qualitative Data Analysis for Interview Data

Analysis of interviews can be of three types: coded, descriptive and interpretative analysis (Konold and Well, 1981). During this research, after transcribing all the recorded interviews, the interviews were firstly coded, only to differentiate the

responses of the interviewees. It is also important to mention that additional questions were later included with the main questions to draw a clear conclusion of the issues raised with the policy makers in both the Islamic and conventional banks.

The codes allowed the researcher to present the arguments after interpretative explanations. All the interviews were judged independently and hence are presented in the results section interpretatively. This technique was developed and presented by Bryman (2004), and primarily aims to identify the main theme of an issue from the organisational perspective.

The aim with coding analysis is to refer to the way such data can be presented in a summarised manner. The codes imply different categories in the same population. This can then show the differences between the responses of different respondents to the same question (Konold and Well, 1981 and Bryman, 2004). However, this aspect was narrowly implied in presenting the interview responses in this research. Most importantly, coding would work as a means of following the confidentiality and ethical issues.

5.7.3 Data Quality and Reliability

Data quality and reliability are inter-related for efficient and effective analysis. Vaus (2002), therefore, states that researchers must make sure that in a questionnaire, the contents and measurements of the variables are valid and reliable. Validity and reliability are fundamental in order to avoid errors, which would mislead the researcher and cause them to draw meaningless inferences that are against theory and practice. To overcome such issues and problems, a pilot research is the way forward, as participants can suggest making changes in the survey questionnaire; the process of the pilot study conducted during this study, as explained above, was instrumental in achieving validity of the study.

Proctor (2005) argues that reliability of the data can be judged from consistency in results, when testing is repeated. In its very narrow meaning, researchers' own self-reliance is strengthened when the same questions are answered similarly at a second or third attempt, but this is subject to the consistency of the views and facts reported

by the respondents. This is indirectly related to the appropriate designing of questions for the questionnaire. In a broader approach, the language used in the questions should be clear in order to produce a reliable survey. In addition, inadequate words should be avoided in the interview questions, as un-carefully chosen words could mislead the interviewee, and the interviewer will then fail to obtain reliable qualitative data. To avoid this, Vaus (2002) recommends different approaches such as wording the questionnaire questions carefully, and conducting interviews through assistance and training. Above all, Vaus emphasises that questions asked of the respondents should fit the experiences of the respondents, otherwise the gathered data will be unreliable.

Proctor (2005) signifies the importance of the validity of the data and its measurement as the validity is directly proportional to the measurements. In other words, the measurements of a survey should correspond to the existing theory, and the results should compute to the concepts, which exist in the literature. As for the reliability, Saris and Gallhofer (2007) point out that Cronbach's alpha helps to ensure the internal consistency for establishing reliability.

Cronbach's alpha coefficient is one of the most regularly used statistics (Pallant, 2010). Pallant (2010) suggests the use of Cronbach's alpha test to measure internal consistency reliability as the scale used in the data. Vaus (2002) states that this test determines the consistency response for a question precisely, as well as its comparison to the other scaled items. It measures inter-item correlations but within only one scale, which then provides reliability on the overall basis of the scale.

The estimates of Cronbach's alpha test actually range between 0-1. Pallant (2010) confirms that the higher the value obtained, the higher the reliability of the data will be. In the estimation, 0.7 is considered as the lowest value of accepted reliability of the data gathered and tested (Cronbach, 1951); thus 0.70 alpha value is the way to judge the consistency of the variables (Fujun *et al.*, 2007).

The present study used internal consistency approaches due to the fact that multiple items were tested for all constructs. Therefore, it can be understood that internal consistency, if the estimates for Cronbach alpha is higher than 0.7, indicates higher

internal reliability. In this study, Cronbach alpha values were 0.952 for Islamic banks and 0.926 for conventional banks as shown in Table 5.6, which confirms the base of testing the attributes to be reliable and preferable.

It can, therefore, be said that the internal consistency is verified by the data provided in this study and this indirectly justifies the scale used as reliable. In addition, Likert and itemized type scales give rise to testing the reliability through Cronbach alpha test internally.

Table 5.6: Reliability Statistics (Cronbach's Alpha Coefficient) for Islamic and Conventional Banks

N of Items	Cronbach's Alpha	
	Islamic Banks	Conventional Banks
63	0.952	0.926

5.8 ETHICAL ISSUES

One of the most important elements of any social science research is the consideration of ethical issues. In pursuing the ethical process, it is vitally important to make sure that both the research methodology and the outcome of the investigation do not breach any ethical boundaries (Coghlan and Brannick, 2001). The following list of ethical issues recommended by Coghlan and Brannick (2001) was considered throughout the information collection process in this study:

- (i). negotiating access with authorities and participants;
- (ii). promising and ensuring confidentiality of information, identity and data;
- (iii). informing participants of their right to decline to participate in the research;
- (iv). obtaining permission to use the banks' documentation produced for other institutional purposes;
- (v). maintaining the study's intellectual property rights;
- (vi). keeping good faith by demonstrating that the researcher can be trusted;
- (vii). informing those concerned of how the study will publish descriptions of their work and their points of view.

The protocol for this research was approved by the Ethics Committee at Durham University in 2012, where this PhD research was initiated. As part of the ethical approval process, the respondents' names and banks' names remained completely anonymous and the responses were treated as strictly confidential. Moreover, it was assured that no company or individual would be contacted as a result of the information provided by the respondents.

It should also be noted that the data collected from the questionnaire was retained until the completion of the research.

5.9 RESEARCH DIFFICULTIES AND LIMITATIONS

No matter how comprehensive or sophisticated, there are bound to be some limitations, which can be attached to any piece of social science research. The current study is no exception to this rule.

The major problem faced by the researcher relates to the data collection process. In March 2012, the researcher approached SAMA in Saudi Arabia, the Saudi Culture Bureau in London and Taif University, College of Admin and Financial Sciences, to obtain permission to begin the research fieldwork, and the response was positive. However, in March, 2012, an official letter of ethical approval was also sent to the selected banks, but the researcher faced problems from the customers as they were using e-banking services but not at the bank branch.

Since this was a lengthy research process, the researcher's colleagues helped by distributing the questionnaire among respondents at both banks. The researcher took great pains to travel to obtain the representative sample. It was mandatory to obtain prior permission to interview the IT managers and access to those banks was granted by SAMA; hence the researcher was able to commence the interviews.

One of the main limitations of the current study is associated with its research design. The study has considered only 6 out of a total of 12 banks in Saudi Arabia. In addition, the research is based on a limited sample size of a selection of bank customers in three main regions of Saudi Arabia, covering about 65.5% of the

country's total population as of 2010 (Saudi Central Department Of Statistics & Information). Moreover, the questionnaire was expected to be distributed in branches of Islamic and conventional banks on a random basis. Despite its randomness, this method is bound to generate some biases, no matter how small, as was discussed earlier.

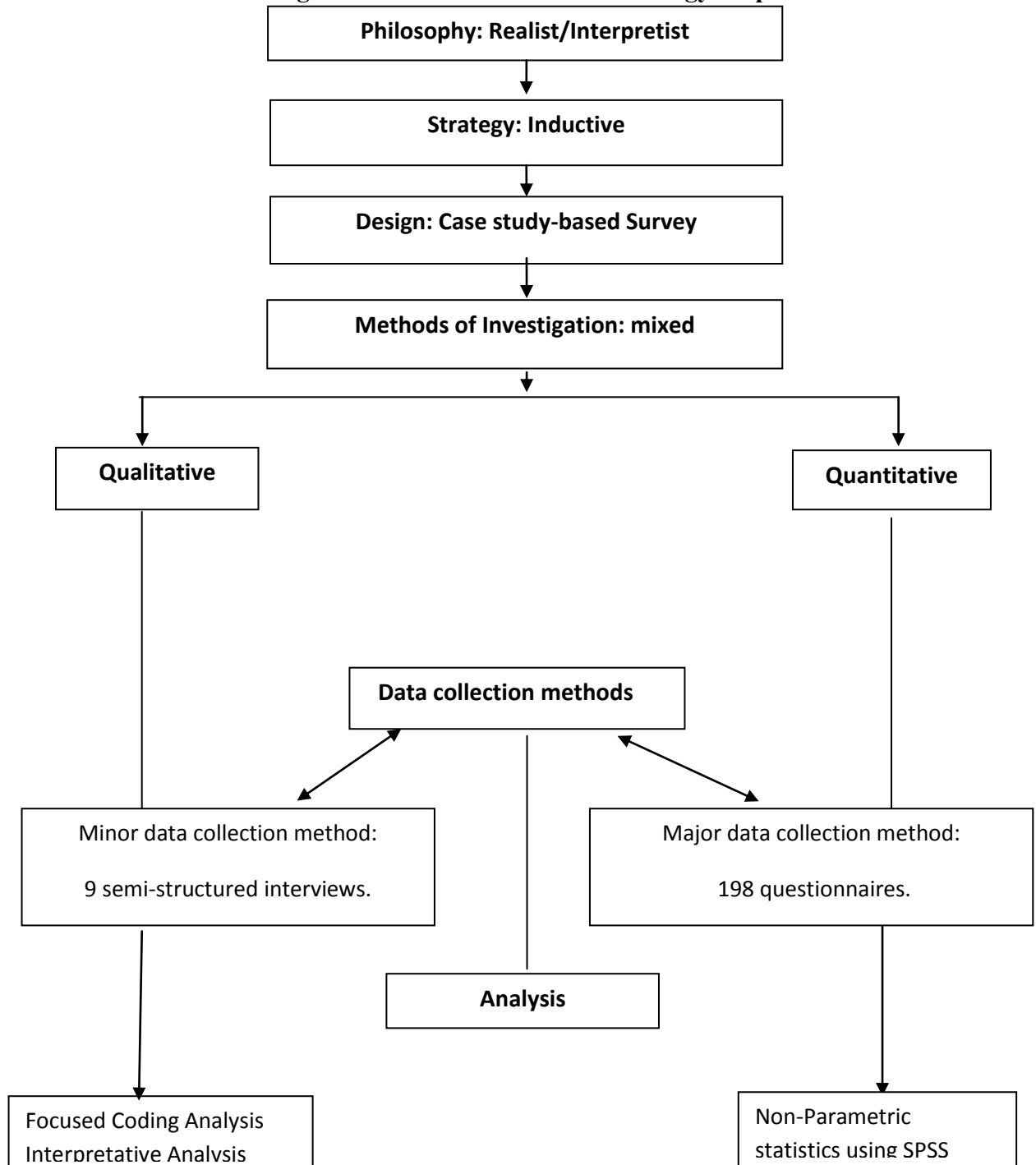
Another source of limitation is related to the nature of the data collection being cross-sectional. Any cross-section analysis offers a single snap-shot of a given event, hence it fails to allow for the dynamism of customers' attitudes and habits over time.

It is vitally important to state that, generally, conducting a survey by means of a questionnaire proves to be very challenging in the Middle East. In particular, finding people to take the time to complete the questionnaire in Saudi Arabia is an extremely tough task. Moreover, for both the questionnaire and the interviews, the researcher had to fully convince the participants of the utter confidentiality of the information. Nevertheless, through power of persuasion and extreme politeness, the researcher managed to overcome this massive cultural problem.

The aim of this research, as indicated above, is to investigate the customers' opinions regarding e-commerce through e-banking services in Saudi Islamic and conventional banks from the perceptions of the customers. In short, the findings from the study must be treated as a subjective view of the e-commerce through e-services amongst customers and users, and providers (IT managers). The results of this empirical work are presented in the following five chapters.

In short, in consideration of the justification of the current research philosophy, strategy, design and methods, the study's overall methodology can be summarised and depicted, as presented in chart 5.3.

Figure 5.3: The Research Methodology Map



CHAPTER 6

LOCATING THE ATTRIBUTES OF THE SAMPLE AND EXPLORING PAARTICIPANTS' BANKING BEHAVIOUR

6.1 INTRODUCTION

The previous chapter provides detailed explanations on the collection of primary data used in this study. After codifying the data, the statistical analysis was carried out using SPSS, the statistical tool most frequently used by social scientists by initially producing descriptive analysis. In addition, the analysis in this chapter employs several inferential statistics as non-parametric methods of data analysis, including the Independent Samples Kruskal-Wallis Test (KW Test) as well as the Mann-Whitney U Test (MWU Test). Furthermore, in exploring the data further, logistic regression was used in this chapter to identify significant independent variables.

As can be seen in the following sections, the descriptive analysis is mainly based upon frequency distribution in the form of frequency tables and mean, median, mode and standard deviation estimates as measures of dispersion.

It should be noted that the sampled customers, as can be seen, were drawn from Saudi Islamic banks - Alinma, Al-Jazera and Al-Rajhi -, and the Saudi conventional banks - Arab National, Saudi Fransi and Samba. In addition, the sampled bank customers in this research mainly come from three regions of the country: Riyadh, Western and East regions of Saudi Arabia.

6.2 THE CHARACTERISTICS OF THE SAMPLE PROFILE

This section provides a summary of the profile of the sample investigated, based on type of bank and within the type of banks, the individual banks. As can be seen in Table 6.1, the total number of respondents was 198, with 52.5% of the respondents representing Islamic banks and 47.4% representing conventional banks. Table 6.1 also provides the distribution of the sample to particular Islamic and conventional banks

Table 6.1: Profile of the Participants

Islamic Banks	Frequency	%Sub-Total	% Cumulative Total
Alinma	34	32.7	17.1
Al-Jazira	30	28.8	15.1
Al-Rajhi	40	38.5	20.2
Sub-Total	104	100.0	52.5
Conventional Banks			
Arab National	32	34.0	16.1
Saudi Fransi	30	31.9	15.2
Samba	32	34.0	16.1
Sub-Total	94	100.0	47.4
Total	198		100.0

The characteristics of the respondents in relation to their gender, nationality, age category, monthly income, highest educational qualifications, occupation and region from the samples are presented in Table 6.2, which also provides the variation in the groups and the category of the respondents. The percentages for each characteristic are shown separately.

Table 6.2 shows only three characteristics of the sample. It can be seen that 56.1% of the participants in the research were males, while 43.9% of the sample were females. This simply means that women spent less time in the banks and this is further explained during discussion part, as Saudi Arabian society is heavily gender-segregated society. Thus, considering the gender segregation in Saudi Arabia, this study should be considered successful in having a female sample of 44%.

The results of nationality are quite clear, as 67.7% is Saudi respondents and 32.3% non-Saudis took part in this research. The largest non-Saudi nationals included Yemenis, Egyptians and Pakistanis.

With regard to age, 70.7%, of the sample population fell into the 45 or below age group; while 33.3% were of the 26-35 year old category. A further 26.8% were in the 36-45 of age group, and just 16.2% in the 46-55 years age group. The 18-25 years old category made up 10.6% and those over 55 years of age constituted only 13.1%, with the mean value for age category being 2.88. The overview of this data demonstrates that the majority of respondents were young people, who work or run their own businesses, and hence require avenues for having their assets in a bank.

The statistical inferences for monthly income, highest educational qualifications and occupation are also shown in Table 6.2. It can be seen that 62.6% of respondents earned within the range of less than SAR 4,000 to 12,000, followed by those earning in the range of SAR 12,001 to SAR 16,000, which constitute 23.2 %.

Table 6.2: Characteristics of the Respondents

Variable Group	Frequency (Valid)	% (Valid)
Gender		
Male	111	56.1
Female	87	43.9
Nationality		
Saudi	134	67.7
Sudanese	9	4.5
Indian	9	4.5
Pakistani	10	5.1
Egyptian	13	6.6
Yemeni	14	7.1
Syrian	9	4.5
Age category		
18 - 25 years	21	10.6
26 - 35 years	66	33.3
36 - 45 years	53	26.8
46 - 55 years	32	16.2
Over 55 years	26	13.1
Monthly income		
Less than 4001 SR	44	22.2
4001 - 8000 SR	46	23.2
8001 - 12000 SR	34	17.2
12001 - 16000 SR	46	23.2
16001 - 20000 SR	16	8.1
More than 20000 SR	12	6.1
Highest educational qualifications		
Below High School	40	20.2
High School	56	28.3
Bachelor degree	80	40.4
Master's degree or above	22	11.1
Occupation		
Student	18	9.1
Private sector employee	63	31.8
Public sector employee	90	45.5
Private business	7	3.5
Retired	11	5.6
Unemployed	9	4.5
Region		
Riyadh Region	65	32.8
Western Region	95	48.0
Eastern Region	38	19.2

The mean value calculated is 2.90 implying that the average income is close to SAR 8,000-SAR12,000. In regards to educational qualifications, 51.5% of respondents

declared they had bachelor degrees or masters' degrees or above compared to 48.5% respondents who have high school education or lower level. The mean value calculated was 2.42. Concerning occupation, 45.5% of the sample had a public sector job, with 31.8% of the sample came from the private sector and 9.1% were students followed by 5.6% retired and 3.5% being in private business, while the unemployed represented 4.5% in this research investigation. The final category in the exploration of the characteristics of the sample is regional background of the sample, which can be a deterministic factor in banking behaviour. As the results in Table 6.2 shows, the large majority, 48.0% were from the Western region, followed by Riyadh with 32.8% and Eastern Region, which was only 19.2%, and the mean value was 0.710.

In summary, the findings suggests that the majority of the respondents were Saudi males, aged between 26-35, earning in the range of SAR SAR 8,000 -SAR12,000, with bachelor degrees as their highest educational qualifications, employed in the public sector and predominantly from the Western region.

6.3 EXPLORING RESPONDENTS' BANKING RELATIONSHIPS

The respondents' relationships with the banks was analysed and the results are displayed in Table 6.3. The purpose of this analysis is to understand the experience, usage and, especially, duration of the relationship of the respondents with the Saudi banking system and their own individual bank.

Table 6.3: Respondent's Duration of Bank Patronage

	Frequency (Valid)	% (Valid)
Q 9. How long have you been a customer of this bank?		
Islamic Banks		
Less than 1 year	6	5.77
1 to 3 years	17	16.35
4 to 5 years	14	13.46
More than 5 years	67	64.42
Total	104	100.00
Conventional Banks		
Less than 1 year	11	11.70
1 to 3 years	14	14.90
4 to 5 years	27	28.72
More than 5 years	42	44.70
Total	94	100.00

This information is pivotal as it can impact on the other parameters in this research. As for the conventional banks customers, the findings in table 6.3 show that 44.70% of customers have been with their banks for more than 5 years, and 11.70% of respondents had recently opened their accounts, implying that latter group's stay with the banks was for less than one year.

As e-banking service is the main issue in this research, a question was asked about the respondents' familiarity with e-banking services. As depicted in Table 6.4, 80.8% of Islamic banks customers were familiar with the use of e-banking service as compared to 87.23% of respondents of conventional banks. The difference might be due to date of establishment of banks and their experiences in Saudi Arabia. The results suggest that majority of the respondents, whether Islamic or conventional banks, use e-banking services in their transactions, implying that majority of respondents are familiar with e-commerce.

Similarly, as e-commerce is the second leading issue, the respondents were asked to express their familiarity with e-commerce in a similar way as the previous question.

Table 6.4: Respondent' Familiarity with E-Banking Services and E-Commerce

	Frequency (Valid)	% (Valid)
<i>Q 10. Are you familiar with e-banking services?</i>		
Islamic Banks		
Yes	84	80.8
No	20	19.23
Total	104	100.00
Conventional Banks		
Yes	82	87.23
No	12	12.8
Total	94	100.00
<i>Q11. Are you familiar with e-commerce?</i>		
Islamic Banks		
Yes	71	68.3
No	33	31.7
Total	104	100.00
Conventional Banks		
Yes	61	64.9
No	33	35.1
Total	94	100.00

The results indicate that 68.3% of respondents of Islamic banks did understand e-

commerce compared to 64.9% of customers of conventional banks in Saudi Arabia. These results suggest that the majority of customers had the understanding of using e-commerce.

As explained, the results to questions 10 and 11 indicate that the terminology of e-banking services and e-commerce were familiar to the majority of Islamic and conventional bank customers.

The next question under investigation refers to the use of e-banking in Saudi Arabia. As can be seen from Table 6.5, 54.8% respondents of the Islamic banks have a preference to use e-banking against 45.2% respondents who use the bank services in person, while 53.2% of the conventional bank customers use e-banking compared to 46.8% who go to the banks in person instead. However, the results indicate the upward trend in using e-banking in both conventional and Islamic banks.

Table 6.5: Respondents' Nature of Dealing and Frequency of Visits to the Bank

	Frequency (Valid)	% (Valid)
<i>Q 12. In your dealings with your bank, do you mostly?</i>		
Islamic Banks		
Personally go to the bank branch	47	45.2
Use e-banking only	57	54.8
Total	104	100.00
Conventional Banks		
Personally go to the bank branch	44	46.8
Use e-banking only	50	53.2
Total	94	100.00
<i>Q 13. How many times do you usually go to your bank branch?</i>		
Islamic Banks		
Every day	0	0.00
Weekly	16	15.4
Monthly	45	43.3
More than a month	43	41.3
Total	104	100.00
Conventional Banks		
Every day	0	0.00
Weekly	10	10.63
Monthly	54	57.44
More than a month	30	31.93
Total	94	100.00

The last question aimed at exploring the frequency of use of banks services. Therefore, a question with options of as every day, weekly, monthly and more than

above was asked to understand their usage. As can be seen in Table 6.5, 43.3% of respondents of Islamic banks visit their bank branch monthly, while 41.3% of respondents go to the banks more than a month, whilst 15.4% Islamic bank customers used bank service on weekly basis. In comparison, the 57.44% of conventional bank customers visit their banks monthly, while 31.93% go more than a month, and 10.63% of respondents visited the bank weekly. As can be seen from the results, Islamic bank customers are more motivated to visit their banks on a more frequent basis than those of conventional banks. Finally, as the findings shows, in both groups of banks, none of the sampled customers visited their bank on a daily basis. It should be noted that there is a very slight difference in the behaviour.

Table 6.6: Respondents' Usage of E-Banking Services and E-Commerce Services

	Frequency (Valid)	% (Valid)
<i>Q 14.1: Frequency of Using E-Banking Services in Everyday Life</i>		
Islamic Banks		
Always	30	28.8
Very often	31	29.8
Often	8	7.7
Occasionally	16	15.4
Never	19	18.3
Total	104	100
Conventional Banks		
Always	22	23.4
Very often	27	28.7
Often	22	23.4
Occasionally	11	11.7
Never	12	12.8
Total	94	100
<i>Q 14.2: Frequency of Dealing E-Commerce Services in Everyday Life</i>		
Islamic Banks		
Always	8	7.7
Very often	24	23.1
Often	23	22.1
Occasionally	17	16.3
Never	32	30.8
Total	104	100
Conventional Banks		
Always	8	8.5
Very often	20	21.3
Often	12	12.8
Occasionally	22	23.4
Never	32	34.0
Total	94	100

The findings generated from Question 14.1 relating to the frequency of usage of e-banking and e-commerce services are depicted in Table 6.6, which show that 58.6% of the customers of Islamic banks have used e-banking services either ‘always’ or ‘very often’, 58.6% ‘often’ or ‘occasionally’, 23.1% while only 18.3% stated that they never used e-banking services. As for the conventional banks customers, 52.1% have used e-banking ‘always’ and ‘very often’ and 35.1% ‘often’ and ‘occasionally’, whilst only 12.8% never used e-banking services. The mean values calculated were 3.36 for Islamic banks and 3.31 for conventional banks, which does not show any significant differences among the Islamic and conventional banks customers.

Table 6.6 also shows the findings relating to frequency of usage of e-commerce services through customers’ respective banks. As the results indicate, 30.8% of the customers of Islamic banks have dealings with e-commerce ‘always’ and ‘very often’, and 38.4% ‘often’ and ‘occasionally’, against 30.8% who never dealt with e-commerce. As for conventional bank customers, 29.8% stated that they dealt with e-commerce ‘always’ and ‘very often’ and 36.2% ‘often’ and ‘occasionally’, whilst 34% never deal with e-commerce. The close results in the mean value - 2.61 for Islamic banks and 2.47 for conventional banks again show very similar behaviours towards e-commerce usage.

Table 6.7: Respondents’ Duration of Dealing with E-Commerce through Saudi Banks

	Frequency (Valid)	% (Valid)
<i>Q 15. How long have you been dealing with e-commerce through Saudi banks?</i>		
Islamic Banks		
Never	39	37.50
1 to 2 years	11	10.58
3 to 5 years	27	25.96
More than 5 years	27	25.96
Total	104	100.00
Conventional Banks		
Never	36	38.30
1 to 2 years	25	26.59
3 to 5 years	15	15.96
More than 5 years	18	19.15
Total	94	100.00

Table 6.7 depicts the results for the duration of patronage of banks for dealing with e-

commerce both in the case of Islamic and conventional banks. As can be seen, 51.92% of the customers of Islamic banks stated that they had been dealing e-commerce through Islamic banks for three or more years, while 37.50% of customers stated that they had never dealt with e-commerce. In comparison, 35.11% of the customers of conventional banks expressed that they had dealt with e-commerce through their conventional banks for three or more years, but 38.30% of customers stated that they had never dealt with e-commerce at all. The mean values for Islamic and conventional banks are 2.40 and 2.16 respectively, which again shows a very close behaviour among Islamic and conventional bank customers.

Table 6.8: Respondents' Satisfaction with E-Banking Service Performance

	Frequency (Valid)	% (Valid)
<i>Q16. Are you satisfied with the e-banking service performance of your bank?</i>		
Islamic Banks		
Yes	67	64.4
No	37	35.6
Total	104	100
Conventional Banks		
Yes	64	68.1
No	30	31.9
Total	94	100

Table 6.8, regarding satisfaction of customers with e-services performance, shows that the majority of Islamic and conventional banks' customers (64.4% and 68.1%) were satisfied with e-banking services. On the other hand, 35.6% and 31.9% of those who were surveyed indicated that they did not agree with the majority, with means of 1.36 and 1.32, respectively.

6.4 LOCATING THE SOURCES DIFFERENCES IN BEHAVIOURAL PATTERNS AND MOTIVATIONS: MEAN DIFFERENCE ANALYSIS

The previous section presents the initial results from the descriptive statistics obtained from the survey questionnaire with the objective of developing a sense of the attributes and characteristics of the participants. This section adds to the results through inferential statistical analysis by focusing on the statistical significance of the control variables in the responses provided by the respondents. The control variables

are based on the demographic questions in the early section of the survey questionnaire and include the following categories: 'gender', 'nationality', 'age category', 'monthly income', 'highest educational qualifications', 'occupation' and 'region'. Thus, this section aims to find out if such characteristics as control variables make any differences in the answers provided by the sampled bank customers to the questionnaire whereby the mean differences are tested.

The differences among the respondents were, hence, tested statically as the results in this section are based on the differences between participants, particularly in relation to each control variable. The responses were tested by employing non-parametric tests, including the Independent Samples Kruskal-Wallis Test (KW Test) as well as the Mann-Whitney U Test (MWU Test) to test if the independent variable has an impact on the related aspect. It should be noted that significant results highlight the differences in a control variable between the answers given by the participants about a particular statement. However, in a scenario where the differences between the respondents were similar or very close, KW Test and MWU Test could show them as non-significant. It should be noted that these tests are non-parametric tests; due to the non-parametric nature of the data as explained in the research methodology chapter.

The number of subcategories of the control or independent variable determines the choice of an appropriate test. For example, in a case where there are two subgroups in the control variable, such as gender, the MWU Test is most appropriate. However, if there are more than two subgroups, such as nationality, the KW Test is employed. This is because the KW Test can be used for the testing of multiple group categories in a single control variable. This gives rise to the p -value being calculated exactly.

As the questionnaire design indicates, all the control variables are divided into subgroups. 'Gender' is divided into male and female. Second, 'Nationality' is examined in various categories: Saudi, Sudanese, Indian, Pakistani, Egyptian, Yemeni and Syrian, while the 'age category' is explored through various sub-categories such as 18-25 years, 26-35 years, 36-45 years, 46-55 years and Over 55 years. Furthermore, 'Monthly income' is divided into subgroups for less than 4001SR, 4001-8000SR, 8001-12000SR, 12001-16000SR, 16001-20000SR, and more than 20000SR. In

addition, 'highest educational qualifications' is divided into below high school, high school, bachelor degree and Master's degree or above, while 'occupation' is divided into student, private sector employee, public sector employee, private business, retired and unemployed. Finally, 'region' is divided into Riyadh Region, Western Region and Eastern Region.

It should be mentioned that the results are displayed at the levels of significance of 5% and 10% respectively. Although the standard tabular value used in statistical significance is 5%; in order to commute the results in the higher confidence interval, the statistical significance level is extended to 10% so that further significance can be reported. As the initial descriptive results in the previous section indicate, the differences are not that significant. Therefore, in order to report more significant results, and in order to be able to accept the significance of the results, which are on the edge of the 5% confidence level, the significance level is increased to 10%. It should be noted that the results are categorised with an asterisk in the result tables as (*) showing statistical significance at 5% level and (**) stands for statistical significance at 10% level.

In the following analysis, only the results with their 5% and 10% level of significance are reported. This is due to having a very large set of results; and due to length related limitation, therefore, non-significant results are not reported. This, by definition, implies that the control variables or the statements, which are not reported, are by definition not statistically significant indicating similarity in the responses.

This section provides the perceptions of the participants with regard to their statements on the banking relationship characteristics. In this, KW and MWU tests are employed to develop meaningful results by testing the control variables such as 'gender', 'nationality', 'age category', 'monthly income', 'highest educational qualifications', 'occupation' and 'region' in relation to the respondents' banking relationship characteristics to locate the impacts of these control variables.

Table 6.9 displays the significance of the specified control variables to the question that 'How long have you been a customer of this bank?' for both types of banks.

Table 6.9: Significance of Control Variables on the Statement: (Q9) How long have you been a customer of this bank?

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Gender	Male Female	53.44 51.16	.656	53.06 41.18	.025*	MWU Test
Nationality	Saudi Sudanese Indian Pakistani Egyptian Yemeni Syrian	52.32 57.50 52.33 51.70 53.88 43.00 60.88	.959	48.34 25.33 62.00 62.50 24.20 36.81 66.60	.039*	KW Test
Age category	18-25 years 26-35 years 36-45 years 46-55 years Over 55 years	41.85 39.13 59.35 65.94 63.41	.000*	30.27 50.26 53.94 51.13 35.35	.049*	KW Test
Monthly income	Less than 4001 SR 4001-8000 SR 8001-12000 SR 12001-16000 SR 16001-20000 SR More than 20000 SR	42.82 50.68 44.56 56.69 67.88 65.94	.026*	20.45 51.16 54.47 58.66 73.50 39.00	.000*	KW Test
Highest educational qualifications	Below High School High School Bachelor degree Master's degree or above	59.25 46.33 52.48 52.11	.416	44.81 41.20 50.86 64.88	.091**	KW Test
Occupation	Student Private sector employee Public sector employee Private business Retired Unemployed	14.25 43.98 59.01 71.00 71.00 57.21	.000*	23.06 48.06 52.37 73.50 21.17 39.75	.010*	KW Test
Region	Riyadh Region Western Region Eastern Region	47.64 54.38 57.39	.326	58.25 42.14 44.78	.028*	KW Test

Note: (*) Statistically significant at 5% level; (**) Statistically significant at 10%.

For Islamic banks, the 'age category' is significant at 5%, since its calculated p -value is 0.000. It should be noted that the highest mean rank is for '46-55 year-olds' with a value of 65.94, while the lowest mean rank was for '26-35 year-olds' with a value of 39.13. Moreover, the control variable of 'monthly income' is statistically significant at 5% with p -value at 0.026. The mean ranking shows that the '16001-20000SR' category secured a high mean rank of 67.88, compared to the 'less than 4001SR' category which was the lowest mean rank with 42.82. In addition, 'occupation' as a

control variable is significant at 5% with a p -value of 0.000. Furthermore, 'private business' and 'retired' categories both secured the highest mean rank of 71.00 while the lowest mean rank was achieved by the 'student' subgroup with a value of 14.25.

In relation to conventional banks, the 'gender' control variable is significant at 5% significance level with a p -value of 0.025; the subgroup 'male' achieved the mean rank of 53.06 and 'female' scored mean rank of 41.18. In the 'nationality' control variable, the highest mean rank was achieved by 'Syrian nationality' with a value of 66.60, whilst 'Egyptian nationality' achieved the lowest mean rank at 24.20. The p -value scored by the 'nationality' variable is 0.054. The 'age category' is significant, with a p -value of 0.049, the '36-45 year-old' group obtained the highest mean rank with a value of 53.94. Moreover, '18-25 year-old' category scored the lowest mean rank at 30.27. Furthermore, 'monthly income' was significant at the level of 5%, with a p -value of 0.000. In this control variable, the ranking for '16001-20000SR' category was the highest with a value of 73.50, while 'less than 4001SR' group scored the lowest mean rank at 20.45.

Moreover, the 'highest educational qualifications' is significant with a p -value at 0.091: 'Master's degree or above' subgroup reached the highest mean rank 64.88, while 'high school' category scored the lowest mean rank with a value of 41.20. The control variable of 'occupation' is significant at a value of 5%, with the p -value of 0.010, suggesting significant differences between participants for the statement. Moreover, the 'private business' subgroup was the highest mean rank with a value of 73.50. In contrast, the 'retired' category scored the lowest mean rank of 21.17. Furthermore, the 'region' control variable is significant at at 5% with the the p -value of 0.028. In the control variable, the 'Riyadh Region' subgroup achieved the highest mean rank at 58.25, while the 'Western Region' category secured the lowest mean rank of 42.14.

Table 6.10 explores the significance of control variables for the statement 'Are you familiar with e-banking services?', for which only the results for the following control variables are reported: 'Nationality', 'age', 'highest educational qualification' and 'occupation'.

Table 6.10: Significance of Control Variables on the Statement: Q10 Are you familiar with e-banking services?

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	47.78	.007*	45.12	.000*	KW Test
	Sudanese	51.17		41.50		
	Indian	77.17		41.50		
	Pakistani	52.90		60.30		
	Egyptian	62.00		41.50		
	Yemeni	68.50		47.38		
	Syrian	55.50		79.10		
Age category	18 - 25 years	47.70	.000*	45.77	.402	KW Test
	26 - 35 years	43.99		44.53		
	36 - 45 years	44.43		48.73		
	46 - 55 years	58.75		47.38		
	Over 55 years	81.50		55.60		
Highest educational qualifications	Below High School	73.23	.000*	54.56	.034*	KW Test
	High School	44.76		50.05		
	Bachelor degree	49.43		42.84		
	Master's degree or above	42.50		41.50		
Occupation	Student	42.50	.000*	47.38	.000*	KW Test
	Private sector employee	51.17		46.32		
	Public sector employee	48.62		45.12		
	Private business	55.50		88.50		
	Retired	88.00		41.50		
	Unemployed	57.36		65.00		

Note: (*) Statistically significant at 5% level.

First, in relation to Islamic banks, the ‘nationality’ control variable was found to be significant at the level of 5%, with the p -value of 0.007; the ‘Indian nationality’ scored the highest mean rank at 77.17 and the lowest mean rank was awarded to ‘Saudi nationality’ at 47.78. Furthermore, the ‘age category’ variable achieved a p -value of 0.000 at significance level of 5%. The ‘over 55 year-old’ group scored the highest mean rank with a value of 81.50, and the subgroup for ‘26-35 year-old’ scored the lowest rank 43.99. In addition, the ‘highest educational qualifications’ variable with a p -value of 0.000 is significant at the level of 5%, for which the highest mean rank is ‘below high school’ category with a value of 73.23, while ‘Master’s degree or above’ group scored the lowest mean at 42.50. The last significant control variable in this statement is ‘occupation’ with a statistically significant p -value of 0.000 at level of 5%. The ‘retired’ group with a value of 88.00 recorded the highest mean rank, whilst the lowest mean rank is for the ‘student’ category at 42.50.

As can be seen from Table 6.10, for conventional banks, the ‘nationality’ variable is significant control variable at the significance level of 5% with a p -value of 0.000. Here, the ‘Syrian’ nationality group scored the highest mean rank with a value at 79.10 while the subgroups of ‘Sudanese’, ‘Indian’ and ‘Egyptian’ nationalities recorded the same lowest mean rank of 41.50. In the control variable of ‘highest educational qualifications’ the highest mean rank is achieved by the subgroup ‘below high school’ at 54.56. Furthermore, ‘Master’s degree or above’ category secured the lowest mean rank at 41.50 with the p -value of 0.034 at a significance level of 5%. In addition, the ‘occupation’ control variable is significant with a p -value of 0.000 at a significance level of 5%; the highest mean rank is for the ‘private business’ category with a value of 88.50 and the lowest mean rank is for the ‘retired’ subgroup at 41.50, in contrast to Islamic banks where it recorded the highest mean rank.

Table 6.11 examines the significance of control variables on the statement of the question that ‘Are you familiar with e-commerce?’, for which ‘Nationality’, ‘age’, ‘monthly income’, ‘highest educational qualifications’, ‘occupation’ and ‘region’ were investigated.

In the case of Islamic banks, the ‘age’ control variable is significant at 5% level of significance, with a p -value of 0.000; the highest mean rank (81.50) is scored by the ‘over 55 year-old’ subgroup whilst the lowest mean rank is scored by the ‘18-25 year-old’ category at 41.20. In addition, ‘highest educational qualifications’ control variable is significant at a level of 5%, with a p -value of 0.000, as is the ‘occupation’ control variable at a level of 5%. The highest mean rank went to the ‘retired subgroup’ value at 88.00, whereas the lowest mean rank is scored by the ‘student’ subcategory with a value of 41.20. Lastly, the ‘region’ control variable is significant at a level of 5%, with the p -value of 0.042; the highest mean rank is scored for the ‘Western Region’ with a value of 57.22 and the lowest mean rank went to ‘Riyadh Region’ with a value of 44.43. For conventional banks, as can be seen in Table 6.10, the control variable of ‘nationality’ is significant with a significance level at 5%, with the p -value of 0.025. The ‘Syrian’ nationality subgroup with a value of 68.60 is recorded the highest mean rank, while ‘Saudi’ holds a value of 42.57 as the lowest mean rank. The

variable ‘age’ is found to be statistically significant at the 5% level with a p -value of 0.010. The ‘over 55 year-old’ subgroup scored the highest mean rank with a value of 68.60, while the lowest mean rank went to ‘46-55 year-old’ group with a value of 42.75. Moreover, the monthly income control variable is significant with a p -value of 0.075 at the 10% significance level; the subgroup ‘16001-20000SR’ is the highest mean rank with a value of 62.33 and the lowest mean rank is for ‘more than 20000SR’ category at 31.00.

Table 6.11: Significance of Control Variables on the Statement: *Q11 Are you familiar with e-commerce?*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	48.81	.206	42.57	.025*	KW Test
	Sudanese	44.67		46.67		
	Indian	70.67		62.33		
	Pakistani	56.80		49.80		
	Egyptian	62.00		49.80		
	Yemeni	62.00		66.25		
	Syrian	62.00		68.60		
Age category	18 – 25 years	41.20	.000*	56.64	.010*	KW Test
	26 – 35 years	43.43		43.13		
	36 – 45 years	47.56		43.65		
	46 – 55 years	58.75		42.75		
	Over 55 years	81.50		68.60		
Monthly income	Less than 4001 SR	63.04	.163	53.26	.075**	KW Test
	4001 – 8000 SR	51.29		52.07		
	8001 – 12000 SR	48.24		36.53		
	12001 – 16000 SR	44.67		45.95		
	16001 – 20000 SR	52.00		62.33		
	More than 20000 SR	55.50		31.00		
Highest educational qualifications	Below High School	78.55	.000*	51.89	.168	KW Test
	High School	47.30		48.09		
	Bachelor degree	47.56		48.46		
	Master’s degree or above	36.00		31.00		
Occupation	Student	41.20	.000*	42.75	.065**	KW Test
	Private sector employee	49.00		50.28		
	Public sector employee	49.25		41.85		
	Private business	49.00		78.00		
	Retired	88.00		62.33		
	Unemployed	65.71		54.50		
Region	Riyadh Region	44.43	.042*	32.68	.000*	KW Test
	Western Region	57.22		57.57		
	Eastern Region	56.22		45.10		

Note: (*) Statistically significant at 5% level; (**) Statistically significant at 10%.

As for the ‘occupation’ control variable in table 6.11, it is significant at the level of 10%, with the p -value of 0.065. The ‘private business’ subgroup scored a value of 78.00 as highest mean rank, whereas the lowest mean rank is registered by ‘public sector employee’ group with a value of 41.85. The last significant control variable for this statement is the ‘region’ control variable with a significance level of 5% and p -value of 0.000. The highest mean rank is scored by ‘Western Region’ with a value of 57.57, and in contrast a value of 32.68 as the lowest mean rank was taken by ‘Riyadh Region’.

Table 6.12 shows the significance of control variables on this question ‘In your dealings with your bank, do you mostly?: a) Personally visit the bank, b) use e-banking only. The control variables of ‘gender’, ‘nationality’, ‘age category’, ‘monthly income’, ‘highest educational qualifications’, ‘occupation’ and ‘region’ were found to be significant at 5% and 10% levels for this particular variable.

In relation to Islamic banks, the control variable ‘gender’ is significant at 10%, with the p -value of 0.069; the ‘male’ group scored the mean value of 56.39, while ‘female’ group scored a value of 46.98.

In addition, the ‘nationality’ control variable was found to be statistically significant at 5% with a p -value of 0.011: ‘Saudi’ nationals scored the highest mean rank with a value of 59.42, while a value of 32.67, the lowest mean rank, is recorded by ‘Sudanese’ and ‘Indian’ nationalities. Moreover, ‘age’ category control variable, with a p -value of 0.000, is significant at the level of 5%. In this category, the ‘18-25 year-old’ subgroup with a value of 76.00 achieved the highest mean rank, whilst the ‘over 55 year-old’ group scored the lowest mean rank with a value of 30.50.

As can be seen in Table 6.12, the ‘highest educational qualifications’ control variable was found to be significant at 5% with a p -value of 0.000. The ‘Bachelor degree’ subgroup scored the highest mean rank of 60.98 and the ‘below high school’ group with a value of 33.45 is the lowest mean rank.

Furthermore, the ‘region’ control variable is significant at 5% with a p -value of 0.004; the highest mean score is for the ‘Riyadh Region’ subgroup with a value of 63.35,

whereas the lowest value received by the ‘Eastern Region’ category at 41.33.

Table 6.12: Significance of Control Variables on the Statement: *Q12 In your dealings with your bank, do you mostly?: a) Personally visit the bank branch, b) use e-banking only.*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Gender	Male Female	56.39 46.98	.069**	48.82 46.00	.563	MWU Test
Nationality	Saudi Sudanese Indian Pakistani Egyptian Yemeni Syrian	59.42 32.67 32.67 44.80 37.00 50.00 37.00	.011*	50.70 38.17 38.17 41.30 50.70 40.13 31.90	.476	KW Test
Age category	18 - 25 years 26 - 35 years 36 - 45 years 46 - 55 years Over 55 years	76.00 55.20 52.89 53.25 30.50	.000*	56.68 51.31 46.00 46.00 31.90	.135	KW Test
Monthly income	Less than 4001 SR 4001 - 8000 SR 8001 - 12000 SR 12001 - 16000 SR 16001 - 20000 SR More than 20000 SR	42.72 48.47 57.65 60.83 60.00 43.50	.105	39.82 41.95 55.68 50.27 53.83 69.50	.085**	KW Test
Highest educational qualifications	Below High School High School Bachelor degree Master's degree or above	33.45 57.91 60.98 46.29	.000*	30.33 45.29 53.39 69.50	.000*	KW Test
Occupation	Student Private sector employee Public sector employee Private business Retired Unemployed	50.00 54.33 54.59 63.00 30.50 53.71	.226	34.25 46.60 55.04 22.50 38.17 22.50	.027*	KW Test
Region	Riyadh Region Western Region Eastern Region	63.35 48.41 41.33	.004*	54.39 41.91 50.70	.069**	KW Test

Note: (*) Statistically significant at 5% level; (**) Statistically significant at 10%.

In the case of the conventional banks, the ‘monthly income’ control variable, it was found to be significant at 10% significance level, with the *p*-value of 0.085. The ‘more than 20000SR’ subgroup achieved the highest mean rank with a value of 69.50, and the lowest value is scored by ‘less than 4001SR’ group with a value of 39.82. The

result of the ‘highest educational qualifications’ control variable is found to be significant at the level of 5% with a p -value at 0.000. The subgroup of ‘Master’s degree or above’ is the highest value at 69.50, while the ‘below high school’ group with a value of 30.33 scored the lowest mean rank. As can be seen in Table 6.12, the ‘occupation’ control variable is significant at the level of 5% with a p -value of 0.027.

Table 6.13: Significance of Control Variables on the Statement: *Q13 How many times do you usually go to your bank branch?*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	58.42	.005*	52.33	.030*	KW Test
	Sudanese	18.67		26.83		
	Indian	28.83		51.50		
	Pakistani	47.80		45.90		
	Egyptian	55.50		47.90		
	Yemeni	53.67		25.50		
	Syrian	34.75		31.10		
Age category	18 – 25 years	65.40	.000*	52.77	.762	KW Test
	26 – 35 years	55.14		44.85		
	36 – 45 years	58.56		50.35		
	46 – 55 years	56.34		48.00		
	Over 55 years	24.59		41.70		
Monthly income	Less than 4001 SR	33.16	.000*	41.29	.001*	KW Test
	4001 – 8000 SR	46.56		35.98		
	8001 – 12000 SR	64.88		59.74		
	12001 – 16000 SR	68.33		52.23		
	16001 – 20000 SR	59.31		51.50		
	More than 20000 SR	40.69		79.50		
Highest educational qualifications	Below High School	27.75	.000*	41.50	.291	KW Test
	High School	61.96		45.44		
	Bachelor degree	62.01		49.73		
	Master’s degree or above	45.29		59.75		
Occupation	Student	46.10	.006*	38.75	.187	KW Test
	Private sector employee	49.71		45.24		
	Public sector employee	58.51		54.17		
	Private business	72.00		37.50		
	Retired	19.94		40.83		
	Unemployed	53.50		21.50		
Region	Riyadh Region	60.68	.004*	51.71	.191	KW Test
	Western Region	52.95		42.89		
	Eastern Region	34.47		52.20		

Note: (*) Statistically significant at 5% level.

The highest mean rank went to the ‘public sector employee’ group with a value of 55.04, while the ‘private business’ and ‘unemployed’ subgroups scored the lowest

values of 22.50. Table 6.13 presents the means comparison related findings for the variable: 'How many times do you usually go to your bank branch'.

As can be seen in Table 6.13, in relation to Islamic banks, the control variable 'nationality' was significant at 5% (p -value is 0.005) indicating differences between the nationalities for the current question. In this control variable, the highest value is scored by the 'Saudi' subgroup with a value of 58.42, while the lowest mean rank went to the 'Sudanese' nationality at 18.67. The 'age' control variable is significant at the level of 5%, with a p -value of 0.000. In this category, the highest mean rank is achieved by '18-25 year-old' group with a mean value of 65.40, whereas the 'over 55 year-old' subgroup scored the lowest value with a value of 24.59. Moreover, the 'monthly income' control variable is found to be statistically significant at the level of 5% with a p -value of 0.000; the subgroup of 12001-16000SR scored the highest mean rank at 68.33, whilst the lowest value went to 'less than 4001SR, category with a value of 33.16.

The 'highest educational qualifications' control variable is found to be significant at 5% with a p -value of 0.000. The highest mean rank is scored by 'bachelor degree' at 62.01, while the lowest value awarded to the 'below high school' group with a value of 27.75. The 'occupation' control variable is significant at the level of 5% with a p -value of 0.006. The highest mean rank with a value of 72.00 is recorded by 'private business' group, and in contrast the 'retired' subgroup scored the lowest mean value at 19.94. The final significant control variable is 'region' at the level of 5% with the p -value of 0.004. In this category, 'Riyadh Region' scored the highest mean value at 60.68, while the 'Eastern Region' subgroup achieved the lowest mean rank with a figure of 34.47.

For conventional banks, only the 'nationality' and 'monthly income' control variables were significant at the level of 5% with p -values 0.030 and 0.001 respectively. In contrast, 'age', 'highest educational qualifications', 'occupation' and 'region' control variables were found to be not significant with the p -values of 0.291, 0.187, and 0.191 in that order. The highest mean value for the 'nationality' control variable is scored by the 'Saudi' nationality with a value of 52.33, while the 'Yemeni' nationality achieved

the lowest figure at 25.50. In addition, the highest mean rank for the ‘monthly income’ control variable is recorded by the ‘more than 20000SR’ category with a value of 79.50, whereas the ‘4001-8000SR’ subgroup scored the lowest mean rank with figure of 35.98.

Table 6.14: Significance of Control Variables on the Statement: *Q14.1 In my everyday life, I often use e-banking services*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	56.81	.045*	52.08	.192	KW Test
	Sudanese	65.75		50.83		
	Indian	21.08		42.67		
	Pakistani	31.80		33.10		
	Egyptian	46.38		41.00		
	Yemeni	45.25		38.69		
	Syrian	54.38		23.90		
Age category	18 - 25 years	63.05	.006*	39.05	.493	KW Test
	26 - 35 years	57.00		50.35		
	36 - 45 years	59.98		52.31		
	46 - 55 years	46.44		45.06		
	Over 55 years	29.50		39.35		
Monthly income	Less than 4001 SR	47.22	.219	38.24	.000*	KW Test
	4001 - 8000 SR	39.50		33.90		
	8001 - 12000 SR	56.65		54.94		
	12001 - 16000 SR	56.48		61.95		
	16001 - 20000 SR	63.04		41.50		
	More than 20000 SR	58.75		83.50		
Highest educational qualifications	Below High School	28.34	.000*	42.33	.005*	KW Test
	High School	56.00		39.33		
	Bachelor degree	59.99		51.73		
	Master's degree or above	60.64		74.31		
Occupation	Student	61.40	.079**	52.44	.146	KW Test
	Private sector employee	52.98		44.50		
	Public sector employee	55.84		52.88		
	Private business	58.75		18.00		
	Retired	24.88		50.83		
	Unemployed	41.79		20.50		
Region	Riyadh Region	55.66	.712	62.07	.002*	KW Test
	Western Region	50.94		39.93		
	Eastern Region	50.25		44.50		

Note: (*) Statistically significant at 5% level; (**) Statistically significant at 10%.

Table 6.14 displays the significant control variables in relation to the statement that ‘In my everyday life, I often use e-banking services’, at the significance levels of 5% and 10%, in the case of both banking types.

First, in relation to Islamic banks, the ‘nationality’ control variable is significant at the level of 5% with the p -value of 0.045. The ‘Sudanese’ subgroup with the mean value of 65.75 achieved the highest mean rank, whilst the lowest value was scored by ‘Indian’ nationality with a value of 21.08. Moreover, the ‘age’ category control variable is significant at the level of 5% with a p -value of 0.006. In this case, the highest mean rank is scored by the ‘18-25 year-old’ group with a value of 63.05, while the lowest figure is recorded by the ‘over 55 year-old’ category with a value of 29.50. In contrast, the ‘monthly income’ control variable is found to be not significant with a p -value of 0.219. However, the ‘highest educational qualifications’ control variable is found to be statistically significant with a p -value of 0.000; the ‘Master’s degree or above’ subgroup recorded the highest mean value of 60.64, whereas the ‘below high school’ category scored the lowest mean with a value of 28.34. The ‘occupation’ control variable is significant at the level of 10%, with the p -value of 0.079, highlighting the varying opinions in relation to this statement. The subgroup ‘students’ with a value of 61.40 recorded the highest mean value, while the lowest mean rank is scored by the ‘retired’ group with a value of 24.88.

In terms of the conventional banks, the ‘monthly income’ control variable is found to be statistically significant at the level of 5%, with the p -value of 0.000. The highest mean rank of 83.50 went to the group ‘12001-16000SR’, while the lowest mean value is scored by the ‘4001-8000SR’ subgroup with a value of 33.90. In addition, the ‘highest educational qualifications’ control variable is significant at the level of 5%, with a p -value of 0.005. The ‘Master’s degree or above’ scored the highest mean value at 74.31, while the ‘high school’ is the lowest mean value at 39.33. Furthermore, the ‘region’ control variable is significant with an estimated p -value of 0.002 at 5% significance level; and the ‘Riyadh Region’ subgroup obtained highest mean rank at 62.07, whereas the lowest value went to Western Region with a value of 39.93.

Table 6.15 depicts the significance of the control variables on the statement that ‘In my everyday life, I often deal with e-commerce’ at the significance levels of 5% and 10%, in both types of bank.

Regarding Islamic banks, the ‘age’ category control variable is found to be statistically significant with a p -value of 0.000 at the level of 5%. For this control variable, the ‘18-25 year-old’ subgroup registered the highest mean value at 67.90, while the lowest mean rank is scored by the ‘over 55 year-old’ subgroup with a value of 20.81. In addition, the ‘highest educational qualifications’ control variable is found to be significant with p -value of 0.000. The highest mean value is scored by the ‘Master’s degree or above’ category at 73.61, whilst the lowest mean rank is achieved by the category ‘below high school’ with a value of 26.36. Furthermore, the ‘occupation’ control variable is found to be statistically significant with a p -value of 0.002 at the level of 5%. In this control variable, the highest mean rank is received by the category ‘student’ at 63.55, while the lowest mean value is scored by the category ‘retired’ with a value of 16.50.

Table 6.15: Significance of Control Variables on the Statement: *Q14.2 In my everyday life, I often deal with e-commerce*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	67.90	.000*	47.23	.713	KW Test
	26 - 35 years	57.23		45.50		
	36 - 45 years	64.22		51.69		
	46 - 55 years	44.44		50.25		
	Over 55 years	20.81		38.70		
Monthly income	Less than 4001 SR	45.86	.681	38.97	.012*	KW Test
	4001 - 8000 SR	48.50		38.40		
	8001 - 12000 SR	57.21		55.68		
	12001 - 16000 SR	58.42		61.36		
	16001 - 20000 SR	51.54		31.17		
	More than 20000 SR	55.56		55.25		
Highest educational qualifications	Below High School	26.36	.000*	35.06	.004*	KW Test
	High School	57.57		47.62		
	Bachelor degree	56.12		47.27		
	Master’s degree or above	73.61		76.00		
Occupation	Student	63.55	.002*	56.38	.168	KW Test
	Private sector employee	55.02		44.14		
	Public sector employee	57.72		52.47		
	Private business	49.88		25.50		
	Retired	16.50		45.50		
	Unemployed	32.71		16.50		
Region	Riyadh Region	57.31	.389	60.71	.003*	KW Test
	Western Region	48.58		39.30		
	Eastern Region	53.28		47.85		

Note: (*) Statistically significant at 5% level; (**) Statistically significant at 10%.

In relation to the conventional banks, the ‘monthly income’ control variable is found to be statistically significant with a p -value of 0.012. The highest mean rank is for the ‘12001-16000SR’ category at 61.36, while the lowest mean value is achieved by the ‘16001-20000SR’ category with a value of 31.17. In addition, the ‘highest educational qualifications’ control variable is found to be statistically significant with a p -value of 0.004. The ‘Master’s degree or above’ category secured the highest mean rank of 76.00, compared to the ‘below high school’ category which was the lowest mean value at 35.06. Moreover, the ‘region’ control variable was significant on this statement at the level of 5%, with the p -value of 0.003.

Table 6.16: Significance of Control Variables on the Statement: Q15 How long have you been dealing with e-commerce through Saudi Banks?

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	57.29	.228	49.92	.049*	KW Test
	Sudanese	46.17		38.83		
	Indian	28.33		74.50		
	Pakistani	51.80		55.40		
	Egyptian	46.38		50.20		
	Yemeni	39.17		28.63		
	Syrian	48.75		24.60		
Age category	18 - 25 years	53.50	.003*	44.86	.037*	KW Test
	26 - 35 years	57.14		43.95		
	36 - 45 years	59.19		58.67		
	46 - 55 years	56.94		49.19		
	Over 55 years	26.00		29.65		
Monthly income	Less than 4001 SR	42.00	.075	34.87	.000*	KW Test
	4001 - 8000 SR	42.76		41.71		
	8001 - 12000 SR	54.76		58.09		
	12001 - 16000 SR	63.88		54.91		
	16001 - 20000 SR	56.54		18.50		
	More than 20000 SR	60.50		85.50		
Highest educational qualifications	Below High School	31.95	.002*	38.92	.170	KW Test
	High School	62.26		46.52		
	Bachelor degree	54.89		49.27		
	Master’s degree or above	61.07		63.13		
Occupation	Student	43.20	.015*	38.31	.047*	KW Test
	Private sector employee	50.08		46.41		
	Public sector employee	58.76		55.13		
	Private business	73.25		18.50		
	Retired	23.13		35.33		
	Unemployed	50.14		18.50		

Note: (*) Statistically significant at 5% level.

The highest mean value was registered by the 'Riyadh Region' at 60.71, while the 'Western Region' obtained the lowest mean value of 39.30. Table 6.16 reports mean difference test results for the question that 'How long have you been dealing with e-commerce through Saudi Banks?'.

As the results in Table 6.16 shows, for Islamic banks, the 'age' category control variable is found to be statistically significant with a p -value of 0.000 at the level of 5%. In this control variable, the '36-45 year-old' category registered the highest mean value at 59.19, while the lowest mean rank is obtained by the 'over 55 year-old' group with a value of 26.00. In addition, the 'monthly income' control variable is statistically significant at the level of 10%, with the p -value of 0.075. The highest mean rank is achieved by the '12001-16000SR' category at 63.88, while the lowest mean value is obtained by the 'less than 4001SR' subgroup at 42.00. Furthermore, the 'highest educational qualifications' control variable is found to be statistically significant at the level of 5% with a p -value at 0.002: the 'high school' group secured the highest mean value at 62.26, whereas the 'below high school' with the value of 31.95 obtaining the lowest mean value. The 'occupation' control variable is statistically significant at 5% level with a p -value of 0.015, for which the 'private business' subgroup with a mean value of 73.25 obtained the highest mean value, while the lowest rank is registered for the 'retired' category at 23.13.

In terms of the conventional banks, the control variable of 'nationality' was found to be statistically significant at 5% with a p -value of 0.049. In this category, the highest mean rank is scored by the 'Indian nationality' at 74.50, while the lowest mean value was obtained by the 'Syrian' subgroup with a mean value of 24.60. In addition, the 'age' control variable is statistically significant at 5% level of significance with a p -value of 0.037. The highest mean score of 58.67 went for the '36-45 year-old' subgroup, while the 'over 55 year-old' group obtained the lowest mean value of 29.65. Furthermore, the 'monthly income' control variable is found to be statistically significant at 5% with a p -value of 0.000. For this, the highest mean value went to the 'more than 20000SR' group with a value of 85.50, while the '16001-20000SR' subgroup achieved the lowest mean with a value of 18.50. Moreover, the 'occupation'

variable is found to be statistically significant at the 5% level, with the p -value of 0.047, which indicates differing attitudes by the participants. The subgroup related to the ‘public sector employee’ group obtained the highest mean rank with a value of 55.13, whereas the mean value of 18.50 is the lowest mean achieved by the two control variables ‘private business’ and ‘unemployed’.

Table 6.17: Significance of Control Variables on the Statement: Q16 Are you satisfied with the e-banking service performance of your bank?

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	44.40	.000*	49.59	.022*	KW Test
	26 - 35 years	39.94		37.05		
	36 - 45 years	57.11		56.00		
	46 - 55 years	56.75		50.13		
	Above 55 years	73.00		51.30		
Highest educational qualifications	Below High School	71.82	.000*	63.83	.000*	KW Test
	High School	43.04		52.44		
	Bachelor degree	44.40		37.87		
	Master’s degree or above	63.71		32.50		
Occupation	Student	49.60	.019*	44.25	.102	KW Test
	Private sector employee	42.67		49.37		
	Public sector employee	53.37		44.55		
	Private business	47.00		79.50		
	Retired	79.50		32.50		
	Jobless	56.29		56.00		

Note: (*) Statistically significant at 5% level.

Table 6.17 investigates the significance of control variables in both Islamic and conventional banks on the satisfaction of participants with the e-service performance of their respective banks.

As the results indicate, for Islamic banks, the ‘age’ independent variable is statistically significant with a p -value of 0.000. Within this category, the ‘above 55 years-old’ subgroup scored the highest mean rank with 73.00, whereas, the ‘26-35 years-old group’ scored the lowest mean rank value with 39.94. In addition, the ‘highest educational qualifications’ control variable was found significant with a p -value of 0.000 at a significance level of 5%, The ‘below high school category’ recorded the highest mean rank value, while the lowest mean rank was registered by the ‘high school group’ with 43.04. Furthermore, the ‘occupation variable’ is

statistically significant at 5%, the ‘retired’ subgroup scored the highest value at 79.50, whilst the lowest value was documented by the ‘private sector employee’ with a value of 42.67.

For ‘conventional banks’, the ‘age’ category control variable is statistically significant at 5% with a p -value of 0.022; for which the ‘36-45 years-old’ subgroup scored a high mean rank value at 56.00, whereas the ‘26-35 years-old’ group registered the lowest value at 37.05. Moreover, the ‘highest educational qualifications’ control variable is statistically significant at 5% with a p -value of 0.000. As for the statistically significant ‘education’ category, the ‘below high school’ group recorded the highest mean rank value with 63.83, while the lowest mean rank value was registered by the ‘Master’s degree or above’ subgroup at 32.50.

In summary, this section aimed to locate the statistically significant differences in the answers provided by the participants to a number of statements and questions. In this, the impact of a number of control variables was searched for as determining factors of the differences in the responses and answers provided by the participants. In the end, a number of control variables for a number of statement and questions were found to be significantly identifying the differences between the responses given, which are important in understanding the underlying behavioural motivation.

6.5 DETERMINING FACTORS OF THE OBSERVED BEHAVIOURAL PATTERNS AND MOTIVATIONS

After providing a thorough analysis on mean differences in the previous section, this section aims to take the analysis a step further in engaging with regression analysis with the objective of providing robust results in search of determining factors of the measured behavioural patterns and motivations in this chapter. Thus, logistic regression analysis helps to pinpoint particular factors that are significant in the measured behaviour or the given responses.

In this section, hence, the preceding analysis is supplemented to understand if the independent variables discussed (gender, nationality, age category, monthly income, highest educational qualifications, occupation and region) can be used as viable

predictors of which factors increase the frequency level of using e-banking services in respondents' everyday life.

The logistic regression techniques and types of regression selected in this research are discussed in the methodology chapter (Chapter 5), as there are several types of regression. However, in this research, ordinal and binary logistic regressions were selected. Where there are more than two categories in the dependent variable. In addition, there is an hierarchy in the categories of the dependent variable of 'Always', 'Very often', 'Often' 'Occasionally' and 'Never' to the questions asked (Field, 2009). Furthermore, where there are only two categories of 'yes' and 'no' in the dependent variable, the research favours binary logistic regression (Field, 2009).

The results from the application of logistic regression, which is extension of the theory of regression, is analysed in this section. Thus, this section aims to search for the independent variables which determine the given responses to the following dependent variables: Q 14.1 'the frequency of using e-banking services in everyday life', Q 14.2 'the dealing of e-commerce through e-banking services in customers' daily life' and Q 16 'Are you satisfied with the e-service performance of your bank?'. The independent variables employed, as above, a number of control variables including 'gender', 'nationality', 'age', 'monthly income', 'highest educational qualifications', 'occupation' and 'region' for both types of bank.

6.5.1 Searching for the Determining Variables of Frequency of Using E-Services Banking in Everyday Life

In an attempt to locate the determining factors of 'frequency of using e-services banking in everyday life', the variables of 'gender', 'nationality', 'age', 'monthly income', 'highest educational qualifications', 'occupation' and 'region' for each type of bank are assessed against the dependent variable of 'frequency of using e-banking services in everyday life'. Thus, in a functional form, the relationship can be stated as:

$$\begin{aligned} & \text{Frequency of Using E-banking Services in Everyday Life for Islamic (Conventional) Banks} \\ & = f(\text{gender, nationality, age, monthly income, highest educational qualifications,} \\ & \quad \text{'occupation, and region}) \end{aligned}$$

SPSS software was used to analyse data for the logistic regression, and the results are presented in the following tables. The results help to establish whether or not the regression analysis provides answers to the simple question, of what is the relationship between the variables.

Table 6.18: Model Fitting Information for Islamic and Conventional Banks

Model	-2 Log Likelihood	Chi-Square	df	Sig.	-2 Log Likelihood	Chi-Square	df	Sig.
	Islamic Banks				Conventional Banks			
Intercept Only	292.074				285.405			
Final	241.971	50.102	26	.003	219.568	65.837	26	.000

Link function: Logit.

As part of the logistic regression process, first the model fitting should be established. The results for fitting the model are displayed in Table 6.18 for Islamic and conventional banks. The results indicate that the final model is better than the intercept-only model for both types of banks. For Islamic banks $p = 0.003$ and for conventional banks $p = 0.000$ and for both types of banks p is less than 0.05.

Table 6.19: Goodness-of-Fit for Islamic and Conventional Banks

	Chi-Square	df	Sig.	Chi-Square	Df	Sig.
	Islamic Banks			Conventional Banks		
Pearson	295.225	314	.770	318.240	314	.423
Deviance	223.655	314	1.000	213.787	314	1.000

Link function: Logit.

In the next step, the Goodness-of-Fit has to be measured which is depicted in Table 6.19; as the results indicate, the data fit the model for both Islamic and conventional banks, as the p -values are greater than 0.05. For Islamic banks Pearson Chi-square is 295.225 (with $df=314$) and $p=0.770$; the corresponding figures for conventional banks are 318.240, 314 and 0.423. Since there is no statistical significance in either bank type, it can be concluded that the correlation is rather low.

Table 6.20: Pseudo R-Square for Islamic and Conventional Banks

	Islamic Banks	Conventional Banks
Cox and Snell	.382	.504
Nagelkerke	.402	.527
McFadden	.159	.226

Link function: Logit.

The results about the efficacy of the model drawn from SPSS are shown in Table 6.20, which is termed as pseudo *R-Square*, whose values are obtained by Cox and Snell *R-Square*, Nagelkerke *R-Square* and McFadden *R-square*. The variation in the three values simply indicates the differences (Pallant, 2010). The *R-Square* values in reference to logistic regression analysis are also called pseudo *R square*; this is another way to calculate *R-square* in multiple regression. In terms of results, the higher the *R-square*, the stronger the relationship between the variables (Tabachnick and Fidell, 2007).

In this examination, the Cox and Snell *R-Square*, Nagelkerke *R-Square* and McFadden *R-square* are 0.382, 0.402 and 0.159 for Islamic banks respectively and 0.504, 0.527 and 0.226 for conventional banks respectively. In other words, using McFadden as an example, this means that only between 15.9% for Islamic banks and 22.6% for conventional banks of the variance is explained by the independent variables.

The parameter estimates were the final aspect of the predicted variables in relation to the independent variables, which are presented in Table 6.21 for Islamic banks and Table 6.20 for conventional banks (Field, 2009; Pallant, 2010). The *p*-values, along with odd ratio for each of the predictors, are also shown. The significant predictors are ‘Indian nationality’, ‘Pakistani nationality’ and ‘educational qualification below high school’. All have *p*-values of less than 0.05. For ‘Indian nationality’ $p = 0.007$, indicating that for everything being held constant, a unit change in nationality for Indian significantly reduces the chances of an Indian using e-banking in everyday life compared to a respondent of Syrian nationality.

Table 6.21: Parameter Estimates for Islamic Banks

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q14.1 = 1]	-2.669	1.745	2.341	1	.126	-6.088	.750
	[Q14.1 = 2]	-1.476	1.728	.730	1	.393	-4.862	1.910
	[Q14.1 = 3]	-.976	1.725	.320	1	.572	-4.356	2.405
	[Q14.1 = 4]	.735	1.727	.181	1	.670	-2.649	4.120
	[Q2=1]	.331	.474	.489	1	.484	-.597	1.259
	[Q2=2]	0 ^a	.	.	0	.	.	.
	[Q3=1]	-1.262	1.242	1.032	1	.310	-3.697	1.173
	[Q3=2]	1.046	1.467	.508	1	.476	-1.830	3.922
	[Q3=3]	-4.826	1.799	7.196	1	.007	-8.351	-1.300
	[Q3=4]	-3.601	1.544	5.442	1	.020	-6.626	-.576
	[Q3=5]	-1.419	1.419	1.000	1	.317	-4.199	1.362
	[Q3=6]	-1.653	1.486	1.237	1	.266	-4.566	1.260
	[Q3=7]	0 ^a	.	.	0	.	.	.
	[Q4=1]	1.636	1.347	1.475	1	.225	-1.005	4.276
	[Q4=2]	.962	1.150	.700	1	.403	-1.292	3.216
	[Q4=3]	1.541	1.171	1.732	1	.188	-.754	3.837
Location	[Q4=4]	.907	1.206	.566	1	.452	-1.457	3.272
	[Q4=5]	0 ^a	.	.	0	.	.	.
	[Q5=1]	-.892	1.050	.723	1	.395	-2.950	1.165
	[Q5=2]	-.776	1.004	.598	1	.439	-2.745	1.192
	[Q5=3]	.919	1.123	.669	1	.413	-1.283	3.120
	[Q5=4]	-.349	.947	.136	1	.713	-2.205	1.507
	[Q5=5]	.332	.968	.117	1	.732	-1.566	2.230
	[Q5=6]	0 ^a	.	.	0	.	.	.
	[Q6=1]	-1.895	.961	3.890	1	.049	-3.778	-.012
	[Q6=2]	-.061	.767	.006	1	.936	-1.565	1.442
	[Q6=3]	-.214	.719	.088	1	.766	-1.623	1.195
	[Q6=4]	0 ^a	.	.	0	.	.	.
	[Q7=1]	.991	1.054	.883	1	.347	-1.076	3.057
	[Q7=2]	.737	1.007	.536	1	.464	-1.236	2.710
	[Q7=3]	-.449	1.013	.196	1	.658	-2.435	1.537
	[Q7=4]	1.655	1.582	1.094	1	.296	-1.446	4.756
	[Q7=5]	1.108	1.313	.712	1	.399	-1.466	3.682
	[Q7=6]	0 ^a	.	.	0	.	.	.
	[Q8=1]	.074	.695	.011	1	.915	-1.287	1.436
	[Q8=2]	.221	.697	.100	1	.751	-1.144	1.586
	[Q8=3]	0 ^a	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

As for the conventional banks, as can be seen from Table 6.22, the only significant predictor is ‘monthly income’ irrespective of the sub-categories. This is the only predictor that affects use of e-banking services on a daily basis.

In summary, the final model for both Islamic and conventional banks is significantly better than the intercept-only model and for both models the goodness-of-fit is satisfactory but not strong enough.

Table 6.22: Parameter Estimates for Conventional Banks

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q14.1 = 1]	-24.133	2.572	88.022	1	.000	-29.175	-19.091
	[Q14.1 = 2]	-23.081	2.572	80.534	1	.000	-28.122	-18.040
	[Q14.1 = 3]	-21.479	2.583	69.132	1	.000	-26.542	-16.416
	[Q14.1 = 4]	-19.317	2.615	54.552	1	.000	-24.443	-14.191
	[Q2=1]	.129	.501	.066	1	.797	-.853	1.110
	[Q2=2]	0 ^a	.	.	0	.	.	.
	[Q3=1]	1.488	1.155	1.662	1	.197	-.774	3.751
	[Q3=2]	1.811	1.643	1.214	1	.271	-1.410	5.032
	[Q3=3]	1.617	1.569	1.061	1	.303	-1.459	4.692
	[Q3=4]	.768	1.355	.322	1	.571	-1.887	3.423
	[Q3=5]	1.437	1.506	.910	1	.340	-1.515	4.388
	[Q3=6]	2.206	1.238	3.174	1	.075	-.221	4.632
	[Q3=7]	0 ^a	.	.	0	.	.	.
	[Q4=1]	-.503	1.305	.148	1	.700	-3.060	2.054
	[Q4=2]	.170	1.036	.027	1	.870	-1.861	2.201
	[Q4=3]	.309	.975	.100	1	.751	-1.602	2.221
	[Q4=4]	-.248	1.055	.055	1	.814	-2.316	1.819
	[Q4=5]	0 ^a	.	.	0	.	.	.
Location	[Q5=1]	-24.096	1.513	253.650	1	.000	-27.061	-21.130
	[Q5=2]	-24.289	1.302	347.918	1	.000	-26.842	-21.737
	[Q5=3]	-22.479	1.338	282.102	1	.000	-25.102	-19.856
	[Q5=4]	-21.701	1.295	280.989	1	.000	-24.239	-19.164
	[Q5=5]	-23.726	.000	.	1	.	-23.726	-23.726
	[Q5=6]	0 ^a	.	.	0	.	.	.
	[Q6=1]	-1.995	1.283	2.417	1	.120	-4.509	.520
	[Q6=2]	-2.076	1.095	3.594	1	.058	-4.223	.070
	[Q6=3]	-1.072	1.088	.972	1	.324	-3.204	1.059
	[Q6=4]	0 ^a	.	.	0	.	.	.
	[Q7=1]	3.129	1.743	3.222	1	.073	-.287	6.545
	[Q7=2]	1.820	1.606	1.285	1	.257	-1.327	4.967
	[Q7=3]	1.037	1.616	.412	1	.521	-2.130	4.204
	[Q7=4]	.229	2.329	.010	1	.922	-4.335	4.794
	[Q7=5]	1.239	2.029	.373	1	.541	-2.738	5.217
	[Q7=6]	0 ^a	.	.	0	.	.	.
	[Q8=1]	1.202	.637	3.559	1	.059	-.047	2.451
	[Q8=2]	-.026	.572	.002	1	.964	-1.146	1.095
	[Q8=3]	0 ^a	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

However, the *R-square* for the conventional banks is higher than that of the Islamic using the McFadden R-square. Nevertheless, the significant predictors for Islamic banks are ‘Indian nationality’, ‘Pakistani nationality’ and ‘educational qualification below high school’. In contrast, for conventional banks, the only significant predictor is ‘monthly income’ irrespective of its sub-categories. Since the goodness of fit and the correlation results are not strong, only limited variables are found to be significant in the case of both bank type in determining the ‘frequency of using e-services

banking in everyday life'. Thus, as the previous results indicated, use of e-services banking is not extensively common among the participants.

6.5.2 Locating the Variables Determining 'Dealing with E-Commerce through E-Banking Services In Customers' Daily Life'

As in the previous section, in this section also logistic regression model is used to to establish if the independent variables discussed (gender, nationality, age category, monthly income, highest educational qualifications, occupation and region) are viable predictors of the dependent variable, namely frequency of using e-commerce through e-banking services in respondents' everyday life. Thus, the functional form of the relationship is tested as:

$$\text{Frequency of Using E-commerce through E-banking Services in Respondents' Everyday Life} = f(\text{gender, nationality, age, monthly income, highest educational qualifications, 'occupation, and region'})$$

As can be seen in Table 6.23, the initial results are related to the model fitting information for both Islamic and conventional banks.

Table 6.23: Model Fitting Information for Islamic and Conventional Banks

Model	-2 Log Likelihood	Chi-Square	df	Sig.	-2 Log Likelihood	Chi-Square	df	Sig.
	Islamic Banks				Conventional Banks			
Intercept Only	298.907				280.005			
Final	225.236	73.671	26	.000	231.253	48.752	26	.004

Link function: Logit.

As the results in Table 6.23 show, for Islamic banks $p = 0.000$ and for conventional banks $p = 0.004$; both types of banks p is less than 0.05. Therefore, model fitting test is passed for both the banks types.

The Goodness-of-Fit results are shown in Table 6.24, which through Pearson's Chi-square statistic show that the data do not fit the model for Islamic banks as the p -value is less than 0.05 at 0.017, while the data does fit the model for conventional banks as

the p -value is greater than 0.05 at 0.563.

Table 6.24: Goodness-of-Fit for Islamic and Conventional Banks

	Chi-Square	df	Sig.	Chi-Square	df	Sig.
	Islamic Banks			Conventional Banks		
Pearson	369.726	314	.017	309.405	314	.563
Deviance	211.079	314	1.000	228.245	314	1.000

Link function: Logit.

For Islamic banks Pearson Chi-square = 369.726 and $df = 314$; and the corresponding figures for conventional banks are 309.405 and 314.

The results about the efficacy of the model are drawn from SPSS and are depicted in Table 6.25. As before, the R -Square values were obtained by Cox and Snell R -Square, Nagelkerke R -Square and McFadden R -Square.

Table 6.25: Pseudo R -Square for Islamic and Conventional Banks

	Islamic Banks	Conventional Banks
Cox and Snell	.508	.405
Nagelkerke	.533	.425
McFadden	.232	.172

Link function: Logit.

In this study, the Cox and Snell R -Square, Nagelkerke R -Square and McFadden R -square results for Islamic banks are 0.508, 0.533 and 0.232 respectively, while for conventional banks, the results are 0.405, 0.425 and 0.172, respectively. For example, the McFadden R -Square means that only 23.2% of the variation in the dependent variable for Islamic banks and 17.2% for conventional banks is explained by the independent variables.

In the last part of the analysis in this section, the significant predictors displayed in Table 6.26 for Islamic banks, which show that all ‘age’ categories and ‘educational qualification below high school’ and ‘Bachelor degree’ are the only significant variables, as all have p -values of less than 0.05.

Table 6.26: Parameter Estimates for Islamic Banks

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q14.2 = 1]	-.470	1.920	.060	1	.807	-4.233	3.293
	[Q14.2 = 2]	.818	1.931	.180	1	.672	-2.966	4.602
	[Q14.2 = 3]	2.259	1.933	1.365	1	.243	-1.530	6.048
	[Q14.2 = 4]	4.327	1.945	4.950	1	.026	.515	8.139
	[Q2=1]	-.948	.491	3.730	1	.053	-1.911	.014
	[Q2=2]	0 ^a	.	.	0	.	.	.
	[Q3=1]	.045	1.215	.001	1	.970	-2.335	2.426
	[Q3=2]	2.087	1.527	1.869	1	.172	-.905	5.080
	[Q3=3]	-2.897	1.803	2.580	1	.108	-6.431	.638
	[Q3=4]	-1.015	1.521	.445	1	.505	-3.996	1.967
	[Q3=5]	.192	1.492	.017	1	.897	-2.732	3.116
	[Q3=6]	-1.088	1.547	.495	1	.482	-4.121	1.944
	[Q3=7]	0 ^a	.	.	0	.	.	.
	[Q4=1]	3.865	1.469	6.924	1	.009	.986	6.743
	[Q4=2]	2.743	1.291	4.518	1	.034	.214	5.273
	[Q4=3]	3.704	1.291	8.227	1	.004	1.173	6.235
Location	[Q4=4]	2.635	1.312	4.032	1	.045	.063	5.207
	[Q4=5]	0 ^a	.	.	0	.	.	.
	[Q5=1]	-1.133	1.255	.815	1	.367	-3.593	1.327
	[Q5=2]	-.324	1.130	.082	1	.774	-2.538	1.890
	[Q5=3]	.184	1.189	.024	1	.877	-2.148	2.515
	[Q5=4]	-.579	1.019	.322	1	.570	-2.577	1.419
	[Q5=5]	-1.349	1.028	1.722	1	.189	-3.365	.666
	[Q5=6]	0 ^a	.	.	0	.	.	.
	[Q6=1]	-2.644	1.006	6.913	1	.009	-4.616	-.673
	[Q6=2]	-1.407	.793	3.150	1	.076	-2.960	.147
	[Q6=3]	-1.769	.738	5.749	1	.016	-3.215	-.323
	[Q6=4]	0 ^a	.	.	0	.	.	.
	[Q7=1]	2.274	1.173	3.758	1	.053	-.025	4.574
	[Q7=2]	1.916	1.132	2.863	1	.091	-.304	4.135
	[Q7=3]	1.493	1.181	1.598	1	.206	-.822	3.807
	[Q7=4]	2.372	1.687	1.978	1	.160	-.934	5.679
	[Q7=5]	-16.495	.000	.	1	.	-16.495	-16.495
	[Q7=6]	0 ^a	.	.	0	.	.	.
	[Q8=1]	-.356	.799	.198	1	.656	-1.922	1.211
	[Q8=2]	-1.029	.781	1.733	1	.188	-2.560	.503
	[Q8=3]	0 ^a	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

For ‘age’, the subgroup ‘18-25 year-old’ has a *p*-value of 0.009, ‘26-35 year-old’ 0.034, ‘36-45 year-old’ 0.004 and ‘46-55 year-old’ 0.045 indicating that these are significantly different from the reference category (over 55 year-old). In terms of ‘educational qualification below high school’ the *p*-value is 0.009 and for ‘bachelor degree’, it is 0.016 indicating that these are significantly different from the reference category (Master’s degree or above) with regard to the use of e-banking in everyday life.

Finally, Table 6.27 shows the significant predictors for conventional banks being ‘Sudanese nationality’ with a *p*-value of 0.046 indicating that these are significantly different from the reference category (Syrian nationality), and all the ‘educational qualification’ categories; ‘below high school’ with 0.002, ‘high school’ with 0.035, and ‘bachelor degree’ with 0.032 indicating that these are significantly different from the reference category (Master’s degree or above) with regard to using e-commerce through e-banking services on a daily basis.

Table 6.27 Parameter Estimates for Conventional Banks

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q14.2 = 1]	17.262	2.056	70.473	1	.000	13.232	21.292
	[Q14.2 = 2]	18.701	2.049	83.332	1	.000	14.686	22.717
	[Q14.2 = 3]	19.543	2.047	91.127	1	.000	15.530	23.555
	[Q14.2 = 4]	21.456	2.058	108.641	1	.000	17.421	25.490
	[Q2=1]	-.573	.481	1.416	1	.234	-1.516	.370
	[Q2=2]	0 ^a	.	.	0	.	.	.
	[Q3=1]	2.314	1.331	3.023	1	.082	-.295	4.922
	[Q3=2]	3.513	1.760	3.983	1	.046	.063	6.962
	[Q3=3]	1.162	1.776	.428	1	.513	-2.318	4.642
	[Q3=4]	1.669	1.528	1.193	1	.275	-1.326	4.664
	[Q3=5]	1.730	1.645	1.106	1	.293	-1.494	4.955
	[Q3=6]	2.129	1.380	2.378	1	.123	-.577	4.834
	[Q3=7]	0 ^a	.	.	0	.	.	.
	[Q4=1]	-.238	1.286	.034	1	.853	-2.758	2.282
	[Q4=2]	-.621	1.020	.371	1	.542	-2.620	1.377
	[Q4=3]	.540	.993	.296	1	.587	-1.406	2.486
Location	[Q4=4]	.842	1.050	.643	1	.423	-1.216	2.899
	[Q4=5]	0 ^a	.	.	0	.	.	.
	[Q5=1]	-1.338	1.349	.985	1	.321	-3.982	1.305
	[Q5=2]	-1.196	1.193	1.006	1	.316	-3.534	1.141
	[Q5=3]	-.140	1.149	.015	1	.903	-2.393	2.112
	[Q5=4]	-.276	1.125	.060	1	.806	-2.480	1.928
	[Q5=5]	-2.526	1.626	2.414	1	.120	-5.712	.660
	[Q5=6]	0 ^a	.	.	0	.	.	.
	[Q6=1]	-3.611	1.153	9.815	1	.002	-5.870	-1.352
	[Q6=2]	-1.937	.920	4.434	1	.035	-3.739	-.134
	[Q6=3]	-1.904	.890	4.576	1	.032	-3.649	-.159
	[Q6=4]	0 ^a	.	.	0	.	.	.
	[Q7=1]	20.907	1.551	181.652	1	.000	17.867	23.947
	[Q7=2]	19.422	1.313	218.815	1	.000	16.849	21.996
	[Q7=3]	19.172	1.293	219.728	1	.000	16.637	21.707
	[Q7=4]	18.655	1.884	98.083	1	.000	14.963	22.347
	[Q7=5]	19.399	.000	.	1	.	19.399	19.399
	[Q7=6]	0 ^a	.	.	0	.	.	.
	[Q8=1]	.275	.608	.204	1	.651	-.916	1.466
	[Q8=2]	-.366	.575	.405	1	.525	-1.493	.761
	[Q8=3]	0 ^a	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

In concluding, low R-square or goodness of fit and correlation indicates that the explanatory power of the independent variables in explaining the variation in dependent variable is limited. Yet, some results are established in this study.

6.5.3 Establishing the Respondents' Satisfaction with the E-Banking Service Performance

In order to develop a better understanding of the determinants of the participants' satisfaction from the performance of e-banking services, non-parametric test version of regression analysis in the form of logistic regression is utilised in this section. Accordingly, the e-banking services variable is modelled as the dependent variable, while the independent variables include: gender, nationality, age, monthly income, highest educational qualifications, occupation and region as well as the type of bank. Thus, the functional form of the relationship can be stated as:

$$\text{Respondent's Satisfaction with the E-Banking Service Performance for Islamic (Conventional) Banks} = f(\text{gender, nationality, age, monthly income, highest educational qualifications, occupation, and region}).$$

Through SPSS, the logistic regression model as the methodological tool was used, the results generated from this analysis are depicted in Table 6.28. The results for the goodness of fitness model by Omnibus Tests are depicted in Table 6.28. This model necessitates that the p -value should be less than 0.05. However, for the Islamic banks, the significant values are 0.001 and 0.000 for the conventional banks.

Table 6.28: Omnibus Tests of Model Coefficients for Islamic and Conventional Banks

		Chi-Square	df	Sig.	Chi-Square	df	Sig.
		Islamic Banks			Conventional Banks		
Step 1	Step	24.945	7	.001	26.979	7	.000
	Block	24.945	7	.001	26.979	7	.000
	Model	24.945	7	.001	26.979	7	.000

This therefore suggests that at least one of the regression model coefficients is significantly different from zero in either of the Islamic and conventional banks case. Another statistical tests, the Hosmer-Lemeshow Test, was also employed through SPSS. This test provides a similar function as goodness of fit. The Hosme -Lemeshow

test results are presented in Table 6.29 with Chi-square=9.3, df=8 and $p=0.319$ for Islamic banks; the corresponding figures for conventional banks are 7.7, 8 and 0.460 respectively. These values are significantly higher than 0.05, indicating that the data for both the Islamic and the conventional banks fit the model.

Table 6.29: Hosmer-Lemeshow Test for Islamic and Conventional Banks

Step	Chi-Square	df	Sig.	Chi-Square	df	Sig.
	Islamic Banks			Conventional Banks		
1	9.277	8	.319	7.729	8	.460

The model summary is presented in Table 6.30, which shows the two statistical outputs namely Cox & Snell *R*-Square and Nagelkerke *R*-Square. As can be seen, the Cox & Snell *R*-Square and Nagelkerke *R*-Square coefficients are 0.213 and 0.293 for Islamic banks and 0.249 and 0.349 for conventional banks respectively. This means that only between 21.3% and 29.3% of the variations in the satisfaction of the customers in the case of Islamic banks and 24.9% and 34.9% of the variations of the customer of conventional banks can be explained by the independent variables.

Table 6.30: Model Summary for Islamic and Conventional Banks

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
	Islamic Banks			Conventional Banks		
1	110.452a	.213	.293	90.751a	.249	.349

In further developing the analysis, Table 6.31 presents coefficients of each independent variable through the Wald test. The p -values for ‘gender’, ‘nationality’, ‘age’, ‘monthly income’, ‘highest educational qualifications’, ‘occupation’ and ‘region’ in the case of the Islamic banks, respectively are 0.138, 0.513, 0.010, 0.784, 0.986, 0.249 and 0.094. Therefore it can be concluded that only the ‘age’ category is a significant determining variable contributing significantly to the model, which is significant at 1% significance level and the coefficient is 0.6.

Table 6.31: The Logistic Regression results (Variables in the Equation) for Islamic and Conventional Banks

		B	S.E	wald	Df	Sig.	Exp(B)	95.0% C.I.for EXP(B)		B	S.E	wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper							Lower	Upper
		Islamic Banks								Conventional Banks							
Step 1(a)	Gender	-.746	.504	2.195	1	0.138	.474	.177	1.272	-.269	.542	.246	1	0.620	.764	.264	2.213
	Nationality	.083	.127	.428	1	0.513	1.086	.847	1.393	.196	.141	1.947	1	0.163	1.217	.924	1.603
	Age category	.620	.241	6.629	1	0.010	1.860	1.160	2.982	-.195	.271	.516	1	0.473	.823	.484	1.401
	Monthly income	-.049	.178	.075	1	0.784	.952	.672	1.350	-.034	.247	.019	1	0.892	.967	.595	1.570
	Highest educational qualifications	-.005	.306	.000	1	0.986	.995	.545	1.813	-1.627	.427	14.489	1	0.000	.197	.085	.454
	Occupation	.256	.222	1.327	1	0.249	1.292	.835	1.998	.266	.274	.947	1	0.330	1.305	.763	2.231
	Region	.591	.353	2.804	1	0.094	1.806	.904	3.609	-.094	.393	.057	1	0.811	.910	.421	1.966
	Constant	-3.348	1.555	4.635	1	0.031	.035			2.854	1.607	3.152	1	0.076	17.354		

a. Variable(s) entered on step 1: Gender, Nationality, Age category, Monthly income, Highest educational qualifications, Occupation, Region.

On the other hand, the results for conventional banks illustrate that the recorded *p*-values of all the predictors are 0.620, 0.163, 0.473, 0.892, 0.000, 0.330 and 0.811 in relation to 'gender', 'nationality', 'age', 'monthly income', 'highest educational qualifications', 'occupation' and 'region'. Since for conventional banks only the 'highest educational qualification' variable is significant, it is the only significant determinant for satisfaction in the case of the conventional banks.

As for the coefficients of the significant variables in the case of Islamic banks:

- (i). Age category: the odds of respondents being satisfied with the e-banking service performance of their bank is 1.860 times higher for those who see 'age' as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (ii). Region: the odds of respondents being satisfied with the e-banking service performance of their bank is 1.806 times greater for those who see 'regions' as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (iii). Occupation: the odds of respondents being satisfied with the e-banking service performance of their bank is 1.292 times greater for those who see 'position' as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (iv). Nationality: the odds of respondents being satisfied with the e-banking service performance of their bank is 1.086 times greater for those who see 'nationality' as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (v). Highest educational qualifications: the odds of respondents being satisfied with the e-banking service performance of their bank is 0.995 times greater for those who see 'educational level' as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (vi). Monthly income: the odds of respondents being satisfied with the e-banking service performance of their bank is 0.952 times greater for those who see

‘monthly income’ as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.

- (vii). Gender: the odds of respondents being satisfied with the e-banking service performance of their bank is 0.474 times greater for those who see ‘gender’ as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.

On the other hand, for conventional banks:

- (i). Occupation: the odds of respondents being satisfied with the e-banking service performance of their bank is 1.305 times greater for those who see the ‘position’ as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (ii). Nationality: the odds of participants being satisfied with the e-banking service performance of their bank is 1.217 times greater for those who see ‘nationality’ as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (iii). Monthly income: the odds of respondents being satisfied with the e-banking service performance of their bank is 0.967 times greater for those who see ‘monthly income’ as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (iv). Region: the odds of respondents being satisfied with the e-banking service performance of their bank is 0.910 times greater for those who see ‘region’ as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (v). Age category: the odds of respondents being satisfied with the e-banking service performance of their bank is 0.823 times greater for those who see ‘age’ as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.
- (vi). Gender: the odds of respondents being satisfied with the e-banking service performance of their bank is 0.764 times greater for those who see ‘gender’

as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.

(vii). Highest educational qualifications: the odds of respondents being satisfied with the e-banking service performance of their bank is 0.995 times greater for those who see 'educational level' as an important factor in satisfaction with e-banking service performance, all remaining factors being equal.

In summary, age is the only predictor which is significant at 1% level of significance that as an independent variable predicts or determines customer satisfaction of using e-banking service in Islamic banks. However, by relaxing the confidence level, it can be seen that 'region' is also a significant predictor at the 10% level ($p=0.09$). On the other hand, for the conventional banks only the 'highest educational qualifications' variable is a significant predictor at the 5% level. Thus, the limited number of significant variables explains why the value of the coefficient of determination is rather low; which may indicate the omitted variables.

6.6 CONCLUSION

In this chapter, the survey questionnaire results are presented with the supporting interpretation of the statistical findings. The results of the use of e-banking services and the use e-commerce through e-banking are also presented in this chapter. On the whole, the results indicate that the majority of the respondents in this research were reasonably well educated and that they were interested in the areas of e-banking services and e-commerce.

The initial information concerning the main socio-economic characteristics of the respondents reveal that the majority of the sampled respondents were of Saudi nationality, between the ages 26-35, earning in the range of SAR8,000-SAR12,000, holding bachelor degrees as their highest educational qualifications, and being public sector employees.

This chapter also provided the findings of the inferential statistical analysis on determining the significance of the differences in the opinions expressed in relation to

a number of questions and statements through a number of control variables. The analysis used non-parametric tests, including the Independent Samples KW Test and the MWU Test. The results at 5% and 10% significance level are presented in the chapter.

Overall, the analysis thus far indicates, 'gender' is not significant, particularly for females of both banking types. In terms of the 'nationality' control variable, the subgroup 'Saudi' is significant for Islamic banks, when compared to conventional banks in the significant subgroup was 'Syrian'. In the 'age' control variable, it is interesting to note that the '18-25 year-old' subgroup was the most significant for Islamic banks, thus indicating their familiarity with, and knowledge of, both statements proposed in the initial survey. In contrast, the 'age' control variable for conventional banks does not seem to have the same level of significance. In addition, the 'monthly income' control variable is not significant for the majority of participants in the Islamic banks, while the most significant subgroup for participants of conventional banks is the 'more than 20,000SR' category.

The 'highest educational qualifications' control variable is more significant for Islamic banks than for conventional banks in relation to the analysed statements. The most significant subgroup is 'Master's degree or above', particularly for the participants of conventional banks. The most significant control variable in relation to the two statements appears to be that of 'occupation', given that it involves participants from different positions who have knowledge about the e-banking services, e-commerce and its services with varying results with the subgroups for 'retired' and 'public sector employee' were the most repeated subgroups for the participants of Islamic and conventional banks respectively. Finally, in the 'region' control variable the 'Riyadh Region' subgroup was the most significant subgroup especially for the participants of conventional banks.

As for the results generated by logistic regression, the choice of control variables has been appropriate with regard to this survey questionnaire in this study, since it encompasses the significant factors that determine the conditions of Islamic and conventional banks' society and it has also enabled the collection of relevant data for

analysis in the context of this project's stated intentions.

From the results of the analysis, it can be concluded that in so far as e-banking services and e-commerce are concerned, the Islamic and conventional banks are in direct competition with each other. In other words, there are not many differences in the demand conditions for their e-banking services and e-commerce. Therefore it can be presumed that this competition will bring positive changes in the provision of services by the banks in Saudi Arabia in the future.

In concluding, Saudi Arabia is still a developing country, and the results indicate the significance of e-banking and e-commerce services in the country. It can be gauged from the findings that there is a significant potential among the customers in furthering their use of technology-based services offered by the Islamic and conventional banks.

CHAPTER 7

KNOWLEDGE AND MOTIVATION

7.1 INTRODUCTION

Previous chapter presented the results of data analysis in relation to profile of the participants in questionnaire survey questions and also their banking habits and behaviours whereby references are also made to e-commerce and e-banking related behavioural issues. By building on the earlier chapters, this chapter explore knowledge level and sources as well as the sources of motivation for dealing, using and practicing e-commerce in Islamic and conventional banks in Saudi Arabia. Hence, the research presented explores the bank customers' perceptions on their awareness and their motivations in dealing with e-commerce through e-banking services. In doing so, it presents descriptive findings with the objective of developing an in-depth understanding of customers' preferences based on their opinions expressed through a questionnaire survey. The chapter also presents inferential statistical analysis including Kruskal-Wallis Test (KW Test) as well as the Mann-Whitney U Test (MWU) to identify the significance of the differences in the answers given by the participants in relation to a number of independent variables.

7.2 THE DESCRIPTIVE STATISTICS AND RESPONDENTS' AWARENESS ON KNOWLEDGE AND MOTIVATION

This section presents the initial descriptive statistical findings regarding the customers' knowledge and motivation of dealing, using and practicing e-commerce through e-banking services in Saudi banks. This includes analysing the responses given to a number of statements by providing frequency, mean and standard deviation related results.

7.2.1 Evaluating Customers Knowledge in E-Commerce and E-Banking Services

This subsection presents the initial descriptive statistical findings on the customers'

knowledge of e-commerce and e-services. This includes analysing the responses given to 15 statements. The results can be seen in the following tables.

Table 7.1 depicts the respondents' opinions to the statement 'provides me with more options and benefits such as saving time and money'. The results were quite similar between the two types of banks. 34.6% and 33.7% (a total of 68.3%) of Islamic bank customers answered that they 'strongly agree' and 'agree', respectively, while, 9.6% and 10.6% answered that they 'disagree' and 'strongly disagree' respectively. 22.3% of conventional bank customers answered that they 'strongly agree' and 44.7% answered that they 'agree' (a total of 70%) compared to 13.8% and 8.5% answering that they 'disagree' and 'strongly disagree' respectively with the statement. The mean values calculated for Islamic banks are 3.72 and 3.59 for conventional banks.

Table 7.1: Knowledge about E-Commerce: Q 18.1 Provides me with more options and benefits such as saving time and money

and benefits such as saving time and money				
	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	36	34.6	3.72	1.318
Agree	35	33.7		
Neutral	12	11.5		
Disagree	10	9.6		
Strongly disagree	11	10.6		
Total	104	100.0		
Conventional Banks				
Strongly agree	21	22.3	3.59	1.222
Agree	42	44.7		
Neutral	10	10.6		
Disagree	13	13.8		
Strongly disagree	8	8.5		
Total	94	100.0		

Table 7.2 displays the results related to the knowledge of e-commerce helping in everyday purchases, which shows that 51.9% of the customer of Islamic banks answered that they 'strongly agree' or 'agree', which is similar to the result of conventional bank customers, 54.3% of which answered that they 'strongly agree' or 'agree'. 29.8% of Islamic bank customers and 31.9% of conventional bank customers answered that they 'strongly disagree' or 'disagree'. The results also depict the mean values being 3.28 and 3.31 for Islamic and conventional banks, respectively.

Table 7.2: Knowledge about E-Commerce: *Q 18.2 Helps in everyday purchases*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	20	19.2	3.28	1.318
Agree	34	32.7		
Neutral	19	18.3		
Disagree	17	16.3		
Strongly disagree	14	13.5		
Total	104	100.0		
Conventional Banks				
Strongly agree	17	18.1	3.31	1.270
Agree	34	36.2		
Neutral	13	13.8		
Disagree	21	22.3		
Strongly disagree	9	9.6		
Total	94	100.0		

Table 7.3: Knowledge about E-Commerce: *Q 18.3 E-Commerce is compatible with modern lifestyle*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	23	22.1	3.44	1.298
Agree	39	37.5		
Neutral	15	14.4		
Disagree	15	14.4		
Strongly disagree	12	11.5		
Total	104	100.0		
Conventional Banks				
Strongly agree	15	16.0	3.46	1.104
Agree	38	40.4		
Neutral	21	22.3		
Disagree	15	16.0		
Strongly disagree	5	5.3		
Total	94	100.0		

The objective of statement in Table 7.3 is related to the compatibility of e-commerce with modern lifestyle. The majority of customers of Islamic banks (59.6%) answered that they ‘strongly agree’ or ‘agree’, while 56.4% of the conventional bank customers answered that they ‘strongly agree’ or ‘agree’. Furthermore, 25.9% of Islamic bank customers and 21.3% of conventional bank customers answered that they ‘strongly disagree’ or ‘disagree’. The mean values are towards the ‘agree’ position with 3.44 and 3.46 for Islamic and conventional banks respectively.

As can be seen from table 7.4 which is related to e-commerce use increasing loyalty

of customers, 50% of the customer of Islamic banks answered ‘strongly agree’ or ‘agree’ against 23.1% ‘disagree’ or ‘strongly disagree’, whereas 43.6% of the conventional bank customers answered that they ‘strongly agree’ or ‘agree’ compared to 18.1% who ‘disagree’ or ‘strongly disagree’. The mean values are 3.37 for Islamic banks and 3.30 for conventional banks.

Table 7.4: Knowledge about E-Commerce: *Q 18.4 Leads to increased customer loyalty*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	18	17.3	3.37	1.166
Agree	34	32.7		
Neutral	28	26.9		
Disagree	16	15.4		
Strongly disagree	8	7.7		
Total	104	100.0		
Conventional Banks				
Strongly agree	10	10.6	3.30	1.025
Agree	31	33.0		
Neutral	36	38.3		
Disagree	11	11.7		
Strongly disagree	6	6.4		
Total	94	100.0		

Table 7.5: Knowledge about E-Commerce: *Q18.5 Has created social communities between internet merchants*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	15	14.4	3.41	0.961
Agree	30	28.8		
Neutral	45	43.3		
Disagree	11	10.6		
Strongly disagree	3	2.9		
Total	104	100.0		
Conventional Banks				
Strongly agree	10	10.6	3.38	0.952
Agree	34	36.2		
Neutral	35	37.2		
Disagree	12	12.8		
Strongly disagree	3	3.2		
Total	94	100.0		

The results in table 7.5 refer to the knowledge of the participants on e-commerce and the perceived impact of this on the social communities between internet merchants. As can be seen, 43.2% of the Islamic bank customers ‘strongly agree’ or ‘agree’,

which is close to the result of conventional bank customers, as 46.8% answered that they ‘strongly agree’ or ‘agree’, against 13.5% and 16% of Islamic and conventional bank customers, respectively, who did not agree with the statement. The mean values are 3.41 and 3.38 for Islamic and conventional banks, respectively.

Table 7.6: Knowledge about E-Commerce: Q18.6 E-commerce is safe for performing financial transactions

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	14	13.5	3.13	1.373
Agree	42	40.4		
Neutral	13	12.5		
Disagree	14	13.5		
Strongly disagree	21	20.2		
Total	104	100.0		
Conventional Banks				
Strongly agree	17	18.1	3.20	1.160
Agree	15	16.0		
Neutral	40	42.6		
Disagree	14	14.9		
Strongly disagree	8	8.5		
Total	94	100.0		

Table 7.6 depicts the results in relation to the importance of safety in performing financial transactions, which shows that over half of customers of Islamic banks (53.9%) opted for ‘strongly agree’ or ‘agree’ with a mean value of 3.13. In contrast, only 34.1% of conventional bank customers opted for ‘strongly agree’ or ‘agree’ with a mean value of 3.20.

As can be seen from table 7.7, the respondents were asked to express their opinions on the statement that they face risks in dealing with e-commerce. As the results depict, 58.7% of the customers of Islamic banks opted for the options ‘strongly agree’ or ‘agree’ while 15.4% and 3.8% answered that they ‘disagree’ and ‘strongly disagree’, respectively. The mean value is 3.47. Similarly, 58.5% of conventional bank customers selected ‘strongly agree’ or ‘agree’ and only 5.3% and 3.2% answered that they ‘disagree’ and ‘strongly disagree’, respectively. The mean value is calculated at 3.61.

Table 7.7: Knowledge about E-Commerce: *Q18.7 Can be risky in general*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	13	12.5	3.47	1.024
Agree	47	45.2		
Neutral	24	23.1		
Disagree	16	15.4		
Strongly disagree	4	3.8		
Total	104	100.0		
Conventional Banks				
Strongly agree	13	13.8	3.61	0.907
Agree	42	44.7		
Neutral	31	33.0		
Disagree	5	5.3		
Strongly disagree	3	3.2		
Total	94	100.0		

Table 7.8: Knowledge about e-commerce: *Q18.8 Provides easy use*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	27	26.0	3.63	1.215
Agree	42	40.4		
Neutral	12	11.5		
Disagree	16	15.4		
Strongly disagree	7	6.7		
Total	104	100.0		
Conventional Banks				
Strongly agree	24	25.5	3.66	1.093
Agree	31	33.0		
Neutral	26	27.7		
Disagree	9	9.6		
Strongly disagree	4	4.3		
Total	94	100.0		

Table 7.8 displays results for investigating the perceptions of the participants in relation to the easiness of using e-commerce. As can be seen, the majority of Islamic banks customers (66.4%) expressed options in favour with ‘strongly agree’ or ‘agree’, but 22.1% of customers opted for ‘disagree’ or ‘strongly disagree’ with the mean value of 3.63. Differently, 58.5% of the conventional bank customers answered that they ‘strongly agree’ or ‘agree’ and 13.9% answered that they ‘disagree’ or ‘strongly disagree’ with the mean value of 3.66.

The findings depicted in Table 7.9 relate to the usage of e-services for enhancing customers’ trust in purchasing goods or services. The results show that 47.1%

customers of Islamic banks opted for options ‘strongly agree’ or ‘agree’ and 21.2 ‘disagree’ or ‘strongly disagree’. The mean value is calculated at 3.39. In contrast, 41.5% of conventional bank customers also showed a promising attitude by selecting ‘strongly agree’ or ‘agree’ but 23.4% of customers chose ‘disagree’ or ‘strongly disagree’ with a mean value of 3.27.

Table 7.9: Knowledge about e-commerce: *Q 18.9 Using E-Services enhances my trust in purchasing goods or services*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	20	19.2	3.39	1.136
Agree	29	27.9		
Neutral	33	31.7		
Disagree	16	15.4		
Strongly disagree	6	5.8		
Total	104	100.0		
Conventional Banks				
Strongly agree	13	13.8	3.27	1.079
Agree	26	27.7		
Neutral	33	35.1		
Disagree	17	18.1		
Strongly disagree	5	5.3		
Total	94	100.0		

Table 7. 10: Knowledge about E-Commerce: *Q18.10 Purchasing products or services by e-services is a status symbol*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	16	15.3	3.16	1.191
Agree	27	26.0		
Neutral	27	26.0		
Disagree	26	25.0		
Strongly disagree	8	7.7		
Total	104	100.0		
Conventional Banks				
Strongly agree	7	7.4	2.83	1.074
Agree	17	18.1		
Neutral	32	34.0		
Disagree	29	30.9		
Strongly disagree	9	9.6		
Total	94	100.0		

Table 7.10 depicts the descriptive findings of the perceptions of the participants as to whether or not purchasing products or services by e-services is a status symbol. As can be seen from the results, 41.3% of the customers of Islamic banks ‘strongly

agreed' or 'agree', while 32.7% of customers opted for 'disagree' or 'strongly disagree'. The mean value is calculated at 3.16. As regards the conventional banks, only 25.5% of customers expressed 'strongly agree' or 'agree' while 40.5% of customers selected 'disagree' or 'strongly disagree'; and the mean value is calculated as 2.83.

Table 7.11: Knowledge about E-Commerce: Q 18.11 *It is necessary to be able to experiment with e-commerce to see what it offers me*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	18	17.3	3.64	0.923
Agree	42	40.4		
Neutral	36	34.6		
Disagree	5	4.8		
Strongly disagree	3	2.9		
Total	104	100.0		
Conventional Banks				
Strongly agree	16	17.0	3.69	0.904
Agree	43	45.7		
Neutral	27	28.7		
Disagree	6	6.4		
Strongly disagree	2	2.1		
Total	94	100.0		

Table 7.11 displays the descriptive findings for the statement whether or not it is necessary to be able to experiment with e-commerce to see what it offers: 57.7% of Islamic bank customers answered 'strongly agree' or 'agree' and 7.7% picked 'disagree' or 'strongly disagree'; and the mean value is 3.64. Similarly, the majority of conventional banks customers (62.7%) answered that they 'strongly agree' or 'agree' whereas only 8.5% answered that they 'disagree' or 'strongly disagree'; with the mean value of 3.69.

The findings related to the statement that the respondents would recommend their friends and families to start dealing with e-commerce are depicted in Table 7.12. As the results show, the majority of Islamic bank customers (56.7%) answered that they 'strongly agree' or 'agree' and approximately one-quarter of those surveyed (24.1%) indicated that they 'disagree' or 'strongly disagree'. The mean value is 3.42. As for conventional bank customers, over one-half of customers (51%) said that they 'strongly agree' or 'agree'; moreover, 20.2% answered that they 'disagree' or

‘strongly disagree’ with the mean value is 3.40.

Table 7.12: Knowledge about E-Commerce: Q18.12 I am happy to recommend my friends and families to start dealing with e-commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	21	20.2	3.42	1.252
Agree	38	36.5		
Neutral	20	19.2		
Disagree	14	13.5		
Strongly disagree	11	10.6		
Total	104	100.0		
Conventional Banks				
Strongly agree	18	19.1	3.40	1.194
Agree	30	31.9		
Neutral	27	28.7		
Disagree	10	10.6		
Strongly disagree	9	9.6		
Total	94	100.0		

Table 7.13: Knowledge about E-Commerce: Q 18.13 The majority of customers of Saudi banks would start dealing with e-commerce if they were informed

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	25	24.0	3.64	0.965
Agree	28	26.9		
Neutral	40	38.5		
Disagree	11	10.6		
Strongly disagree	0	0		
Total	104	100.0		
Conventional Banks				
Strongly agree	23	24.5	3.68	1.018
Agree	32	34.0		
Neutral	26	27.7		
Disagree	12	12.8		
Strongly disagree	1	1.1		
Total	94	100.0		

The findings for the statement that the majority of customers of Saudi banks would start dealing with e-commerce provided that they were informed about the services tendered by the banks are presented in Table 7.13. Based on the results, 50.9% of Islamic bank customers answered that they ‘strongly agree’ or ‘agree’, while the results of conventional bank customers showed that 58.5% answered ‘strongly agree’ or ‘agree’. In contrast, only 10.6% of Islamic bank customers answered and 13.9% of conventional bank customers answered that they ‘disagree’ or ‘strongly disagree’. The

mean values are 3.64 and 3.68 for Islamic and conventional banks, respectively.

Table 7.14: Knowledge about E-Commerce: Q 18.14 Saudi banks should proactively encourage their customers to use e-banking services

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	31	29.8	3.89	0.954
Agree	40	38.5		
Neutral	26	25.0		
Disagree	5	4.8		
Strongly disagree	2	1.9		
Total	104	100.0		
Conventional Banks				
Strongly agree	21	22.3	3.79	0.878
Agree	38	40.4		
Neutral	30	31.9		
Disagree	4	4.3		
Strongly disagree	1	1.1		
Total	94	100.0		

The results in Table 7.14 are related to the statement that Saudi banks should proactively encourage their customers to use e-banking services. The results show that the majority of Islamic bank customers (68.3%) indicated that they ‘strongly agree’ or ‘agree’, against 6.7% who ‘disagree’ or ‘strongly disagree’. Similarly, 62.7% of conventional bank customers said that they ‘strongly agreed’ or ‘agreed’ with the statement, while, only 5.4% stated that they ‘disagree’ and ‘strongly disagree’. The mean values calculated are 3.89 and 3.79 for Islamic and conventional banks, respectively.

The results for the final statement in this section that Saudi banks should proactively encourage their customers to deal with e-commerce using facilities in Saudi banks are depicted in Table 7.15. As can be seen from the results, almost two-thirds of the participants (66.3%) of Islamic bank customers and 63.9% of conventional bank customers answered that they ‘strongly agree’ or ‘agree’ with the statement. The difference though being statistically insignificant, it still demonstrates how the Saudi banks have been providing services to the customers. Meanwhile, 8.6% of Islamic and 6.4% conventional banks customers answered that they ‘disagree’ or ‘strongly disagree’ with the statement. The mean values calculated are 3.83 for Islamic and 3.81 for conventional banks.

Table 7.15: Knowledge about E-Commerce: Q 18.15 Saudi Banks should proactively encourage their customers to deal with e-commerce using facilities in Saudi Banks

Salat Banks				
	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	30	28.8	3.83	1.028
Agree	39	37.5		
Neutral	26	25.0		
Disagree	5	4.8		
Strongly disagree	4	3.8		
Total	104	100.0		
Conventional Banks				
Strongly agree	26	27.7	3.81	1.008
Agree	34	36.2		
Neutral	28	29.8		
Disagree	2	2.1		
Strongly disagree	4	4.3		
Total	94	100.0		

Table 7.16: Mean Ranking of Customers' Knowledge in E-Commerce and E-Services

Statements	Islamic Banks		Conventional Banks	
	Mean	Ranking	Mean	Ranking
Provides me with more options and benefits such as saving time and money	3.72	3	3.59	7
Helps in everyday purchases	3.28	13	3.31	11
Is compatible with modern lifestyle	3.44	8	3.46	8
Leads to increase customer loyalty	3.37	12	3.30	12
Has created social communities between internet merchants	3.41	10=	3.38	10
Is safe for performing financial transactions	3.13	15	3.20	14
Can be risky in general	3.47	7	3.61	6
Provides easy use	3.63	4	3.66	5
Using e-services enhances my trust in purchasing goods or services	3.39	10	3.27	13
Purchasing products or services by e-services is a status symbol	3.16	14	2.83	15
It is necessary to be able to experiment with e-commerce to see what it offers me	3.64	5	3.69	3
I am happy to recommend my friends and families to start dealing with e-commerce	3.42	9	3.40	9
The majority of customers of Saudi banks would start dealing with e-commerce if they were informed	3.64	6	3.68	4
Saudi banks should proactively encourage their customers to use e-banking services	3.89	1	3.79	2
Saudi Banks should proactively encourage their customers to deal with e-commerce using facilities in Saudi Banks	3.83	2	3.81	1

The findings presented so far are all summarised in the form of mean values and

ranking in Table 7.16. As can be seen, the customers of both bank types have chosen the closer preference ordering in relation to the posed statements.

7.2.2 Assessing Customers' Motivation to Engage With E-Commerce

After discussing the issues related to customers' knowledge of issues in e-commerce in the previous section, this section focuses on the factors motivating and encouraging the customers to deal with e-commerce in Saudi Arabian Islamic and conventional banks, through an analysis of the respondents' replies to 12 statements.

Table 7.17: Motivation to Engage with E-Commerce and E-Banking: Q 19.1 My decision to start dealing with e-commerce within Saudi banks is influenced by my family members

Family members

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	10	9.6	2.94	1.245
Agree	30	28.8		
Neutral	25	24.0		
Disagree	22	21.2		
Strongly disagree	17	16.3		
Total	104	100.0		
Conventional Banks				
Strongly agree	10	10.6	2.81	1.212
Agree	16	17.0		
Neutral	29	30.9		
Disagree	24	25.5		
Strongly disagree	15	16.0		
Total	94	100.0		

As part of the factors influencing the respondents' decisions in opting for e-commerce, the respondents were first asked to express their opinion on the statement that 'my decision to start dealing with e-commerce within Saudi banks is influenced by my family member'. As the results in Table 7.17 show, 38.4% of Islamic bank customers 'strongly agree' or 'agree', while 37.5% answered that they 'disagree' or 'strongly disagree'. On the other hand, 27.6% of conventional bank customers answered that they 'strongly agree' or 'agree' compared to 41.5% opting for 'disagree' or 'strongly disagree'. The mean value calculated for Islamic banks is 2.94 and 2.81 for conventional banks.

Table 7.18: Motivation to Engage with E-Commerce and E-Banking: Q 19.2 My colleagues encouraged me to use e-commerce within Saudi banks

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	10	9.6	3.14	1.242
Agree	42	40.4		
Neutral	21	20.2		
Disagree	15	14.4		
Strongly disagree	16	15.4		
Total	104	100.0		
Conventional Banks				
Strongly agree	15	16.0	2.96	1.319
Agree	20	21.3		
Neutral	19	20.2		
Disagree	26	27.7		
Strongly disagree	14	14.9		
Total	94	100.0		

The findings shown in Table 7.18 are in relation to the statement ‘my colleagues encouraged me to use e-commerce within Saudi banks’. It is interesting to note that half of Islamic bank customers opted for the options ‘strongly agree’ or ‘agree’, while 29.8% opted for ‘disagree’ or ‘strongly disagree’ with a mean value of 3.14. However, only 37.3% of the conventional bank customer answered that they ‘strongly agree’ or ‘agree’ compared to 42.6% who ‘disagree’ or ‘strongly disagree’, with a mean value of 2.96.

Table 7.19: Motivation to Engage with E-Commerce and E-Banking: Q 19.3 The ease of the use of e-services motivated me to switch over to e-commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	31	29.8	3.152	1.386
Agree	33	31.7		
Neutral	13	12.5		
Disagree	13	12.5		
Strongly disagree	14	13.5		
Total	104	100.0		
Conventional Banks				
Strongly agree	15	16.0	3.500	1.013
Agree	35	37.2		
Neutral	29	30.9		
Disagree	12	12.8		
Strongly disagree	3	3.2		
Total	94	100.0		

As can be seen from Table 7.19, in relation to the ease of the usage of e-services motivating customers to switch over to e-commerce, 61.5% of the customers of Islamic banks answered that they ‘strongly agree’ or ‘agree’ against 26% who ‘disagree’ or ‘strongly disagree’. In terms of the conventional bank customers 53.2% answered that they ‘strongly agree’ or ‘agree’ compared to 16% reported that they ‘strongly disagree’ or ‘disagree’. The mean values calculated are 3.15 for Islamic banks and 3.50 for conventional banks.

Table 7.20: Motivation to Engage with E-Commerce and E-Banking: Q 19.4 The 24/7 availability of e-banking services and e-commerce motivated me to switch over to e-commerce

to e-commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	42	40.4	3.71	1.370
Agree	23	22.1		
Neutral	17	16.3		
Disagree	11	10.6		
Strongly disagree	11	10.6		
Total	104	100.0		
Conventional Banks				
Strongly agree	27	28.7	3.83	0.991
Agree	33	35.1		
Neutral	28	29.8		
Disagree	3	3.2		
Strongly disagree	3	3.2		
Total	94	100.0		

Table 7.20 displays the results in relation to the statement about the 24/7 availability of e-banking services and e-commerce motivating customers to switch over to e-commerce in Saudi banks. As can be seen 62.5% of customers of Islamic banks opted for the options of ‘strongly agree’ or ‘agree’, and 21.2% chose ‘disagree’ or ‘strongly disagree’, with a mean value of 3.71. In terms of the conventional banks 63.8% of customers answered that they ‘strongly agree’ or ‘agree’, which is quite close to the result of Islamic bank customers, but only 6.4% indicated that they ‘strongly disagree’ or ‘disagree’, with a mean value of 3.83.

The results highlighted in Table 7.21 are related to the statement ‘if website design of bank motivated me to use internet banking in Saudi banks’: 60.6% customers of Islamic banks who expressed ‘strongly agree’ or ‘agree’, while one-quarter of those

surveyed opted for ‘disagree’ or ‘strongly disagree’, with a mean value of 3.49.

Table 7.21: Motivation to Engage with E-Commerce and E-Banking: Q 19.5
Website design of the bank motivated me to use internet banking

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	26	25.0	3.49	1.315
Agree	37	35.6		
Neutral	15	14.4		
Disagree	14	13.5		
Strongly disagree	12	11.5		
Total	104	100.0		
Conventional Banks				
Strongly agree	22	23.4	3.67	1.041
Agree	34	36.2		
Neutral	26	27.7		
Disagree	9	9.6		
Strongly disagree	3	3.2		
Total	94	100.0		

Furthermore, 59.6% of the conventional bank customers answered that they ‘strongly agree’ or ‘agree’, which is close to the result of Islamic bank customers, but only 12.8% indicated that they ‘disagree’ or ‘strongly disagree’, with a mean value of 3.67.

Table 7.22: Motivation to Engage with E-Commerce and E-Banking: Q 19.6
Changing nature of shopping as a life style necessitates the use e-banking services and e-commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	27	26.0	3.58	1.305
Agree	40	38.5		
Neutral	17	16.3		
Disagree	6	5.8		
Strongly disagree	14	13.5		
Total	104	100.0		
Conventional Banks				
Strongly agree	21	22.3	3.64	1.014
Agree	32	34.0		
Neutral	29	30.9		
Disagree	10	10.6		
Strongly disagree	2	2.1		
Total	94	100.0		

Table 7.22 presents the results in relation to the ‘changing nature of shopping as a life style necessitates the use e-services banking and e-commerce of e-services’

motivating customers to switch over to e-commerce. Based on the survey outcome, the majority of Islamic banks customers (64.5%) stated that they ‘strongly agree’ or ‘agree’ against 19.3% of those surveyed indicating that they ‘disagree’ and ‘strongly disagree’. As for the conventional bank customers, 56.3% chose ‘strongly agree’ or ‘agree’ compared to 12.7% who picked ‘strongly disagree’ or ‘disagree’. The mean values calculated are 3.58 for Islamic banks and 3.64 for conventional banks.

Table 7.23: Motivation to Engage with E-Commerce and E-Banking: Q 19.7 My business requirements motivated me to adopt e-commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	18	17.3	3.27	1.294
Agree	35	33.7		
Neutral	23	22.1		
Disagree	13	12.5		
Strongly disagree	15	14.4		
Total	104	100.0		
Conventional Banks				
Strongly agree	10	10.6	3.33	0.988
Agree	33	35.1		
Neutral	32	34.0		
Disagree	16	17.0		
Strongly disagree	3	3.2		
Total	94	100.0		

The descriptive findings presented in Table 7.23 relates to the statement ‘my business requirements motivated me to adopt e-commerce’. As can be seen 51% of Islamic bank customers answered ‘strongly agree’ or ‘agree’ against 26.9% who ‘disagree’ or ‘strongly disagree’, while 45.7% of the conventional bank customers ‘strongly agree’ or ‘agree’ compared to 20.2% who ‘strongly disagree’ or ‘disagree’. The mean values calculated are 3.27 for Islamic banks and 3.33 for conventional banks.

The results shown in Table 7.24 are about the statement that ‘the Saudi banking system encourages dealing with e-commerce’: 43.2% customers of Islamic banks who opted for ‘strongly agree’ or ‘agree’, against 26.9% of customers who ‘disagree’ or ‘strongly disagree’, with a mean value of 3.18. In relation to conventional bank customers 38.3% ‘strongly agree’ or ‘agree’, which is not close to the result of Islamic bank customers and 26.6% who ‘disagree’ or ‘strongly disagree’, with a mean value of 3.17.

Table 7.24: Motivation to Engage with E-Commerce and E-Banking: Q 19.8 The Saudi banking system encourages dealing with e-commerce

Saudi Banking System encourages dealing with e-commerce				
	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	15	14.4	3.18	1.221
Agree	30	28.8		
Neutral	31	29.8		
Disagree	15	14.4		
Strongly disagree	13	12.5		
Total	104	100.0		
Conventional Banks				
Strongly agree	11	11.7	3.17	1.084
Agree	25	26.6		
Neutral	33	35.1		
Disagree	19	20.2		
Strongly disagree	6	6.4		
Total	94	100.0		

Table 7.25: Motivation to Engage with E-Commerce and E-Banking: Q 19.9 E-payment method encouraged me to adopt e-commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	33	31.7	3.71	1.163
Agree	31	29.8		
Neutral	20	19.2		
Disagree	17	16.3		
Strongly disagree	3	2.9		
Total	104	100.0		
Conventional Banks				
Strongly agree	18	19.1	3.54	1.012
Agree	32	34.0		
Neutral	28	29.8		
Disagree	15	16.0		
Strongly disagree	1	1.1		
Total	94	100.0		

The findings shown in Table 7.25 are in relation to the statement ‘E-payment method encouraged me to adopt e-commerce’. As the results show, 61.5% customers of Islamic banks opted for ‘strongly agree’ or ‘agree’ against 19.2% who chose ‘disagree’ or ‘strongly disagree’. Of the customers of conventional banks 53.1% chose ‘strongly agree’ or ‘agree’ compared to 17.1%, who picked ‘disagree’ or ‘strongly disagree’. The estimates mean values are 3.71 for Islamic banks and 3.54 for conventional banks.

Table 7.26: Motivation to Engage with E-Commerce and E-Banking: Q 19.10
Saudi government policies encourage people to take advantages of e-commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	10	9.6	3.18	1.050
Agree	31	29.8		
Neutral	38	36.5		
Disagree	18	17.3		
Strongly disagree	7	6.7		
Total	104	100.0		
Conventional Banks				
Strongly agree	8	8.5	3.17	0.923
Agree	23	24.5		
Neutral	42	44.7		
Disagree	19	20.2		
Strongly disagree	2	2.1		
Total	94	100.0		

The results depicted in Table 7.26 about the statement ‘Saudi government policies encourage people to take advantages of e-commerce’: 39.4% of the Islamic bank customers answered ‘strongly agree’ or ‘agree’ against 24% who picked the options ‘disagree’ or ‘strongly disagree’. On the other hand, 33% of the customers of conventional banks ‘agree’ or ‘strongly agree’ compared to 22.3% who ‘disagree’ or ‘strongly disagree’. The estimated mean values are 3.18 for Islamic banks and 3.17 for conventional banks.

Table 7.27: Motivation to Engage with E-Commerce and E-Banking: Q 19.11
Easily accessible information to use the internet for e-commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	11	10.6	3.38	1.035
Agree	45	43.3		
Neutral	24	23.1		
Disagree	20	19.2		
Strongly disagree	4	3.8		
Total	104	100.0		
Conventional Banks				
Strongly agree	7	7.4	3.21	0.914
Agree	26	27.7		
Neutral	45	47.9		
Disagree	12	12.8		
Strongly disagree	4	4.3		
Total	94	100.0		

Table 7.27 presents the results on the statement that ‘easily accessible information to

use the internet for e-commerce’: 53.9% of customers of Islamic banks opted for ‘strongly agree’ or ‘agree’, and 23% of customers who went for ‘disagree’ or ‘strongly disagree’, with a mean value of 3.38.

As for the case in conventional bank customers, 35.1% answered that they ‘strongly agree’ or ‘agree’, which differs significantly from the result of Islamic bank customers, and 17.1% who ‘disagree’ or ‘strongly disagree’, with a mean value of 3.21.

Table 7.28: Motivation to Engage with E-Commerce and E-Banking: Q 19.12
Banks provide information to their customers about the use of online banking, ATMs and others

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	14	13.5	3.40	1.019
Agree	38	36.5		
Neutral	31	29.8		
Disagree	18	17.3		
Strongly disagree	3	2.9		
Total	104	100.0		
Conventional Banks				
Strongly agree	13	13.8	3.38	0.940
Agree	27	28.7		
Neutral	37	39.4		
Disagree	17	18.1		
Strongly disagree	0	0.0		
Total	94	100.0		

Table 7.28 shows the findings to the statement that ‘banks provide information to their customers about the use of online banking, ATMs and others’. It can be seen that half of Islamic bank customers chose ‘strongly agree’ or ‘agree’ against 20.2% who went for ‘disagree’ or ‘strongly disagree’, with a mean value of 3.40. Meanwhile, 42.5% of the conventional bank customers stated that they ‘strongly agree’ or ‘agree’, whilst 18.1% chose ‘disagree’ or ‘strongly disagree’, with the mean value of 3.38.

Table 7.29 summarises the results of assessing customers’ motivation to engage with e-commerce by presenting the mean ranking results. As can be seen, for both banking types, the customers have chosen same preference ordering for seven out of 12 statements, despite the fact that only in two cases mean values are similar.

Table 7.29: Mean Ranking of Customers' Motivation to Engage with E-Commerce and E-Banking

Statements	Islamic Banks		Conventional Banks	
	Mean	Ranking	Mean	Ranking
My decision to start dealing with e-commerce within Saudi Banks is influenced by my family members	2.94	12	2.81	12
My colleagues encouraged me to use e-commerce within Saudi Banks	3.14	11	2.96	11
The ease of the use of e-services motivated me to switch over to e-commerce	3.52	4	3.50	5
The 24/7 availability of e-services and e-commerce motivated me to switch over to e-commerce	3.71	1	3.83	1
The website design of the bank motivated me to use internet banking	3.49	5	3.67	2
Changing nature of shopping as a life style necessitates the use e-banking services and e-commerce	3.58	3	3.64	3
My business requirements motivated me to adopt e-commerce	3.27	8	3.33	7
Saudi Banking system encourages dealing with e-commerce	3.18	9	3.17	9
E-Payment method encouraged me to adopt e-commerce	3.71	1	3.54	4
Saudi government policies encourage people to take advantages of e-commerce	3.18	9	3.17	9
Easily accessible Information to use Internet for e-commerce	3.38	7	3.21	8
Banks provide Information to their customers about the use of online Banking, ATMs and others	3.40	6	3.38	6

7.3 EXPLORING THE DETERMINANT SOURCES OF KNOWLEDGE AND MOVITATION: INFERENTIAL STATISTICAL ANALYSIS

The previous section presents the initial results from the descriptive statistics obtained from the data in relation to the survey questionnaire conducted for this study. This section aims to add depth to the results through the use of inferential statistical analysis. In addition, the statistical significance of the control variables in the responses provided by respondents is assessed. The control or independent variables are based on the demographic questions raised in the earlier section of the survey questionnaire and include the following categories: 'gender', 'nationality', 'age category', 'monthly income', 'highest educational qualifications', 'occupation' and 'region'. The group categories or the dependent variables are knowledge of,

motivation for and satisfaction with e-commerce and e-banking services. Hence, this section aims to determine the independent variables, which can explain the variations observed in the dependent variables due to the control variables.

It should be noted that all the control variables divided into subgroups. 'Gender' is divided into male and female. Second, 'nationality' is separated into Saudi, Sudanese, Indian, Pakistani, Egyptian, Yemeni and Syrian. Furthermore, the 'age category' is divided into 18-25 years, 26-35 years, 36-45 years, 46-55 years and over 55 years, while 'monthly income' is split into less than 4001SR, 4001-8000SR, 8001-12000SR, 12001-16000SR, 16001-20000SR, and more than 20000SR. In addition, 'highest educational qualifications' is divided into subgroups for below high school, high school, Bachelor degree and Master degree or above. Moreover, 'occupation' is separated into student, private sector employee, public sector employee, private business, retired and unemployed. Finally, 'region' is split into Riyadh Region, Western Region and Eastern Region.

In this section, the results are shown at the 5% significance level, though the results which are on the edge of the 5% confidence level may be accepted with 10% level of significance. Henceforth, only statistically significant results are discussed. This by definition implies that the control variables which are not mentioned are not statistically significant indicating that the responses examined are similar in the cases.

7.3.1 Determining Factors of Customers' Knowledge of E-Commerce and E-Banking Services: Non-Parametric Analysis

This section provides the perceptions of the participants in relation to the statements of knowledge of e-commerce and e-banking services. In this, non-parametric tests, namely KW and MWU tests, are employed to develop some meaningful statements. This subsection, thus, presents the results of the inferential analysis using the KW and MWU for the dependent variables related respondents' knowledge in e-commerce and e-banking services in relation to the independent or control variables defined.

Table 7.30: Significance of Control Variables on the Statement: *Q 19.1 provides me with more options and benefits such as saving time and money*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	59.30	0.000*	42.86	0.003*	KW Test
	26 - 35 years	59.53		53.85		
	36 - 45 years	66.91		56.62		
	46 - 55 years	45.63		38.41		
	Over 55 years	15.44		23.75		
Monthly income	Less than SAR4001	41.22	0.061	35.08	0.020*	KW Test
	SAR4001 - 8000	44.71		42.17		
	SAR8001 - 12000	62.91		52.76		
	SAR12001 - 16000	61.06		55.05		
	SAR16001 - 20000	59.31		54.33		
	More than SAR20000	45.44		76.13		
Highest educational qualifications	Below High School	23.68	0.000*	24.50	0.000*	KW Test
	High School	54.72		48.77		
	Bachelor degree	59.34		53.39		
	Master's degree or above	72.14		68.25		
Occupation	Student	59.30	0.001*	31.81	0.048*	KW Test
	Private sector employee	52.33		44.79		
	Public sector employee	59.31		56.59		
	Private business	57.50		35.17		
	Retired	11.31		31.33		
	Unemployed	37.93		28.50		

Note: (*) Statistically significant at 5% level.

Table 7.30 shows the level of significance for the control variables related to the statement ‘provides me with more options and benefits such as saving time and money’ for both bank types. As reported, only four control variables are found to be significant: age category, monthly income, highest educational qualifications and occupation. It can be seen that there are sub-groups within each variable. These sub-groups account for level of significance related to the control variable.

As the results in Table 7.30 show, in the case of Islamic banks, the ‘age category’ control variable is statistically significant with p -value of 0.000, and the highest mean rank was that for ‘36-45 year-old’ with a value of 66.91. The results indicate that this group had the highest mean value because the respondents represented the working class. The lowest mean rank group is the subgroup of ‘over 55 years-old’ with a value of 15.44. The ‘monthly income’, as a control variable, is insignificant at level of 5% with a p -value of 0.061.

Furthermore, the table clearly shows that the ‘highest educational qualifications’ as a control variable is significant at the 5% critical level, in which the ‘master’s degree or above’ category scored the highest mean rank with a value of 72.14, while the lowest mean rank was for the ‘below high school’ category at 23.68 with p -value was 0.000. The final significant independent variable in this statement is ‘occupation’. Those respondents being a ‘public sector employee’ achieved the highest mean rank with a value of 59.31, whereas the lowest mean rank was recorded for the ‘retired’ category with a value of 11.31. The p -value for the variable was 0.001, which underlines the significance of differences among the participants in relation to this statement.

For conventional banks, the ‘age’ category is significant at 5% as a control variable to the suggestion that ‘provides me with more options and benefits such as saving time and money’ with a p -value of 0.003. The category of ‘36-45 year-olds’ scored the highest mean rank at 56.62, and the lowest mean rank was given to category of ‘over 55 year-old’ with a value of 23.75. It can be seen that ‘monthly income’ is significant at 5% and this is clarified by the estimated p -value of 0.020. Furthermore, for the control variable of ‘more than 20000SR’ secured the highest mean rank with a value of 76.13, while the lowest mean rank went to the ‘less than SAR4001’ subgroup with a value of 35.08.

The control variable of ‘educational qualifications’ is significant at 5% with a p -value of 0.000. The ‘Master’s degree or above’ group achieved the highest mean rank with 68.25 and ‘below high school’ category recorded the lowest mean rank with a value of 24.50. The last control variable in this statement ‘occupation’ is also significant at 5%. The p -value for occupation is 0.048. The highest value achieved in this control variable is 56.59 by the ‘public sector employee’ subgroup, while the ‘jobless’ subgroup had the lowest mean rank with a value of 28.50.

Table 7.31 highlights the significance of the control variables, ‘age’, ‘education attainment’ and ‘occupation’, in relation to ‘helps in everyday purchases’ with the objective of locating the determining variables of e-commerce usage.

Table 7.31: Significance of Control Variables on the Statement: *Q18.2 helps in everyday purchases*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	58.70	0.000*	55.05	0.004*	KW Test
	26 - 35 years	60.61		57.03		
	36 - 45 years	66.15		47.27		
	46 - 55 years	40.91		39.81		
	Over 55 years	19.44		22.55		
Highest educational qualifications	Below High School	30.25	0.000*	26.58	0.000*	KW Test
	High School	63.09		47.42		
	Bachelor degree	53.48		53.90		
	Master's degree or above	66.93		66.88		
Occupation	Student	75.65	0.000*	47.94	0.140	KW Test
	Private sector employee	42.27		42.05		
	Public sector employee	61.29		54.73		
	Private business	32.63		20.00		
	Retired	23.31		55.50		
	Unemployed	35.14		40.25		

Note: (*) Statistically significant at 5% level.

As the results presented in Table 7.31 shows, among the Islamic banks the ‘age’ control variable is significant at 5% with a p -value of 0.000. The highest mean rank is for ‘36-45 year-olds’ with a value of 66.15, whilst the lowest mean rank was for the subgroup of ‘over 55 year-old’ with a value of 19.44. In addition, the control variable of ‘highest educational qualifications’ is significant at 5%, with the p -value of 0.000. The subgroup ‘master’s degree or above’ scored the highest mean rank with 66.93, whereas the lowest mean rank was for ‘below high school’ category at 30.25. The last significant control variable for Islamic banks in relation to ‘helps in everyday purchases’ is ‘occupation’, which is significant at 5%, with a p -value of 0.000. The highest mean rank scored by the subgroup ‘student’ is 75.65. In contrast, the lowest mean rank is scored by the subgroup ‘retired’ at 23.31.

For conventional banks, the ‘age category’ is significant at 5% a control variable in relation to the suggestion that ‘provides me with more options and benefits such as saving time and money’ with a p -value of 0.004. The category of ‘26-35 year-olds’ scored the highest mean rank at 57.03, and the lowest mean rank was given to category of ‘over 55 year-old’ with a value of 22.55. Also, the ‘highest educational qualifications’ control variable was significant at the level of 5%, with a p -value of

0.000. The ‘master’s degree or above’ category scored the highest mean rank at 66.88 and the ‘below high school’ subgroup achieved the lowest mean rank with a value of 26.58. In contrast, the ‘occupation’ control variable is not significant at level of 5% with a p -value of 0.140.

Table 7.32, presents the findings for the statement that ‘e-commerce is compatible with modern lifestyle’. In this statement three control variables are shown to be significant as determining independent variables: ‘age category’, ‘highest educational qualifications’, and ‘occupation’.

Table 7.32: Significance of Control Variables on the Statement: *Q20.3 e-commerce is compatible with modern lifestyle*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	78.55	0.000*	42.55	0.035*	KW Test
	26 - 35 years	59.66		58.29		
	36 - 45 years	55.96		46.54		
	46 - 55 years	45.84		41.56		
	Over 55 years	21.38		31.50		
Highest educational qualifications	Below High School	31.52	0.001*	34.83	0.039*	KW Test
	High School	58.67		46.02		
	Bachelor degree	55.87		51.69		
	Master’s degree or above	64.50		63.81		
Occupation	Student	71.70	0.001*	44.19	0.654	KW Test
	Private sector employee	51.38		44.36		
	Public sector employee	55.29		52.86		
	Private business	70.75		40.83		
	Retired	14.94		44.67		
	Unemployed	41.07		31.75		

Note: (*) Statistically significant at 5% level.

It can be seen that for Islamic banks, the ‘age’ category was significant at the level of 5%, with a p -value of 0.000, indicating differences between participants for the statement. The subgroup of ‘18-25 year-olds’ scored the highest mean rank with a value of 78.55, whereas the lowest mean rank went to the ‘over 55 year-old’ group. In addition, the control variable of ‘highest educational qualifications’ is significant at the level of 5%, with a p -value of 0.001. This control variable is examined in different academic degrees: ‘master’s degree or above’ achieved a high value at 64.50, while ‘below high school’ subgroup attained the lowest mean rank with a value of 31.52.

Finally, the ‘occupation’ control variable was significant at the level of 5%, with a p -value of 0.001. Among the subgroups, ‘student’ achieved the highest value at 71.70, and the lowest mean rank is scored by the ‘retired’ category with 14.94.

With regard to conventional banks, the control variable of ‘age’ is significant at level 5%, with p -value at 0.035. The group ‘26-35 year-olds’ scored the highest mean with a value of 58.29, whilst ‘over 55 year-old’ category registered the lowest value at 31.50. Also, the ‘highest educational qualifications’ control variable was significant at the level of 5%, with a p -value of 0.039. The ‘master’s degree or above’ category obtained the highest mean rank at 63.81 and ‘below high school’ subgroup achieved the lowest mean rank with a value of 34.83. In contrast, the ‘occupation’ control variable is not significant at level of 5% with a p -value of 0.654.

Table 7.33: Significance of Control Variables on the Statement: *Q18.4 lead to increased customer loyalty*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	47.90	0.000*	38.68	0.051	KW Test
	26 - 35 years	63.04		55.56		
	36 - 45 years	61.80		51.75		
	46 - 55 years	47.44		40.22		
	Over 55 years	21.69		32.80		
Highest educational qualifications	Below High School	29.09	0.000*	33.44	0.058	KW Test
	High School	53.54		47.76		
	Bachelor degree	55.92		52.44		
	Master’s degree or above	76.57		56.44		
Occupation	Student	65.30	0.006*	46.25	0.961	KW Test
	Private sector employee	59.21		45.73		
	Public sector employee	52.91		50.01		
	Private business	61.75		46.67		
	Retired	16.25		50.00		
	Unemployed	44.36		35.50		

Note: (*) Statistically significant at 5% level.

Table 7.33 presents the significant results for the statement that ‘gives great benefits to customers lead to increased customer loyalty’; as can be seen among the dependent variables, ‘age’, ‘highest education qualification’ and ‘occupation’ is found to be significant.

As can be seen from Table 7.33, for Islamic banks, the ‘age’ category control variable is statistically significant at 5%, with an accompanying p -value of 0.000. The ‘26-35 year-olds’ sub-group achieved a high mean rank of 63.04, while the ‘over 55 year-old’ division received 21.69, which is the lowest mean. The ‘highest educational qualifications’ variable is also significant at 5%, with a p -value of 0.000. The ‘master’s degree or above’ group has the highest mean rank at 76.57, while ‘below high school’ subgroup scored the lowest mean at 29.09. In addition, the ‘occupation’ control variable is significant at the level of 5% with a p -value of 0.006. The ‘student’ subgroup achieved the highest value at 65.30, whereas the lowest mean rank is given scored by the ‘retired’ group with 16.25.

In connection with conventional banks, all the control variables in relation to this statement are not significant at the 5% critical level. The p -values of control variables of ‘age’, ‘highest educational qualifications’ and ‘occupation’ are 0.051, 0.058 and 0.961, respectively; this implies that they can be accepted as significant at 10% level of significance.

Table 7.34 shows the significance of the opinions of the respondents in relation to the statement ‘has created social communities between internet merchants’, highlighting the two categories of ‘age’ and ‘highest educational qualifications’.

Table 7.34: Significance of Control Variables on the Statement: *Q 18.5 has created social communities between internet merchants*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	52.00	0.000*	61.27	0.347	KW Test
	26 - 35 years	62.24		48.19		
	36 - 45 years	64.11		46.58		
	46 - 55 years	36.16		41.56		
	Over 55 years	28.25		42.10		
Highest educational qualifications	Below High School	40.27	0.027*	33.47	0.087	KW Test
	High School	56.98		51.12		
	Bachelor degree	51.18		50.67		
	Master’s degree or above	68.61		50.25		

Note: (*) Statistically significant at 5% level.

As the results in Table 7.34 show, in the case of Islamic banks, the ‘age’ control

variable is statistically significant at the level of 5%, with a p -value of 0.000. The ‘36-45 year-olds’ subgroup scored the highest mean rank with a value of 64.11, while the lowest value went to the ‘over 55 year-old’ group with a value of 28.25. In addition, the ‘highest educational qualifications’ category is significant at the level of 5% with a p -value of 0.027. The ‘master’s degree or above’ category achieved the highest mean value at 68.61, while the subgroup ‘below high school’ scored the lowest mean rank with a value of 40.27. As for the conventional banks, the two control variables are not statistically significant with p -values of 0.347 and 0.087 respectively, while educational qualification could be accepted at 10% level of significance. Table 7.35 displays the results for the control variables in relation to the statement that ‘is safe for performing financial transactions’.

Table 7.35: Significance of Control Variables on the Statement: *Q 18.6 is safe for performing financial transactions*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi Sudanese Indian Pakistani Egyptian Yemeni Syrian	56.39 71.58 31.08 47.60 47.63 28.83 40.25	0.056	50.02 66.17 86.00 40.50 37.20 24.31 34.90	0.008*	KW Test
Age category	18 - 25 years 26 - 35 years 36 - 45 years 46 - 55 years Over 55 years	55.50 59.21 65.30 48.25 18.59	0.000*	48.55 46.26 51.98 52.47 30.60	0.226	KW Test
Highest educational qualifications	Below High School High School Bachelor degree Master’s degree or above	29.25 55.57 58.83 63.64	0.000*	30.78 47.70 53.00 60.25	0.012*	KW Test
Occupation	Student Private sector employee Public sector employee Private business Retired Unemployed	68.35 49.98 58.20 61.88 13.19 36.57	0.000*	54.13 40.37 56.37 42.50 24.50 29.00	0.043*	KW Test

Note: (*) Statistically significant at 5% level

As the results in Table 7.35 show, for Islamic banks, ‘nationality’ as the first control variable in this table is not significant with a p -value of 0.056; however, it can be

accepted at 10% level of significance. In addition, the ‘age’ control variable is statistically significant at the level of 5%. In this variable the ‘36-45 year-olds’ group scored the highest mean rank with a value of 65.30, while the ‘over 55 year-old’ group recorded the lowest value with a value of 18.59 with the p -value of 0.000. Moreover, the ‘highest educational qualifications’ control variable is statistically significant at the level of 5% with a p -value of 0.000. The ‘master’s degree or above’ category achieved the highest value at 63.64 and the subgroup of ‘below high school’ recorded the lowest mean rank with a value of 29.25. In addition, the ‘occupation’ control variable is significant at the level of 5% with a p -value of 0.000. The ‘student’ subgroup reached the highest value at 68.35; however, the lowest mean value is achieved with the ‘retired’ group with 13.19.

For conventional banks, the ‘nationality’ control variable is statistically significant at the 5% level with a p -value of 0.008, in which the ‘Indian’ nationalities achieved the highest mean score at 86.00, while ‘Yemeni’ nationalities was the lowest value with 24.31. In contrast, the ‘age’ control variable is not statistically significant with a p -value of 0.226. However, the ‘highest educational qualifications’ control variable is statistically significant at the level of 5% with a p -value of 0.012. The highest mean value (60.25) went to the subgroup of ‘Master’s degree or above’, while the lowest value was recorded by the category ‘below high school’ with a value of 30.78. In addition, the ‘occupation’ control variable is statistically significant at 5%, in which the highest mean rank went to the ‘public sector employee’ grouping with a value of 56.37, while the lowest mean rank went to ‘retired’ category with a value of 24.50 and with a p -value of 0.043.

Table 7.36 displays the results related to the statement ‘can be risky in general’ with the objective of determining the significant independent variables. As the results show, for Islamic banks, the ‘monthly income’ control variable is not significant at the 5% level, with a p -value of 0.186. However, the ‘highest educational qualifications’ control variable is statistically significant at the 5% level, with a p -value of 0.050.

In this group the highest mean rank went to the ‘below high school’ category with a value of 65.89, and the lowest mean rank was for the ‘high school’ category with a

value of 53.24. In addition, the results for the ‘region’ control variable show that the highest value was for ‘Eastern Region’ at 69.06 and the lowest scored by the rank for ‘Western Region’ with a value of 46.51 with the p -value of 0.016.

Table 7.36: Significance of Control Variables on the Statement: *Q18.7 can be risky in general*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Monthly income	Less than 4001 SR	59.48	0.186	44.66	0.037*	KW Test
	4001 - 8000 SR	53.97		58.66		
	8001 - 12000 SR	57.82		42.59		
	12001 - 16000 SR	41.23		41.55		
	16001 - 20000 SR	45.46		60.50		
	More than 20000 SR	61.50		24.00		
Highest educational qualifications	Below High School	65.89	0.050*	39.00	0.466	KW Test
	High School	53.24		49.82		
	Bachelor degree	45.27		48.80		
	Master’s degree or above	53.50		51.38		
Region	Riyadh Region	52.38	0.016*	44.21	0.508	KW Test
	Western Region	46.51		47.17		
	Eastern Region	69.06		52.85		

Note: (*) Statistically significant at 5% level.

For conventional banks, the ‘monthly income’ control variable is significant at the 5% level, with a p -value of 0.037, so reflecting the disparities amongst the answers collected from the questionnaire. The category ‘16001-20000SR’ recorded the highest value at 60.50 and the lowest mean rank was awarded to the ‘more than 20000SR’ subgroup with a value of 24.00. In contrast, the ‘highest educational qualifications’ and the ‘region’ control variables were found to be not significant at the 5% level with p -values of 0.466 and 0.508. Table 7.37, exhibits the significance of the control variables on the statement that ‘provides easy use’. For Islamic banks, the ‘age’ control variable was statistically significant at the level of 5%, as the p -value was 0.000. The ‘18-25 year-olds’ subgroup is the highest value at 64.90, while the lowest mean rank was for ‘over 55 year-old’ with a value of 21.41. The ‘highest educational qualifications’ control variable is also statistically significant at level of 5% with a p -value at 0.000. The ‘Master’s degree or above’ category recorded the highest mean rank at 71.82 and the lowest mean was the ‘below high school’ grouping with a value of 26.95. In addition, the ‘occupation’ control variable was found to be statistically

significant at 5% with a p -value of 0.015. The ‘student’ group achieved the highest mean rank of 64.15, while the ‘retired’ group recorded the lowest value at 19.00. In contrast, the ‘monthly income’ control variable and the ‘region’ control variable are found to be not statistically significant at 5% with p -values of 0.493 and 0.822 respectively.

Table 7.37: Significance of Control Variables on the Statement: *Q18.8 provides easy use*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	64.90	0.000*	54.73	0.003*	KW Test
	26 - 35 years	58.63		57.52		
	36 - 45 years	61.11		47.65		
	46 - 55 years	47.91		37.97		
	Over 55 years	21.41		23.35		
Monthly income	Less than 4001 SR	46.58	0.493	37.47	0.037*	KW Test
	4001 - 8000 SR	45.24		41.47		
	8001 - 12000 SR	54.15		58.15		
	12001 - 16000 SR	57.38		56.14		
	16001 - 20000 SR	54.69		64.17		
	More than 20000 SR	64.75		33.63		
Highest educational qualifications	Below High School	26.95	0.000*	17.89	0.000*	KW Test
	High School	57.35		53.02		
	Bachelor degree	56.50		51.89		
	Master’s degree or above	71.82		72.19		
Occupation	Student	64.15	0.015*	41.19	0.100	KW Test
	Private sector employee	53.04		44.65		
	Public sector employee	56.44		55.41		
	Private business	52.00		26.50		
	Retired	19.00		39.33		
	Unemployed	43.86		17.75		
Region	Riyadh Region	54.88	0.822	59.66	0.014*	KW Test
	Western Region	51.21		42.07		
	Eastern Region	51.11		42.98		

Note: (*) Statistically significant at 5% level.

In the case of conventional banks, the ‘age’ control variable is statistically significant with a p -value of 0.003. The highest mean rank is for the ‘26-35 year-olds’ group with a value of 57.52 and the lowest mean is obtained by ‘over 55 year-old’ category with a value of 23.35. The ‘monthly income’ control variable is also statistically significant with a p -value of 0.037. The ‘16001-20000SR’ subgroup had the highest mean rank at 54.69, while ‘more than 20000SR’ group is the lowest mean with a value of 33.63.

Thus, the results identify a clear distinction between the answers of the participants. In addition, the ‘highest educational qualifications’ control variable is significant at level of 5%, with a p -value of 0.000. The highest mean rank went to the ‘master’s degree or above’ category with a value of 72.19 and the lowest value was for the ‘below high school’ subgroup at 17.89. The ‘region’ control variable was also statistically significant with at the level of 5%, with a p -value at 0.014. The highest mean is for ‘Riyadh region’ at 59.66, whereas the lowest mean is recorded by the group for ‘Western region’ with a value of 42.07. In contrast, the ‘occupation’ control variable is not significant at the level of 5% with a p -value of 0.100. Table 7.38 displays the results for the control variables in relation to the statement ‘using e-services enhances my trust in purchasing goods or services’.

Table 7.38: Significance of Control Variables on the Statement: *Q18.9 using e-services enhances my trust in purchasing goods or services*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	51.40	0.000*	57.55	0.005*	KW Test
	26 - 35 years	60.40		54.63		
	36 - 45 years	72.69		46.73		
	46 - 55 years	34.25		45.03		
	Over 55 years	20.09		20.30		
Monthly income	Less than 4001 SR	38.88	0.046*	45.45	0.720	KW Test
	4001 - 8000 SR	44.71		44.26		
	8001 - 12000 SR	62.74		56.71		
	12001 - 16000 SR	58.67		47.59		
	16001 - 20000 SR	61.85		40.50		
	More than 20000 SR	56.19		46.38		
Highest educational qualifications	Below High School	27.86	0.000*	22.92	0.000*	KW Test
	High School	53.54		52.70		
	Bachelor degree	54.76		53.26		
	Master’s degree or above	82.25		56.19		
Occupation	Student	62.50	0.009*	45.44	0.327	KW Test
	Private sector employee	51.25		49.62		
	Public sector employee	58.82		48.10		
	Private business	32.88		14.00		
	Retired	20.94		56.83		
	Unemployed	43.71		39.00		

Note: (*) Statistically significant at 5% level.

As can be seen from the results depicted in Table 7.38, in the case of Islamic banks, the ‘age’ control variable is found to be significant at the level of 5% with a p -value

of 0.000. In this control variable, the highest value was for the '36-45 year-olds' subgroup with a value of 72.69, while the lowest mean rank went to the 'over 55 year-old' grouping with 20.09. In addition, the 'monthly income' control variable is significant at the level of 5% with a p -value of 0.046. The '8001-12000SR' group scored the highest value at 62.74, while the subgroup of 'less than 4001SR' achieved the lowest mean rank with a value of 38.88. Moreover, the 'highest educational qualifications' control variable found to be significant at the level of 5% with a p -value at 0.000. The highest mean rank is for 'master's degree or above' group with a value of 82.25 and the lowest value went to 'below high school' grouping with a value of 27.86. In the final control variable of 'occupation', the 'student' subgroup scored the highest value at 62.50, whilst the group 'retired' recorded the lowest mean with a mean value rank of 20.94.

In the case of conventional banks, as the results in Table 7.38 show two control variables are found to be statistically significant at the level of 5% for this statement: the 'age' control variable was found to be significant with the p -value of 0.005. The category of '18-25 year-olds' recorded the highest mean rank with a value 57.55, whilst the lowest value went to the 'over 55 year-old' group with a value of 20.30. In addition, the 'highest educational qualifications' control variable found to be significant at the 5% level with a p -value of 0.000. The highest value is represented by the category for 'Master's degree or above' subgroup at 56.19, and the lowest mean rank is the 'below high school' category with a value of 22.92. In contrast, the control variables of 'monthly income' and 'occupation' were found to be not significant at the level of 5% with p -values of 0.720 and 0.327 respectively.

Table 7.39 depicts the significance of the control variables to the statement that 'purchasing products or services by e-services is a status symbol'. Three control variables are examined: 'age category', 'highest educational qualifications', and 'occupation'. In the case of the Islamic banks, the 'age category' control variable is significant at the level of 5% with the p -value of 0.001, therefore reflecting the differences among the answers collected to the questionnaire survey. The subgroup of '18-25 year-olds' recorded the highest value at 63.70 and the lowest value was scored

by the ‘over 55 years-old’ group with a value of 26.00.

Table 7.39: Significance of Control Variables on the Statement: *Q 18.10 purchasing products or services by e-services is a status symbol*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	63.70	0.001*	45.64	0.027*	KW Test
	26 - 35 years	56.39		54.29		
	36 - 45 years	63.04		49.50		
	46 - 55 years	45.72		47.63		
	Over 55 years	26.00		23.10		
Highest educational qualifications	Below High School	36.68	0.000*	33.67	0.015*	KW Test
	High School	54.89		50.58		
	Bachelor degree	49.98		54.86		
	Master’s degree or above	81.54		33.75		
Occupation	Student	71.75	0.016*	53.75	0.592	KW Test
	Private sector employee	46.52		45.68		
	Public sector employee	56.31		48.81		
	Private business	41.38		24.00		
	Retired	24.81		58.33		
	Unemployed	55.71		51.50		

Note: (*) Statistically significant at 5% level.

The ‘highest educational qualifications’ control variable is statistically significant at the 5% critical level, in which the ‘master’s degree or above’ subgroup registered the highest mean rank at 81.54, while the lowest value was for the ‘below high school’ group with a value of 36.68 with the p -value is 0.000. Moreover, the ‘occupation’ control variable is statistically significant at the level of 5%, with a p -value of 0.016. The subgroup ‘student’ scored the highest mean rank value of 71.75, whilst the subgroup ‘retired’ scored the lowest value at 24.81.

With regard to conventional banks, the ‘age’ category control variable is statistically significant at the 5% critical level, in which the ‘26-35 year-olds’ category recorded the highest mean with a value of 54.29, while the lowest mean rank was achieved by the ‘over 55 year-old’ subgroup with a value of 23.10 with the p -value of 0.027. In addition, the ‘highest educational qualifications’ control variable is statistically significant at 5%. The highest mean ranking value is for ‘bachelor degree’ with a score of 54.86, whilst the ‘below high school’ grouping scored the lowest value with a score of 33.67. In contrast, the ‘occupation’ control variable is not statistically

significant at the level of 5% as the p -value is 0.592. Table 7.40 depicts the analysis of the variables in relation to the statement that ‘it is necessary to be able to experiment with e-commerce to see what it offers me’ with the objective of identifying the determining variables.

Table 7.40: Significance of Control Variables on the Statement: Q18.11 It is necessary to be able to experiment with e-commerce to see what it offers me

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Monthly income	Less than 4001 SR	54.72	0.941	34.32	0.031*	KW Test
	4001 - 8000 SR	53.82		42.47		
	8001 - 12000 SR	47.18		52.44		
	12001 - 16000 SR	54.19		57.34		
	16001 - 20000 SR	53.92		57.00		
	More than 20000 SR	46.69		64.38		
Highest educational qualifications	Below High School	47.64	0.005*	25.28	0.000*	KW Test
	High School	59.63		48.74		
	Bachelor degree	44.72		54.90		
	Master’s degree or above	73.43		60.00		
Occupation	Student	72.70	0.050*	32.13	0.146	KW Test
	Private sector employee	45.94		45.44		
	Public sector employee	53.25		54.50		
	Private business	26.50		45.33		
	Retired	46.00		43.50		
	Unemployed	62.93		22.00		

Note: (*) Statistically significant at 5% level.

With regard to Islamic banks, the control variable of ‘monthly income’ is not statistically significant at the level of 5%, as the p -value is 0.941. However, the control variable of ‘highest educational qualifications’ was found to be statistically significant at the 5% level with a p -value of 0.005. The subgroup ‘master’s degree or above’ achieved the highest value at 73.43, whilst the lowest mean is for the category of ‘Bachelor degree’ with a mean value ranking of 44.72. In addition, the ‘occupation’ control variable, with its statistically significant level at 5%, resulted in the mean ranking value of 72.70 as the highest value for the subgroup ‘student’ and the lowest value is for ‘private business’ with a mean ranking value of 26.50 with the p -value is 0.050.

For conventional banks, the control variable of 'monthly income' is statistically significant at the 5% level, with a p -value at 0.031. The 'more than 20000SR' subgroup scored the highest mean with 64.38, while the lowest mean is scored by the 'less than 4001SR' group at 34.32. In addition, the 'highest educational qualifications' control variable is found to be statistically significant at the level of 5% with a p -value of 0.000.

The 'master's degree or above' category is the highest mean ranking value at 60.00, whereas the lowest value went to the 'below high school' grouping with a value of 25.28. In contrast, the 'occupation' control variable is not statistically significant at the level of 5% with a p -value of 0.146. Table 7.41 analyses the results of parametric test of the statement 'I am happy to recommend my friends and families to start dealing with e-commerce' in relation to identified independent variables. As can be seen from the results, for the Islamic banks the 'age category' control variable is statistically significant at the 5% level with a p -value of 0.000, reflecting the broad spectrum of views centred on this variable. In this group, the '18-25 year-olds' subgroup is the highest value at 67.55 and the lowest mean rank is the 'over 55 year-old' group with a value of 19.88.

The 'highest educational qualifications' control variable is found to be statistically significant at the level of 5% with a p -value of 0.000 and also highlights the varying views about this statement. The subgroup 'master's degree or above' is the highest value at 68.71, whereas the lowest value is scored by the group 'below high school' with a value of 25.23. The 'occupation' control variable, with a p -value of 0.001, refers to the variety of views on this statement.

The 'student' subgroup scored the highest mean ranking value at 76.35, and the lowest mean is achieved by the subgroup 'retired' with a value of 18.06. In contrast, the 'region' control variable is found to be not significant at the level of 5% as the p -value is 0.562. As depicted in Table 7.41, for conventional banks, the age category control variable is statistically significant at the 5% level with a p -value of 0.006, reflecting the broad spectrum of beliefs centred on this variable.

Table 7.41: Significance of Control Variables on the Statement: *Q18.12 I am happy to recommend my friends and families to start dealing with e-commerce*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	67.55	0.000*	45.68	0.006*	KW Test
	26 - 35 years	62.83		60.66		
	36 - 45 years	59.46		45.60		
	46 - 55 years	41.38		36.78		
	Over 55 years	19.88		30.80		
Highest educational qualifications	Below High School	25.23	0.000*	17.83	0.000*	KW Test
	High School	60.61		53.09		
	Bachelor degree	56.64		53.04		
	Master's degree or above	68.71		66.94		
Occupation	Student	76.35	0.001*	39.94	0.439	KW Test
	Private sector employee			43.64		
	Public sector employee			53.08		
	Private business			33.00		
	Retired			60.00		
	Unemployed			47.25		
Region	Riyadh Region	56.27	0.562	56.55	0.014*	KW Test
	Western Region	51.36		39.43		
	Eastern Region	47.86		53.38		

Note: (*) Statistically significant at 5% level

The '26-35 year-olds' category is the highest value at 60.66 and the lowest mean was for the 'over 55 year-old' subgroup with a value of 30.80. Moreover, the 'highest educational qualifications' is statistically significant at the 5% level with a p -value of 0.000. In this control variable, the 'master's degree or above' group had the highest figure at 66.94, while the group 'below high school' is the lowest mean at 17.83. Furthermore, the 'occupation' control variable was not statistically significant at the level of 5%, as the p -value was 0.439. Conversely, the 'region' control variable is statistically significant at the level of 5% with a p -value of 0.014. The subgroup 'Riyadh region', with a value of 56.55, is the highest mean, whilst the lowest mean raking value is scored by the 'Western region' group with a value of 39.43.

Table 7.42, presents the results related to the control or independent variables on the statement 'the majority of the customers of Saudi banks will start dealing with e-commerce provided that they are informed'

Table 7.42: Significance of Control Variables on the Statement: Q18.13 the majority of the customers of Saudi banks will start dealing with e-commerce provided that they are informed

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	69.30	0.000*	48.41	0.483	KW Test
	26 - 35 years	51.89		54.06		
	36 - 45 years	66.85		44.13		
	46 - 55 years	41.13		44.44		
	Over 55 years	30.50		39.80		
Monthly income	Less than 4001 SR	43.94	0.161	31.68	0.036*	KW Test
	4001 - 8000 SR	52.74		47.41		
	8001 - 12000 SR	47.12		58.97		
	12001 - 16000 SR	65.52		52.50		
	16001 - 20000 SR	49.88		36.17		
	More than 20000 SR	55.38		55.50		
Highest educational qualifications	Below High School	34.30	0.007*	25.00	0.000*	KW Test
	High School	60.96		55.58		
	Bachelor degree	54.62		52.96		
	Master's degree or above	60.39		40.94		

Note: (*) Statistically significant at 5% level.

Table 7.42, presents the results related to the control or independent variables on the statement ‘the majority of the customers of Saudi banks will start dealing with e-commerce provided that they are informed’. In the case of Islamic banks, the ‘age’ control variable is statistically significant at the 5% level as the p -value is 0.000, reflecting the broad spectrum of views centred on this variable. The ‘18-25 year-olds’ grouping scored the highest value at 69.30; however, the lowest mean ranking value is achieved by the ‘over 55 year-old’ subgroup with a value of 30.50. In contrast, the ‘monthly income’ control variable is not significant at the 5% critical level as the p -value is 0.161. The ‘highest educational qualifications’ control variable is statistically significant at the 5% level as the p -value is 0.007: the ‘high school’ subgroup scored the highest value at 60.96, whilst ‘below high school’ category achieved the lowest mean ranking value at 34.30.

With regard to conventional banks, the ‘age’ control variable is not significant at 5% level of significance as the p -value is 0.483. In contrast, the ‘monthly income’ control variable is statistically significant 5% level of significance. The highest value is for the ‘8001-12000SR’ subgroup with a value of 58.97, whereas the ‘less than 4001SR’

category is the lowest mean ranking value at 31.68 with the p -value being 0.036. In addition, the ‘highest educational qualifications’ control variable is statistically significant at the level of 5%, as the p -value is 0.000. The highest mean ranking value is for the ‘high school’ subgroup at 55.58, while the category of ‘below high school’ obtained the lowest mean at 25.00. These are the same rankings as the Islamic banks case, albeit with different values.

Table 7.43: Significance of Control Variables on the Statement: Q18.14 Saudi banks should proactively encourage their customers to use e-banking services

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	60.85	0.000*	43.27	0.048*	KW Test
	26 - 35 years	62.99		58.56		
	36 - 45 years	60.00		45.31		
	46 - 55 years	41.50		39.06		
	Over 55 years	22.69		37.05		
Monthly income	Less than 4001 SR	42.82	0.017*	32.79	0.002*	KW Test
	4001 - 8000 SR	44.24		42.74		
	8001 - 12000 SR	70.76		62.24		
	12001 - 16000 SR	59.15		59.05		
	16001 - 20000 SR	52.69		43.17		
	More than 20000 SR	41.25		29.00		
Highest educational qualifications	Below High School	30.73	0.001*	20.11	0.000*	KW Test
	High School	58.57		54.82		
	Bachelor degree	55.73		52.37		
	Master’s degree or above	66.36		57.63		
Occupation	Student	64.40	0.002*	36.38	0.257	KW Test
	Private sector employee	44.29		42.91		
	Public sector employee	61.33		54.79		
	Private business	45.25		54.50		
	Retired	24.63		41.67		
	Unemployed	35.29		37.50		
Region	Riyadh Region	60.76	0.017*	61.07	0.003*	KW Test
	Western Region	51.82		40.28		
	Eastern Region	37.39		45.10		

Note: (*) Statistically significant at 5% level.

Table 7.43 displays the results for the determining power of the independent variables in relation to the statement that ‘Saudi banks should proactively encourage their customers to use e-banking services’. For Islamic banks, the ‘age’ category control variable with a p -value of 0.000 is statistically significant at the 5% level; the ‘26-35 year-olds’ group achieved the highest value at 62.99, and the lowest was for the ‘over

55 year-old' category with a value of 22.69. Moreover, the control variable of 'monthly income' is statistically significant at the 5% level as the p -value is 0.017. The '8001-12000SR' group achieved the highest value at 70.76, whilst the lowest estimate of the mean ranking value went to the 'more than 20000SR' group with a value of 41.25. In addition, the 'highest educational qualifications' control variable is found to be statistically significant at the level of 5%: the 'master's degree or above' subgroup scored the highest value at 66.36, while the category of 'below high school' subgroup scored the lowest mean value at 30.73 with the p -value of 0.001. The 'occupation' control variable is statistically significant with a p -value of 0.002 at the 5% level. The 'student' subgroup achieved the highest mean at 64.40, and the lowest mean rank is the 'retired' group at 24.63. Finally, the 'region' control variable is found to be statistically significant at the level of 5% as the p -value is 0.017: the 'Riyadh region' group scored the highest value at 60.76, whereas the lowest mean rank is for the 'Eastern region' subgroup with a value of 37.39.

In the case of conventional banks, the 'age' category control variable is statistically significant as the estimated p -value is 0.048 at the level of 5%. The highest mean is for the '26-35 year-olds' category with a value of 58.56 and the lowest value went to the 'over 55 years-old' group at 37.05. The 'monthly income' control variable is statistically significant at the level of 5% as p -value is 0.048: the '8001-12000SR' group obtained the highest mean rank with a value of 62.24, while the lowest mean rank is recorded by the 'more than 20000SR' subgroup with a value of 29.00. In addition, the 'highest educational qualifications' control variable is statistically significant at 5% level with a p -value of 0.000.

The highest mean rank is 'Master's degree or above' subgroup with a value of 57.63, and the lowest mean is scored by the 'below high school' group with 20.11. Finally, the 'region' control variable is statistically significant as the p -value is 0.003 at the level of 5%. The highest mean rank is the category 'Riyadh region' with a value of 61.07, while the lowest mean rank is achieved by the category 'Eastern region' with a value of 45.10. Table 7.44 depicts the significant dependent variables in relation to the statement that 'Saudi banks should proactively encourage their customers to deal with

e-commerce using facilities in Saudi banks'. For Islamic banks, the 'age' category group control variable is statistically significant at the 5% level with a p -value of 0.000: the '18-25 year-old' group recorded the highest mean rank with a value of 62.30 and the lowest value went to the 'over 55 year-old' subgroup with 21.97. In addition, the control variable of highest educational qualifications is statistically significant at the level of 5% as the p -value is 0.000. The category of 'master's degree or above' registered the highest mean rank value at 72.25, while the lowest value is for 'below high school' subgroup at 27.50. Moreover, the 'occupation' control variable is statistically significant at 5% level, highlighting certain differences among the participants' responses to this statement. The group 'student' scored the highest mean rank at 75.90, and the subgroup 'retired' scored the lowest with a value of 15.00 with the p -value is 0.001.

Table 7.44: Significance of Control Variables on the Statement: *Q20.15* Saudi banks should proactively encourage their customers to deal with e-commerce using facilities in Saudi banks

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	62.30	0.000*	41.50	0.024*	KW Test
	26 - 35 years	62.19		58.92		
	36 - 45 years	61.72		46.85		
	46 - 55 years	40.16		39.75		
	Over 55 years	21.97		32.80		
Highest educational qualifications	Below High School	27.50	0.000*	24.44	0.000*	KW Test
	High School	56.35		47.29		
	Bachelor degree	56.61		55.21		
	Master's degree or above	72.25		66.50		
Occupation	Student	75.90	0.001*	41.50	0.894	KW Test
	Private sector employee	51.52		46.47		
	Public sector employee	55.52		50.55		
	Private business	51.63		41.17		
	Retired	15.00		51.17		
	Unemployed	43.79		36.00		

Note: (*) Statistically significant at 5% level.

In the case of conventional banks, the 'age' category control variable is statistically significant at the level of 5% with an estimated p -value at 0.024. The subgroup '26-35 year-olds' reached the highest mean rank at 58.92 and the lowest value went to the 'over 55 year-old' subgroup with 32.80. In addition, the 'highest educational

qualifications' control variable was statistically significance at the level of 5% with the p -value at 0.000: the 'Master's's degree or above' group scored the highest mean rank at 66.50, whereas the lowest value is scored by the 'below high school' subgroup with a value of 24.44.

In overall, Table 7.45 show the summary results from the KW and MWU tests, which show that the control variables of 'gender' and 'nationality' are not statistically significant for any of the statements of customer awareness of e-commerce and e-banking services in Islamic and conventional Saudi banks in this study. Thus, 'gender' and 'nationality' cannot be efficient independent variables in determining knowledge, experience and motivation of using e-commerce through e-banking. However, the findings suggest that the majority of Islamic banks customers in the age group '18-45 year-olds' tend to be more aware of measures in e-commerce, while for the conventional banks customers, the age group '26-35 year-olds' appears to be significant. Thus, it seems that 'age' is an important deterministic variable.

As for the other deterministic variables, the findings suggest that the 'monthly income' category is not statistically significant in relation to the awareness of the majority of customers about e-commerce and e-banking in the Islamic banks, while the findings suggest that in majority of cases for the conventional banks the groups '8001-12000SR' and 'more than 20000SR' tend to be more aware of e-commerce and e-banking services. Furthermore, in relation to 'educational qualifications', in 13 out of 15 cases in Islamic banks and in 10 out of 15 cases in conventional banks, customers with 'Master's's degree and above' were statistically significant.

This may imply that educated individuals tend to attach much greater weight to awareness of e-commerce and e-banking. This can also be seen in the 'occupation' category in which in most cases the majority of Islamic bank customers were identified as 'students' who have sufficient knowledge of the technology available. Conversely, for 'occupation' group the majority is not significant for conventional banks customers.

Table 7.45: The Highest Significant Subcategories among the Control Variables on Respondents' Knowledge in E-Commerce and E-Banking Services

Statement	Age category		Monthly income		Educational		Occupation		Region	
	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
Q.18.1 it provides me with more options and benefits such as saving time and money	36-45 years	36-45 years	None	More than 20000SR	Master's degree or above	Master's degree or above	Public sector employee	Public sector employee	None	None
Q.18.2 it helps in everyday purchases	36-45 years	26-35 years	None	None	Master's degree or above	Master's degree or above	Student	None	None	None
Q.18.3 e-commerce is compatible with modern lifestyle	18-25 years	26-35 years	None	None	Master's degree or above	Master's degree or above	Student	None	None	None
Q.18.4 it gives great benefits to customers lead to increased customer loyalty	26-35 years	None	None	None	Master's degree or above	None	Student	None	None	None
Q.18.5 it has created social communities between internet merchants	36-45 years	None	None	None	Master's degree or above	High School	None	None	None	None
Q.18.6 it is safe for performing financial transactions	36-45 years	None	None	None	Master's degree or above	Master's degree or above	Student	Public sector employee	None	Riyadh Region
Q.18.7 it can be risky in general	None	None	None	16001-20000SR	Below High School	None	None	None	Eastern Region	None
Q.18.8 it provides easy use	18-25 years	26-35 years	None	16001-20000SR	Master's degree or above	Master's degree or above	Student	None	None	Riyadh Region
Q.18.9 using e-services enhances my trust in purchasing goods or	36-45 years	18-25 years	8001-12000SR	None	Master's degree or above	Master's degree or above	Student	None	None	None

services										
Q.18.10 purchasing products or services by e-services is a status symbol	18-25 years	26-35 years	None	None	Master's degree or above	Bachelor degree	Student	None	None	None
Q.18.11 it is necessary to be able to experiment with e-commerce to see what it offers me	None	None	None	More than 20000SR	Master's degree or above	Master's degree or above	Student	None	None	None
Q.18.12 I am happy to recommend my friends and families to start dealing with e-commerce	18-25 years	26-35 years	None	None	Master's degree or above	Master's degree or above	Student	None	None	Riyadh Region
Q.18.13 the majority of the customers of Saudi banks will start dealing with e-commerce provided that they are informed	18-25 years	None	None	8001-12000SR	High School	High School	None	None	None	None
Q.18.14 Saudi banks should proactively encourage their customers to use e-banking services	26-35 years	26-35 years	8001-12000SR	8001-12000SR	Master's degree or above	Master's degree or above	Student	None	Riyadh Region	Riyadh Region
Q.18.15 Saudi banks should proactively encourage their customers to deal with e-commerce using facilities in Saudi banks	18-25 years	26-35 years	None	None	Master's degree or above	Master's degree or above	Student	None	None	None

In terms of the ‘region’ category, it is not possible to identify which region has the greatest knowledge of Saudi e-banking services, with the exception of ‘Riyadh region’, which is statistically significant only in a small number of cases in the case of conventional banks. One conclusion that can be drawn from Table 7.45 is that Islamic bank customers’ awareness of e-commerce and e-banking in Saudi banking is much positive than those of the conventional banks.

7.3.2 Determining Factors of Customers’ Motivation of Using E-Commerce and E-Banking Services: Non-Parametric Analysis

This section presents the results developed from inferential analysis using the KW test and the MWU test to identify the determining factors motivating the participants to use e-commerce and e-banking. These variables include ‘gender’, ‘nationality’, ‘age category’, ‘monthly income’, ‘highest educational qualifications’, ‘occupation’ and ‘region’ and the subgroup categories in relation to respondents’ motivation in e-commerce and e-banking services.

Table 7.46: Significance of Control Variables on the Statement: *Q 19.1 My decision to start dealing with e-commerce within Saudi banks is influenced by my family members*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	66.30	0.000*	47.86	0.013*	KW Test
	26 - 35 years	64.86		58.84		
	36 - 45 years	51.46		43.31		
	46 - 55 years	46.22		45.19		
	Over 55 years	24.88		26.55		
Highest educational qualifications	Below High School	32.86	0.000*	29.94	0.005*	KW Test
	High School	65.76		51.30		
	Bachelor degree	51.01		55.27		
	Master’s degree or above	66.36		37.31		
Occupation	Student	86.75	0.000*	53.31	0.525	KW Test
	Private sector employee	53.04		44.79		
	Public sector employee	49.83		51.50		
	Private business	61.88		27.50		
	Retired	21.69		46.17		
	Unemployed	51.00		31.00		

Note: (*) Statistically significant at 5% level.

Thus, the non-parametric tests help to identify the significant differences between the responses by each category given to the statements.

Table 7.46 highlights the dependent variables in relation to the statement that ‘my decision to start dealing with e-commerce within Saudi banks is influenced by my family members’. In the case of the Islamic banks, the ‘age category’ had a statistically significant level of 5% with a p -value 0.000, again indicating differences between participants about the current statement. In this control variable, the subgroup ‘26-35 year-olds’ achieved the highest figure with a value of 64.86, while the category ‘over 55 year-old’ had the lowest value at 24.88. Moreover, the control variable ‘highest educational qualifications’ is statistically significant at the level of 5%, with a p -value of 0.000.

The ‘Master’s degree or above’ category scored the highest mean rank value at 66.36. However, the lowest value is scored by ‘below high school’ group with 32.86. In addition, the ‘occupation’ control variable is statistically significant at 5% significance level with a p -value of 0.000, which indicates diversity among participants’ opinions towards this control variable. The ‘student’ category secured the high value of 86.75 and the ‘retired’ subgroup recorded the lowest value at 21.69. These values consequently highlight that the subcategories exhibit ‘dissimilarity’ on the level of influence by their family members to start dealing with e-commerce within Saudi banks.

With regard to conventional banks, two control variables ‘age category’ and ‘highest educational qualifications’ are statistically significant at the 5% level with p -values of 0.013 and 0.005 respectively. In ‘age category’ control variable, the subgroup ‘26-35 year-olds’ scored the highest mean rank at 58.84, while the group ‘over 55 year-old’ achieved the lowest value of 26.55. In the control variable ‘highest educational qualifications’, the ‘bachelor degree’ subgroup registered the highest mean value at 55.27, whereas the lowest mean rank was for ‘below high school’ category with 29.94. In contrast, the control variable ‘occupation’ is not statistically significant at the 5% level as the p -value is 0.525. Table 7.47 depicts the results for the relevant control variables in relation to the statement ‘My colleagues encouraged me dealing

with e-commerce within Saudi banks’.

In the case of Islamic banks, the three control variables, ‘age category’, ‘highest educational qualifications’ and ‘occupation’, are statistically significant at 5% level; all with the same p -value of 0.000. In the control variable of ‘age category’ the ‘18-25 year-olds’ subgroup scored the highest value at 72.40, while the subgroup ‘over 55 year-old’ occupied the lowest mean rank with a value of 18.66. With regard to the ‘highest educational qualifications’ control variable, the ‘Master’s degree or above’ subgroup received the highest mean rank with a value of 68.29, whereas the ‘below high school’ subgroup scored the lowest with a value of 28.07. In the ‘occupation’ control variable the ‘student’ subgroup achieved the highest value at 78.15, whilst the lowest mean rank went to the ‘retired’ category with a value of 16.56.

Table 7.47: Significance of Control Variables on the Statement: *Q 19.2 My colleagues encouraged me dealing with e-commerce within Saudi banks*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	72.40	0.000*	50.73	0.000*	KW Test
	26 - 35 years	62.96		61.48		
	36 - 45 years	53.69		43.58		
	46 - 55 years	49.03		43.31		
	Over 55 years	18.66		17.50		
Highest educational qualifications	Below High School	28.07	0.000*	29.92	0.001*	KW Test
	High School	64.48		50.03		
	Bachelor degree	53.41		58.03		
	Master’s degree or above	68.29		30.56		
Occupation	Student	78.15	0.000*	43.25	0.398	KW Test
	Private sector employee	49.02		49.36		
	Public sector employee	57.18		50.50		
	Private business	37.50		27.50		
	Retired	16.56		28.17		
	Unemployed	43.36		28.75		

Note: (*) Statistically significant at 5% level.

As for the conventional banks, two control variables are statistically significant at 5% level: ‘age category’ and ‘highest educational qualifications’. With reference to the ‘age category’ independent variable, the ‘26-35 year-olds’ group scored the highest mean rank with a figure of 61.48, while the category ‘over 55 year-old’ secured the lowest mean rank value at 17.35 with the p -value of 0.000. As for the ‘highest

educational qualifications’, it has a p -value of 0.001: The ‘bachelor degree’ grouping achieved the highest mean rank with 58.03, while the ‘below high school’ subgroup scored a low mean rank of 29.92. The ‘occupation’ control variable is not statistically significant at the 5% level as the estimated p -value is 0.398.

Table 7.48 displays the results for the determining variables relation to the statement that ‘The ease of the use of e-services motivated me to switch over to e-commerce’, which shows that ‘nationality’, ‘age category’, ‘highest educational qualifications’, ‘occupation’ and ‘region’ are the statistically significant independent variables.

As can be seen from Table 7.47, in the case of Islamic banks, the control variables ‘nationality’, ‘age category’, ‘highest educational qualifications’, ‘occupation’ and ‘region’ are statistically significant at the level of 5%, albeit with different p -values. In the ‘nationality’ control variable ‘Sudanese’ nationalities scored the highest mean value at 60.92 and the lowest mean rank is scored by the ‘Indian’ nationalities with a mean value of 27.75 and the p -value of 0.042. In the ‘age category’ control variable, the ‘18-25 year-olds’ subgroup recorded the highest value at 67.50 and the lowest mean rank was for the subgroup ‘over 55 year-old’ with a value of 20.94.

In this case, the p -value is 0.000. Furthermore, in the ‘highest educational qualifications’ the subgroup ‘bachelor degree’ occupied first place with a value of 62.17, whereas the ‘below high school’ group scored the lowest value at 23.59 with the p -value of 0.000. The ‘occupation’ control variable is significant at p -value of 0.001. The ‘private business’ category reached the highest value of 68.63, while the category ‘retired’ is the lowest value at 12.56. As for the control variable of ‘region’, the ‘Riyadh region’ subgroup scored the highest mean rank with a value of 65.51, while the category ‘Eastern region’ occupied the last place with a value of 44.53 with the p -value of 0.003.

In the case of conventional banks, as can be seen in Table 7.48, the control variables ‘nationality’, ‘age category’ and ‘occupation’ are not statistically significant at 5% level of significance. In contrast, two control variables ‘highest educational qualifications’ and ‘region’ are statistically significant at 5%. In the control variable,

‘highest educational qualifications’ which is divided into four subgroups: ‘Master’s degree or above’ is the highest number with a value of 64.25, while the subgroup of ‘below high school’ achieved the lowest value at 27.92 with the p -value is 0.002.

Table 7.48: Significance of Control Variables on the Statement: *Q 19.3 The ease of the use of e-banking services motivated me to switch over to e-commerce*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	58.23	0.042	50.15	0.705	KW Test
	Sudanese	60.92		51.33		
	Indian	27.75		35.33		
	Pakistani	42.50		43.60		
	Egyptian	38.38		49.20		
	Yemeni	31.58		39.44		
	Syrian	50.25		33.20		
Age category	18 - 25 years	67.50	0.000*	52.82	0.057	KW Test
	26 - 35 years	58.16		57.47		
	36 - 45 years	59.11		39.00		
	46 - 55 years	51.16		43.72		
	Over 55 years	20.94		38.90		
Highest educational qualifications	Below High School	23.59	0.000*	27.92	0.002*	KW Test
	High School	59.02		50.48		
	Bachelor degree	62.17		50.93		
	Master’s degree or above	56.14		64.25		
Occupation	Student	47.10	0.001*	45.69	0.423	KW Test
	Private sector employee	56.15		44.32		
	Public sector employee	58.95		52.06		
	Private business	68.63		40.67		
	Retired	12.56		59.67		
	Unemployed	37.14		19.75		
Region	Riyadh Region	65.51	0.003*	58.38	0.004*	KW Test
	Western Region	45.60		38.48		
	Eastern Region	44.53		53.03		

Note: (*) Statistically significant at 5% level.

In the ‘region’ control variable, which is statistically significant at p -value of 0.004, ‘Riyadh region’ obtained the highest mean rank with a value of 58.38, while ‘Western Region’ gained the lowest value at 38.48. Table 7.49 presents the results from the investigation into the identification of independent variables in relation to the statement that ‘24/7 availability of e-services and e-commerce motivated me to switch over to e-commerce’. For this, there are five relevant control variables: ‘age category’, ‘monthly income’, ‘highest educational qualifications’, ‘occupation’ and ‘region’.

Table 7.49: Significance of Control Variables on the Statement: *Q 19.4 24/7 availability of e-services and e-commerce motivated me to switch over to e-commerce*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	65.25	0.000*	41.14	0.203	KW Test
	26 - 35 years	61.14		54.74		
	36 - 45 years	57.89		49.87		
	46 - 55 years	49.19		39.50		
	Over 55 years	19.84		38.70		
Monthly income	Less than 4001 SR	40.66	0.052	29.89	0.003*	KW Test
	4001 - 8000 SR	48.91		44.47		
	8001 - 12000 SR	58.38		62.38		
	12001 - 16000 SR	65.48		56.34		
	16001 - 20000 SR	54.35		34.50		
	More than 20000 SR	42.69		51.00		
Highest educational qualifications	Below High School	23.27	0.000*	26.83	0.001*	KW Test
	High School	57.09		53.61		
	Bachelor degree	63.57		48.14		
	Master's degree or above	55.32		66.00		
Occupation	Student	48.55	0.002*	41.25	0.197	KW Test
	Private sector employee	58.75		44.92		
	Public sector employee	55.96		52.71		
	Private business	70.38		61.00		
	Retired	13.25		40.67		
	Unemployed	46.14		11.25		
Region	Riyadh Region	67.19	0.001*	62.71	0.000*	KW Test
	Western Region	44.23		37.77		
	Eastern Region	44.81		48.58		

Note: (*) Statistically significant at 5% level.

For Islamic banks, as the results in table 7.49 show, the four control variables are statistical significant at 5% level of significance: with regard to the ‘age category’, the subgroup ‘18-25 year-olds’ is the highest mean rank with a value of 65.25, while the lowest is the ‘over 55 year-old’ category with a value of 19.84 with the p -value of 0.000. In the ‘highest educational qualifications’ control variable, the ‘bachelor degree’ group has the highest mean rank with a value of 63.57, while the lowest mean rank is scored by the ‘below high school’ subgroup with a mean rank value of 23.27 with the p -value is 0.000.

In the ‘occupation’ control variable, the highest mean value is scored by the ‘private business’ group at 70.38 and the lowest mean rank is the ‘retired’ group with a mean rank value of 13.25 with the p -value of 0.002. In addition, the subgroup ‘Riyadh

region' in the 'region' control variable scored the highest value at 67.19, whilst Western region is achieved the lowest value at 44.23 with the p -value of the 'region' control variable is 0.001.

In the case of the conventional banks, the 'monthly income' control variable is significant at 5% level and '8001-12000SR' group obtained the highest mean rank value at 62.38, whereas the 'less than 4001SR' category achieved the lowest mean rank with a value of 29.89 with the p -value is 0.003. The 'highest educational qualifications' control variable has a p -value of 0.001, which expresses the differing views held on this subject by the participants: the group 'Master's degree or above' recorded the highest mean rank at 66.00, and the 'below high school' category achieved the lowest mean rank with a value of 26.83.

Furthermore, the subgroup 'Riyadh region' in the 'Region' control variable recorded the highest value at 62.71, whilst the lowest value is recorded for 'Western region' at 37.77 with the p -value of 0.000. As for the 'Website design of bank motivated me to use internet banking', Table 7.50 displays the results of the significant independent variables, which includes 'Nationality' 'Age category', 'Monthly income', 'Highest educational qualifications', 'Occupation' and 'Region' as well as 'Gender'.

As can be seen in Table 7.50, the first statistically significant control variable at the 5% level in the Islamic banks group is 'nationality'; accordingly, 'Saudi' nationalities scored the highest mean rank value of 59.95, while the lowest mean rank is for 'Indian' nationalities at 28.67 with the p -value of 0.023. In the 'age category' control variable, the subgroup '26-35 year-olds' recorded the highest mean rank value at 67.16, whilst the 'over 55 year-old' group scored the lowest with a value of 19.06 with the p -value of 0.000. In the 'highest educational qualifications' case, 'high school' degree with a value of 60.98 is achieved the highest mean rank, whereas the 'below high school' subgroup scored the lowest value at 25.73 with the p -value of 0.000. In the 'occupation' control variable the highest value is for the 'student' category at 72.60 and the lowest value is for the 'retired' group with a value of 16.63 with the p -value of 0.003.

Table 7.50: Significance of Control Variables on the Statement: *Q19.5 Website design of bank motivated me to use Internet Banking*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi Sudanese Indian Pakistani Egyptian Yemeni Syrian	59.95 45.25 28.67 36.00 38.06 36.33 44.38	0.023*	50.66 49.00 44.83 44.80 45.60 37.31 28.00	0.535	KW Test
Age category	18 - 25 years 26 - 35 years 36 - 45 years 46 - 55 years Over 55 years	57.05 67.16 59.15 39.81 19.06	0.000*	39.45 55.82 52.81 39.09 30.20	0.023*	KW Test
Monthly income	Less than 4001 SR 4001 - 8000 SR 8001 - 12000 SR 12001 - 16000 SR 16001 - 20000 SR More than 20000 SR	43.18 45.06 60.59 60.63 62.31 39.94	0.081	34.58 42.48 55.91 53.68 64.83 62.50	0.045*	KW Test
Highest educational qualifications	Below High School High School Bachelor degree Master's degree or above	25.73 60.98 60.03 56.43	0.000*	22.31 51.95 49.63 76.50	0.000*	KW Test
Occupation	Student Private sector employee Public sector employee Private business Retired Unemployed	72.60 54.73 54.45 54.50 16.63 41.79	0.003*	46.63 43.63 55.03 25.50 44.83 16.75	0.108	KW Test
Region	Riyadh Region Western Region Eastern Region	61.24 47.65 47.72	0.075	60.82 39.82 46.60	0.004*	KW Test

Note: (*) Statistically significant at 5% level.

With regard to conventional banks, the 'age category' is statistically significant at 5% level of significance with the p -value of 0.023: the subgroup '26-35 year-olds' achieved the highest value at 55.82, while the 'over 55 year-old' category scored the lowest mean rank at 30.20. Within the 'monthly income' control variable, the '16001-20000SR' category registered the highest value at 64.83, whereas the 'less than 4001SR' group recorded the lowest value with a value of 34.58 with the p -value of 0.045. For the control variable 'highest educational qualifications', the 'Master's

degree or above' group reached the highest mean rank at 76.50, while the lowest mean rank was scored by 'below high school' category at 22.31 with the p -value of 0.000. The last significant control variable in relation to this statement is 'region' with a p -value of 0.004. In this category 'Riyadh region' scored the highest mean rank value of 60.82, while the lowest is 'Western region' with a mean ranking value of 39.82.

Table 7.51 shows the results of the independent variables in relation to the statement 'Changing nature of shopping as a life style necessitates using e-services banking and e-commerce'. For Islamic banks, the control variable 'age category' is statistically significant at the 5% level with a p -value of 0.000; the '36-45 year-olds' group recorded the highest mean rank value at 66.94, while the lowest value of 15.91 is scored by the 'over 55 year-old' category, which underlines a difference in the responses to this statement. The control variable 'monthly income' has a p -value of 0.015: the '16001-20000SR' category scored the highest mean rank value at 72.96, whereas the lowest mean rank is scored by the '4001-8000SR' subgroup with a figure of 37.68.

The 'highest educational qualifications' control variable with a p -value of 0.000 resulted in the highest mean rank (76.64) with the 'Master's degree or above' group, while the lowest value is the 'below high school' category at 29.09. The 'occupation' control variable is statistically significant at the level of 5%, with a p -value of 0.000. The highest value went to the 'student' group at 64.70 and the lowest figure went to the 'retired' category with a value of 13.75. As can be seen in Table 7.51, for conventional banks the 'age category' control variable with a p -value of 0.023, resulted in the highest value going to the group '26-35 year-olds' category and the lowest value is for the 'over 55 years-old' group at 26.85.

In addition, in the control variable 'highest educational qualifications' with a p -value of 0.000, the highest rank is taken by the 'Master's degree or above' group with a value of 70.25, while the 'below high school' group rank the lowest at 29.28. Furthermore, in the 'Region' control variable with a p -value of 0.037, the highest value is obtained by 'Riyadh region' at 57.96, while the lowest mean rank is by

‘Eastern region’ with a value of 40.90.

Table 7.51: Significance of Control Variables on the Statement: *Q18.6 Changing nature of shopping as a life style necessitates using e-banking services and e-commerce*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	52.80	0.000*	41.77	0.023*	KW Test
	26 - 35 years	62.06		57.48		
	36 - 45 years	66.94		47.00		
	46 - 55 years	43.63		45.81		
	Over 55 years	15.91		26.85		
Monthly income	Less than 4001 SR	45.38	0.015	40.37	0.144	KW Test
	4001 - 8000 SR	37.68		41.98		
	8001 - 12000 SR	60.09		51.59		
	12001 - 16000 SR	51.65		50.98		
	16001 - 20000 SR	72.96		66.33		
	More than 20000 SR	59.44		70.75		
Highest educational qualifications	Below High School	29.09	0.000*	29.28	0.000*	KW Test
	High School	54.67		40.82		
	Bachelor degree	55.32		57.97		
	Master's degree or above	76.64		70.25		
Occupation	Student		0.000*		0.070	KW Test
	Private sector employee	64.70		42.63		
		49.44		42.91		
	Public sector employee	60.25		56.05		
		26.13		27.00		
	Private business	13.75		49.67		
	Retired	48.50		17.25		
	Unemployed					
Region	Riyadh Region	53.73	0.388	57.96	0.037*	KW Test
	Western Region	55.32		44.00		
	Eastern Region	44.36		40.90		

Note: (*) Statistically significant at 5% level.

As for the statement ‘My business requirements motivated me to adopt e-commerce’, the significant independent variables are depicted in Table 7.51, which includes the following control variables: ‘age category’, ‘monthly income’, ‘highest educational qualifications’ and ‘occupation’.

As can be seen in Table 7.52, in case of Islamic banks, in the ‘age category’ control variable with a *p*-value of 0.000, the ‘26-35 year-olds’ group recorded the highest mean rank value with 63.76, while the lowest mean rank is for the subgroup ‘over 55 year-old’ at 22.19. Such a high value from the youngest age group suggests that the

requirements of their business motivated them to adopt e-commerce.

Table 7.52: Significance of Control Variables on the Statement: *Q19.7 My business requirements motivated me to adopt e-commerce*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	50.90	0.000*	37.82	0.110	KW Test
	26 - 35 years	63.76		56.63		
	36 - 45 years	62.61		47.13		
	46 - 55 years	42.13		44.25		
	Over 55 years	22.19		36.00		
Monthly income	Less than 4001 SR	42.98	0.179	29.53	0.002*	KW Test
	4001 - 8000 SR	44.06		47.98		
	8001 - 12000 SR	63.26		47.18		
	12001 - 16000 SR	55.96		59.61		
	16001 - 20000 SR	60.12		35.17		
	More than 20000 SR	54.56		73.38		
Highest educational qualifications	Below High School	29.05	0.000*	23.86	0.000*	KW Test
	High School	58.52		55.35		
	Bachelor degree	53.57		47.89		
	Master's degree or above	76.04		66.63		
Occupation	Student	68.75	0.004*	34.31	0.319	KW Test
	Private sector employee	50.88		46.77		
	Public sector employee	56.82		52.04		
	Private business	53.75		46.33		
	Retired	15.50		53.50		
	Unemployed	44.93		18.75		

Note: (*) Statistically significant at 5% level.

In the 'highest educational qualifications' control variable with a p -value of 0.000 the 'Master's degree or above' group occupied first place with a value of 76.04, whilst the 'below high school' group is in the last place with a mean rank value of 29.05. With regard to the 'occupation' control variable, the 'students' group achieved the highest mean rank value at 68.75, whereas the subgroup 'retired' scored the lowest value with 15.50.

For the 'monthly income' control variable in relation to conventional banks, the category 'more than 20000SR' scored the highest mean rank with a value of 73.38 and the group 'less than 4001SR' registered the lowest mean value rank at 29.53 with the p -value of 0.002. In the control variable 'highest educational qualifications',

which has a p -value at 0.000, the subgroup ‘Master’s degree or above’ scored the highest value with 66.63, while the category ‘below high school’ recorded the lowest value of 23.86.

Table 7.53: Significance of Control Variables on the Statement: Q19.8 Saudi banking system encourages dealing with e-commerce

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	57.24	0.044*	50.38	0.196	KW Test
	Sudanese	67.00		36.17		
	Indian	26.75		24.67		
	Pakistani	33.50		26.40		
	Egyptian	47.88		42.60		
	Yemeni	32.92		57.75		
	Syrian	50.00		40.10		
Age category	18 - 25 years	63.70	0.000*	44.00	0.100	KW Test
	26 - 35 years	60.49		56.90		
	36 - 45 years	54.48		47.44		
	46 - 55 years	54.13		36.66		
	Over 55 years	23.06		39.70		
Highest educational qualifications	Below High School	28.52	0.000*	22.36	0.000*	KW Test
	High School	61.17		54.85		
	Bachelor degree	55.83		49.27		
	Master’s degree or above	65.21		66.00		
Occupation	Student	66.00	0.003*	30.06	0.154	KW Test
	Private sector employee	51.94		45.76		
	Public sector employee	56.62		52.67		
	Private business	68.88		42.00		
	Retired	18.63		67.33		
	Unemployed	34.50		29.00		

Note: (*) Statistically significant at 5% level.

As can be seen from Table 7.53, the independent variables, which are found to be statistically significant, in relation to the statement ‘Saudi banking system encourages to deal with e-commerce’ are ‘nationality’, ‘age category’, ‘highest educational qualifications’ and ‘occupation’.

As the findings in Table 7.53 display, in relation to Islamic banks, the control variable ‘nationality’ is significant with a p -value of 0.044: the ‘Sudanese’ nationality with a value of 67.00 scored the highest mean rank value, while the lowest value is achieved by the ‘Indian’ nationality with mean rank value of 26.75. In the ‘age category’ control variable, which is significant with p -value of 0.000, the highest mean rank is

for the '18-25 year-olds' category with a mean rank value of 63.70, while the lowest value went the 'over 55 year-old' subgroup with a value of 23.06.

In the 'highest educational qualifications' control variable case, the subgroup 'Master's degree or above' achieved the highest value at 65.21, whereas the 'below high school' registered the lowest value at 28.52. For the 'occupation' control variable, which is significant at p -value of 0.003, the 'private business' subgroup achieved the highest mean rank value of 68.88. The lowest mean rank value is obtained by the 'retired' group with a value of 18.63.

In terms of the conventional banks, 'highest educational qualifications' is the only independent variable that is statistically significant at the level of 5% with a p -value of 0.000. Accordingly, the 'Master's degree or above' subgroup scored the high value of 66.00, while the lowest mean rank is achieved by the 'below high school' category with a value of 22.36. In contrast, the 'nationality', 'age category' and 'occupation' control variables are not statistically significant with p -values of 0.196, 0.100 and 0.154 respectively.

Table 7.54 shows the results of significant independent variables in relation to the statement 'E-payment method encouraged me to adopt e-commerce'. In the table three control variables that are highlighted are: 'age category', 'highest educational qualifications', and 'occupation'. As can be seen from Table 7.54, for the Islamic banks, the 'age category' control variable is significant at 5% level of significance with p -value of 0.000: accordingly, the '18-25 year-olds' group secured the highest mean rank with a value of 73.30, while the lowest mean rank is achieved by the 'over 55 year-old' subgroup with a value of 22.66.

With regard to the 'highest educational qualifications' control variable the 'high school' subgroup is the highest value at 62.15, whilst the lowest number is for the 'below high school' subgroup with a value of 27.27. The p -value for this variable is 0.000. In addition, the results of the 'occupation' control variable shows that the 'public sector employee' category scored the highest mean rank at 60.37, whereas the lowest is the 'retired' group with a value of 19.81 with p -value of 0.010.

Table 7.54: Significance of Control Variables on the Statement: *Q18.9 E-payment method encouraged me to adopt e-commerce.*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	73.30	0.000*	49.45	0.145	KW Test
	26 - 35 years	54.67		56.00		
	36 - 45 years	61.89		43.44		
	46 - 55 years	48.75		44.81		
	Over 55 years	22.66		33.85		
Highest educational qualifications	Below High School	27.27	0.000*	19.78	0.000*	KW Test
	High School	62.15		53.18		
	Bachelor degree	57.48		52.29		
	Master's degree or above	60.29		65.50		
Occupation	Student	49.85	0.010*	34.13	0.015*	KW Test
	Private sector employee	51.54		42.42		
	Public sector employee	60.37		58.50		
	Private business	49.63		30.50		
	Retired	19.81		41.67		
	Unemployed	41.21		19.75		

Note: (*) Statistically significant at 5% level.

In terms of the conventional banks in the control variable ‘highest educational qualifications’ the ‘Master’s degree or above’ group registered the highest mean rank value at 65.50, while the lowest value is with the ‘below high school’ group with a value of 19.78 and with a *p*-value of 0.000. As regards to the ‘occupation’ control variable, the highest mean rank is for the ‘public sector employee’ at 58.50 and the lowest mean rank (19.75) is scored by the ‘unemployed’ subgroup with the *p*-value of 0.015. The results point to diverging views amongst the participants regarding the encouragement of e-payment methods to adopt e-commerce regardless of bank type.

Table 7.55 displays the results in relation to the significant independent variables in relation to ‘age category’, ‘highest educational qualifications’, and ‘occupation’ for the statement that ‘Saudi government policies encourages the people to take advantage of e-commerce’.

As the results in Table 7.55 shows, in the case of Islamic banks, the ‘age category’ control variable with a *p*-value of 0.001, resulted in highest mean rank value of 65.85 for the ‘18-25 year-olds’ and the lowest mean rank is scored by the ‘over 55 year-old’ category at 24.66. The ‘highest educational qualifications’ control variable with a *p*-

value of 0.001 resulted in the ‘high school’ degree scoring the highest mean rank with 68.13, while the lowest value is obtained by the ‘below high school’ group with a value of 33.82. In the ‘occupation’ control variable, which is significant with p -value of 0.003, the highest mean rank value (60.90) is for the ‘student’ group, while the lowest value is scored by the ‘retired’ category with a value of 15.31.

Table 7.55: Significance of Control Variables on the Statement: *Q19.10 Saudi government policies encourages the people to take advantages of e-commerce*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	65.85	0.001*	47.59	0.011*	KW Test
	26 - 35 years	55.84		59.32		
	36 - 45 years	59.37		37.98		
	46 - 55 years	53.09		48.72		
	Over 55 years	24.66		33.55		
Highest educational qualifications	Below High School	33.82	0.001*	37.17	0.271	KW Test
	High School	68.13		50.26		
	Bachelor degree	52.18		50.74		
	Master’s degree or above	57.21		45.19		
Occupation	Student	60.90	0.003*	49.00	0.124	KW Test
	Private sector employee	53.35		47.17		
	Public sector employee	58.45		50.01		
	Private business	37.50		12.00		
	Retired	15.31		64.17		
	Unemployed	45.29		27.25		

Note: (*) Statistically significant at 5% level.

As the results in Table 7.55 shows, with regard to the conventional banks, only the ‘age category’ control variable is statistically significant at 5% level of significance, with the estimated p -value of 0.011. Accordingly, the ‘26-35 year-old’ subgroup recorded the highest mean rank at 59.32 and the lowest mean rank value is scored by ‘over 55 year-old’ category with a value of 33.55.

Table 7.56 presents the results in relation to the statement that ‘easily accessible information to use internet for e-commerce is available’ as a motivational sources, in which case only four control variables are found to be significant: ‘age category’, ‘highest educational qualifications’, ‘occupation’ and ‘region’.

As can be seen from the results depicted in Table 7.56, for Islamic banks, among the

statistically significant variables, the ‘age category’ with a p -value of 0.000, resulted in the ‘36-45 year-old’ group taking the first place with the highest mean rank value of 64.13, while the lowest value is for the ‘over 55 years-old’ category with a mean rank value of 19.88. In addition, in the ‘highest educational qualifications’ control variable, which has a p -value of 0.000, the highest mean rank is achieved by the ‘Master’s degree or above’ group with a mean rank value of 64.89, and the lowest value is scored by the ‘below high school’ group with a mean rank value of 31.23.

Table 7.56: Significance of Control Variables on the Statement: Q19.11 Easily accessible information to use internet for e-commerce is available

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	63.45	0.000*	60.27	0.074	KW Test
	26 - 35 years	59.67		49.89		
	36 - 45 years	64.13		49.69		
	46 - 55 years	42.97		40.75		
	Over 55 years	19.88		31.15		
Highest educational qualifications	Below High School	31.23	0.000*	28.78	0.002*	KW Test
	High School	64.70		48.50		
	Bachelor degree	52.81		52.04		
	Master’s degree or above	64.89		65.63		
Occupation	Student	52.75	0.005*	51.38	0.965	KW Test
	Private sector employee	50.50		47.37		
	Public sector employee	60.54		48.40		
	employee	31.00		39.00		
	Private business	20.00		41.33		
	Retired	49.86		39.00		
Region	Unemployed		0.670		0.021*	KW Test
	Riyadh Region	55.64		58.52		
	Western Region	51.47		41.85		
	Eastern Region	48.86		45.08		

Note: (*) Statistically significant at 5% level.

Furthermore, in the ‘occupation’ control variable, which has a p -value of 0.005, the highest mean rank is scored by the ‘public sector employee’ group with a mean rank value of 60.54, whereas the lowest value is scored by the ‘retired’ independent variable with the mean rank value of 20.00.

For conventional banks, the ‘highest educational qualifications’ control variable is statistically significant at the 5% level of significance with a p -value of 0.002;

accordingly, ‘Master’s degree or above’ subgroup scored the highest mean rank with a value of 65.63, whereas the ‘below high school’ group with a value of 28.78 is scored by the lowest rank. Furthermore, the ‘region’ control variable with a p -value of 0.021 is scored the highest mean rank of 58.52 for the ‘Riyadh region’ and the lowest mean rank value is for the ‘Western region’ with a value of 41.85.

As regards to the motivational source statement that ‘Banks provide information to their customers about the use of online banking, ATMs and others’, the findings are presented in Table 7.57, according to which only the ‘Region’ control variable is statistically significant. For the Islamic banks customers in relation to the statement, at the 5% significance level with the p -value of 0.035. The highest value is registered by ‘Riyadh region’ with 62.12, while the lowest mean rank with a value of 45.94 is obtained by ‘Western region’. It should be noted that all other independent variables in the case of conventional banks is statistically founded to be not significant

Table 7.57: Significance of Control Variables on the Statement: Q19.12 Banks provide information to their customers about the use of online banking, ATMs and others

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Region	Riyadh Region Western Region Eastern Region	62.12 45.94 50.58	0.035*	55.61 42.37 47.95	0.104	KW Test

Note: (*) Statistically significant at 5% level.

After presenting all the results in relation to motivational source of using e-commerce and e-banking, all the findings are summarised in Table 7.58. As can be seen from the results, gender and nationality as independent variables found not to be statistically significant for the majority of statements for both banking types as motivational sources for the sampled customers for using e-commerce and e-banking services. However, the ‘age category’ control variable demonstrates interesting findings as the ‘18-25 year-olds’ and ‘26-35 year-olds’ subgroups are found to be the most frequent independent variables in the case of Islamic banks, whereas in the case of the conventional banks the ‘26-35 year-old’ subgroup has the highest mean in five out of the 12 cases. In addition, the ‘monthly income’ control variable is not statistically

significant for the majority of participants in either the Islamic or conventional banks.

With regard to the 'highest educational qualifications' control variable, in eight out of 12 cases the 'degree holders' categories were found to be statistically significant in the case of Islamic banks, and in the majority of cases in conventional banks the 'Master's degree or above' category is found to be statistically significant. In the 'occupation' control variable in the majority of cases no subgroup was found to be dominant in terms of being statistically significant. In the 'region' control variable the 'Riyadh region' appeared to be not statistically significant for Islamic banks. However, for the conventional banks it is statistically significant in five out of 12 cases.

In concluding with the summary provided in Table 7.57, it can be argued that when considering the respondents' perceptions about their motivations for using e-commerce and e-services, the statistical inferences indicate that the Islamic and conventional banks tend to perform rather equally. One major conclusion which can be drawn from Table 7.57 is that the Islamic bank customers' motivations are much more positive than those of the customers of conventional banks.

Table 7.58: The Highest Significant Subcategories among the Control Variables on Respondents' Motivation in E-Commerce and E-Banking Services.

Statement	Age category		Monthly income		Educational		Occupation		Region	
	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
Q21.1 My decision to start dealing with e-commerce within Saudi banks is influenced by my family members	26-35 years	26-35 years	None	None	Master's degree or above	Bachelor degree	Student	None	None	None
Q.21.2 My colleagues encouraged me to deal with e-commerce within Saudi banks	18-25 years	26-35 years	None	None	Master's degree or above	Bachelor degree	Student	None	None	None
Q.21.3 The ease of the use of e-services motivated me to switch over to e-commerce	18-25 years	None	None	None	Bachelor degree	Master's degree or above	Private business	None	Riyadh Region	Riyadh Region
Q.21.4 24/7 availability of e-banking services and e-commerce motivated me to switch over to e-commerce	18-25 years	None	None	8001-12000SR	Bachelor degree	Master's degree or above	Private business	None	Riyadh Region	Riyadh Region
Q.21.5 Website design of bank motivated me to use Internet Banking	26-35 years	26-35 years	None	16001-20000SR	High school	Master's degree or above	Student	None	None	Riyadh Region
Q.21.6 Changing nature of shopping as a life style necessitates to use e-services banking and e-commerce	36-45 years	26-35 years	16001-20000SR	None	Master's degree or above	Master's degree or above	Student	Public sector employee	None	Riyadh Region
Q.21.7 My business requirements motivated me to adopt e-commerce	26-35 years	None	None	More than 20000SR	Master's degree or above	Master's degree or above	Student	None	None	None
Q.21.8 Saudi banking system encourages dealing with e-commerce	18-25 years	None	None	None	Master's degree or above	Master's degree or above	Private business	None	None	None
Q.21.9 E-payment method encouraged me to adopt e-commerce.	18-25 years	None	None	None	High school	Master's degree or above	Public sector employee	Public sector employee	None	None
Q.21.10 Saudi government policies encourages the people to take advantages of e-commerce	18-25 years	26-35 years	None	None	High school	None	Student	None	None	None
Q.21.11 Easily accessible information to use internet for e-commerce is available	36-45 years	None	None	None	Master's degree or above	Master's degree or above	Public sector employee	None	None	Riyadh Region
Q.21.12 Banks provide information to their customers about the use of online banking, ATMs and others	None	None	None	None	None	None	None	None	Riyadh Region	None

7.4 CONCLUSION

This chapter presented descriptive and inferential statistical analysis with the data gathered through a questionnaire survey in relation to their knowledge and motivation for practicing e-commerce in Islamic and conventional banks in Saudi Arabia.

The initial results presented relates to the mean values and ranking of customers' knowledge about e-commerce and e-services for the customers of Islamic and conventional banks. As can be seen in descriptive statistical analysis section, the customers of both types of banks opted for the same preference ordering in four of the 15 statements. Furthermore, in the remaining cases, though there are differences in ranking orders, as the mean values being rather diverged indicating that there are statistically significant differences in relation to the independent variables for the answers given to the statements. However, the initial mean and ranking results regarding motivation indicate that the customers opted for the same preference order for only two of the 12 statements, and for the remaining statements there are some significant differences found in mean values.

The preceding section also provides the findings of the inferential statistical analysis results into determining the significance of the differences in the opinions expressed in relation to a number of questions and statements. This is achieved through the use of a number of independent or control variables through non-parametric tests, namely KW Test and the MWU Test. As mentioned, only the results that are significant with the 5% level of significance have been reported.

In relation to the respondents' knowledge of practicing e-commerce, the analysis indicates that both 'gender' and 'nationality' independent variables are not statistically significant for either banking types. In terms of the 'age category' control variable, it is interesting to note that in majority of cases the '18-25 year-olds' and '36-45 year-olds' subgroups are found to be the most frequent users for Islamic banks, thus indicating their familiarity with, and knowledge of, the questions proposed in the initial survey. In contrast, in the 'age category' control variable for conventional banks, the most frequent highest mean ranking is the '26-35 year-old' subgroup. In

addition, the 'monthly income' control variable is found to be not statistically significant for the majority of participants in either the Islamic or conventional banks. However, despite a few cases where certain subgroups are statistically significant, there is no clear cut conclusion for conventional bank customers.

With regard to the 'highest educational qualifications' control variable, only the 'master's degree or above' category is found to be statistically significant for both Islamic and conventional banks. The most significant control variable in relation to the statements analysed is 'occupation', as it involves participants from different positions who have knowledge about the e-banking services, e-commerce and its services. The 'student' subgroup is the most frequently observed independent variable with the highest mean value subgroup in the case of participants from Islamic banks, while it is not found to be statistically significant for the majority of statements in the conventional banks. Similarly, the 'region' control variable does not indicate any particular region as dominant, with the exception of 'Riyadh region', which is shown to be statistically significant in a small number of cases in conventional banks.

In consideration of the respondents' perceptions about knowledge in e-commerce and e-services and the statistical inferences, it can be concluded that in so far as e-banking services and e-commerce are concerned, the responses and hence perceptions from Islamic and conventional banks customers, as sampled in this study, tend to perform rather similarly.

As for the perceptions of respondents about their motivation in practicing e-commerce, 'gender' and 'nationality' were found not to be statistically significant for either banking type. The 'age category' control variable demonstrates interesting findings as the '18-25 year-old' subgroup is the most frequent highest mean for Islamic banks, compared to the '26-35 years-old subgroup' for conventional banks. In addition, the 'monthly income' control variable is not significant for the majority of participants in either the Islamic or conventional banks.

With regard to the 'highest educational qualifications' control variable, in most cases the 'degree holders' categories is found to be statistically significant in both Islamic

and conventional banks. Once again, the 'occupation' control variable exhibits that in the majority of cases, the subgroup 'students' turned out to be dominant in the case of Islamic banks; however, no significant cases from the 'occupation' subgroups are found for the conventional banks. In terms of the 'region' control variable, the 'Riyadh region' group again appeared to be significant in a small number of cases for the two groups of banks.

In overall, it can be argued that the statistical inferences highlights that the Islamic and conventional banks tend to perform rather equally in terms of the respondents' perceptions about their motivation in using e-commerce and e-services.

In concluding, it is important to argue that there are a number of similarities found between the results from the knowledge and motivation elements. In both cases the research has found that 'gender', 'nationality' and 'region' are insignificant, whilst 'age', 'qualifications' and 'occupation' are found to be significant in most cases. To this end, it can be argued that there are similarities in 'age', 'nationality', 'regions' and 'occupation' in both the knowledge and motivation constructs. In contrast, dissimilarity is found in the 'monthly incomes' control variable for the two constructs.

CHAPTER 8

EXPLORING THE USE OF E-COMMERCE AND E- BANKING SERVICES, AND EXAMINING THE OBSTACLES FACED: PERCEPTION ANALYSIS

8.1 INTRODUCTION

Previous chapter explored participants' knowledge of and motivation for using e-commerce and e-banking services through Saudi Arabian Islamic and conventional banks. This chapter takes the analysis further by exploring and evaluating customers' use of e-commerce and e-channels banking services and the obstacles faced in doing so in the case of Islamic and conventional banks in Saudi Arabia through the perceptions of the sampled participants. The statistical analysis in this chapter utilises descriptive statistical analysis as well as an inferential analysis including a Kruskal-Wallis Test (KW Test) and a Mann Whitney-U test (MWU Test).

8.2 EVALUATING CUSTOMERS' PREFERENCES REGARDING E-COMMERCE AND E-CHANNELS USAGE AS WELL AS OBSTACLES FACED

This section presents initial descriptive statistical findings regarding customers' evaluations of the use of e-commerce through e-channels banking services, and the obstacles faced in e-commerce via the e-banking services in Saudi Arabian banks. This includes analysing the responses given to a number of questionnaire statements. The results are presented in the following tables in this section.

8.2.1 Exploring the Perceptions of the Participants on the Usage of E-Commerce

This initial section focuses on the reasons of customer preferences of using e-commerce, such as purchasing particular goods. The results of customers' reasons of dealings in e-commerce through e-banking services by 'purchasing electronic items' are shown in Table 8.1. It can be seen that 25% and 34.6% of customers of Islamic banks made their purchases through e-commerce via e-banking services 'always' and

‘usually’ respectively, while 13.5%, 7.7%, and 19.2% used e-channels banking services, respectively, ‘sometimes’, ‘occasionally’, and ‘never’. Although 20.2% and 24.5% of the customers of conventional banks made their purchases of electronic items in e-commerce through e-banking services ‘always’ and ‘usually’, 34.0%, 9.6%, and 11.7% made use of e-channels banking services ‘sometimes’, ‘occasionally’, and ‘never’ respectively. The results show the mean value of 3.38 for Islamic banks and 3.32 for conventional banks.

Table 8.1: Preferences for Dealings in E-Commerce through E-Banking Services: Q 22.1 To Purchase Electronic Items

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	26	25.0	3.38	1.437
Usually	36	34.6		
Sometimes	14	13.5		
Occasionally	8	7.7		
Never	20	19.2		
Total	104	100.0		
Conventional Banks				
Always	19	20.2	3.32	1.238
Usually	23	24.5		
Sometimes	32	34.0		
Occasionally	9	9.6		
Never	11	11.7		
Total	94	100.0		

Table 8.2: Preferences for Dealing in E-Commerce through E-Banking Services: Q 22.2 To Purchase Consumer Goods

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	23	22.1	3.63	1.099
Usually	41	39.4		
Sometimes	23	22.1		
Occasionally	12	11.5		
Never	5	4.8		
Total	104	100.0		
Conventional Banks				
Always	18	19.1	3.44	1.196
Usually	33	35.1		
Sometimes	24	25.5		
Occasionally	10	10.6		
Never	9	9.6		
Total	94	100.0		

The findings in Table 8.2 relate to preferences in dealing in e-commerce through e-

banking services ‘to purchase consumer goods’. As the results show 22.1% and 39.4% of the customers in Islamic banks answer that they ‘always’ and ‘usually’ do so, while 22.1%, 11.5%, and only 4.8% answered that they ‘sometimes’, ‘occasionally’, and ‘never’ do, respectively. Moreover, 19.1% and 35.1% of conventional bank customers answered that they ‘always’ and ‘usually’ use the services for this purpose, while 25.5%, 10.6%, and 9.6% answered that they ‘sometimes’, ‘occasionally’ and ‘never’ do so respectively. This gives a mean value of 3.63 for Islamic banks, and 3.44 for conventional banks.

Table 8.3: Preferences for Dealing in E-Commerce through E-Banking Services:
Q 22.3 To Purchase Hotel Rooms and Airline Tickets

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	36	34.6	3.73	1.248
Usually	32	30.8		
Sometimes	14	13.5		
Occasionally	16	15.4		
Never	6	5.8		
Total	104	100.0		
Conventional Banks				
Always	20	21.3	3.54	1.179
Usually	35	37.2		
Sometimes	24	25.5		
Occasionally	6	6.4		
Never	9	9.6		
Total	94	100.0		

Table 8.3 displays the findings regarding preferences in dealing in e-commerce through e-banking services ‘to purchase hotel rooms and airline tickets’. The results show that 34.6%, 30.8%, and 13.5% of Islamic banks customers respectively answered that they ‘always’, ‘usually’, and ‘sometimes’ use such services, while 15.4% and just over 5.8% of customers picked ‘occasionally’ and ‘never’. The mean rank value is calculated as 3.73. On the other hand, 21.3%, 37.2%, and 25.5% of the customers of conventional banks answered that they ‘always’, ‘usually’, and ‘sometimes’ respectively use the services for such purposes, while just over 6.4%, and 9.6%, of customers answered that they ‘occasionally’ and ‘never’ used such with a mean value of 3.54.

Table 8.4: Preferences for Dealing in E-Commerce through E-Banking Services:
Q 22.4 To Pay Fees or Fines

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	64	61.5	4.33	1.019
Usually	21	20.2		
Sometimes	9	8.7		
Occasionally	9	8.7		
Never	1	1.0		
Total	104	100.0		
Conventional Banks				
Always	35	37.2	3.95	1.101
Usually	36	38.3		
Sometimes	8	8.5		
Occasionally	13	13.8		
Never	2	2.1		
Total	94	100.0		

Findings regarding preferences in dealing in e-commerce through e-banking services ‘to pay fees or fines’ are presented in Table 8.4. As shown, 81.7% of Islamic banks’ customers answered that they ‘always’ or ‘usually’ did so. In addition, the results for conventional bank customers show that 75.7% answered that they ‘always’ or ‘usually’ do so, whereas only 8.7%, 8.7%, and just 1.0% of Islamic bank customers answered that they ‘sometimes’, ‘occasionally’, or ‘never’ respectively do so. 8.5%, 13.8%, and only 2.1% of conventional bank customers answered that they ‘sometimes’, ‘occasionally’, or ‘never’ do so. The results depict a mean value of 4.33 and 3.95 for the Islamic and conventional banks, respectively.

Based on the results of the questionnaire, Table 8.5 shows answers to a question regarding preferences for dealing in e-commerce through e-banking services ‘to pay bills’. The results show that 50% and 33.7% of Islamic bank customers answered respectively that they ‘always’ and ‘usually’ use the services to pay bills, while 9.6%, 6.7%, and 0% answered that they ‘sometimes’, ‘occasionally’, and ‘never’ paid invoices through e-banking services. 60.6% and 20.2% of the customers of conventional banks answered that they ‘always’ or ‘usually’ use such facilities, while 5.3%, 9.6%, and 4.3% respectively answered that they ‘sometimes’, ‘occasionally’, or ‘never’ paid invoices through e-banking services. The results show a mean value of 4.27 for Islamic banks and 4.23 for conventional banks.

Table 8.5: Preferences for Dealing in E-Commerce through E-Banking Services:
Q 22.5 To pay bills

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	52	50.0	4.27	0.895
Usually	35	33.7		
Sometimes	10	9.6		
Occasionally	7	6.7		
Never	0	0		
Total	104	100.0		
Conventional Banks				
Always	57	60.6	4.23	1.177
Usually	19	20.2		
Sometimes	5	5.3		
Occasionally	9	9.6		
Never	4	4.3		
Total	94	100.0		

Table 8.6: Preferences for Dealing in E-Commerce through E-Banking Services:
Q 22.6 To Buy or Sell Stocks

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	32	30.8	3.31	1.583
Usually	27	26.0		
Sometimes	13	12.5		
Occasionally	5	4.8		
Never	27	26.0		
Total	104	100.0		
Conventional Banks				
Always	20	21.3	2.90	1.587
Usually	22	23.4		
Sometimes	12	12.8		
Occasionally	9	9.6		
Never	31	33.0		
Total	94	100.0		

The results to the final question studied in this section, regarding preferences for dealing in e-commerce through e-banking services ‘to buy or sell stocks’, are depicted in Table 8.6. It is shown in the results that 30.8% and 26% of Islamic bank customers answered that they ‘always’ or ‘usually’, respectively, did so. In addition, 12.5%, only 4.8%, and 26% answered that they ‘sometimes’, ‘occasionally’, or ‘never’ respectively used the services to buy or sell stocks. Furthermore, 21.3% and 23.4% of conventional bank customers respectively answered that they ‘always’ and ‘usually’ did so, while 12.8%, 9.6%, and 33% answered that they ‘sometimes’, ‘occasionally’, or ‘never’ respectively used the services. This gives a mean value of 3.31 for the

Islamic banks, and 2.90 for the conventional banks. Table 8.7 presents a summary of all the mean values concerning preferences for dealing in e-commerce through e-channels banking services for the customers of Islamic and conventional banks.

Table 8.7: Preferences for Dealing in E-Commerce through E-Banking Services

Statements	Islamic Banks		Conventional Banks	
	Mean	Ranking	Mean	Ranking
To purchase electronic items	3.38	5	3.32	5
To purchase consumer goods	3.63	4	3.44	4
To purchase hotel rooms and airline tickets	3.73	3	3.54	3
To pay fees or fines	4.33	1	3.95	2
To pay bills	4.27	2	4.23	1
To buy or sell stocks	3.31	6	2.90	6

As can be seen, the order of preferences in terms of mean ranking resulted from the analysis are similar; as in five cases are same preference ordering is observed. The mean values associated with each e-commerce activity tend, however, to vary between the two types of banks' customers. The ranking shows that while for the customers of Islamic banks ranked preference for e-channels use of 'paying fees or fines' as number one, while 'to pay bills' is ranked as the first preference by the sampled customers of the Islamic banks.

8.2.2 Exploring the Perceptions of the Participants on the Use of E-Channels banking services

This section presents findings related to the preferences of respondents in using e-channels banking services.

Table 8.8 presents results of the surveyed participants' opinions regarding preferences in the use of online banking. As can be seen, 31.7% and 34.6% (a total of 66.3%) of Islamic banks' customers answered that they 'always' or 'usually', respectively, use online banking. 13.5%, 7.7%, and 12.5% answered that they 'sometimes', 'occasionally', and 'never' use online banking. 30.9% of conventional banks' customers answered that they 'always' use online banking; 25.5% answered that they 'usually' (a total of 56.4%) use online banking. 16%, 19.1%, and 8.5% answered that they 'sometimes', 'occasionally', or respectively 'never' use online banking.

The mean value for Islamic banks is 3.65 and 3.51 for conventional banks; and hence

the mean values are rather close.

Table 8.8: Preferences for E-Channels Banking Services: *Q 21.1 Online Banking*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	33	31.7	3.65	1.335
Usually	36	34.6		
Sometimes	14	13.5		
Occasionally	8	7.7		
Never	13	12.5		
Total	104	100.0		
Conventional Banks				
Always	29	30.9	3.51	1.334
Usually	24	25.5		
Sometimes	15	16.0		
Occasionally	18	19.1		
Never	8	8.5		
Total	94	100.0		

Table 8.9: Preferences for E-Channels Banking Services: *Q 21.2 ATMs*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	43	41.3	4.11	0.934
Usually	36	34.6		
Sometimes	19	18.3		
Occasionally	5	4.8		
Never	1	1.0		
Total	104	100.0		
Conventional Banks				
Always	39	41.5	4.11	0.933
Usually	32	34.0		
Sometimes	18	19.1		
Occasionally	4	4.3		
Never	1	1.1		
Total	94	100.0		

Table 8.9 depicts the results for customers' uses of ATMs, as derived from the respondents' expressed opinions. The results are quite similar to the previous results, which show that 41.3% and 34.6% (a total of 75.9%) of customers of Islamic banks answered that they 'always' or 'usually' use ATMs, while 18.3% and 4.8% answered that they 'sometimes' or 'occasionally' use them; only around 1% answered that they 'never' use them. 41.5% of conventional banks' customers answered that they 'always' use ATMs, with 34% answering that they 'usually' do (a total of 75.5%). 19.1% and 4.3% answered that they 'sometimes' or 'occasionally' do so, and only

1.1% answered that they ‘never’ use ATMs. As can be seen in Table 8.9, the mean value for both Islamic and conventional banks is 4.11.

Table 8.10: Preferences in E-Channels Banking Services: *Q 21.3 Telebanking*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	19	18.3	2.96	1.336
Usually	14	13.5		
Sometimes	34	32.7		
Occasionally	18	17.3		
Never	19	18.3		
Total	104	100.0		
Conventional Banks				
Always	18	19.1	3.15	1.244
Usually	17	18.1		
Sometimes	29	30.9		
Occasionally	21	22.3		
Never	9	9.6		
Total	94	100.0		

Regarding preferences of the participants in this study in relation to the use of ‘telebanking’, the results in Table 8.10 show that 18.3% and 13.5% of Islamic bank customers answered that they ‘always’ or ‘usually’ use telebanking, respectively. In addition, 32.7%, 17.3%, and 18.3% answered that they ‘sometimes’, ‘occasionally’, or ‘never’ use telebanking. 19.1% of conventional banks’ customers answered that they ‘always’ use telebanking, and 18.1% answered that they ‘usually’ use this service. 30.9%, 22.3%, and 9.6% answered that they ‘sometimes’, ‘occasionally’, or ‘never’ use telebanking respectively. The results in Table 8.10 depict a mean value for Islamic banks of 2.96 and of 3.15 for conventional banks.

Table 8.11 presents findings regarding the use of e-channels banking services at the point of sale (PoS). As can be seen, 31.7% of Islamic banks’ customers, and 30.9% of conventional banks’ customers, answered that they ‘always’ use e-channels at the PoS. 37.5% and 13.5% of Islamic banks’ customers answered that they ‘usually’ or ‘sometimes’ use them at the PoS, while only 6.7%, and 10.6%, answered respectively that they ‘occasionally’ or ‘never’ use them at the PoS. As for the conventional banks’ customers, 31.9% and 19.1% of customers answered that they ‘usually’ or ‘sometimes’ use e-channels at the PoS, while 10.6% and 8.5% from both banks’ customers answered that they ‘occasionally’ or ‘never’ use them at the PoS. The mean

values for the responses given in this section for the case of Islamic and conventional banks are 3.73 and 3.67 respectively.

Table 8.11: Preferences in E-Channels Banking Services: *Q 21.4 Point of Sales (PoS)*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	33	31.7	3.73	1.271
Usually	39	37.5		
Sometimes	14	13.5		
Occasionally	7	6.7		
Never	11	10.6		
Total	104	100.0		
Conventional Banks				
Always	29	30.9	3.67	1.248
Usually	30	31.9		
Sometimes	18	19.1		
Occasionally	9	9.6		
Never	8	8.5		
Total	94	100.0		

Table 8.12: Preferences in E-Channels Banking Services: *Q 21.5 SMS*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Always	26	25.0	2.95	1.597
Usually	20	19.2		
Sometimes	12	11.5		
Occasionally	15	14.4		
Never	31	29.8		
Total	104	100.0		
Conventional Banks				
Always	17	18.1	2.85	1.466
Usually	17	18.1		
Sometimes	21	22.3		
Occasionally	13	13.8		
Never	26	27.7		
Total	94	100.0		

Table 8.12 shows that 25.0% and 19.2% of the customers of Islamic banks indicated that they use e-channels banking services through SMS either ‘always’ or ‘usually’ respectively, while 11.5% of them use SMS ‘sometimes’, and 14.4% ‘occasionally’. 29.8%, however, answered that they ‘never’ used e-channels banking services through SMS. As for the conventional banks’ customers, 18.1%, and again the same proportion, use e-channels banking services through SMS ‘always’ or ‘usually’, while 22.3%, 13.8%, and 27.7% indicated that they use e-channels banking services

‘sometimes’, ‘occasionally’, or ‘never’ respectively. As can be seen, the mean value calculated is thus 2.95 for Islamic banks and 2.85 for conventional banks.

Table 8.13: Preferences for the Usage of E-Channels Banking Services

Statements	Islamic Banks		Conventional Banks	
	Mean	Ranking	Mean	Ranking
Online Banking	3.65	3	3.51	3
ATMs	4.11	1	4.11	1
Telebanking	2.96	5	3.15	4
Point of Sales	3.73	2	3.67	2
SMS	2.95	4	2.85	5

In overall, Table 8.13 summarises the results for this section by presenting the mean ranking results to identify the most important e-channels used by the participants. As can be seen, the customers of both bank types have ordered three out of the five statements as a similarly ranked preference, with slight differences in mean values, which in some cases are insignificant.

8.2.3 Exploring the Perceptions of the Participants on the Obstacles Facing Customers Using E-Commerce

This section presents analysis of the eleven statements presented in the questionnaire to Saudi bank customers to locate the perceptions of the participants on obstacles facing customers when using e-commerce.

Table 8.14: Obstacles Faced in Doing E-Commerce with Saudi Banks: *Q 17: Do you Face Obstacles in Doing E-Commerce with Saudi Banks?*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Yes	59	56.7	1.43	0.498
No	45	43.3		
Total	104	100.00		
Conventional Banks				
Yes	52	55.3	1.45	0.500
No	42	44.7		
Total	94	100.00		

The findings in Table 8.14, regarding obstacles surrounding e-commerce with Saudi banks, indicate that 56.7% of Islamic banks’ customers faced obstacles in doing e-commerce, with a mean value of 1.43, while 55.3% of customers of conventional banks reported obstacles. The mean value for conventional banks is thus 1.45.

The first statement assessed in this section, discussing obstacles faced in using e-commerce, is the suggestion that ‘conventional trade is better than e-commerce’. Based on the results shown in Table 8.15, 39.4% of Islamic bank customers stated that they ‘strongly agree’ or ‘agree’, whereas 25% of customers of Islamic banks remained ‘neutral’. Meanwhile, 35.5% of Islamic bank customers answered that they ‘disagree’ or ‘strongly disagree’ that conventional trade is better than e-commerce.

On the other hand, 40.4% of conventional banks’ customers indicated that they ‘strongly agree’ or ‘agree’, while 43.6% responded that they ‘disagree’ or ‘strongly disagree’ with the statement. 16.0% are neutral in relation to the statement. The mean values calculated for Islamic banks and conventional banks are respectively 3.09 and 3.03.

Table 8.15: Obstacles Faced in Using E-Commerce: Q 20.1 Conventional Trade is Better than E-Commerce

Banker than E-commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	17	16.3	3.09	1.263
Agree	24	23.1		
Neutral	26	25.0		
Disagree	25	24.0		
Strongly Disagree	12	11.5		
Total	104	100.0		
Conventional Banks				
Strongly Agree	17	18.1	3.03	1.324
Agree	21	22.3		
Neutral	15	16.0		
Disagree	30	31.9		
Strongly Disagree	11	11.7		
Total	94	100.0		

The second statement in this section is intended to measure responses to the statement ‘the cost of accessing e-commerce services is high’.

The results from table 8.16 show various findings. 29.8% of Islamic banks’ customers held that they either ‘agreed’ or ‘strongly agreed’ with the statement, while 33.7% of the respondents differed by saying that they ‘disagreed’ or ‘strongly disagreed’ with it, and 36.5% of the participants did not express agreement or disagreement. 34.1% of conventional banks’ customers indicated that they ‘strongly agreed’ or ‘agreed’, while 39.4% answered that they ‘disagreed’ or ‘strongly disagreed’ with the statement;

26.6% of the conventional bank customers preferred not to express an opinion. The mean value calculated for Islamic banks is 2.86 and 2.93 for conventional banks.

Table 8.16: Obstacles Faced in Using E-Commerce: Q20.2 The Cost of Accessing E-Commerce Services is high

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	8	7.7	2.86	1.186
Agree	23	22.1		
Neutral	38	36.5		
Disagree	16	15.4		
Strongly Disagree	19	18.3		
Total	104	100.0		
Conventional Banks				
Strongly Agree	6	6.4	2.93	1.090
Agree	26	27.7		
Neutral	25	26.6		
Disagree	29	30.9		
Strongly Disagree	8	8.5		
Total	94	100.0		

The descriptive findings shown in Table 8.17 intend to investigate obstacles to e-commerce by asking for responses to the statement ‘I am happy with my lifestyle not including e-commerce’. It shows that 36.5% of Islamic banks’ customers ‘agreed’ or ‘strongly agreed’ with the statement, while 49% of the respondents rejected the statement and ‘disagreed’ or ‘strongly disagreed’. 14.4% were not sure either way.

On the other side, 32.9% of conventional banks’ customers answered that they ‘strongly agreed’ or ‘agreed’, while 44.6% responded that they ‘disagreed’ or ‘strongly disagreed’. 22.3% were not sure and hence answered ‘neutral’. The mean value calculated is 2.92 for Islamic banks and 2.85 for conventional banks.

Regarding obstacles faced in using e-commerce, results are depicted in Table 8.18 relates to the statement that ‘I think learning to use e-services is not easy for me’. As the results indicate, comparing Islamic banks with conventional banks showed that the results in this statement are similar for both the bank types; 28.8% of Islamic banks’ customers indicated that they ‘agreed’ or ‘strongly agreed’ with the statement, while 14.4% did not side either way, and 56.8% of the respondents ‘disagreed’ or ‘strongly disagreed’ with it.

Table 8.17: Obstacles Faced in Using E-Commerce: Q20.3 I am Happy with my Lifestyle not Including E-Commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	13	12.5	2.92	1.212
Agree	25	24.0		
Neutral	15	14.4		
Disagree	43	41.3		
Strongly Disagree	8	7.7		
Total	104	100.0		
Conventional Banks				
Strongly Agree	7	7.4	2.85	1.145
Agree	24	25.5		
Neutral	21	22.3		
Disagree	32	34.0		
Strongly Disagree	10	10.6		
Total	94	100.0		

Table 8.18: Obstacles Faced in Using E-Commerce: Q20.4 I Think Learning to use E-Services is not Easy for Me

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	7	6.7	2.61	1.210
Agree	23	22.1		
Neutral	15	14.4		
Disagree	40	38.5		
Strongly Disagree	19	18.3		
Total	104	100.0		
Conventional Banks				
Strongly Agree	5	5.3	2.72	1.072
Agree	20	21.3		
Neutral	22	23.4		
Disagree	38	40.4		
Strongly Disagree	9	9.6		
Total	94	100.0		

On the other hand, the similar results for conventional banks show that 26.6% of conventional banks' customers indicated that they 'strongly agreed' or 'agreed', with 23.4% 'neutral', and 50% answering that they 'disagreed' or 'strongly disagreed' with the statement. The mean values calculated are 2.61 and 2.72 for Islamic and conventional banks respectively.

Table 8.19 presents the results of responses to the statement 'I am not interested in learning skills about the internet or e-commerce'. The results of responses to this statement show that 32.7% of Islamic bank customers stated that they 'strongly

agreed’ or ‘agreed’, against more than half of the respondents (51.9%) who ‘disagreed’ or ‘strongly disagreed’, while 15.4% were unsure about their answer. 21.3% of conventional banks’ customers chose that they ‘strongly agreed’ or ‘agreed’, compared to 48.9% of conventional bank customers who ‘strongly disagreed’ or ‘disagreed’. 29.8% were not able to answer one way or the other. The mean values calculated are 2.67 for Islamic banks and 2.51 for conventional banks.

Table 8.19: Obstacles Faced in Using E-Commerce: Q20.5 I am not Interested in Learning Skills about the Internet or E-Commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	12	11.5	2.67	1.361
Agree	22	21.2		
Neutral	16	15.4		
Disagree	28	26.9		
Strongly Disagree	26	25.0		
Total	104	100.0		
Conventional Banks				
Strongly Agree	4	4.3	2.51	1.171
Agree	16	17.0		
Neutral	28	29.8		
Disagree	22	23.4		
Strongly Disagree	24	25.5		
Total	94	100.0		

Table 8.20: Obstacles Faced in Using E-Commerce: Q20.6 I Would Prefer to Deal with a Person Face-to-Face in my Commercial and Financial Dealings

With a Person Face to Face in my Commercial and Financial Dealings				
	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	21	20.2	3.20	1.242
Agree	21	20.2		
Neutral	28	26.9		
Disagree	26	25.0		
Strongly Disagree	8	7.7		
Total	104	100.0		
Conventional Banks				
Strongly Agree	12	12.8	2.95	1.230
Agree	20	21.3		
Neutral	25	26.6		
Disagree	25	26.6		
Strongly Disagree	12	12.8		
Total	94	100.0		

This statement deals with responses to the statement ‘I would prefer to deal with a person face-to-face in my commercial and financial dealings’. The results are given in

Table 8.20; it can be seen that 40.4% of Islamic bank customers preferred to deal in person in their commercial and financial dealings, in that they answered that they ‘strongly agreed’ or ‘agreed’, against 32.7% who ‘disagreed’ or ‘strongly disagreed’. On the other hand, 34.1% of the conventional banks’ customers decided that they ‘strongly agreed’ or ‘agreed’ with the statement, compared to 39.4%, who opted for ‘strongly disagreed’ or ‘disagreed’ with a preference for face-to-face dealings.

There were similar number of neutral respondents for both the banks, with the figures being 26.9% and 26.6%. The mean values calculated are 3.20 for Islamic banks and 2.95 for conventional banks.

Table 8.21: Obstacles Faced in Using E-Commerce: Q20.7 I do not Trust E-Banking Channels

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	9	8.7	2.78	1.206
Agree	22	21.2		
Neutral	27	26.0		
Disagree	29	27.9		
Strongly Disagree	17	16.3		
Total	104	100.0		
Conventional Banks				
Strongly Agree	3	3.2	2.59	1.010
Agree	15	16.0		
Neutral	28	29.8		
Disagree	36	38.3		
Strongly Disagree	12	12.8		
Total	94	100.0		

Further, considering the obstacles faced using e-commerce, the results in Table 8.21 display the results for the responses to the statement that ‘I do not trust e-banking channels’. As can be seen, 29.9% of customers of Islamic banks showed their concerns, the customers illustrating that they did not have trust by answering that they ‘strongly agreed’ or ‘agreed’ with the statement. 44.2% of customers showed the opposite view and opted for ‘disagree’ or ‘strongly disagree’. The combined number of Islamic bank customers showed a mean value of 2.78, while 19.2% of the conventional banks’ customers indicated that they ‘strongly agreed’ or ‘agreed’ with the statement claiming a lack of trust in e-banking channels. On the other hand, 51.1% of conventional bank customers showed that they did trust e-banking channels, and

answered that they ‘disagreed’ or ‘strongly disagreed’ with the statement. The mean values of 2.59 and 2.79 are scored for conventional banks and Islamic banks respectively.

Table 8.22: Obstacles Faced in Using E-Commerce: Q20.8 I do not Think that there are Benefits of E-Commerce

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	6	5.8	2.48	1.149
Agree	9	8.7		
Neutral	42	40.4		
Disagree	19	18.3		
Strongly Disagree	28	26.9		
Total	104	100.0		
Conventional Banks				
Strongly Agree	2	2.1	2.34	1.093
Agree	14	14.9		
Neutral	23	24.5		
Disagree	30	31.9		
Strongly Disagree	25	26.6		
Total	94	100.0		

Table 8.22 presents the responses of the participants towards the statement that ‘I do not think that there are benefits of e-commerce’, which shows that 14.5% of customers of Islamic banks ‘strongly agreed’ or ‘agreed’ with the statement, against 45.2% who picked ‘disagree’ or ‘strongly disagree’ as their option. Amongst the customers of conventional banks, 17% chose that they ‘strongly agreed’ or ‘agreed’, compared to more than half of those surveyed (58.5%) who reported that they ‘disagreed’ or ‘strongly disagreed’. The mean values are found to be 2.48 for the Islamic and 2.34 for the conventional banks.

Table 8.23 shows further findings regarding obstacles faced in using e-commerce in relation to the ‘lack of postcodes does not motivate the companies to send deliveries to customers’ houses’. Amongst Islamic bank respondents, 63.5% of customers stated that ‘strongly agreed’ or ‘agreed’ against only a small number of respondents (1.9%) who did not go with the majority and ‘disagreed’ or ‘strongly disagreed’. Likewise, approximately 72.3% of the conventional banks’ customers indicated that they ‘strongly agreed’ or ‘agreed’ with the statement, compared to only 5.3% who opted for ‘disagree’ or ‘strongly disagree’. The mean values estimated are 3.82 for the

Islamic banks and 3.87 for the conventional banks.

Table 8.23: Obstacles Faced in Using E-Commerce: Q 20.9 Lack of Postcodes does not Motivate the Companies to Send Deliveries to my Home

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	21	20.2	3.82	0.773
Agree	45	43.3		
Neutral	36	34.6		
Disagree	2	1.9		
Strongly Disagree	0	0		
Total	104	100.0		
Conventional Banks				
Strongly Agree	19	20.2	3.87	0.793
Agree	49	52.1		
Neutral	21	22.3		
Disagree	5	5.3		
Strongly Disagree	0	0.0		
Total	94	100.0		

Analysis of the opinions on whether ‘the current weak infrastructure of the Internet causes delays and suppresses Internet speed’ can be seen in Table 8.24. 26% of Islamic bank customers selected that they ‘strongly agreed’ or ‘agreed’ with the statement, compared to 20.2% who chose that they either ‘disagreed’ or ‘strongly disagreed’ as an option.

Table 8.24: Obstacles Faced in Using E-Commerce: Q 20.10 The Current Weak Infrastructure of the Internet Causes Delays and Suppresses Internet Speed

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	0	0	3.04	0.723
Agree	27	26.0		
Neutral	56	53.8		
Disagree	19	18.3		
Strongly Disagree	2	1.9		
Total	104	100.0		
Conventional Banks				
Strongly Agree	3	3.2	2.98	0.733
Agree	14	14.9		
Neutral	56	59.6		
Disagree	20	21.3		
Strongly Disagree	1	1.1		
Total	94	100.0		

Over half of those Islamic bank customers surveyed (53.8%) reported that they were ‘neutral’. 18.1% of conventional banks’ customers showed agreement as they opted

for ‘strongly agree’ or ‘agree’, against 22.2% who picked the options of either ‘disagree’ or ‘strongly disagree’.

The majority of those surveyed (59.6%) selected ‘neutral’ position. The customers who remained neutral in the case of both types of bank are above 50% of the total; which is rather high and requires further scrutiny. As can be seen, the mean values are calculated as 3.04 and 2.98 for Islamic banks and for conventional banks respectively.

Table 8.25: Obstacles Faced in Using E-Commerce: Q 20.11 Internet Services and E-Banking Channels are not Available in my Neighbourhood

E-Banking Channels are not Available in my Neighbourhood

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly Agree	1	1.0	1.39	0.918
Agree	8	7.7		
Neutral	1	1.0		
Disagree	11	10.6		
Strongly Disagree	83	79.8		
Total	104	100.0		
Conventional Banks				
Strongly Agree	0	0	1.32	0.736
Agree	4	4.3		
Neutral	3	3.2		
Disagree	12	12.8		
Strongly Disagree	75	79.8		
Total	94	100.0		

The final statement discussed in this section, namely on obstacles faced in using e-commerce, presented in Table 8.25, is in regard to opinions on the statement that ‘internet services and e-banking channels are not available in my neighbourhood’. As the results in Table 8.25 show, 8.7% of Islamic bank customers selected either they ‘strongly agreed’ or ‘agreed’, compared to the majority of participants (90%) who reported that they ‘disagreed’ or ‘strongly disagreed’. Although a minority of conventional bank customers claimed to ‘strongly agree’ or to ‘agree’ (4.3%), a majority of conventional bank customers (92.6%) opted either the options ‘disagree’ or ‘strongly disagree’. The mean values are calculated as separately 1.39 for Islamic banks and 1.32 for conventional banks.

The summary Table 8.26 shows the ranking of the statements analysed in this section, which are ranked according to the mean values estimated for each of the statement in the case of both types of banks. As can be seen, in the case of eight statements the

ranks are different and not consistent. However, in the case of three of the statements, namely ‘Lack of postcodes does not motivate the companies to send deliveries to my home’, ‘I do not think that there are benefits of e-commerce’, and ‘Internet services and e-banking channels are not available in my neighbourhood’, the mean ranking produced some ranking in the case of both types of banks. There are yet differences in the respective mean values for the two types of banks for all statements, but these are not always mathematically significant.

Table 8.26: Rankings of the Statements Based on Mean Results, Related to Obstacles Faced in Using E-Commerce with Islamic and Conventional Banks

Statements	Islamic Banks		Conventional Banks	
	Mean	Ranking	Mean	Ranking
Conventional trade is better than e-commerce	3.09	3	3.03	2
The cost of accessing e-commerce services is high	2.86	6	2.93	5
I am happy with my lifestyle not including e-commerce	2.92	5	2.85	6
I think learning to use e-services is not easy for me	2.61	9	2.72	7
I am not interested in learning skills about the Internet or e-commerce	2.67	8	2.51	9
I would prefer to deal with a person face-to-face in my commercial and financial feelings	3.20	2	2.95	4
I do not trust e-banking channels	2.78	7	2.59	8
I do not think that there are benefits of e-commerce	2.48	10	2.34	10
Lack of postcodes does not motivate the companies to send deliveries to my home	3.82	1	3.87	1
The current weak infrastructure of the Internet causes delays and suppresses Internet speed	3.04	4	2.98	3
Internet services and e-banking channels are not available in my neighbourhood	1.39	11	1.32	11

8.3 EXAMINING THE DETERMINING FACTORS OF E-COMMERCE AND E-CHANNELS SERVICES USAGE AND OBSTACLES FACED: INFERENCE STATISTICAL ANALYSIS

The previous section presented initial results based on descriptive statistics in relation to the primary data generated from questionnaire responses, and this section expands the scope of the investigation. In pursuing the investigation, this section focuses on developing an inferential statistical analysis by examining the statistical significance

of control or independent variables in explaining the variations in the answers provided. The studied control variables are based on the demographic questions raised in the initial section of the questionnaire survey, namely gender, nationality, age, monthly income, highest educational qualifications, occupation, and region. These independent variables are examined in relations to the responses provided by the participants for the statements and questions relating to using e-commerce, e-channels banking services, and the obstacles faced in using these services in Saudi Arabia. As mentioned in the earlier chapter, and as can be seen in the tables depicting the findings, all control variables are divided into subgroups.

Due to the very large data set and analysis results, each table only presents the statistically significant results at 5% level of significance. This, by definition, implies that the control or independent variables, which are not mentioned in each table, are not significant indicating similarity in the responses.

Since the data is not normally distributed, non-parametric tests, such as the Independent Samples Kruskal-Wallis Test (KW) and the Mann-Whitney U-Test (MWU) is utilised to examine mean differences in identifying the significance of the independent variables in explaining the variations in the given answers or dependent variables. As the general rule indicates, when sub-group of the independent variable is only two, then MWU test is utilised; and the in case where sub-groups is more than two, then KW test is employed.

8.3.1 Determining Factors in Respondents' Uses of E-Commerce: Non-Parametric Analysis

This section focuses on testing the perceptions of customers with regard to their preferences in e-commerce usage and the analysis is based on the use of the KW and MWU Tests.

Table 8.27 analyses control variables regarding expressed preferences in dealing with e-commerce through e-banking services through the statement using e-channels 'to purchase electronic items'. As can be seen from the results, the 'age category' control variable is statistically significant with p -value of 0.000; accordingly, the '26-35

years-old’ group scored the highest mean ranking value of 65.81. The ‘over-55 years’ subgroup had a figure of 22.00, representing the lowest mean rank value.

The ‘monthly income’ control variable is found to be significant with p -value of 0.032, showing that ‘12001-16000 SR’ category scoring the highest mean rank value of 64.96, while the lowest mean rank in regard to this control variable is scored by the ‘more than 20000 SR’ group, with a mean rank value of 37.25.

Table 8.27: Significance of Control Variables on the Statement: Q22.1 Preferences for Dealing in E-Commerce through E-Banking Services: To Purchase Electronic Items

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	65.40	.000*	53.86	.351	K-W Test
	26 - 35 years	65.81		52.63		
	36 - 45 years	54.98		42.10		
	46 - 55 years	41.63		48.38		
	Over-55 years	22.00		37.25		
Monthly Income	Less than 4001 SR	45.86	.032*	47.66	.830	K-W Test
	4001 - 8000 SR	41.44		44.59		
	8001 - 12000 SR	62.26		43.15		
	12001 - 16000 SR	64.96		52.25		
	16001 - 20000 SR	53.35		51.67		
	More than 20000 SR	37.25		57.13		
Highest Educational Qualifications	Below high school	29.14	.000*	33.58	.030*	K-W Test
	High school	58.85		47.89		
	Bachelor’s degree	56.79		50.29		
	Master’s degree or above	65.00		65.00		
Occupation	Student	77.20	.000*	70.25	.032*	K-W Test
	Private sector employee	49.96		42.54		
	Public sector employee	55.87		50.12		
	Private business	59.25		36.50		
	Retired	13.63		52.67		
	Unemployed	41.93		11.00		

Note: (*) Statistically significant at 5% level.

The ‘highest educational qualifications’ control variable is also significant with a p -value of 0.000; accordingly, ‘Master’s degree or above’ group reaching the highest mean score of 65.00, while the ‘below high school’ subgroup scored the lowest value at 29.14. Another significant control variable is ‘occupation’ with a p -value of 0.000, resulting in the ‘student’ category recording the highest mean rank of 77.20, whereas the lowest mean rank is scored by the ‘retired’ group with a value of 13.63.

Amongst conventional banks, the ‘highest educational qualifications’ control variable is significant with a p -value of 0.030; the subgroup of the ‘Master’s degree or above’ holders achieved the highest value of 65.00, which matches the results with Islamic banks, whereas the ‘below high school’ category scored a mean rank of 33.58, which is the lowest mean rank value. Furthermore, the ‘occupation’ control variable is significant with a p -value of 0.032 resulting in the highest mean rank value of 70.25 by the ‘student’ group; but the ‘unemployed’ subgroup scored the lowest mean rank with a value of 11.00.

Table 8.28: Significance of Control Variables on the Statement: Q22.2 Preferences for Dealing in E-Commerce through E-Banking Services: To Purchase Consumer Goods

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Gender	Male Female	49.13 57.28	.156	42.20 53.52	.037*	MWU Test
Age Category	18 - 25 Years 26 - 35 Years 36 - 45 Years 46 - 55 Years Over-55 Years	67.40 54.84 59.83 44.66 33.53	.013*	43.00 53.35 45.21 44.44 45.15	.672	KW Test
Occupation	Student Private sector employee Public sector employee Private business Retired Unemployed	54.00 47.44 56.56 77.00 26.44 53.93	.048*	50.00 44.97 50.90 31.50 67.50 14.50	.216	KW Test

Note: (*) Statistically significant at 5% level.

Table 8.28 presents the findings related to the control variables about preferences in dealing in e-commerce through e-banking services with the objective of ‘purchasing consumer goods’. As the results show, in the case of Islamic banks, the ‘age’ control variable is significant with a p -value of 0.013 showing that ‘18-25 years-old’ group recorded the highest mean rank with a score of 67.40, while the lowest value was found with the ‘over-55 years’ subgroup, with a score of 33.53. Furthermore, the ‘occupation’ control variable, with a p -value of 0.048, shows the ‘private business category’ scoring the highest mean rank with a mean rank value of 77.00, while the lowest mean rank value is scored by the ‘retired’ category with 26.44. In terms of conventional banks, only the gender control variable proved significant, with a p -

value of 0.037: ‘female’ subgroup secured the highest mean rank with a value of 53.52.

Table 8.29: Significance of Control Variables on the Statement: Q22.3 Preferences for Dealing in E-Commerce through E-Banking Services: To Purchase Hotel Rooms and Airline tickets

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	54.70	.008*	46.82	.932	KW Test
	26 - 35 years	60.67		48.74		
	36 - 45 years	58.09		49.88		
	46 - 55 years	45.75		44.97		
	Over-55 years	30.56		42.25		
Monthly Income	Less than 4001 SR	38.62	.007*	47.61	.092	KW Test
	4001 - 8000 SR	50.62		43.79		
	8001 - 12000 SR	61.79		44.74		
	12001 - 16000 SR	67.75		59.14		
	16001 - 20000 SR	48.96		29.83		
	More than 20000 SR	40.13		34.88		
Highest Educational Qualifications	Below high school	36.18	.024*	41.58	.064	KW Test
	High school	56.54		45.61		
	Bachelor’s degree	58.68		47.07		
	Master’s degree or above	51.64		70.50		
Occupation	Student	45.60	.100	70.75	.035*	KW Test
	Private sector employee	54.79		45.27		
	Public sector employee	55.50		48.32		
	Private business	72.25		27.50		
	Retired	27.25		47.17		
	Unemployed	50.21		12.50		
Region	Riyadh Region	64.50	.007*	53.95	.110	KW Test
	Western Region	46.34		41.76		
	Eastern Region	44.61		51.68		

Note: (*) Statistically significant at 5% level.

Table 8.29 analyses the significance of independent variables with reference to the responses to the statement concerning ‘purchase of hotel rooms and airline tickets’. As the results indicate, in the case of Islamic banks, the ‘age’ category control variable, with a *p*-value of 0.008, show the ‘26-35 years-old’ category scoring the highest mean rank value of 60.67, whereas the lowest mean rank is recorded by the ‘over-55 years’ category at 30.56.

The ‘monthly income variable’ being statistically significant with a *p*-value of 0.007 show results emphasising the variety of views from amongst this selection of answers. The highest value is clearly with the ‘12001-16000 SR’ category at 67.75, and the

lowest value is scored by the ‘less than 4001 SR’ group, with a value of 38.62. In addition, the ‘highest educational qualifications’ control variable, which proved significant with a p -value of 0.024, showed that the group marked ‘bachelor degree’ reached the highest mean rank value, of 58.68, while the ‘below high school’ category recorded a low value of 36.18.

Table 8.30: Significance of Control Variables on the Statement: Q22.4 Preferences for Dealing in E-Commerce through E-Banking Services: To Pay Fees or Fines

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	55.50	.001*	30.77	.101	KW Test
	26 - 35 years	59.24		49.48		
	36 - 45 years	59.02		44.77		
	46 - 55 years	49.22		52.25		
	Over-55 years	28.16		59.25		
Monthly Income	Less than 4001 SR	36.28	.001*	33.42	.052	KW Test
	4001 - 8000 SR	50.65		48.78		
	8001 - 12000 SR	58.79		48.82		
	12001 - 16000 SR	64.17		50.80		
	16001 - 20000 SR	65.96		77.00		
	More than 20000 SR	36.88		59.25		
Highest Educational Qualifications	Below high school	30.75	.000*	41.69	.193	KW Test
	High school	61.30		53.85		
	Bachelor’s degree	60.91		42.83		
	Master’s degree or above	45.18		54.81		
Occupation	Student	51.25	.004*	41.31	.102	KW Test
	Private sector employee	55.50		40.63		
	Public sector employee	57.23		55.81		
	Private business	58.13		53.33		
	Retired	16.56		54.33		
	Unemployed	47.43		25.25		
Region	Riyadh Region	59.00	.015*	48.75	.140	KW Test
	Western Region	53.20		42.88		
	Eastern Region	37.22		56.38		

Note: (*) Statistically significant at 5% level.

Additionally, the ‘region’ control variable, with a p -value of 0.007, showed the highest mean rank value for the ‘Riyadh’ region, of 64.50; the ‘eastern’ region scored the lowest mean value, with a value of 44.61. For conventional banks, only the ‘occupation’ control variable proved significant, with a p -value of 0.035, and showed the highest mean rank score for the ‘student category’ (70.75), while the lowest mean value is scored by the ‘unemployed’ group (12.50).

Table 8.30 shows the influence of the dependent variables on the dependent variable of ‘preferences for dealing in e-commerce through e-banking services: to pay fees or fines’. As can be seen from the depicted findings, for Islamic banks, the ‘age’ control variable proved to be significant the p -value was 0.001; accordingly, the results show that the ‘26-35 year-olds’ group obtaining the highest mean rank value, of 59.24, while the lowest mean rank in this grouping is for the ‘over-55 year-olds’ category with a mean rank value of 28.16. Concerning the ‘monthly income’ variable, it is statistically significant with p -value of 0.001: the highest mean rank in this independent variable case is achieved by the ‘16001-20000 SR’ subgroup, with a value of 65.96; the lowest mean rank is scored by the ‘less than 4001 SR’ group, with a value of 36.28.

As for the ‘highest educational qualifications’ control variable, with a p -value 0.000, the highest mean score is achieved by ‘high school students’ with a mean rank value of 61.30, while the lowest mean rank value is scored by the ‘below high school’ category with a value of 30.75. In the ‘occupation’ control variable, with a p -value of 0.004, the results for the ‘private business’ category show a mean rank value of 58.16, the highest mean figure, while the lowest value is for the ‘retired’ group, at 16.56. The ‘region’ control variable showed the highest mean rank value for the ‘Riyadh’ region with a mean rank value of 59.00; the ‘eastern’ region scored only 37.22, the lowest value. The p -value of this control variable is 0.015. It should be noted that, for conventional banks, all the control variables were found to be not significant at 5% level of significance in relation to the statement under question. However, monthly income group could be accepted, as p value is only 0.052, which is very close to the tabular value of 5%.

Table 8.31 presents findings for control variables in relation to the statement regarding preferences for dealings in e-commerce through e-banking services ‘to pay bills’. For Islamic banks, the ‘age’ control variable showed statistical significance at p -value of 0.000. In this control variable category, the highest mean rank value is demonstrated in the ‘18-25 year-olds’ category, with a value of 65.45, while the lowest mean value (18.81) is scored by the subgroup of ‘over-55 year-olds’. In the control variable of ‘monthly income’ the highest value went to the ‘16001-20000 SR’

group with a mean rank value of 71.81, while the lowest mean (34.81) value is scored by the ‘more than 20000 SR’ subgroup with a p -value of 0.014.

Table 8.31: Significance of Control Variables on the Statement: Q22.5
Preferences for Dealing in E-Commerce through E-Banking Services: To pay bills

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	65.45	.000*	34.45	.339	KW Test
	26 - 35 years	60.46		48.23		
	36 - 45 years	57.19		47.27		
	46 - 55 years	52.78		51.00		
	Over-55 years	18.81		54.60		
Monthly Income	Less than 4001 SR	43.40	.014*	45.37	.314	KW Test
	4001 - 8000 SR	50.41		45.09		
	8001 - 12000 SR	51.00		40.32		
	12001 - 16000 SR	59.96		53.91		
	16001 - 20000 SR	71.81		66.00		
	More than 20000 SR	34.81		56.50		
Highest Educational qualifications	Below high school	29.34	.000*	48.08	.524	KW Test
	High school	61.04		49.15		
	Bachelor's degree	59.10		43.59		
	Master's degree or above	53.64		56.50		
Occupation	Student	61.10	.007*	55.00	.068	KW Test
	Private sector employee	51.42		42.64		
	Public sector employee	57.61		54.01		
	Private business	38.13		28.00		
	Retired	18.81		44.83		
	Unemployed	53.43		18.50		

Note: (*) Statistically significant at 5%.

The ‘highest educational qualifications’ control variable is found to be statistically significant with a p -value of 0.000, hence reflecting the differences amongst the responses gathered for the survey. The ‘high school’ category recorded the highest mean score, of 61.04, whereas the lowest value is for the ‘below high school’ category, with a mean rank value of 29.34. The ‘occupation’ control variable is significant with p -value of 0.007 and has the ‘student’ category recording the highest mean rank value with a value of 61.10, whereas the lowest mean value (18.81) is registered by the ‘retired’ category. In contrast, for the conventional banks no control variable is found to be significant for this statement, none reaching a percentage of 5%.

Table 8.32 examines the independent variables with regard to preferences for respondents amongst e-services ‘to buy or sell stocks’. In the cases of Islamic banks, the ‘nationality’ control variable, with a *p*-value of 0.029, shows the ‘Saudi’ category recording the highest mean value rank, at 59.07, while the lowest value is with the nationality of ‘Indian’, with a rank of 25.67, stressing a strong disparity in the answers to this statement.

Table 8.32: Significance of Control Variables on the Statement: Q22.6 Preferences for Dealing in E-Commerce through E-Banking Services: To Buy or Sell Stocks

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Gender	Male Female	54.04 50.31	.521	52.66 41.64	.044*	MWU Test
Nationality	Saudi Sudanese Indian Pakistani Egyptian Yemeni Syrian	59.07 44.00 25.67 37.90 52.19 30.58 43.88	.029*	50.46 38.83 29.33 48.70 35.00 52.63 28.20	.354	KW Test
Age Category	18 - 25 years 26 - 35 years 36 - 45 years 46 - 55 years Over-55 years	64.95 60.64 61.63 43.63 20.38	.000*	41.68 53.61 50.42 40.84 38.00	.307	KW Test
Monthly Income	Less than 4001 SR 4001 - 8000 SR 8001 - 12000 SR 12001 - 16000 SR 16001 - 20000 SR More than 20000 SR	37.02 45.09 54.15 67.10 66.58 46.44	.003*	26.21 47.00 52.41 54.80 77.50 68.75	.001*	KW Test
Highest Educational Qualifications	Below high school High school Bachelor’s degree Master’s degree or above	30.55 55.20 62.41 50.71	.000*	27.31 49.94 53.60 56.19	.004*	KW Test
Occupation	Student Private sector employee Public sector employee Private business Retired Unemployed	51.45 53.88 59.23 47.75 17.13 43.43	.009*	36.94 38.77 57.27 46.50 68.33 39.75	.024*	KW Test
Region	Riyadh Region Western Region Eastern Region	62.81 48.13 43.19	.023*	58.25 43.13 42.50	.037*	KW Test

Note: (*) Statistically significant at 5% level.

The 'age' control variable, with a p -value of 0.000, demonstrated significance: the category of '18-25 year-olds' achieved the highest mean value with a score of 64.95; the lowest value (20.38) was found in the 'over-55 year-olds' group. For the 'monthly income' control variable, the '12001-16000 SR' category achieved the highest mean rank with a value of 67.10, while the lowest value is registered by the 'less than 4001 SR' category, with a value of 37.02. The p -value of the control variable is 0.003.

With regard to the 'highest educational qualifications' control variable, it is significant at p -value of 0.000; the 'bachelor degree' category scored the highest mean rank score of 62.41; the lowest value for this control variable is recorded by the 'below high school' category, with a value of 30.55. As for the control variable of 'occupation', with a p -value of 0.009, the highest value is for the 'public sector employee' category, at 59.23, and the lowest mean value went to the 'retired' category, with a value of 17.13. Further significance is found amongst the 'region' control variable with the p -value of 0.023, and the highest mean rank value scored by the 'Riyadh' region, at 62.81, and the lowest mean value for the 'eastern' region, with a value of 43.19.

Amongst conventional banks respondents, the 'gender' control variable, with a significance level at a p -value of 0.044, shows the subgroup for those of the 'male' gender recording the highest mean rank value at 52.66, whereas the 'female' gender scored only 41.64. Significant in addition, the 'monthly income' control variable, with a p -value of 0.001, shows the '16001-20000 SR' category achieving the highest mean rank value, of 77.50, while a low value is registered by the 'less than 4001 SR' subgroup, with a mean rank value of 26.21. In the 'highest educational qualifications' control variable, the highest mean score went to the 'Master's degree or above' holders, with a value of 56.19; the lowest mean score is for the 'below high school' category, with a value of 27.31. The p -value of this category was 0.004. Regarding the 'occupation' control variable, it is significant with p -value of 0.024 the 'retired' category achieved the highest value, with a value of 68.33; the lowest value is scored by the 'student' subgroup, at 36.94. For the final significant control variable, of 'region', the 'Riyadh' region, with mean rank value of 58.25, recorded the highest value, whereas the 'eastern' region registered the lowest mean score, at 42.50. The p -

value of the 'region' control variable is 0.037.

In overall, the summary of the findings from the applications of the KW and MWU tests in Table 8.33 shows that independent variables are significant in Islamic banking in more instances than for the conventional banks. As can be seen that neither 'gender' nor 'nationality' are the most significant variables for any of the statements relating to e-banking preferences. The findings also suggest that amongst the Islamic banks' customers the age group of 18-35 tends to be more satisfied using e-banking services; this result, however, proved not significant for the conventional banks' customers. The 'monthly income' control variable is significant for the responses of the majority of the participants in the Islamic banks with the salary range of '12001-20000 SR', compared to only one case out of six where the category showed special significance for amongst conventional banks' customers, that in regard to the salary range of '16000-20000 SR'.

As for 'educational qualifications', in half of the cases the significant responses from the Islamic banks came from those with university degrees ('Bachelor' or 'Masters' categories). This may imply that educated individuals tend to attach a strong weight to dealing in e-commerce. This category, however, proved not to be significant for the majority of the statements regarding the conventional banks. For the 'occupation' control variable, in the majority of cases for both banks no subgroup is found to be significant in a dominant manner over other subgroups in explaining preferences in dealing in e-commerce through e-banking services. As for the 'regional' category, the 'Riyadh' region is found to be significant for responses in relation to Islamic banks in 3 out of 6 cases. On the other hand, for the conventional banks no 'region' group is found to be significant for the statements relating to dealings in e-commerce through e-banking services.

It can be argued that in consideration of the respondents' preferences in dealing with e-commerce through e-banking services, and following the above statistical inferences, the preferences of the respondents' of Islamic banks' are much more positive than those of the conventional banks.

Table 8.33: The Highest Significant Subcategories amongst the Control Variables on Statements of Respondents' Preferences in Dealing in E-Commerce through E-Banking Services

Statement	Age Category		Monthly Income		Educational		Occupation		Region	
	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
To purchase electronic items	26-35 years	None	12001-16000 SR	None	Master's degree or above	Master's degree or above	Student	Student	None	None
To purchase consumer goods	18-25 years	None	None	None	None	None	Private business	None	None	None
To purchase hotel rooms and airline tickets	26-35 years	None	12001-16000 SR	None	Bachelor's degree	None	None	Student	Riyadh	None
To pay fees or fines	26-35 years	None	16001-20000 SR	None	High school	None	Private business	None	Riyadh	None
To pay bills	18-25 years	None	16001-20000 SR	None	High school	None	Student	None	None	None
To buy or sell stocks	18-25 years	None	12001-16000 SR	16001-20000 SR	Bachelor's degree	Master's degree or above	Public sector employee	Retired	Riyadh	Riyadh

8.3.2 Determining Factors in Respondents' View Preferences Regarding Uses of E-Channels Banking Services: Non-Parametric Analysis

This subsection presents the results from inferential analysis using Kruskal-Wallis and Mann Whitney-U Test relating to the preferences of respondents regarding e-channels banking services. The results can be seen in the tables below.

Table 8.34: Significance of Control Variables on the Statement: *Q21.1 Preferences in E-Channels Banking Services: Online Banking*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	59.44	.045*	48.04	.621	KW Test
	Sudanese	41.58		49.33		
	Indian	31.83		38.33		
	Pakistani	46.10		39.80		
	Egyptian	42.81		55.70		
	Yemeni	33.75		56.50		
	Syrian	35.63		30.00		
Age Category	18 - 25 years	74.20	.000*	39.91	.132	KW Test
	26 - 35 years	61.40		56.84		
	36 - 45 years	60.44		47.35		
	46 - 55 years	43.31		40.91		
	Over-55 years	15.25		37.85		
Highest Educational Qualifications	Below high school	22.82	.000*	29.61	.002*	KW Test
	High school	62.67		47.97		
	Bachelor's degree	58.43		50.90		
	Master's degree or above	63.36		70.94		
Occupation	Student	81.10	.000*	50.81	.230	KW Test
	Private sector employee	55.00		41.60		
	Public sector employee	55.45		52.81		
	Private business	41.88		62.33		
	Retired	9.69		50.33		
	Unemployed	36.57		19.25		
Region	Riyadh Region	62.39	.018*	52.13	.316	KW Test
	Western Region	49.54		43.29		
	Eastern Region	40.22		50.70		

Note: (*) Statistically significant at 5% level.

Table 8.34 refers to preferences for using e-channels banking services for online banking through the independent variables such as 'nationality', 'age', 'highest educational qualifications', 'occupation' and 'region'.

In the case of the Islamic banks, the control variable of 'nationality' is significant with

a p -value of 0.045: the ‘Saudi’ nationality, with a mean rank value of 59.44, is the highest value, while the lowest value is for the ‘Indian’ nationality, at 31.83. With regard to the ‘age’ control variable, which is statistically significant with a p -value of 0.000, the subgroup ‘18-25 years-old’ scored the highest mean rank with a value of 74.20, in comparison to the category of ‘over-55 year-olds’ who had the lowest value, of 15.25. In addition, the ‘highest educational qualifications’ control variable, with a p -value of 0.000, showed the highest mean rank value going to the ‘Master’s degree or above’ category, with a value of 63.36, while the lowest mean rank value is for the ‘below high school’ group, with 22.82.

Furthermore, the ‘occupation’ control variable is significant with a p -value of 0.000 showing the highest mean rank value for the category of ‘student’ at 81.10, whereas the ‘retired’ subgroup scored the lowest value, with a value of 9.69. Moreover, the ‘region’ control variable is statistically significant with a p -value of 0.018 and shows the highest mean rank score (62.39) for the ‘Riyadh’ region, and the lowest value for the ‘eastern’ region, with a value of 40.22.

For conventional banks, only the ‘highest educational qualifications’ control variable proves significant, with a p -value of 0.002, and results show the highest value for ‘Master’s degree or above’, with a value of 70.94, and the lowest value for the ‘below high school’ category, with a value of 29.61. Four control variables are displayed in Table 8.35, which refer to preferences for using ATMs as e-channels banking services. For Islamic banks, ‘nationality’ is significant with a p -value of 0.003; in this category the ‘Saudi’ nationality scored the highest mean value, of 60.35, while the ‘Indian’ nationality is scored the lowest value with a score of 23.17. Furthermore, the ‘age’ control variable, with a p -value of 0.000, shows the ‘18-25 years-old’ subgroup reaching the highest value, at 63.25, while the lowest mean score is for the ‘over-55 years-old’, with a mean value of 22.34.

Moreover, the ‘highest educational qualifications’ control variable is significant with a p -value of 0.000, showing ‘bachelor degree’ achieving the highest mean score, with a value of 62.67, and the lowest value going to the ‘below high school’ grouping, with a value of 27.25. Lastly, the ‘region’ control variable, with a p -value at 0.037, shows

the ‘Riyadh’ region as recording the highest value, at 61.23, whereas the lowest mean value is for the ‘Eastern’ region, with a value of 41.58.

Table 8.35: Significance of Control Variables on the Statement: Q21.2 Preferences in E-Channels Banking Services: ATMs

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	60.35	.003*	51.98	.011*	KW Test
	Sudanese	34.33		43.00		
	Indian	23.17		51.33		
	Pakistani	56.20		32.20		
	Egyptian	40.06		62.90		
	Yemeni	31.83		19.38		
	Syrian	39.63		34.50		
Age Category	18 - 25 years	63.25	.000*	54.32	.325	KW Test
	26 - 35 years	62.59		49.10		
	36 - 45 years	54.06		49.67		
	46 - 55 years	51.25		35.44		
	Over-55 years	22.34		48.70		
Highest Educational Qualifications	Below high school	27.25	.000*	26.78	.001*	KW Test
	High school	57.09		55.18		
	Bachelor’s degree	62.67		48.69		
	Master’s degree or above	51.96		57.25		
Region	Riyadh Region	61.23	.037*	51.14	.655	KW Test
	Western Region	49.92		45.53		
	Eastern Region	41.58		46.93		

Note: (*) Statistically significant at 5% level.

With regard to conventional banks, as can be seen in Table 8.35, the control variable of ‘nationality’, with a p -value of 0.011, shows the ‘Egyptian’ nationality, with a value of 62.90, as the highest value, while the lowest value is scored by the ‘Yemeni’ nationality, at 19.38. In the ‘highest educational qualifications’ control variable, with being significant at p -value of 0.001, the results show the subgroup of ‘Master’s degree or above’ as recording the highest score, of 57.25, whereas the ‘below high school’ category registered the lowest mean score, with a value of 26.78.

In Table 8.36, the four significant control variables are presented, referring to the preferences about telebanking as part of e-channels banking services. For Islamic banks, the ‘age’ control variable is significant with a p -value of 0.000, which shows the ‘26-35 years-old’ subgroup securing the highest mean score, with a value of 64.56, while the lowest mean rank is for the ‘over-55 years-old’ subgroup, at 17.88. In

addition, the ‘monthly income’ control variable, with a p -value of 0.031, shows the highest value for the ‘16001-20000 SR’ category, with a mean value of 65.96, while the lowest mean value is achieved by the ‘less than 4001 SR’ category, with a value of 36.52. With regard to the ‘highest educational qualifications’ control variable, which is significant with a p -value of 0.001, showing ‘high school’ degree holders as reaching the highest mean rank (65.26), while the lowest mean value (30.70) is for the ‘below high school’ group. The control variable ‘occupation’, with a p -value of 0.001, shows that the highest mean rank value is achieved by the ‘public sector employee’ category, with a value of 62.12; the lowest value is for the ‘retired’ subgroup, at 12.31.

Table 8.36: Significance of Control Variables on the Statement: Q21.3 Preferences in E-Channels Banking Services: Telebanking

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	36.85	0.000*	43.32	0.201	KW Test
	26 - 35 years	64.56		52.29		
	36 - 45 years	60.69		44.81		
	46 - 55 years	56.72		54.84		
	Over-55 years	17.88		32.50		
Monthly Income	Less than 4001 SR	36.52	0.031*	42.61	0.890	KW Test
	4001 - 8000 SR	51.38		48.29		
	8001 - 12000 SR	62.15		52.91		
	12001 - 16000 SR	55.31		45.27		
	16001 - 20000 SR	65.96		50.17		
	More than 20000 SR	54.00		52.25		
Highest Educational Qualifications	Below high school	30.70	0.001*	30.67	0.012*	KW Test
	High school	65.26		52.56		
	Bachelor’s degree	55.16		53.37		
	Master’s degree or above	57.25		38.81		
Occupation	Student	46.50	0.000*	47.38	0.062	KW Test
	Private sector employee	56.42		40.82		
	Public sector employee	62.12		57.03		
	Private business	28.50		45.00		
	Retired	12.31		28.33		
	Unemployed	37.21		25.00		

Note: (*) Statistically significant at 5%.

In the case of conventional banks, as can be seen in Table 8.36, the control variable of ‘highest educational qualifications’ is significant with a p -value of 0.012, which shows the highest mean score going to ‘bachelor’ holders, with a value of 53.37; the

lowest mean figure is scored by ‘below high school’ holders, with a value of 30.67.

Four statistically significant control variables are presented in Table 8.37, which is about preferences for using e-channels banking services at the point of sale (PoS).

Table 8.37: Significance of Control Variables on the Statement: Q21.4 Preferences in E-Channels Banking Services: Point of Sales

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	73.60	.000*	39.82	.740	KW Test
	26 - 35 years	61.26		46.03		
	36 - 45 years	60.30		52.35		
	46 - 55 years	38.22		46.69		
	Over 55 years	21.28		49.20		
Monthly Income	Less than 4001 SR	43.18	.230	40.66	.025*	KW Test
	4001 - 8000 SR	53.06		45.29		
	8001 - 12000 SR	55.56		38.82		
	12001 - 16000 SR	59.79		64.14		
	16001 - 20000 SR	60.15		35.33		
	More than 20000 SR	39.63		50.50		
Highest Educational Qualifications	Below high school	24.70	.000*	31.72	.008*	KW Test
	High school	61.24		44.79		
	Bachelor’s degree	56.98		54.96		
	Master’s degree or above	67.43		61.56		
Occupation	Student	57.50	.034*	34.50	.574	KW Test
	Private sector employee	56.10		46.83		
	Public sector employee	55.59		49.32		
	Private business	40.50		60.33		
	Retired	20.19		60.33		
	Unemployed	54.29		38.50		

Note: (*) Statistically significant at 5% level.

As the results show, for Islamic banks, the ‘age’ control variable has a statistically significant p -value of 0.000. In this control variable, the ‘18-25 years-old’ subgroup recorded the highest mean rank value, at 73.60, while the lowest value was scored by the over-55 years-old’ group, with a value of 21.28. The ‘highest educational qualifications’ control variable has a p -value of 0.000, with the highest mean figure scored by the ‘Master’s degree or above’ category, at 67.43, while the lowest value is obtained by the ‘below high School’ subgroup, at 24.70. For the ‘occupation’ control variable, with a p -value at 0.034, the ‘student’ subgroup secured the highest value, of 57.50, whereas the ‘retired’ category, with a value of 20.19, obtained the lowest value.

For conventional bank responses, the control variable of ‘highest educational qualifications’ proved statistically significant, with a p -value of 0.008. It shows the ‘Master’s degree or above’ category securing the highest mean score of 61.56, compared to the ‘below high school’ category, at 31.72 the lowest mean value.

Table 8.38: Significance of Control Variables on the Statement: Q21.5 Preferences in E-Channels Banking Services: SMS

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	36.40	.000*	55.32	.001*	KW Test
	26 - 35 years	64.43		57.74		
	36 - 45 years	66.52		48.15		
	46 - 55 years	49.31		38.81		
	Over-55 years	16.00		19.35		
Monthly Income	Less than 4001 SR	35.32	.005*	43.42	.257	KW Test
	4001 - 8000 SR	45.21		48.17		
	8001 - 12000 SR	57.56		48.00		
	12001 - 16000 SR	63.08		43.00		
	16001 - 20000 SR	67.85		80.33		
	More than 20000 SR	54.25		60.00		
Highest Educational Qualifications	Below high school	27.95	.000*	26.81	.001*	KW Test
	High school	59.17		47.94		
	Bachelor’s degree	59.59		57.00		
	Master’s degree or above	57.32		50.69		
Occupation	Student	54.75	.000*	45.56	.305	KW Test
	Private sector employee	59.54		44.01		
	Public sector employee	60.91		54.50		
	Private business	16.00		33.00		
	Retired	16.00		32.00		
	Unemployed	26.43		31.75		

Note: (*) Statistically significant at 5% level.

Table 8.38 examines significant control variables in relation to preferences regarding the use of SMS banking services. In regard to Islamic banks, the ‘age’ control variable, being significant with a p -value of 0.000, shows the ‘36-45 years-old’ group reaching the highest mean rank value, of 66.52, while the lowest mean value in this grouping is recorded by the ‘over-55 years-old’ subgroup, with a value of 16.00. In addition, the ‘monthly income’ control variable, with an estimated p -value of 0.005, highlights the varying opinions ventured to the statement. The highest mean rank value is scored by the subgroup of ‘16001-20000 SR’ with a value of 67.85; the lowest score is registered by the ‘less than 4001 SR’ group, with a value of 35.32.

Furthermore, the ‘highest educational qualifications’ control variable, with a p -value of 0.000, shows those with a ‘bachelor’ degree having the highest mean rank value, of 59.59, while the ‘below high school’ subgroup achieved the lowest mean rank value, of 27.95. For the ‘occupation’ control variable, with a p -value of 0.000, the highest mean rank value is produced by the ‘public sector’ employee category, with a value of 60.91, while the ‘private business’ and ‘retired’ categories achieved a jointly low value of 16.00.

For conventional banks, the ‘age’ control variable is statistically significant with a p -value of 0.001, which shows that the ‘26-35 year-old’ age group obtaining the highest value, of 57.74, whereas the lowest value is scored by the ‘over-55 years-old’ grouping, with a value of 19.35. The ‘highest educational qualifications’ control variable proved significant, with a p -value of 0.001, and showed the ‘bachelor degree’ holders with a high value of 57.00, while the ‘below high school’ group achieved the lowest value, of 26.81.

In overall, the summary of the findings, shown in Table 8.39, of the applied KW and MWU Tests, indicates that the control variable of ‘gender’ is not significant for any of the statements related to preferences in e-channels banking services. As for ‘nationality’, the Table 8.39 shows that in two cases out of six for Islamic banks, the ‘Saudi’ nationality proved significant; however, no conclusive verdict can be made for the conventional banks for this category. Although the results suggest that amongst Islamic banks’ customers the ‘age’ group ‘18-25’ tends to prove significant for the majority (three out of five) cases, this is not significant for the conventional banks’ participants. In addition, the ‘monthly income’ control variable is not significant for the majority of statements for both the Islamic and conventional banks. As for ‘educational qualifications’, for the majority of cases in the Islamic banks and e-services preferences, what proved significant is whether or not the respondents had university degrees (‘Bachelor’ and ‘Masters or above’). This implies that educated individuals tend to attach greater importance than their less-educated compatriots to e-channels banking services, as compared to conventional banks where all the participants hold university degrees (Bachelors and Masters).

Table 8.39: The Highest Significant Subcategories among the Control Variables on Statements of Respondents' Preferences in E-Channels Banking Services

Statement	Nationality		Age Category		Monthly Income		Educational		Occupation		Region	
	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
Online Banking	Saudi	None	18-25 years	None	None	None	Master's degree or above	Master's degree or above	Student	None	Riyadh Region	None
ATMs	Saudi	Egyptian	18-25 years	None	None	None	Bachelor's degree	Master's degree or above	None	None	Riyadh Region	None
Telebanking	None	None	26-35 years	None	16001-20000 SR	None	High school	Bachelor's degree	Public sector employee	None	None	None
Point of Sales	None	None	18-25 years	None	None	12001-16000 SR	Master's degree or above	Master's degree or above	Student	None	None	None
SMS	None	None	36-45 years	26-35 years	16001-20000 SR	16001-20000 SR	Bachelor's degree	Bachelor's degree	Public sector employee	None	None	None

For the ‘occupation’ control variable, it is not possible to identify or give any secure verdict as to which occupation has the greatest importance for determining preferences in e-channels banking services. Any one subgroup is shown to be significant in only a small number of cases, with two out of five cases proving significant for both the ‘student’ and ‘public sector employee’ subgroups. On the contrary, no ‘occupation’ group at all is identified as statistically significant for conventional bank responses. As for the ‘regional’ category, no region proved to be a significant statistical factor for the majority of Islamic bank respondents. In a similar manner, no region is found to be significant at all for any of the statements made about conventional banks, related to preferences in e-channels banking services.

It can be argued, in consideration of the respondents’ perceptions and opinions related to preferences in e-channels banking services and the above statistical inferences, that the respondents’ circumstances have more influence on the results in relation to Islamic banks, compared to conventional banks, except in the case of the variable of ‘educational qualifications’, which proves significant for both types of bank.

8.3.3 Determining Factors in Respondents’ View Preferences Regarding the Obstacles Faced in doing E-Commerce through E-Banking Services

This section develops further inferential analysis, using the KW and the MWU tests, regarding respondents’ perceptions on the obstacles faced in using e-commerce through e-banking services in relation to the following independent variables: ‘gender’, ‘nationality’, ‘age’, ‘monthly income’, ‘highest educational qualifications’, ‘occupation’, and ‘region’, and their subgroup categories. The findings are presented in the following tables.

Table 8.40 reports the findings for the independent variables for the statement: ‘do you face obstacles using e-commerce with Saudi banks?’. As the results show, for Islamic banks, in this analysis the ‘age’ control variable has a significant p -value of 0.007, at a 5% level of significance, and shows that the ‘18-25 years-old’ group achieved the highest mean rank value, at 66.40, and the lowest figure is for the ‘over-55 years-old’ category, with a mean rank value of 36.50. The highest value in the

‘educational qualifications’ control variable, found to be significant with a significance level of 5% and p -value was 0.013., was the ‘high school’ subgroup (59.39), while the category of ‘below high school’ achieved the lowest value, at 37.09.

Table 8.40: Significance of Control Variables on the Statement: *Q17 Do you face Obstacles Using E-Commerce with Saudi banks?*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	66.40	.007*	47.86	.635	KW Test
	26 - 35 years	59.71		52.27		
	36 - 45 years	45.41		44.58		
	46 - 55 years	56.00		47.06		
	Over-55 years	36.50		40.60		
Monthly Income	Less than 4001 SR	46.64	.327	43.82	.002*	KW Test
	4001 - 8000 SR	54.47		34.60		
	8001 - 12000 SR	63.65		54.15		
	12001 - 16000 SR	53.83		60.68		
	16001 - 20000 SR	50.00		42.17		
	More than 20000 SR	43.00		61.75		
Highest Educational Qualifications	Below high school	37.09	.013*	31.72	.006*	KW Test
	High school	59.39		46.44		
	Bachelor’s degree	54.27		54.70		
	Master’s degree or above	59.71		55.88		
Occupation	Student	61.20	.140	32.38	.009*	KW Test
	Private sector employee	53.83		42.17		
	Public sector employee	53.45		57.83		
	Private business	69.00		26.50		
	Retired	36.50		42.17		
	Unemployed	37.43		50.00		

Note: (*) Statistically significant at 5% level.

As can be seen in Table 8.40, in the case of conventional banks, the ‘monthly income’ control variable, with a statistically significant level of 5% and a p -value of 0.006, shows that the ‘more than 20000 SR’ group obtained the highest mean rank value, with a score of 61.75. The lowest mean value is recorded by the ‘4001-8000 SR’ group, with a score of 34.60. For the ‘educational qualifications’ variable, which is also statistically significant at 5% with a p -value of 0.006, the result show the highest mean value for the ‘Master’s degree or above’ group, with a mean rank value of 55.88. The lowest mean rank for this dependent variable is scored by the ‘below high school’ group, with a mean rank value of 31.72.

Finally, for the ‘occupation’ control variable, which is statistically significant at p -value of 0.009 and 5% level of significance, the highest mean rank value is reached by the ‘public sector employee’ subgroup, with a value of 57.83, whereas the lowest mean value is scored by the category of ‘private business’, with a value of 26.50.

Table 8.41: Significance of Control Variables on the Statement: Q20.1
Conventional Trade is Better than E-Commerce

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	45.30	0.003*	48.73	0.065	KW Test
	26 - 35 years	47.84		44.92		
	36 - 45 years	45.80		40.08		
	46 - 55 years	51.53		50.59		
	Over-55 years	79.47		68.50		
Monthly Income	Less than 4001 SR	69.00	0.007*	59.45	0.005*	KW Test
	4001 - 8000 SR	58.38		56.79		
	8001 - 12000 SR	42.38		36.06		
	12001 - 16000 SR	46.33		36.73		
	16001 - 20000 SR	35.46		53.83		
	More than 20000 SR	56.13		26.50		
Highest Educational Qualifications	Below high school	74.52	0.001*	65.64	0.001*	KW Test
	High school	51.24		49.03		
	Bachelor’s degree	44.99		42.07		
	Master’s degree or above	44.11		24.13		
Occupation	Student	52.85	0.036*	54.31	0.333	KW Test
	Private sector employee	55.25		51.19		
	Public sector employee	45.69		40.53		
	Private business	42.75		67.00		
	Retired	80.06		53.00		
	Unemployed	66.29		46.75		
Region	Riyadh Region	38.20	0.001*	38.16	0.074	KW Test
	Western Region	58.35		52.53		
	Eastern Region	65.97		49.00		

Note: (*) Statistically significant at 5% level

Table 8.41 explores the control variables with regard to the statement that ‘conventional trade is better than e-commerce’. For Islamic banks, the ‘age’ control variable is significant at 5% level with a p -value of 0.003, has the highest mean rank value for the category of ‘over-55 year-olds’ with 79.47; the lowest value is recorded by the ‘18-25 year-olds’ group, with a value of 45.30. For the ‘monthly income’ control variable, which is significant with p -value of 0.007, the ‘less than 4001 SR’ category reached the highest mean value, with a score of 69.00, while the lowest value

is registered by the '16001-20000 SR' category, with a value of 35.46. Furthermore, for the 'highest educational qualifications' control variable, which is significant with p -value of 0.001, the 'below high school' group achieved the highest mean score with a value of 74.52, while the lowest mean rank value (44.11) is registered by the 'Master's degree or above' category. Moreover, the 'occupation' control variable proved also to be statistically significant, with a p -value of 0.036. The results show the 'retired' subgroup achieving the highest mean rank value, with a figure of 80.06, and the lowest mean rank value (42.75) being scored by the 'private business' subgroup. For the 'region' control variable, which is significant with p -value of 0.001, the highest mean rank value (65.97) is shown for the 'Eastern' region, whereas the lowest mean rank value is for the 'Riyadh' region, with a value of 38.20.

In the case of conventional banks, as the results in Table 8.41 shows, the 'monthly income' control variable, with a p -value of 0.005, shows the 'less than 4001 SR' category reaching the highest mean value, at 59.45, whereas the lowest value is registered by the 'more than 20000 SR' category, with a score of 26.50. For the 'highest educational qualifications' control variable, which is statistically significant with p -value of 0.001, the 'below high school' category scored the highest mean score, at 65.64, while the lowest mean rank value (24.13) is for the 'Master's degree or above' group.

Table 8.42 presents the significant independent variables for the statement that 'the cost of accessing e-commerce services is high'. As the results depict, in the case of Islamic banks, the 'age' category is found to be a significant variable, with a p -value of 0.013. The highest mean rank value in this category is recorded for the 'over-55 year-olds', with a value of 74.66; the lowest mean value is for the '26-35 year-olds', with a value of 43.73. In addition, the 'highest educational qualifications' control variable, with a p -value of 0.000, shows the highest mean rank value registered by the 'below high school' group, with a value of 77.07, while the lowest score is kept by the 'bachelor' degree subgroup, with a value of 42.88. Furthermore, the 'occupation' control variable, being statistically significant with a p -value of 0.007, shows the highest mean rank value score for the group of the 'retired', with a value of 83.19, and

the lowest value for the subgroup assigned as ‘private business’ (28.75). Moreover, for the ‘region’ control variable, which is significant with p -value of 0.000, the highest mean rank value is achieved by the ‘eastern’ region, with a value of 61.75, whereas the lowest mean rank value is scored by the ‘Riyadh’ region, with a value of 36.38.

Table 8.42: Significance of Control Variables on the Statement: *Q20.2 The Cost of Accessing E-Commerce Services is high*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	51.00	0.013*	50.77	0.816	KW Test
	26 - 35 years	43.73		47.02		
	36 - 45 years	52.93		45.81		
	46 - 55 years	49.75		43.84		
	Over-55 years	74.66		55.65		
Monthly Income	Less than 4001 SR	65.46	0.090	55.32	0.007*	KW Test
	4001 - 8000 SR	57.15		57.14		
	8001 - 12000 SR	44.62		40.97		
	12001 - 16000 SR	42.65		35.39		
	16001 - 20000 SR	49.58		63.33		
	More than 20000 SR	53.19		23.00		
Highest Educational Qualifications	Below high school	77.07	0.000*	59.14	0.011*	KW Test
	High school	53.09		48.05		
	Bachelor’s degree	42.88		46.89		
	Master’s degree or above	43.86		21.75		
Occupation	Student	38.30	0.007*	39.69	0.451	KW Test
	Private sector employee	54.56		52.00		
	Public sector employee	49.57		42.88		
	Private business	28.75		50.00		
	Retired	83.19		51.83		
	Unemployed	65.57		70.75		
Region	Riyadh Region	36.38	0.000*	38.82	0.084	KW Test
	Western Region	61.28		52.87		
	Eastern Region	61.75		47.30		

Note: (*) Statistically significant at 5% level.

As the results in Table 8.42 shows, for conventional banks, the KW test results suggest that there is a significant variance across the different ‘monthly income’ subgroups, as the p -value of 0.007 is lower than a critical p -value of 0.05. The highest mean rank value (63.33) is for the ‘16001-20000 SR’ subgroup, while the lowest mean rank value (23.00) is for the ‘more than 20000 SR’ group. The ‘highest educational qualifications’ control variable has a p -value of 0.011, and results show

the highest mean rank value is recorded by the ‘below high school’ subgroup, with a mean rank value of 59.14. The lowest mean value is with the ‘Master’s degree or above’ group, which scored 21.75.

Table 8.43: Significance of Control Variables on the Statement: *Q 20.3 I am Happy with my Lifestyle not Including E-Commerce*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Nationality	Saudi	47.17	0.247	43.54	0.039*	KW Test
	Sudanese	64.00		42.83		
	Indian	68.83		52.17		
	Pakistani	54.10		37.10		
	Egyptian	63.31		46.90		
	Yemeni	65.67		71.31		
	Syrian	59.25		71.90		
Age Category	18 - 25 years	42.70	0.001*	43.27	0.398	KW Test
	26 - 35 years	49.34		45.95		
	36 - 45 years	41.74		43.77		
	46 - 55 years	56.81		50.56		
	Over-55 years	79.38		61.75		
Highest Educational Qualifications	Below high school	78.77	0.000*	66.56	0.000*	KW Test
	High school	52.04		45.36		
	Bachelor’s degree	48.02		46.16		
	Master’s degree or above	26.36		19.31		
Region	Riyadh Region	42.00	0.019*	39.29	0.091	KW Test
	Western Region	57.28		53.02		
	Eastern Region	61.08		46.30		

Note: (*) Statistically significant at 5% level.

Table 8.43 presents the results in measuring the significance of the independent variables with regard to the statement that ‘I am happy with my lifestyle not including e-commerce’. As the results show, in the case of Islamic banks, the ‘age’ control variable, with significance level of 5% and *p*-value of 0.001, has the category of the ‘over-55 year-olds’ scored the highest mean rank value, of 79.38, while the lowest mean rank value goes to the ‘36-45 year-olds’ group with 41.74. In addition, for the ‘highest educational qualifications’ control variable, which is significant at 5%, the ‘below high school’ category scored the highest mean rank value with 78.77; the lowest mean rank value for this dependent variable is scored by the ‘Master’s degree or above’ with a value of 26.36.

As for the dependent variable of ‘region’, the highest mean rank value is scored by the

‘eastern’ region, with 61.08, while the lowest mean value is for the ‘Riyadh’ region with a value of 42.00. For conventional banks, as the results in Table 8.43 shows, the ‘nationality’ group, with a p -value of 0.039, has the highest mean rank value for the ‘Syrian’ nationality, at 71.90, while the lowest mean rank value is for the ‘Pakistani’ nationality, with 37.10. Furthermore, the ‘highest educational qualifications’ control variable, with a p -value of 0.000, has the highest mean score recorded by the ‘below high school’ group, with a value of 66.56, whereas the lowest mean score is with the ‘Master’s degree or above’ group, with a value of 19.31.

Table 8.44: Significance of Control Variables on the Statement: Q20.4 I Think Learning to Use E-Services is not Easy for me

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years 26 - 35 years 36 - 45 years 46 - 55 years Over-55 years	41.00 48.60 43.44 57.63 78.38	0.001*	33.32 45.13 48.54 46.72 69.00	0.034*	KW Test
Monthly Income	Less than 4001 SR 4001 - 8000 SR 8001 - 12000 SR 12001 - 16000 SR 16001 - 20000 SR More than 20000 SR	64.88 58.91 43.41 47.92 36.12 59.88	0.030*	50.68 55.91 45.18 42.57 20.67 28.50	0.089	KW Test
Highest Educational Qualifications	Below high school High school Bachelor’s degree Master’s degree or above	80.18 49.98 46.92 31.07	0.000*	68.00 51.83 38.56 22.63	0.000*	KW Test
Occupation	Student Private sector employee Public sector employee Private business Retired Unemployed	51.55 57.15 47.78 29.00 85.50 48.00	0.010*	50.81 46.10 44.03 58.50 76.67 69.00	0.252	KW Test
Region	Riyadh Region Western Region Eastern Region	42.81 57.94 57.61	0.040*	42.79 51.30 45.35	0.361	KW Test

Note: (*) Statistically significant at 5% level.

Table 8.44 queries the independent variables for the statement that ‘I think learning to use e-services is not easy for me’. For Islamic banks, the ‘age’ control variable, with a p -value of 0.001, shows ‘over-55 year-olds’ achieving the highest score, at 78.38,

while the lowest mean figure was scored by the group of ‘18-25 year-olds’, with a value of 41.00. In addition, the ‘monthly income’ category, being significant with a p -value of 0.030, shows the highest mean rank value for the ‘less than 4001 SR’ group, at 64.88, whereas the lowest mean rank value is for the ‘16001-20000 SR’ group, with 36.12. Furthermore, for the ‘highest educational qualifications’ control variable, which is significant at 5% level of significance, ‘below high school’ scored the highest mean value with 80.18, while the lowest mean rank value for this category is scored by the ‘Master’s degree or above’ subgroup, with a mark of 31.07.

Moreover, the ‘occupation’ control variable, with a p -value of 0.010, showed the highest mean rank value as scored by the ‘retired’ subgroup, with a figure of 85.50, while the lowest mean rank value went to ‘private business’, at 29.00. Finally, for the Islamic banks, the control variable of ‘region’, with a p -value of 0.040, shows the ‘western’ region scoring the highest mean rank value, with a score of 57.94, while the ‘Riyadh’ region scored the lowest value, of 42.81.

In the cases of the conventional banks, as Table 8.44 shows, for the control variable of ‘age’, with a p -value of 0.034, the highest mean rank value is for the ‘over-55 years-old’, with a mean rank value of 69.00, while the lowest value is scored by the ‘18-25 years-old’ category, with a value of 33.32. For the ‘highest educational qualifications’ control variable, which is statistically significant with p -value of 0.000, ‘below high school’ category recorded the highest mean rank value, at 68.00, while the lowest value is recorded by the ‘Master’s degree or above’ category, with a value of 22.63.

Table 8.45 presents the results in relation to the statement that ‘I am not interested in learning skills about the internet or e-commerce’. As can be seen, in the case of Islamic banks, the ‘age’ category control variable proved statistically significant, with a p -value of 0.000. The ‘over-55 years-old’ subgroup scored the highest mean rank value, with a mean rank value of 78.38, whereas the ‘18-25 years-old’ group, with a mean rank value of 33.30, scored the lowest mean rank value. In addition, the ‘highest educational qualifications’ control variable also proved significant, at a significance level of 5%: the ‘below high school’ group proved the highest scorer in this category, with a mean rank value of 76.41, while the lowest value is for the ‘high school’ group,

with a value of 43.50. For the ‘occupation’ variable, which is found to be statistically significant, reaching the relevant 5% level, the ‘retired’ group recorded the highest value at 83.63, while the lowest value is documented for the ‘unemployed’ group, with a value of 41.79.

Table 8.45: Significance of Control Variables on the Statement: Q20.5 I am not Interested in Learning Skills about the Internet or E-Commerce

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	33.30	0.000*	33.68	0.008*	KW Test
	26 - 35 years	50.33		39.85		
	36 - 45 years	40.69		47.65		
	46 - 55 years	63.31		60.94		
	Over-55 years	78.38		64.50		
Highest Educational Qualifications	Below high school	76.41	0.000*	70.83	0.000*	KW Test
	High school	45.20		44.53		
	Bachelor’s degree	47.34		45.64		
	Master’s degree or above	43.50		15.38		
Occupation	Student	50.50	0.048*	48.00	0.062	KW Test
	Private sector employee	55.21		48.55		
	Public sector employee	48.34		42.09		
	Private business	50.75		82.50		
	Retired	83.63		44.50		
	Unemployed	41.79		82.50		

Note: (*) Statistically significant at 5% level.

For conventional banks, the ‘age’ control variable proved statistically significant, with 5% level of significance and a *p*-value of 0.008. Within this category, the ‘over-55 years-old’ group recorded the highest mean rank value, of 64.50, whereas the ‘18-25 years-old’ group scored the lowest mean rank value at 33.68. In addition, the ‘highest educational qualifications’ control variable is statistically significant, with a significance level of 5% and a *p*-value of 0.000. In this control variable, the ‘below high school’ subgroup recorded the highest value, with a mean rank value of 70.83, while the lowest mean rank value is registered for the ‘Master’s degree or above’ subgroup, at 15.38.

Table 8.46 illustrates the significant control variables in relation to responses to the statement that ‘I would prefer to deal with a person face-to-face in my commercial and financial dealings’.

In this case, three control variables proved significant for examination: ‘age’, ‘highest educational qualifications’, and ‘occupation’. In the Islamic banks’ cases, the ‘age’ control variable is significant (with p -value 0.000), therefore reflecting the differences amongst the responses collected from the questionnaire. The subgroup of ‘over-55 years-old’ group recorded a high mean rank value of 81.75, presumably because older people did not have sufficient knowledge about technology and thus preferred to deal personally, and the lowest mean rank value is scored by the ‘36-45 years-old’ group, with a mean rank value of 39.48. In addition, the ‘highest educational qualifications’ control variable proved significant (reaching the 5% critical level), with the ‘below high school’ subgroup registering the highest mean rank value, at 81.00, while the lowest value is for the ‘Master’s degree or above’ group, with a figure of 40.54.

Table 8.46: Significance of Control Variables on the Statement: Q20.6 I Would Prefer to Deal with a Person Face-to-Face in my Commercial and Financial Dealings

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	45.30	0.000*	50.09	0.035*	KW Test
	26 - 35 years	50.56		42.92		
	36 - 45 years	39.48		44.67		
	46 - 55 years	53.97		43.69		
	Over-55 years	81.75		72.30		
Highest Educational Qualifications	Below high school	81.00	0.000*	66.42	0.000*	KW Test
	High school	47.22		53.80		
	Bachelor’s degree	44.99		38.90		
	Master’s degree or above	40.54		19.56		
Occupation	Student	61.40	0.007*	53.56	0.522	KW Test
	Private sector employee	52.42		46.51		
	Public sector employee	43.62		45.19		
	Private business	59.88		72.50		
	Retired	83.50		40.00		
	Unemployed	65.14		61.25		

Note: (*) Statistically significant at 5% level.

For the ‘occupation’ control variable, also at a significance level of 5%, with a p -value of 0.007, the subgroup for those ‘retired’ scored the highest mean rank value (83.50), while the subgroup for those classed as a ‘public sector employee’ scored the lowest mean rank value, of 43.62.

As can be seen in Table 8.46, for conventional banks, the ‘age’ category was significant, reaching the 5% critical level, with the ‘over-55 years-old’ category recording the highest mean rank value of 72.30, and the lowest value achieved by the ‘26-35 years-old’ subgroup, with a value of 42.92. The p -value for this category is 0.035. For the ‘highest educational qualifications’ control variable, with the significance level of 5%, the highest mean figure is for the ‘below high school’ group, with its score of 66.42, whereas the ‘Master’s degree or above’ grouping scored the lowest value, with a mean rank value of 19.56.

Table 8.47: Significance of Control Variables on the Statement: Q20.7 I do not Trust E-Banking Channels

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	38.75	0.027*	58.27	0.231	KW Test
	26 - 35 years	52.33		42.68		
	36 - 45 years	46.76		42.87		
	46 - 55 years	50.88		50.38		
	Over-55 years	72.78		58.05		
Monthly Income	Less than 4001 SR	60.16	0.310**	58.89	0.001*	KW Test
	4001 - 8000 SR	55.97		58.52		
	8001 - 12000 SR	54.09		43.38		
	12001 - 16000 SR	44.06		30.27		
	16001 - 20000 SR	42.42		41.17		
	More than 20000 SR	59.50		30.50		
Highest Educational Qualifications	Below high school	74.59	0.001*	67.31	0.000*	KW Test
	High school	44.04		48.94		
	Bachelor’s degree	45.68		43.27		
	Master’s degree or above	53.61		15.50		
Occupation	Student	51.70	0.411**	56.88	0.029*	KW Test
	Private sector employee	53.98		50.73		
	Public sector employee	50.07		39.87		
	Private business	32.00		84.00		
	Retired	67.63		33.17		
	Unemployed	60.71		62.50		

Note: (*) Statistically significant at 5% level.

Table 8.47 studies the significant control variables for the statement ‘I do not trust e-banking channels’. For Islamic banks, in this analysis the ‘age’ category is significant, with a p -value of 0.027 at the 5% level of significance. As can be seen, the ‘over-55 years-old’ group scored the highest value, at 72.78, and the low mean rank value is for the ‘18-25 years-old’ subcategory, with a value of 38.75. In the case of the highest

educational qualifications control variable (found to be significant, with a p -value of 0.001), the 'below high school' subgroup recorded the highest mean rank value, at 74.59, while the category of 'high school' achieved the lowest value, of 44.04.

In the case of the conventional banks, as results in Table 8.47 indicates, the 'monthly income' control variable is significant with a p -value of 0.001, which shows the 'less than 4001 SR' group obtaining the highest mean rank value of 58.89. The lowest mean rank value is recorded by the '12001-16000 SR' subgroup, with 30.27. Of additional significance, the 'highest educational qualifications' control variable, with a statistically significant level of 5% and a p -value of 0.000, showed the highest mean score for the 'below high school' subgroup, with a value of 67.31, and the lowest mean scored by the 'Master's degree or above' group, with a mean rank value of 15.50. The 'occupation' control variable is found statistically significant at 5% level, with the 'private business' group recording the highest mean rank value at 84.00, while the lowest mean rank value is scored by the 'retired' group, with a value of 33.17. For the 'occupation' variable, the p -value is 0.029.

Table 8.48 studies the significant control variables for responses to the statement that 'I do not think that there are benefits of e-commerce' by using, four significant independent variables, which are 'age', 'monthly income', 'highest educational qualifications', and 'region'. In the case of Islamic banks, firstly, the 'monthly income' control variable shows the highest mean score for the 'more than 20000 SR' category, with a value of 73.19. The lowest mean rank value is made by the '12001-16000 SR' group, with a value of 41.69. Secondly, the 'highest educational qualifications' control variable proved of significance, with the highest mean rank value for the 'below high school' subgroup (mean rank value 71.25), while the lowest mean rank value is scored by the category of 'high school', with a value of 45.63.

Lastly, for the 'region' control variable, the highest mean rank value is for the participants from the 'eastern' region, whereas the lowest mean rank value is for the 'Riyadh' region, with a value of 40.05.

Table 8.48: Significance of Control Variables on the Statement: Q20.8 I do not Think that there are Benefits of E-Commerce

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years 26 - 35 years 36 - 45 years 46 - 55 years Over-55 years	33.05 51.04 51.52 55.59 66.41	0.071	49.14 32.92 47.19 58.88 73.50	0.000*	KW Test
Monthly Income	Less than 4001 SR 4001 - 8000 SR 8001 - 12000 SR 12001 - 16000 SR 16001 - 20000 SR More than 20000 SR	60.86 50.24 55.94 41.69 42.12 73.19	0.039*	56.32 53.90 35.41 43.07 49.33 33.63	.0102	KW Test
Highest Educational Qualifications	Below high school High school Bachelor's degree Master's degree or above	71.25 45.63 46.30 54.25	0.005*	68.25 48.38 42.31 19.88	0.000*	KW Test
Region	Riyadh Region Western Region Eastern Region	40.05 59.05 60.25	0.005*	38.02 51.14 52.40	0.074	KW Test

Note: (*) Statistically significant at 5% level.

For the conventional banks, as the results in Table 8.48 show, the control variable of the 'age' category proved significant, with a p -value of 0.000. The highest mean rank value is scored by the over-55 years-old' group, with a value of 73.50; the lowest mean score is for the '26-35 years-old' group, at 32.92. For the 'highest educational qualifications' control variable, 'below high school' achieved the highest value, with a figure of 68.25; the category of 'Master's degree or above' secured the lowest value, at 19.88.

Table 8.49 presents the control variables significant for responses to the statement 'lack of postcodes does not motivate the companies to send deliveries to my home'. For this statement, the 'age', 'highest educational qualifications', and 'occupation' control variables proved significant and are shown in the Table. As can be seen in Table 8.49, in the Islamic banks' case, with regard to the 'age' control variable (p -value of 0.002), the group of '18-25 years-old' recorded the highest mean rank score, with a value of 76.75, in comparison to the category of 'over-55 years-old' which has the lowest value, at 31.97.

Table 8.49: Significance of Control Variables on the Statement: Q20.9 Lack of Postcodes does not Motivate the Companies to Send Deliveries to my Home

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	76.75	0.002*	40.18	0.116	KW Test
	26 - 35 years	56.64		52.13		
	36 - 45 years	53.06		53.73		
	46 - 55 years	47.88		35.69		
	Over-55 years	31.97		43.90		
Highest Educational Qualifications	Below high school	36.20	0.000*	32.78	0.018*	KW Test
	High school	59.65		56.00		
	Bachelor's degree	48.47		47.49		
	Master's degree or above	79.32		45.63		
Occupation	Student	76.75	0.047*	24.75	0.083	KW Test
	Private sector employee	49.63		49.74		
	Public sector employee	52.24		48.36		
	Private business	61.00		62.33		
	Retired	40.75		62.33		
	Unemployed	38.21		33.50		

Note: (*) Statistically significant at 5% level.

For the second independent variable of 'highest educational qualifications' (a p -value of 0.000), the results show that the highest mean rank value (79.32) is scored by 'Master's degree or above', while the lowest mean rank value is achieved by the 'below high school' subgroup, with 36.20. Further, the 'occupation' control variable, with a p -value of 0.047, has the highest value for the category of 'student', at 76.75, whereas the 'unemployed' subgroup scored the lowest value, scoring 38.21. For conventional banks, as it can be seen Table 8.49, the 'highest educational qualifications' control variable, with a p -value of 0.018, shows the highest value going to the 'high school' category, with a value of 56.00, while the lowest value is scored by the 'below high school' category, with a value of 32.78.

As depicted in Table 8.50, the three significant control variables are 'age', 'highest educational qualifications', and 'occupation', regarding the statement that 'the current weak infrastructure of the Internet causes delays and suppresses Internet speed'. For Islamic banks, the 'age' control variable is significant with a p -value of 0.008. For this control variable, the '18-25 years-old' category recorded the highest mean rank value of 58.20, while the lowest mean rank value is scored by the 'over-55 years-old' group, with a value of 29.44. Of additional significance, the 'highest educational

qualifications' control variable has a significant p -value of 0.000. For this variable the 'Master's degree or above' group secured the highest mean rank value, at 73.50, whereas the 'below high school' group, with a mean rank value of 33.57, obtained the lowest value.

Table 8.50: Significance of Control Variables on the Statement: Q20.10 The Current Weak Infrastructure of the Internet Causes Delays and Suppresses Internet Speed

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age Category	18 - 25 years	58.20	0.008*	45.50	0.843	KW Test
	26 - 35 years	58.14		45.18		
	36 - 45 years	56.39		52.15		
	46 - 55 years	53.09		46.94		
	Over-55 years	29.44		45.70		
Highest Educational Qualifications	Below high school	33.57	0.000*	32.44	0.023*	KW Test
	High school	45.30		52.74		
	Bachelor's degree	58.90		51.07		
	Master's degree or above	73.50		44.13		
Occupation	Student	62.35	0.001*	35.25	0.498	KW Test
	Private sector employee	45.31		48.60		
	Public sector employee	60.39		50.45		
	Private business	50.50		49.50		
	Retired	18.75		36.83		
	Unemployed	45.29		30.50		

Note: (*) Statistically significant at 5% level.

In the 'occupation' control variable (p -value of 0.001), the 'student' subgroup has a mean rank value of 62.35, registering the highest score; on the other hand, the lowest rank is scored by the 'retired' category, with a value of 18.75. In the conventional banks, only the control variable of 'highest educational qualifications' proved statistically significant (significance level 5%, p -value 0.023). In this case, the highest mean rank value is recorded by the 'high school' group at 52.74, with the lowest value scored by the 'below high school' group, with a value of 32.44.

Table 8.51 shows the two significant independent variables regarding the statement that 'Internet services and e-banking channels are not available in my neighbourhood'. 'Monthly income' and 'highest educational qualifications' proved the significant variables. For Islamic banks, the 'highest educational qualifications'

control variable, with a p -value of 0.001, showed the highest mean rank value for ‘Master’s degree or above’, at 70.75, whereas the lowest value is recorded by the ‘high school’ group, with a value of 42.00.

Table 8.51: Significance of Control Variables on the Statement: Q20.11 Internet Services and E-Banking Channels are not Available in my Neighbourhood

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Monthly Income	Less than 4001 SR	54.96	0.410	38.00	0.036*	KW Test
	4001 - 8000 SR	44.76		49.02		
	8001 - 12000 SR	53.68		48.88		
	12001 - 16000 SR	52.23		49.73		
	16001 - 20000 SR	50.04		38.00		
	More than 20000 SR	63.56		70.63		
Highest Educational Qualifications	Below high school	48.41	0.001*	50.08	0.016*	KW Test
	High school	42.00		41.20		
	Bachelor’s degree	54.19		54.29		
	Master’s degree or above	70.75		38.00		

Note: (*) Statistically significant at 5% level.

For conventional banks, the ‘monthly income’ control variable (p -value of 0.036) has the highest mean figure scored by the ‘more than 20000 SR’ category (70.63), and the lowest mean rank value scored jointly by the ‘less than 4001 SR’ and ‘16001-20000’ groups, both with values of 38.00. The control variable of ‘highest educational qualifications’, with a p -value of 0.016, shows the highest mean rank value figure for the ‘bachelor degree’ holders (a value of 54.29); the lowest mean rank value is obtained by the ‘Master’s degree or above’ holders, at 38.00.

The findings, from the application of KW and MWU tests shown in Table 8.52 show that the control variables of ‘gender’ and ‘nationality’ are not significant for any of the statements regarding customers’ obstacles faced in using e-commerce through e-banking services in Islamic banks, and for the majority of cases for conventional banks as well. In reflecting on the results, Table 8.52 provides a summary of the discussion in this section. While the findings suggest that the majority of Islamic banks’ customers in the ‘age’ category ‘over-55 years-old’ tend to have their answers affected by their age, on the other hand the ‘age’ control variable appears to be not significant for the majority of conventional banks’ customers.

Table 8.52: The Highest Significant Subcategories amongst the Control Variables Regarding Respondents' Statements on Obstacles Faced in Using E-Commerce through E-Banking Services

Statement	Age Category		Monthly Income		Educational		Occupation		Region	
	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
Q17 Do you face obstacles using e-commerce with Saudi Banks?	18-25 years	None	None	More than 20000 SR	High school	Master's degree or above	None	Public sector employee	None	None
Q20.1 Conventional trade is better than e-commerce	Over-55 years	None	Less than 4001 SR	Less than 4001 SR	Below high school	Below high school	Retired	None	Eastern	None
Q20.2 The cost of accessing e-commerce service is high	Over-55 years	None	None	16001-20000 SR	Below high school	Below high school	Retired	None	Eastern	None
Q20.3 I am happy with my lifestyle not including e-commerce	Over-55 years	None	None	None	Below high school	Below high school	None	None	Eastern	None
Q20.4 I think learning to use e-services is not easy for me	Over-55 years	Over-55 years	Less than 4001 SR	None	Below high school	Below high school	Retired	None	Western	None
Q20.5 I am not interested in learn skills about the internet or e-commerce	Over-55 years	Over-55 years	None	None	Below high school	Below high school	Retired	None	None	None
Q20.6 I would prefer to deal with a person face-to-face in my commercial and financial dealings	Over-55 years	Over-55 years	None	None	Below high school	Below high school	Retired	None	None	None
Q20.7 I do not trust e- banking channels	Over-55 years	None	None	Less than 4001 SR	Below high school	Below high school	None	Private business	None	None
Q20.8 I do not think that there are benefits of e-commerce	None	Over-55 years	More than 20000 SR	None	Below high school	Below high school	None	None	Eastern	None
Q20.9 Lack of postcodes does not motivate the companies to send deliveries to my home	18-25 years	None	None	None	Master's degree or above	High school	student	None	None	None
Q20.10 The current weak infrastructure of the internet causes delays and suppresses internet speed	18-25 years	None	None	None	Master's degree or above	High school	student	None	None	None
Q20.11 Internet services and e-banking channels are not available in my neighbourhood	None	None	None	More than 20000 SR	Master's degree or above	Bachelor's degree	None	None	None	None

The findings also suggest that the 'monthly income' category is not significant for the majority of customers' answers in both the Islamic and the conventional banks, proving a significant control variable for only three statements in Islamic banks and for five statements for conventional banks. In relation to 'educational qualifications', in eight out of twelve cases for Islamic banks and conventional banks customers with a level 'below High school' proved a statistically significant difference.

As can be seen from Table 8.52, for the 'occupation' variable category, five out of the twelve of the most significant variations in regard to Islamic bank customers came from the 'retired', and two out of twelve from the 'students' category. Conversely, for the conventional banks, only two statements were noted as having statistically significant variations amongst subgroups; in the majority of cases, no subgroup proved significant. In terms of the 'regional' category, it was not significant for the majority of statements, with the 'eastern' subgroup providing a significant variation amongst Islamic banks in five out of twelve cases; no cases of significance was found amongst the customers of conventional banks for this control variable. In short, the findings suggest that there are generally more significant variations based on the independent groups for the Islamic bank customers than for those of conventional banks, in relation to obstacles faced in the use of e-services.

8.4 CONCLUSION

This chapter provides a discussion on the views of sampled participants' preferences in dealing with e-commerce through e-banking services, in preferences regarding e-channels banking services, and about obstacles faced in dealing, using, and practising e-commerce in Islamic and conventional banks of Saudi Arabia. In this chapter, survey questionnaire results are presented in details, with a supporting interpretation of the statistical findings in each section. The information presents a summary of the results for all the mean values derived regarding dealings in e-commerce through e-channels banking services. As shown, the order or rank of preferences declared by customers for both types of bank appears to be similar. The mean values derived from the preferences, however, tended to vary between the customers of the two types of

bank. Regarding preferences in e-channels banking services, as a summary, it can be stated that customers of both bank types choose the same preference ordering for three out of the five statements, despite the fact that the mean values across the banks types were different. Such mean differences, however, tended to be rather small and in some cases mathematically insignificant. Further, the information collected regarding the obstacles faced in dealing, using, and practicing e-commerce in Islamic and conventional banks of Saudi Arabia clearly showed the differences in ranking between the two types of bank over the eight statements.

The differences in the respective mean values for the two types of banks, however, proved to be not mathematically significant. This chapter also provides findings and inferential statistical results, determining the significance of a number of dependent variables for the differences in the opinions expressed in relation to a number of statements. The findings of the tests were presented based on variables that reached the 5% significance level.

Given the respondents' preferences in dealing with e-commerce through e-banking services, it can be said that the respondents of the Islamic banks has a much more positive outlook than the customers of the conventional banks. As for the preferences concerning e-channels banking services, it can be said that in the case of both Islamic and conventional Saudi banks, the results from the Islamic banks indicate more significant control variables than those from the conventional banks, except in the case of the 'educational qualifications' control variable, which proved significant for both types of banks.

Finally, the results in relation to respondents' opinions and preferences about the obstacles faced for dealing with e-commerce through e-banking platform in Islamic and conventional banks suggest that similar obstacles are faced by the customers of both types of banks with similar intensities, and, hence, very little variations were found between the customers of each bank type.

CHAPTER 9

SECURITY ISSUES IN E-COMMERCE AND E-BANKING SERVICES IN SAUDI BANKS

9.1 INTRODUCTION

With technological development, the way we conduct our economic and financial affairs has changed. The extensive use of technology by banks and financial institutions aims to respond to customers' demands by providing efficient, fast and convenient financial services. The extensive use of e-banking services has also expanded into e-commerce areas. Inevitably, this has been the case with the majority of banks including Islamic banks in the GCC region.

According to Ribbink *et al.*, (2004) the customers' trust in using e-commerce websites has been negatively affected because of the issues of cyber-crime and the chances of falling prey to immoral parties. Therefore, the need to improve security and confidentiality of e-commerce is important, as Jebur *et al.*, (2012) highlight the significance of security, trust and privacy for the success of e-commerce.

The research presented in this chapter, hence, aims to explore sampled bank customers' perceptions and opinions on security issues in e-commerce through e-banking services in both types of bank. In doing so, it initially presents the descriptive findings with the objective of developing an efficient understanding of customers' preferences based on their opinions expressed through a questionnaire survey conducted in 2012 in Saudi Arabia.

The chapter presents findings from descriptive statistics as well as inferential analysis including the Kruskal-Wallis Test (KW Test) and Mann-Whitney U Test (MWU Test). The analysis carefully displays the results of the survey questionnaire.

9.2 EXPLORING SECURITY ISSUES IN THE E-COMMERCE ENVIRONMENT THROUGH E- BANKING SERVICES IN SAUDI ARABIAN BANKS

This section aims to present the initial descriptive statistical findings regarding security in the e-commerce environment through e-banking services in Saudi banks. This includes analysing the responses given to a number of statements. The results can be seen in the following tables.

Table 9.1: The Security in E-Commerce Environment through E-Banking Services: Q 23.1 The E-Commerce Transactional Environment through E-Banking Services is Secure

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	20	19.2	3.45	1.206
Agree	40	38.5		
Neutral	20	19.2		
Disagree	15	14.4		
Strongly disagree	9	8.7		
Total	104	100.0		
Conventional Banks				
Strongly agree	14	14.9	3.32	1.060
Agree	26	27.7		
Neutral	34	36.2		
Disagree	16	17.0		
Strongly disagree	4	4.3		
Total	94	100.0		

Table 9.1 presents the results in relation to the statement ‘the e-commerce transactional environment through e-banking services in Saudi Banks is secure’. Based on the survey outcome, the majority of Islamic bank customers (57.7%) ‘strongly agree’ or ‘agree’, while 19.2% were unsure and remained ‘neutral’, and 23.1% of the respondents ‘disagree’ or ‘strongly disagree’ with the statement. In contrast, 42.6% of conventional bank customers indicated that they ‘strongly agree’ or ‘agree’, while 36.2% were ‘neutral’ and approximately one-fifth of those surveyed (21.3%) indicated that they ‘disagree’ or ‘strongly disagree’ with the statement. The mean values estimated are 3.45 and 3.32 for Islamic and conventional banks, respectively.

Table 9.2: The Security in E-Commerce Environment through E-Banking Services: Q 23.2 The Bank Provides Security for E-Banking Channels Services

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	24	23.1	3.60	1.111
Agree	35	33.7		
Neutral	30	28.8		
Disagree	9	8.7		
Strongly disagree	6	5.8		
Total	104	100.0		
Conventional Banks				
Strongly agree	15	16.0	3.49	0.970
Agree	32	34.0		
Neutral	32	34.0		
Disagree	14	14.9		
Strongly disagree	1	1.1		
Total	94	100.0		

The second statement relates to ‘the bank providing security for e-channels banking service’, and the results are displayed in Table 9.2. As can be seen, 56.8% of Islamic bank customers stated that they ‘agreed’ or ‘strongly agreed’ with the statement, while 14.5% of the respondents ‘disagreed’ or ‘strongly disagreed’, and 28.8% opted for ‘neutral’ position. In contrast, 50% of the participants of conventional bank customers opted for ‘strongly agree’ or ‘agree’, while 16% reported that they ‘disagree’ or ‘strongly disagree’ and 34% did not side either way. The mean value calculated for Islamic banks is 3.60 and 3.49 for conventional banks.

Table 9.3: The Security in E-Commerce Environment through E-Banking Services: Q 23.3 Trustworthiness of E-commerce through e-banking services

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	22	21.2	3.404	1.311
Agree	41	39.4		
Neutral	9	8.7		
Disagree	21	20.2		
Strongly disagree	11	10.6		
Total	104	100.0		
Conventional Banks				
Strongly agree	11	11.7	3.22	1.069
Agree	29	30.9		
Neutral	28	29.8		
Disagree	22	23.4		
Strongly disagree	4	4.3		
Total	94	100.0		

Table 9.3 depicts the results in relation to the statement ‘e-commerce through e-services is trustworthy’, which show that the majority (60.6%) of Islamic bank customers indicated that e-commerce through e-banking service is trustworthy, by choosing ‘agree’ or ‘strongly agree’, while 30.8% picked ‘strongly disagree’ or ‘disagree’. As for the case of the conventional banks, among the participants, 42.6% of conventional bank customers accepted e-commerce through e-banking service is trustworthy and chose ‘strongly agree’ or ‘agree’, while 27.7% answered that they ‘disagreed’ or ‘strongly disagreed’. The mean values calculated are 3.404 and 3.22 for Islamic and conventional banks, respectively.

Table 9.4: The Security in E-Commerce Environment through E-Banking Services: Q 23.4 The Bank Gives Information through E-Banking Channels such as Programs Protect

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	24	23.1	3.654	1.041
Agree	38	36.5		
Neutral	26	25.0		
Disagree	14	13.5		
Strongly disagree	2	1.9		
Total	104	100.0		
Conventional Banks				
Strongly agree	11	11.7	3.393	0.918
Agree	32	34.0		
Neutral	34	36.2		
Disagree	17	18.1		
Strongly disagree	0	0.0		
Total	94	100.0		

Table 9.4 shows the findings in relation to the statement that ‘the bank gives information through e-channels such as programs protect’, which clearly shows that 59.6% of Islamic bank customers answered ‘strongly agree’ or ‘agree’ against 15.4% of those who were surveyed indicated that they ‘strongly disagreed’ or ‘disagreed’, while 45.7% of the conventional bank customers chose ‘strongly agree’ or ‘agree’ compared with 18.1% of those surveyed who reported that they ‘strongly disagreed’ or ‘disagreed’. The mean values calculated are 3.654 for Islamic banks and 3.393 for conventional banks.

Table 9.5: The Security in E-Commerce Environment through E-Banking Services: Q 23.5 The Saudi Banking Law Safeguards the Transactions of Customers

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	22	21.1	3.663	1.030
Agree	43	41.3		
Neutral	24	23.1		
Disagree	12	11.5		
Strongly disagree	3	2.9		
Total	104	100.0		
Conventional Banks				
Strongly agree	12	12.8	3.48	0.936
Agree	36	38.3		
Neutral	33	35.1		
Disagree	11	11.7		
Strongly disagree	2	2.1		
Total	94	100.0		

The findings related to the statement that ‘the Saudi banking law safeguards the transactions of all customers’ are displayed in Table 9.5, which shows that there are similarities between the opinions expressed by Islamic bank customers and conventional bank customers in relation to this statement. The majority of Islamic banks customers (62.4%) selected the options ‘strongly agree’ or ‘agree’ compared to the minority of participants (14.4%) choosing the options ‘disagree’ or ‘disagree’, and 23.1% who were surveyed selected the option ‘neutral’. Similarly, 51.1% of conventional banks customers ‘strongly agreed’ or ‘agreed’, against 13.8% who picked the options ‘disagree’ or ‘strongly disagree’ but over one-third of the participants (35.1%) selected ‘neutral’. The mean values are calculated as 3.663 and 3.48 for Islamic banks and conventional banks, respectively.

The responses to the final statement in this section ‘due to the reliability and security, I have never faced any problems’ are depicted in Table 9.6, which shows that 55.8% of Islamic bank customers accepted that they never faced problems in relation to reliability and security and therefore selected ‘strongly agree’ or ‘agree’ compared to 11.5% who chose options ‘disagree’ or ‘strongly disagree’.

As for conventional bank customers sampled in this study, 49% of them stated that they did not experience issues with reliability and security and hence chose ‘strongly agree’ or ‘agree’, against 20.2% who picked the options ‘disagree’ or ‘strongly

disagree'. The mean values are calculated as 3.70 and 3.35 for Islamic banks and conventional banks respectively.

Table 9.6: The Security in E-Commerce Environment through E-Banking Services: Q 23.6 *In terms of the reliability and security, I have never faced any problems*

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Strongly agree	31	29.8	3.70	1.096
Agree	27	26.0		
Neutral	34	32.7		
Disagree	8	7.7		
Strongly disagree	4	3.8		
Total	104	100.0		
Conventional Banks				
Strongly agree	9	9.6	3.35	0.981
Agree	37	39.4		
Neutral	29	30.9		
Disagree	16	17.0		
Strongly disagree	3	3.2		
Total	94	100.0		

Table 9.7: Mean Ranking of the Security in E-Commerce Environment through E-Banking Services in Saudi Banks

Statements	Islamic Banks		Conventional Banks	
	Mean	Ranking	Mean	Ranking
The e-commerce transactional environment through e-banking services in Saudi Banks is secure	3.45	5	3.32	5
The bank provides security for e-channels banking services	3.60	4	3.49	1
E-commerce through e-services is trustworthy	3.40	6	3.22	6
The bank gives information through e-channels such as programs protect	3.65	3	3.39	3
The Saudi banking law safeguards the transactions of customers	3.66	2	3.48	2
In terms of the reliability and security, I have never faced any problems	3.70	1	3.35	4

According to the results depicted in Table 9.7, both groups of banks scored values above 3 out of a possible 5, indicating a rather strong agreement in support of reliability and security of e-commerce through Saudi e-banking channels. In particular, the Islamic banks' customers assigned slightly higher scores in relation to reliability and security than those in the conventional banks. Nevertheless, in relation to the estimated standard errors, the statistical differences in these scores can be seen

not to be significant. Table 9.8 displays the results in relation to security in both Islamic and conventional banks. The purpose of asking this question is to establish if the respondents of Islamic and conventional banks have faced any security or other issues with e-channels banking services whether e-services banking or e-commerce.

Table 9.8: The Security in E-Commerce Environment through E-Banking Services: Q 24 Have you ever faced any security or other issues with e-banking services or e-commerce?

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Yes	25	24.0	1.76	0.429
No	79	76.0		
Total	104	100.0		
Conventional Banks				
Yes	23	24.4	1.76	0.432
No	71	75.6		
Total	94	100.0		

Based on the results the opinions expressed by the Islamic and conventional banks customers in this statement are similar. 76% of the customers of Islamic banks and 75.6% of the customers of conventional banks stated that they have never faced any security or other issues with e-channels banking services whether e-banking services or e-commerce. The mean values are 1.76 for both Islamic and conventional banks.

Table 9.9: The Security in E-Commerce Environment through E-Banking Services: Q 25 If you had security and other problems for using e-channels banking services whether for dealing with e-commerce or for using e-services banking, has this affected your inclination to use e-services for banking and e-purchases?

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Yes	24	23.1	2.50	0.848
No	4	3.8		
I did not encounter any problem	76	73.1		
Total	104	100.0		
Conventional Banks				
Yes	14	14.9	2.65	0.729
No	5	5.3		
I did not encounter any problem	75	79.8		
Total	94	100.0		

Table 9.9 displays the results for security in both Islamic and conventional banks, which considers the respondents' opinions on if they experienced security and other

problems when using e-channels banking services whether with e-commerce or e-banking services had this affected their inclination to use e-services for banking and e-purchases. Based on the results, 23.1% of Islamic bank customers stated 'yes' and 3.8% of them 'no', while the majority of respondents (73.1%) declared that they did not encounter any such problems. Furthermore, 14.9% of conventional banks customers answered 'yes' and 5.3% 'no'. Moreover, 79.8% declared that they did not face any such problem. The mean value for Islamic banks is 2.50 and 2.65 for conventional banks.

9.3 LOCATING THE DETERMINING FACTORS OF SECURITY ISSUES IN THE E-COMMERCE ENVIRONMENT THROUGH E- BANKING SERVICES IN SAUDI ARABIAN BANKS: INFERENTIAL STATISTICAL ANALYSIS

The previous section presented the initial results based on the descriptive statistics attained from the questionnaire, while this section expands the scope of the investigation by utilising inferential statistical analysis through non-parametric test such as KW and MWU. For this, as in the previous empirical chapters, demographic questions from the initial section of the questionnaire survey are utilised as independent variables.

The aim in this section, hence, is to locate if independent variables are significant in explaining any variations (if any exists) in the answers given to the statements in the questionnaire. Due to the very large data set and analysis results, each table only presents the statistically significant results at 5% level of significance. This, by definition, implies that the control or independent variables, which are not mentioned in each table, are not significant indicating similarity in the responses. The results are presented in the tables as follows:

The results in Table 9.10 show the findings for the statement that 'the e-commerce transactional environment through e-services in Saudi banks is secure'. In the case of Islamic banks, the 'age' control variable, with a significance level of 5%, resulted in the 18-25 years-old group reaching the highest mean rank value at 64.50, while the mean value for the over 55 years-old group is 20.25.

Table 9.10: Significance of Control Variables on the Statement: Q23.1 The e-commerce transactional environment through e-banking services is secure

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	64.50	0.000*	42.95	0.001*	KW Test
	26 - 35 years	62.16		61.37		
	36 - 45 years	59.91		45.77		
	46 - 55 years	43.63		40.63		
	Over 55 years	20.25		25.00		
Highest educational qualifications	Below High School	34.80	0.008*	25.28	0.000*	KW Test
	High School	58.52		50.83		
	Bachelor degree	54.34		50.36		
	Master's degree or above	64.50		71.25		
Occupation	Student	70.50	0.003*	40.00	0.822	KW Test
	Private sector employee	55.88		48.01		
	Public sector employee	54.70		50.45		
	Private business	52.63		37.50		
	Retired	16.19		39.17		
Region	Unemployed	40.64	0.252	37.50	0.033*	KW Test
	Riyadh Region	58.11		55.18		
	Western Region	47.72		40.33		
	Eastern Region	53.97		53.25		

Note: (*) Statistically significant at 5% level

Furthermore, the highest educational qualifications control variable, which is statistically significant with p -value at 0.008, the 'Master's degree or above' category recorded the highest mean rank at 64.50 and the lowest mean rank value is for the 'high school' group with a mean rank value of 34.80. In addition, the occupation control variable was found to be significant at 5% with p -value of 0.003. The 'student' independent variable showed the highest mean rank value at 70.50, while the retired group recorded the lowest value at 16.19.

In the case of the conventional banks, the age control variable, with a statistically significant p -value of 0.001, has the highest mean rank value in the '26-35 years-old' subgroup with 61.37 and the lowest mean rank value is obtained by the over '55 years-old' category with mean rank value of 25.00. Thus, the results identify a clear distinction between participants' answers in relation to the significant control variables. Moreover, the 'highest educational qualifications' control variable is significant at 5% with p -value at 0.000; accordingly, the highest mean value is scored by the 'Master's degree or above' category with a value of 71.25 and the lowest mean

rank value is for the ‘below high school’ group at 25.28. Furthermore, the ‘region’ control variable is statistically significant with a significance level of 5%, with an estimated p -value of 0.033, 0.014, while the highest mean rank is for ‘Riyadh region’, with 55.18, whereas the lowest mean rank is recorded by the ‘Western region’ group with a value of 40.33.

Table 9.11: Significance of Control Variables on the Statement: *Q 23.2 Provision of security for e-channels banking services*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	40.50	0.002*	40.45	0.282	KW Test
	26 - 35 years	66.36		53.18		
	36 - 45 years	54.30		50.04		
	46 - 55 years	45.19		45.22		
	Over 55 years	33.97		34.70		
Monthly income	Less than 4001 SR	46.94	0.000*	38.03	0.179	KW Test
	4001 - 8000 SR	39.82		44.60		
	8001 - 12000 SR	71.91		50.88		
	12001 - 16000 SR	66.60		55.75		
	16001 - 20000 SR	35.85		34.50		
	More than 20000 SR	40.31		63.50		
Highest educational qualifications	Below High School	41.61	0.126	30.47	0.000*	KW Test
	High School	48.57		48.80		
	Bachelor degree	58.14		48.01		
	Master’s degree or above	57.93		78.19		
Region	Riyadh Region	65.54	0.003*	54.61	0.143	KW Test
	Western Region	45.08		42.45		
	Eastern Region	45.89		49.18		

Note: (*) Statistically significant at 5% level

As for the ‘provision of security for e-channels banking services’ dependent variable, the results are depicted in Table 9.11, which shows that, in the case of Islamic banks, the ‘age’ control variable is found to be significant with a level of 5% and p -value of 0.002. In this control variable, the highest mean rank is for the ‘26-35 years old’ group with a mean rank value of 66.36, while the lowest mean rank value is ‘over 55 years-old’ group with 33.97.

Moreover, the ‘monthly income’ independent variable is significant with a level of 5% and p -value of 0.000; the ‘8001-12000 SR’ group scored the highest mean rank at 71.91, while the ‘6001-20000 SR’ category scored the lowest mean rank value at

35.85. In the final control variable of region, ‘Riyadh region’ scored a high mean rank value of 65.54, whilst the ‘Western region’ group recorded the lowest mean rank value at 45.08.

As regards to conventional banks, only one control variable is found to be significant with 5% level of significance regarding this statement; accordingly, the ‘highest educational qualifications’ control variable is found to be significant at 5% and p -value at 0.000. The highest mean rank in this independent variable category is recorded by the ‘Master’s degree or above’ category at 78.19; and the lowest mean rank value is from the below high school category with a value of 30.47.

Table 9.12: Significance of Control Variables on the Statement: Q 23.3 Trustworthiness of E-commerce through e-banking services

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	59.95	0.000*	45.55	0.064	KW Test
	26 - 35 years	64.73		53.52		
	36 - 45 years	60.35		52.35		
	46 - 55 years	44.84		41.50		
	Over 55 years	15.50		28.00		
Monthly income	Less than 4001 SR	48.28	0.038*	41.95	0.347	KW Test
	4001 - 8000 SR	41.62		46.02		
	8001 - 12000 SR	66.88		54.24		
	12001 - 16000 SR	62.13		47.07		
	16001 - 20000 SR	43.54		33.33		
	More than 20000 SR	43.94		69.00		
Highest educational qualifications	Below High School	31.68	0.002*	27.58	0.001	KW Test
	High School	58.85		54.53		
	Bachelor degree	56.33		47.01		
	Master’s degree or above	62.46		65.44		
Occupation	Student	78.40	0.000*	40.13	0.447	KW Test
	Private sector employee	57.77		49.54		
	Public sector employee	55.09		49.42		
	Private business	52.00		40.50		
	Retired	10.00		19.50		
	Unemployed	27.43		52.25		

Note: (*) Statistically significant at 5% level

The results regarding the participant’s opinions on the ‘trustworthiness of e-commerce through e-banking services’ is shown in Table 9.12. For Islamic banks, the ‘age’ category control variable is significant at 5% level of significance. As the results

show, for this independent variable, '26-35 years-old' subgroup recorded the highest mean rank value at 64.73, and the lowest mean rank value of 28.00 is scored the over '55 years-old' category. Furthermore, the control variable of 'monthly income', which is significant with 5% and p -value of 0.038, resulted in the '8001-12000 SR' group scoring the highest mean rank value at 66.88, whilst a lowest mean rank value is registered by the '4001-8000 SR' group with a mean rank value of 41.62. In addition, the 'highest educational qualifications' control variable is found to be significant at 5% level of significance, for which 'Master's degree or above' scored the highest mean rank at 62.46, while the 'below high school' category achieved the lowest value at 31.68. Moreover, 'the occupation control' variable is statistically significant with p -value of 0.000 at level of 5%: the 'student' subgroup scored the highest value at 78.40, and the lowest mean rank is found in the 'retired' subgroup at 10.00.

As can be seen in Table 9.12, regarding the conventional banks, only the 'highest educational qualifications' independent variable is found to be statistically significant at 5% level with a p -value of 0.001: the highest mean rank is in the 'Master's degree or above' category with a mean rank value of 65.44, and the lowest mean rank value is scored by the below high school group with a mean value rank of 27.58.

In Table 9.13, the findings related to the dependent variable that 'the provision of information and software through e-channels such as programs protect'. In the Islamic bank case, the control variables of age category, monthly income, highest educational qualifications, and occupation are found statistically significant at 5%. In the 'age' category control variable, the '26-35 years-old' subgroup recorded a high mean rank value at 60.50 and the lowest mean rank value is for the subgroup of 'over 55 years-old' with a mean rank value of 29.69. Moreover, the 'monthly income' control variable with p -value of 0.012, resulted in the '8001-12000 SR' group achieving a high mean rank value of 67.44, while the lowest mean rank value is scored by the '4001-8000 SR' group at 37.91.

Furthermore, for the 'highest educational qualifications', the subgroup of 'Master's degree or above' group occupied first place with a mean rank value of 62.07, whereas the below 'high school subgroup' scored the lowest mean rank value at 35.95.

In the ‘occupation’ control variable with p -value of 0.014, the ‘student’ category registered the highest mean rank value at 73.80, while the ‘retired’ category scored the lowest mean rank value at 29.50.

Table 9.13: Significance of Control Variables on the Statement: Q23.4 Provision of information and software through e-channels such as programs protect

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	56.10	0.005*	38.50	0.195	KW Test
	26 - 35 years	60.50		52.27		
	36 - 45 years	58.24		50.83		
	46 - 55 years	45.88		48.28		
	Over 55 years	29.69		32.70		
Monthly income	Less than 4001 SR	46.90	0.012*	40.08	0.058	KW Test
	4001 - 8000 SR	37.91		41.59		
	8001 - 12000 SR	67.44		51.74		
	12001 - 16000 SR	61.92		57.39		
	16001 - 20000 SR	41.42		28.50		
	More than 20000 SR	59.00		67.50		
Highest educational qualifications	Below High School	35.95	0.018*	32.69	0.000*	KW Test
	High School	52.63		51.14		
	Bachelor degree	57.54		44.04		
	Master’s degree or above	62.07		80.94		
Occupation	Student	73.80	0.014*	42.19	0.555	KW Test
	Private sector employee	47.00		44.56		
	Public sector employee	54.91		53.15		
	Private business	69.00		34.50		
	Retired	29.50		37.00		
	Unemployed	40.21		51.00		

Note: (*) Statistically significant at 5% level

In the case of the conventional banks, as can be seen in Table 9.13, the ‘highest educational qualifications’ control variable is statistically significant at 5%. In terms of ‘Master’s degree or above’ attained the highest mean rank value with a value of 80.94, while the ‘below high school’ subgroup achieved a low mean rank value at 32.69. As regards the statement that ‘safeguarding the transactions of all customers by the Saudi banking law’, Table 9.14 reports the results for the significant independent variables. As can be seen from the results, in the case of Islamic banks, the ‘age’ category control variable is significant with p -value of 0.001, and the highest mean rank value is scored by the ‘18-25 years-old’ group at 68.75 and the lowest mean rank is for the ‘over 55 years-old’ category at 27.19.

Table 9.14: Significance of Control Variables on the Statement: Q23.5
Safeguarding the transactions of all customers by the Saudi banking law

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	68.75	0.001*	35.55	0.245	KW Test
	26 - 35 years	59.74		54.37		
	36 - 45 years	55.78		48.88		
	46 - 55 years	46.28		42.34		
	Over 55 years	27.19		44.00		
Highest educational qualifications	Below High School	35.50	0.008*	32.19	0.001*	KW Test
	High School	62.83		55.17		
	Bachelor degree	52.93		43.19		
	Master's degree or above	60.86		69.19		
Occupation	Student	74.00	0.011*	39.06	0.306	KW Test
	Private sector employee	49.56		44.63		
	Public sector employee	55.81		50.04		
	Private business	52.63		64.50		
	Retired	27.19		69.00		
	Unemployed	36.57		30.00		

Note: (*) Statistically significant at 5% level

In addition, the 'highest educational qualifications' control variable with p -value of 0.008, resulted in 'high school degree' scoring the highest mean rank value with 62.83; the lowest value is obtained by 'below high school' group with a value of 35.50. In the 'occupation' control variable, which is significant with p -value of 0.011, the highest mean rank value (74.00) is registered by the student subgroup, while the lowest mean rank value is for the retired category at 27.19. With regard to conventional banks, as can be seen in Table 9.14, only the 'highest educational qualifications control' variable is significant at 5% and with a p -value of 0.001. In this independent variable, 'Master's degree or above' category recorded the highest mean rank at 69.19 and the lowest mean rank value is attained by the below high school category with a value of 32.19.

Table 9.15 shows the independent variables on question relating to reliability and security in using e-commerce. As can be seen, for the Islamic banks, five control variables have a statistical significance at 5% but with different estimated p -values. In the 'age' category, the subgroup of '18-25 years-old' has the highest mean rank value at 71.50, while the lowest is scored by the 'over 55 years-old' category with a value of 28.56. For the 'monthly income control' variable, the '8001-12000 SR' category

recorded a high value at 71.76, whereas ‘‘4001-8000 SR category recorded the lowest mean rank value with at 38.18, with p -value of 0.006.

Table 9.15: Significance of Control Variables on the Statement: *Q23.6 Never facing any problems due to the reliability and security*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	71.50	0.001*	45.27	0.821	KW Test
	26 - 35 years	59.80		49.66		
	36 - 45 years	51.41		46.21		
	46 - 55 years	50.44		42.81		
	Over 55 years	28.56		54.10		
Monthly income	Less than 4001 SR	48.72	0.006*	41.61	0.002*	KW Test
	4001 - 8000 SR	38.18		36.17		
	8001 - 12000 SR	71.76		54.09		
	12001 - 16000 SR	61.04		65.18		
	16001 - 20000 SR	44.35		34.33		
	More than 20000 SR	41.44		42.25		
Highest educational qualifications	Below High School	32.98	0.003*	28.36	0.003*	KW Test
	High School	55.28		51.50		
	Bachelor degree	61.07		50.04		
	Master's degree or above	51.07		62.94		
Occupation	Student	71.60	0.008*	52.31	0.634	KW Test
	Private sector employee	50.25		43.78		
	Public sector employee	54.51		49.86		
	Private business	74.13		34.00		
	Retired	28.06		63.83		
	Unemployed	33.86		50.50		
Region	Riyadh Region	61.22	0.039*	62.09	0.000*	KW Test
	Western Region	50.11		37.27		
	Eastern Region	41.08		50.60		

Note: (*) Statistically significant at 5% level

In ‘highest educational qualifications’ control variable, ‘bachelor degree’ has the highest mean rank with a value of 61.07, while the lowest mean rank for below high school group with a value of 32.98. In the ‘occupation’ control variable case, the highest mean rank value is scored by the private business subgroup at 74.13 and the lowest mean rank in this example is recorded in the retired subgroup, with a value of 28.06. In addition, the ‘Riyadh region’ in the ‘region’ control variable recorded the highest mean at 61.22, whilst the ‘Eastern region’ achieved the lowest figure at 41.08.

In relation to the issue of ‘reliability and security in using e-commerce’, as can be seen in Table 9.15, in the case of the conventional banks, ‘monthly income’ control

variable is significant with the ‘12001-16000 SR’ group obtaining the highest mean rank value at 65.18, whereas the ‘16001-20000 SR’ category scored the lowest value at 34.33. With regard to the ‘highest educational qualifications’ control variable with p -value of 0.003, the results show the differing views held on this subject by the contributors. The group of ‘Master’s degree’ or above recorded the highest mean rank value at 62.94, and the below high school category scored the highest mean rank with a value of 28.36. Furthermore, the ‘region’ control variable with p -value 0.000, resulted in ‘Riyadh region’ recording the highest value at 62.09, whilst the lowest mean rank value is recorded for the ‘western region’ at 37.27.

Table 9.16: Significance of Control Variables on the Statement: Q24 Have you ever faced any security or other issues with e-banking services whether e-services banking or e-commerce?

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	59.80	0.009*	41.91	0.141	KW Test
	26 - 35 years	59.06		52.94		
	36 - 45 years	53.44		46.35		
	46 - 55 years	48.75		50.19		
	Above 55 years	35.75		35.50		
Highest educational qualifications	Below High School	36.64	0.000*	43.33	0.662	KW Test
	High School	60.48		49.03		
	Bachelor degree	58.07		46.91		
	Master’s degree or above	46.43		53.13		
Occupation	Student	65.00	0.065	35.50	0.002*	KW Test
	Private sector employee	56.33		44.54		
	Public sector employee	51.75		54.18		
	Private business	52.00		12.00		
	Retired	32.50		59.00		
	Jobless	50.14		59.00		

Note: (*) Statistically significant at 5% level

Table 9.16 depicts the results of further analysis on the responses given to the question ‘Have you ever faced any security or other issues with e-banking services whether e-services banking or e-commerce?’ in relation to the three control variables ‘age category’, ‘highest educational qualifications’ and ‘occupation’. As can be seen in Table 9.16, for Islamic banks, in the ‘age category’ control variable, which is significant with a p -value of 0.009, the ‘18-25 year-old’ group recorded the highest mean rank value with 59.80, while the lowest mean rank is scored by the ‘above 55

year-old’ group with 35.75. In addition, the ‘highest educational qualifications’ control variable has a p -value of 0.000 and in this category, the ‘high school’ group occupied the highest place with a mean rank value of 60.48, whilst the group ‘below high school’ is in last place at 36.64. For the ‘occupation’ control variable in relation to the conventional banks, ‘retired’ and ‘jobless’ achieved the highest mean rank at 59.00 each, whereas the subgroup of ‘private business’ scored the lowest value of 12.00.

Table 9.17: Significance of Control Variables on the Statement: Q25 *If you had security and other problems for using e-channels banking services whether for dealing with e-commerce or for using e-services banking, has this affected your inclination to use e-services for banking and e-purchases?*

Group (Control Variables)	Group Categories	Islamic Banks		Conventional Banks		Test
		Mean Rank	Asymp. Sig. (p)	Mean Rank	Asymp. Sig. (p)	
Age category	18 - 25 years	57.10	0.033*	39.00	0.016*	KW Test
	26 - 35 years	59.19		53.81		
	36 - 45 years	52.50		48.94		
	46 - 55 years	50.50		48.31		
	Above 55 years	37.00		32.25		
Highest educational qualifications	Below High School	37.68	0.002*	43.78	0.730	KW Test
	High School	61.80		46.79		
	Bachelor degree	56.63		49.33		
	Master’s degree or above	47.21		50.81		
Occupation	Student	66.50	0.067	32.25	0.000*	KW Test
	Private sector employee	58.08		45.04		
	Public sector employee	50.11		54.95		
	Private business	53.00		7.50		
	Retired	34.50		57.00		
	Jobless	51.07		57.00		

Note: (*) Statistically significant at 5% level

Table 9.17 shows the control variables ‘age category’, ‘highest educational qualifications’, and ‘occupation’ in relation to the question ‘If you had security and other problems for using e-channels banking services whether for dealing with e-commerce or for using e-services banking, has this affected your inclination to use e-services for banking and e-purchases?’. As the results depicted in Table 9.17 show, in the case of the Islamic banks, the ‘age category’ control variable has a p -value of 0.033. The highest mean rank value in this category is for the ‘26-35 year-old’ group at 59.19 and the lowest mean rank is scored by the ‘above 55 year-old’ category at

37.00. In addition, the ‘highest educational qualifications’ control variable has a p -value of 0.002, and the ‘high school’ degree recorded the highest mean rank value with 61.80, while the lowest value is obtained by ‘below high school’ group with a value of 37.68. In relation to the conventional banks, the ‘age category’ control variable is significant at the 5% level with the estimated p -value of 0.016. The ‘26-35 year-old’ subgroup recorded the highest mean rank at 53.81 and the lowest mean rank value is achieved by the ‘above 55 year-old’ category with a value of 32.25. In the ‘occupation’ control variable which has a p -value of 0.000, the highest mean rank (57.00) is for both the ‘retired’ and ‘jobless’ groups, while the lowest mean rank value is achieved by the ‘private business’ category at 7.50.

In overall, the summary of the findings from the application of K-W and MW-U tests is depicted in Table 9.18, which shows that the control variables of gender and nationality are not significant for either of the statements related to security issues in e-commerce and e-banking services in the case of Islamic and conventional Saudi banks as expressed by the customers of these banks. Whilst the findings suggest that among the Islamic banks’ customers, the ‘age’ group ‘18-35’ tend to be more satisfied with security measures in e-commerce; strangely, however, this does not hold for the conventional banks’ customers. For Islamic banks customers in the ‘salary’ range, ‘8001-12000 SR’ category scored the highest mean rank value in 4 out of 9 statements, the, compared to only one case for the conventional banks in the salary range of ‘12001-16000 SR’. As for educational qualifications, in most cases customers of both types of bank who stated their satisfaction with security provisions are those with ‘university degrees’ (bachelor and masters). This may imply that educated individuals tend to attach much greater weight to security issues. This issue has also been echoed in the ‘occupation’ category where, in most cases, the Islamic banks customers are identified as ‘students’ who appreciate security. Conversely, in contrast to the experience with Islamic banks, the majority of the participants drawn from Saudi Arabian conventional banks are not satisfied with security issues in e-commerce and e-banking services. As for the regional category, there is no clear verdict as to which region is more satisfied with the security provision of Saudi banks in relation to e-commerce and e-banking.

Table 9.18: The Highest Significant Subcategories among the Control Variables on Respondents' Security in E-Commerce Environment through E-Banking Services

Statement	Age category		Monthly income		Educational		Occupation		Region	
	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
Q23.1 The e-commerce transactional environment through e-services in Saudi banks is secure	18-25 years	26-35 years	None	None	Master's degree or above	Master's degree or above	student	None	None	Riyadh
Q23.2 The bank provides security for e-channels banking services	26-35 years	None	8001-12000 SR	None	None	Master's degree or above	None	None	Riyadh	None
Q23.3 E-commerce through e-services is trustworthy	26-35 years	None	8001-12000 SR	None	Master's degree or above	None	student	None	None	None
Q23.4 The bank gives information through e-channels such as programs protect	26-35 years	None	8001-12000 SR	None	Master's degree or above	Master's degree or above	student	None	None	None
Q23.5 The Saudi banking law safeguards the transactions of all customers	18-25 years	None	None	None	High School	Master's degree or above	student	None	None	Riyadh
Q23.6 In terms of reliability and security, I have never faced any problems	18-25 years	None	8001-12000 SR	12001-16000 SR	Bachelor degree	Master's degree or above	Private business	None	Riyadh	None
Q24 Have you ever faced any security or other issues with e-channels banking services whether e-services banking or e-commerce?	18-25 years	None	None	None	High School	None	student	Retired + Unemployed	None	None
Q25 If you had security and other problems for using e-channels banking services whether for dealing with e-commerce or for using e-services banking, has this affected your inclination to use e-services for banking and e-purchases?	26-35 years	26-35 years	None	None	High School	None	None	Retired + Unemployed	None	None

9.4 CONCLUSION

This chapter presented findings on the opinions and perceptions of the participants about security issues in e-commerce and e-banking services in Islamic and conventional banks of Saudi Arabia. One conclusion which can be drawn from this chapter is that the perceptions on security of the Islamic banks customers are more positive than those of the conventional banks. There are several reasons one can find to justifying this conclusion. One striking point is that as Islamic banks are based on *Shari'ah* law, and therefore they tend to be more attractive to customers who appreciate safety and low-risk banking with their approach to conservative banking. This result is verified by earlier studies such as Hanif (2011); Ryu *et al.*, (2012) and Abdul Wahab *et al.*, (2014). Therefore, the customers would normally consider Islamic banks as secure within the spiritual realm regardless of potential physical shortcomings. However, on a more rationality-based understanding, the source of this trust can be explained through practical and everyday experiences, as the Islamic banks came into being more recently, and therefore they have been in a position to take advantage of the latest technology and service quality in providing a relatively secure business environment.

Based on these findings, the study provides recommendations for developing the security of e-commerce through e-banking services in Saudi Arabia as follows:

- (i). As the findings suggest, customers of Islamic banks tend to feel more secure in their e-commerce than the customers of conventional banks do. The study therefore recommends that conventional Saudi Arabian banks should improve their technical and security provisions and these should be communicated to their customers so that customers' perceptions may be impacted in a positive manner;
- (ii). The E-Banking Rules are perceived to offer safe and secure banking environment. However, the study recommends that SAMA needs to extend and enhance such rules to cover the e-commerce traders' liability towards their customers.

CHAPTER 10

LOCATING THE PERCEPTIONS ON THE SUPPLY SIDE: ANALYSIS OF THE INTERVIEWS

10.1 INTRODUCTION

As secondary and supportive information for the analysis of this research, an empirical study has been conducted using a series of interviews with IT managers at three different levels of the six banks in Saudi Arabia: general managers of IT banking, assistant general managers of IT banking, and regional managers of IT banking. The objective of these interviews is to extend the demand side analysis presented in the previous chapters by presenting supply conditions of e-commerce through e-banking services.

It should be noted that the face-to-face interviews were conducted over the period of May to August 2012 at the six selected banks representing different areas of Jeddah and Riyadh.

The interview questions were designed with a semi-structured format allowing the interviewees to expand on any comments or to make suggestions. The initial plan was to conduct interviews with the two groups of banks in equal numbers. By the time the interviews were to be conducted, however, only three IT managers from conventional banks and six IT managers from Islamic banks had agreed to be interviewed. Given the time limitations, the author had no choice but to proceed with interviewing only the participants who had agreed.

A detailed explanation of the process and method of analysis used during the interviews was addressed in the Research Methodology Chapter (Chapter 5). It should be reiterated that the interviews conducted with general managers of IT banking, assistant general managers of IT banking, and regional managers of IT banking were recorded, with the permission of the interviewees. When such a recording was not possible due to the spontaneity of the meeting, notes were taken in shorthand by the

interviewer; shorthand notes were also kept even when an interview was being recorded. Each bank interview took between one and two hours; the tapes were later transcribed. It should be noted that there were variations in the organisation of the interviews, dependent on the interviewees' language, experience, and skills.

Analysis of interviews can be of three types: coded analysis, descriptive analysis, and interpretative analysis (Konold and Well, 1981). During this research, the interviews were coded only to differentiate the responses of the interviewees, which, as a process, were explained in Chapter 5. It is also important that additional questions were mixed with the main questions to draw clearer conclusions about the issues raised with the policy makers in both the Islamic and the conventional banks.

The coded analysis allows a subsequent presentation of arguments using interpretative explanations. Each interview was analysed independently, and they are presented separately in the results section of the interpretative analysis with the objective of bringing out the main themes of an issue.

Questions were presented in a simple format, which means that the data can be presented in a summarised manner. The codes refer to different categories in the same sample group. This data is then compared with the differences between the responses of different respondents to the same question (Konold and Well, 1981; Bryman, 2004). This comparative aspect of the research, however, is only narrowly discussed in the presentation of the interview responses.

Upon summarising the interview process and its administration, the following sections present the results and the findings. This chapter, hence, is presented as follows: section 10.2 offers a detailed analysis of the data from the interviews, while section 10.3 is a summary and statistical description of the roles, responsibilities, and attitudes of IT managers. Section 10.4 offers a detailed analysis of the interviewees' responses to the four essential interview questions; and finally, section 10.5 ends the chapter with a summary and concluding remarks.

10.2 ANALYSING THE DESCRIPTIVE CHARACTERISTICS OF THE INTERVIEWEES

As a starting point, the interviewees' roles within their banks' e-banking services are presented in Table 10.1 for the nine interviewees across all of the six banks.

Table 10.1: Roles of the Interviewees: *Q 1 Your Function within the Bank is Best Described as:*

Function	Sub-Frequency		Total Frequency	%
	Islamic Banks	Conventional Banks		
General Manager of IT Banking	2	0	2	22.22
Assistant General Manager of IT Banking	4	1	5	55.55
Regional Manager of IT Banking	0	2	2	22.22
Total	6	3	9	100.00

It can be seen from Table 10.1 that 22.2% of all the interviewees are general managers of IT banking in Islamic banks, and 44.4% of the total interviewees are assistant general managers of IT banking in Islamic banks. As for the conventional banks, 11% of the total (all banks) interviewees are assistant general managers of IT banking in their respective banks, while 22.2% of interviewees are regional managers of IT banking for conventional banks.

Table 10.2: E-Banking Services Planning Manager: *Q 2 Who is the First Person Responsible for Planning Banking E-Services?*

Statements	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Executive Director	0	0	2.67	0.516
Manager of IT Banking	2	33.3		
Department of IT Banking	4	66.7		
External Consultants	0	0		
Sub-Total	6	100		
Conventional Banks				
Executive Director	1	33.3	2.33	1.155
Manager of IT Banking	0	0		
Department of IT Banking	2	66.7		
External Consultants	0	0		
Sub-Total	3	100		
Total	9			

Table 10.2 depicts the results in relation to the distribution of staff members responsible for the planning of e-banking services in both Islamic and conventional

Saudi banks, namely the first person responsible for planning e-banking services in the sampled banks. The purpose of asking this question was to see any potential differences between interviewees due to the available staff in the relevant department.

It can be seen in Table 10.2 that 33.3% of the respondents from the Islamic banks selected the manager of IT banking as the first person responsible, against 66.7% of respondents who selected the department of IT banking; 33.3% of the conventional bank IT managers selected the executive director, compared to 66.7% who stated that the IT department was responsible for e-banking planning. The findings further indicate both groups of banks opting by a similar percentage (66.7%) for the IT department being the first party responsible for planning e-banking services, with no external consultants being responsible for planning e-banking services. The mean values show a difference between the forms of bank, with Islamic banks showing a higher value (2.67) compared to conventional banks (2.33).

Innovation in IT technology proves the most important determinant in the adoption of e-banking services; this is found in the answers to the question, ‘Do you feel that innovation in IT technology forces your bank to adopt e-banking services?’, which are depicted in Table 10.3:

Table 10.3: IT Innovation and E-Banking Adoption: Q 3 Do you Feel that Innovation in IT Technology Forces your Bank to Adopt E-Services?

	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Islamic Banks				
Yes	6	100	1.00	0.000
No	0	0		
Total	6	100		
Conventional Banks				
Yes	3	100	1.00	0.000
No	0	0		
Total	3	100		

For the nine interviewees across both types of bank, as can be seen from the answers to Question 4 in Table 10.3, all participants from both the Islamic and the conventional banks answered ‘Yes’, indicating that all sampled bankers have realised the importance of e-banking services in modern banking. These results mean that the mean value calculated was 1.00 for both Islamic and conventional banks.

10.3 PERCEPTION ANALYSIS ON ASPECTS OF E-BANKING SERVICES AND E-COMMERCE: ANALYSIS OF THE INTERVIEWS

Following a series of initial investigations into effective methods for interviews, the researcher came up with four general and open-ended questions for the interviews. The aim of these questions was to capture as much information as possible in support of the questions of the thesis and to furnish secondary support for the findings derived from the questionnaire. Moreover, given that each interviewee was allocated only one hour for an interview, it was thought that the four questions would prove satisfactory considering the time constraints imposed on the research.

The interview questions were designed within the context of the main research questions. The following is the final format of the four questions of the interview schedule presented to both Islamic and conventional banks:

- (i). In your view, what benefits have your bank attained by introducing e-banking services?
- (ii). In your view, what benefits would be gained from e-banking services for customers of Saudi banks?
- (iii). In your view, what challenges are facing the Saudi banking sector in relation to e-services and e-commerce?
- (iv). In your view, do government policies in the Saudi banking sector, such as SARIE, SPAN, and SADAD, and the economic conditions, play a critical role in shaping the development of e-commerce for your customers?

It should be noted that the coding method, based on an interpretive approach, is utilised as the main method of analysis for the answers to the questions.

10.3.1 Assessing the Benefits of Introducing E-Banking Services in Saudi Islamic and Conventional Banks

All of the six interviewees in the three Islamic banks stated strongly that the introduction and the upkeep of e-services have generated a positive net benefit to the bank through several channels. The general manager of the first Islamic bank made a

particular reference to the time-saving benefits, stating that “since e-services bring about significant money savings, then the bank can afford to allocate more quality services to both online and branch customers”. He also made reference to his bank’s other innovations offered to investors, as more staff time is saved elsewhere. He admitted that in the early years of the implementation of e-services the bank had to allocate a large amount of funds to that channel. He was pleased, however, to reveal that since then the bank has been able to recover these costs and move on to make significant net financial gains from e-service activities. Moreover, the assistant manager of the first Islamic bank, working in a different location, elaborated on the strong net financial gains attained by the bank through staff time-savings. He estimated that it could be somewhere in the region of 10-15% of the total profits of the bank as a whole.

The IT general manager of the second Islamic bank spent a greater amount of time than the general manager of the first bank explaining the channels by which the bank would benefit through staff cost savings. According to his analysis over the past three years, the bank has managed to make a significant saving of up to 15% of turnover in staff costs. He was also adamant in stating that “our e-service is safe, secure, cost-effective, and easy to use for all our customers”. He was further pleased to report that the emergence and continual use of e-services has meant that there is far less pressure on the bank’s staff in almost all branches across the country. Supporting this statement of the general manager, the assistant IT manager of the bank in another branch echoed that “we have managed to win the hearts and minds of our clients in attracting them to use our e-services, as they know that they benefit all parties alike”. He also made a strong reference to the major contribution that has been made, over the past few years, to the overall profits of the bank by e-services.

The assistant IT manager of the third Islamic bank provided a much more detailed account of the benefits accrued through the introduction of e-services. He stated that reductions in Operational Expenses (OPX), which refers to the cost of transactions, have given the bank the opportunity to spend more time and resources on staff training and on updating their online services continually. “Being known as one of the

most innovative banks in the region, we always make sure to transfer a great part of our monetary benefits accrued from e-services to our end consumers, be they in branch or online”, he continued. Taking time to go through the bank’s achievements in the past few years, he concluded that “we would like to be ahead of our competitors in understanding and adopting new technology – particularly those relating to e-services – as this will form the main source of real earnings for us in the future”. These issues were further referred to by the second interviewee of the third Islamic bank. In particular, he elaborated that an increase in the number of banking transactions due to the introduction of e-services has meant that “we have seen much more steady and consistent patterns of profits made by the bank, as our e-services are on offer to our customers 24/7”.

As regards the perceptions of the sample of conventional bank managers, each of the three banks’ IT managers agreed that the most important and immediate benefit to the banks from e-services is the marginal contribution to profits. The first bank area manager stated that “e-services generate tangible profits and improve the profitability spirit amongst banks engaged in such activity”. He agreed that there still remain avenues where banks may further explore the benefits from e-banking, and compare these against its potential risks. He also referred to effective savings accruing from lowering staff numbers at branches, when staff can be used more efficiently elsewhere to improve the quality of services.

The IT assistant manager of the second conventional bank referred to a number of issues and potential gains accruing to banks through e-services. In particular, he referred to the importance of savings in staff costs, and the transfer of these resources into maintaining the standards of the e-services offered by the bank. He further stated that “the e-services that we offer generate additional profits, which would be good news for shareholders and the public at large”.

Finally, the IT regional manager of the third conventional bank proposed several points by which the bank could benefit from enhancements in its e-services. Firstly, he argued in favour of speeding up the implementation of certain plans relating to e-services. He elaborated on this by saying that the emergence of electronic

communications, whether amongst staff or customers, has brought new dimensions to banking which lead to profit generation. He also referred to the most significant element of cost saving through e-services, as he indicated that his bank had managed to save a considerable amount of money by reducing its workforce to a minimum. As a follow-up to his point on savings in staff costs, he argued that expanding e-services is deemed to reduce both systemic and random risk to low levels, hence improving the bank's solvency.

10.3.2 Assessing the Benefits of Introducing E-Banking Services to the Customers in Saudi Arabia

The interviewees from both Islamic and conventional banks referred to a wide variety of potential benefits accruing to their customers from the introduction of e-services. For example, the IT general manager of the first Islamic bank made a brief statement of benefits to customers, making special reference to e-banking being available everywhere and anytime. He continued by stressing that their "website is designed to be particularly user-friendly and highly secure, which means that our online customers can save time and effort in doing their daily transactions wherever they may be". The assistant IT manager of the first Islamic bank, in another location, made reference to the excellent feedback that they have received from stocks and shares dealers and from customers of the bank. He stated that "our customers now benefit by spending less time in branches, and spending leisure time online doing their normal daily transactions". He continued that "as an Islamic bank, not only do our customers benefit from a risk-averse and well rewarding organisation, but also they can have access to their accounts anywhere and at any time".

The IT general manager of the second Islamic bank gave a brief account of the benefits to customers of flexibility, privacy, and security from e-banking by stating that "the flexibility of having access to accounts and conducting transactions is the most important benefit to our customers". He further justified the benefits of e-services by stating that "we make sure to provide them with the most reliable available technology so that they can feel safe and secure in doing their normal transactions". The assistant IT manager of the second Islamic bank also made a

remark on the security of their e-services, stating that “our customers are assured that they can get a highly secure and consistent e-banking service no matter where they are and what transaction they wish to do”.

The two assistant managers of the third Islamic bank who were interviewed (on different occasions) were of a similar view, stating that most of their e-banking customers had provided them with highly positive feedback. A particular point noted by one of the interviewees was that “for our customers travelling abroad they have been able to freely do their transactions whilst away, saving them time and peace of mind”. Another interviewee said “you cannot imagine how much money is saved by customers doing online banking rather than coming to branches and spending time queuing up to be served – perhaps millions of dollars a year”. He also referred to other convenient features of e-banking, such as sending money abroad to friends and relatives from one’s armchair.

As for the perceptions of the managers from the conventional banks, points such as the speed of transactions and their convenience were the most important elements that the bank managers of the three conventional banks highlighted. The first conventional bank’s regional IT manager illustrated the benefits for customers in a concise sentence: “it [e-banking] offers ease and speed by which customers can execute their transactions at any time they wish to do so”. He also referred to benefits through time-savings for customers not coming to the branch. This issue was also discussed and highlighted by other banks, both Islamic and conventional.

The assistant manager for the second conventional bank echoed the same message, stating that “for the clients saving time and money is extremely important, and e-services are deemed to provide them with what they want”. He pointed to the usefulness of ATMs, for example, in providing customers with several ways of doing their transactions without the need to visit their branch. He also made an interesting reference to the increased use of e-services by the bank’s customers for doing their e-commerce on a daily basis without making any visit to the bank “as a 24/7 service is available for customers”.

Echoing the first bank, the regional IT manager of the third conventional bank highlighted the sources of customer benefits through two aspects: speeding up implementation and saving time. He further elaborated that the ease and the comfort of using e-services and e-commerce has enabled customers to conduct a much greater number of transactions on a daily basis. Moreover, it was felt that the customers are generally happy with the safety and security of their e-services in the bank.

10.3.3 Reflections on the Challenges Facing E-Banking Services and E-Commerce in Saudi Arabia's Islamic and Conventional Banking Sectors

Most of the bank managers interviewed regarded the telecommunications infrastructure in Saudi Arabia as one of the most serious challenges facing the delivery of good quality e-banking services.

The IT general manager of the first Islamic bank, for example, was specific in his concerns, arguing that “electronic services and electronic trading may be seriously undermined if no genuine telecommunications development occurs within the next few years”. He continued by stating that “as the number of online customers is on the increase, telecommunications infrastructure must be improved to accommodate effective e-services offered by banks”. This issue was further elaborated by the assistant IT manager of the first Islamic bank: “telecommunications infrastructure is well below the required standard to satisfy our ambitious plans for enhancements in our e-services”. He also believed that in the near future the number of online users may significantly increase, and that all the banks should be prepared to deviate from conventional banking and move towards e-banking.

The IT general manager of the second Islamic bank, on the other hand, gave much less weight to the importance of telecommunications infrastructure, and put more stress on coping with the security challenges facing all banks. He also referred to the second Islamic bank's efforts to update its e-service systems continuously across the bank as a whole. He admitted that raising awareness for potential customers of the security issues relating to e-banking is of the utmost importance, especially as these services are becoming more readily available to all customers. In addition to the

security aspects of e-banking, the assistant IT manager of the second Islamic bank admitted that the bank is still in the early stages of its e-services - although staff training and improving the provision of facilities should soon overcome initial problems.

The major challenge for the third Islamic bank, as far as the interviewed manager is concerned, is to do with “coping with the fast growing number of online users and their associated financial transactions”. Alongside this, one of the interviewees mentioned that, at the same time, some clients remain unconvinced about the safety and security of e-banking, and that convincing them otherwise may take time and resources. Another interviewee, the assistant IT manager of the third Islamic bank, added that “the Saudi banks in general, and [the third Islamic bank] in particular, need to be more focused on e-banking, and should think of expanding their e-banking scope beyond generic transactions to more online B2C solutions”.

With regards to the responses provided by the interviewed managers of the Saudi conventional banks, the regional IT manager of the first conventional bank referred to three main issues facing e-services within the Saudi banking system. First, he warned that “public awareness of information sensitivity and security” must be promoted, as both banks and their customers need to know the importance of keeping information intact. Second, he warned about the cyber-crime that has been occurring in other countries and could potentially enter Saudi banking. He did not highlight any specific examples of such crime, but mainly referred to crimes that have happened in the West in recent years, which have cost taxpayers billions of dollars. The third and final point raised by this interviewee related to the sensitivity of the dividing “line between [bank] governance and government policies and flexibility”. He expanded on this by stating that banks’ governance must follow the directives and advice offered by the international banking system, and stay in line with the Saudi central bank’s strategies. On the other hand, the assistant IT manager of the second conventional bank put more stress on the telecommunication infrastructure in Saudi Arabia as one of the most challenging hurdles in the way of e-services and e-banking. He explained that over the past few years a considerable percentage of customers had begun using e-services and

this has placed a heavy burden on the existing infrastructure, which was already incapable of providing effective services.

Finally, the regional IT manager of the third bank raised two points as the main challenges facing the Saudi banking sector. First, akin to the other bank managers, he regarded poor telecommunications infrastructure as a serious hurdle in the way of e-services expansion. Second, he highlighted that “some of our clients are still unhappy with using e-trading and e-banking, and some even bother to come to a branch and make payments to the third party”.

10.3.4 Assessing the Role of Macro Environment on the Development of E-Commerce in Saudi Arabian Islamic and Conventional Banks

Concerning the bank managers’ views regarding the Saudi government’s banking policies, most agreed that facilities such as SARIE, SPAN, and SADAD play positive roles in helping to achieve e-banking and e-services objectives. The IT general manager of the first Islamic bank agreed that “government policies in relation to e-banking, coupled with the current economic conditions, play a crucial role in the development of electronic trade, but have different impacts on different banks”. He, however, admitted that his bank should learn from other more advanced banks in developing its e-banking infrastructure correctly to avoid breaches of security and privacy.

The two IT managers of the second Islamic bank responded with short and concise replies to the question relating to the government’s banking policies. Although they appreciated the efforts of the government in setting high standards in banking and maintaining the quality infrastructure, they are of the view that more liberalisation in the banking sector could significantly improve the quality of services, and enable improved e-services. Moreover, the assistant IT manager of the second Islamic bank hinted at this further with his short statement that “indeed the facilities and standards set, such as SPAN and SADAD, are the basic tools of our e-services, but the systems upon which these operate need to be updated continually”.

The assistant IT manager of the third Islamic bank was more precise in his support for the banking infrastructure and government policies: “the SADAD system has been a great boost for the process of electronic payments and has truly transformed the banking system”. In supporting this, another interviewee elaborated that “SPAN has played a key role in the adoption of ATM networks, and the same goes for SARIE which has helped produce instant transfer solutions in our e-banking”.

With regards to the opinions of the conventional bank managers on the impact of the macro environment on the development of e-commerce within Islamic and conventional banks in Saudi Arabia, the first conventional bank’s regional IT manager strongly agreed that the government policies in Saudi Arabia, such as SARIE, SPAN, and SADAD, and the economic conditions, play a critical role in supporting the development of e-commerce and the provision of its benefits to customers. He also added that the effectiveness of the SARIE system saved bank staff a significant amount of time, and so the bank has saved a significant amount of money.

The second conventional bank’s assistant IT manager offered a more detailed analysis of the effectiveness of e-services by stating that “e-trade has become a subject in the development of economic conditions, and hence it plays an important role in the development of the financial system in Saudi Arabia”. Making a special reference to the SADAD system, he asserted that this system has made payments much more cost effective, faster, and easier to manage. He also gave assurances that all these systems are safe and secure, and stressed how the banks must make every effort to convey this image to their customers.

Finally, the third bank’s IT regional manager made reference to the effectiveness and speed of SARIE and SADAD, mentioning that most money transfers now take place using such systems. He elaborated that “in cases of a balanced budget, the SARIE and SADAD systems would favour the process of development and of boosting trade”.

10.4 CONCLUSION

The objective of this chapter was to present and analyse the semi-structured interviews conducted with Islamic and conventional IT banking managers. The

examination of the interview data and the analysis presented can be summarised as follows:

- (i). Concerning potential benefits to banks and their customers, the interviewees were unanimous in believing that e-commerce using e-banking services can significantly benefit all parties involved. Customers can benefit through reliable, secure, and fast systems for monetary transfers and online purchases. Banks could also benefit through reducing staff costs and time-saving, as more customers choose to use e-banking services.
- (ii). Regarding challenges in the introduction of e-services, the managers of the six banks surveyed referred to a number of testing issues. One hurdle on which all were agreed was the presence of a rather poor telecommunications infrastructure, which potentially makes e-trade and e-commerce cumbersome and slow. Other issues raised included cyber-crime and customer awareness of the availability of e-services. Although cyber-crime currently appears not to be a serious issue, some interviewees highlighted it as a potential future source of harm. Finally, as was highlighted by most managers, there still remain a large number of customers who are hesitant to use e-services, and this means the banking system must still rely on more labour-intensive operations. Some interviewees pointed out that with continuous and consistent marketing and education they should be able to convert such customers to using e-services.
- (iii). On the whole and in consideration of the findings of the interviews, it can be concluded that the IT managers of the Islamic banks are more focused on technology adoption than their counterparts in the conventional banking sector. Given, however, that both groups of banks are being tightly supervised by the SAMA, one would conclude that there are no significant differences in the approaches to technical adoption between the two groups of banks.

In essence, given the findings from the interviews, it must initially be reiterated that the representatives of both groups of banks have realised the importance of e-banking services in today's banking, and that they have strategised its growth. In so doing, banks have been tirelessly engaged in promoting and marketing the potential benefits of e-banking services to those customers who have been previously critical of dealing with e-commerce through e-banking services.

CHAPTER 11

DISCUSSION AND CONCLUSION

11.1 INTRODUCTION

This research is undertaken with the objective of exploring the state of e-commerce use through e-banking services of Saudi Arabian Islamic and conventional banks from the perspectives of both customers and the IT managers of the sampled banks. The objective of this final chapter is to bring together all the findings and ideas discussed throughout this study and summarise the main findings.

In conducting the research, for the demand conditions, the views and opinions of the customers from the sampled Islamic and conventional banks were obtained through a questionnaire; and for the supply conditions, interviews with IT managers in both types of banks provided the necessary data to conduct the empirical analysis. It should be noted that the results of this were carefully examined and analysed in the light of the existing literature.

In brief, this chapter recapitulates the conclusions derived from the analyses and findings and the contributions of the research. In addition, this chapter also presents the practical recommendations for various stakeholders to prepare the ground for enhancement of e-commerce through e-banking services in Saudi banks. This chapter also presents the limitations of the study and the chapter concludes with suggestions for future research topics.

The findings of this research will therefore fill in the gap in current research by delivering some important empirical findings about e-commerce through e-banking services in Islamic and conventional banks within the Saudi Arabian context.

11.2 SUMMARY OF THE RESEARCH

The main aim of this research is to explore the perceptions and opinions of customers and IT managers of Islamic and conventional banks across three regions of Saudi

Arabia with the objective of investigating the demand and supply conditions in relation to e-commerce through e-banking services in Saudi banks.

The research presented in this thesis is divided into two sections; the first section presents three chapters on the foundational issues, namely literature survey, Saudi Arabian context chapter and research methodology, and the second section offers the next seven chapters, forming the empirical part of the research. In the first section, chapter 1 presents an overview and background to the topic and states the research problem and objectives, providing the justification for the research, briefly explaining the research methodology employed and highlighting the outline of the research.

Chapter 2 along with a literature survey focuses on the historical context and types of e-commerce and its development, modern practices of e-commerce, the use of e-commerce and e-banking in banking as well as presenting mainly a survey of a number of empirical studies conducted on the Saudi Arabian case. Chapter 3 presents an overview of Islamic banking characteristics in general and especially in Saudi Arabia, as well as highlighting aspects of e-commerce in Islamic law. Chapter 4 focuses on the Saudi Arabian banking environment and the current position of IT services in Saudi Arabia.

In operationalising the research, Chapter 5 presents aspects of the research methodology as well as the research design that was employed in the course of this research. In addition, it discusses the rationale and justification for the chosen research method and design. It explains the specific steps adopted in carrying out the data collection exercise as well as the data analysis methods. The study considered only six banks out of a total of twelve banks in Saudi Arabia. In an attempt to assess the demand side, the questionnaires were distributed in branches of Islamic and conventional banks in a 'snowballing' manner in cities such as Riyadh, Alkarj, Jeddah, Makkah, Taif, Dammam, and Alkubr. All 250 questionnaires were returned; however, 52 of them were excluded due to non-completion, leaving 198 questionnaires with complete information ready for data analysis, representing a significant response rate of 79%. The questionnaire was administered during May-July 2012. In addition to the demand conditions, during the same period, supply

conditions were also explored through interview survey.

Based on the foundational chapters and the research methodology, Chapter 6, being the first empirical chapter, represents the empirical findings relating to profile analysis and the core variables for the research by analysing the primary data of the Saudi Arabian Islamic banks as well as conventional banks by developing statistical inferences drawn using descriptive statistics as well as inferential statistical analysis along with presenting the logistic regression estimates.

Chapter 7 offers statistical analysis on knowledge and motivation for dealing in, using and practicing e-commerce in Islamic and conventional banks of Saudi Arabia. The chapter presents the findings from statistical analysis as descriptive statistics as well as inferential analysis.

Chapter 8 focuses on the use of e-commerce and e-banking services and the obstacles faced, using and practicing e-commerce and e-banking services in Islamic and conventional banks of Saudi Arabia. These aspects were tested through descriptive statistics as well as inferential analysis with the objective of revealing the demand conditions relating to the specific aspects of obstacles faced.

Chapter 9 shifts attention to empirical security issues in e-commerce and e-banking services in Islamic and conventional banks of Saudi Arabia. To present and test the parameters in this chapter, a similar approach as in the earlier chapters was used.

Chapter 10 explores the perceptions of the IT managers on the supply conditions through interviews.

Finally, the current chapter recapitulates the salient conclusions derived from the thesis findings and the contributions of the research. It also presents the practical recommendations for the Saudi Arabian monetary agency (SAMA) and for Islamic and conventional Saudi banks to enhance the e-commerce through e-banking services in Saudi banks. Finally, this chapter highlights limitations of the study and some suggestions for future research topics.

11.3 REFLECTING ON THE FINDINGS OF THE RESEARCH

The main findings of the research have been derived from the use of a questionnaire based on perceptions of customers of e-commerce through e-banking services. In addition, the findings from a number of interviews of IT managers form a minor yet supporting platform for the main findings. These findings can be categorised in the following order in relation to the established research questions in Chapter 1:

11.3.1 Locating the Attributes of the Sample and Exploring Participants' Banking Behaviour

The initial analysis concerning the main socio-economic characteristics of the respondents reveal that the majority of the sampled respondents were of Saudi nationality, between the ages of 26-35 and earning in the range of SAR8,000-SAR12,000, owing to the fact that the majority of the population in Saudi Arabia are of Saudi nationality and two-thirds of the population in Saudi Arabia are under age 30 (CDSI, 2014), and the GDP in Saudi Arabia is high (\$) 24,847 in 2014 (http://www.opec.org/opec_web/en/index.htm, 2015); holding Bachelor degrees as their highest educational qualification; and being public sector employees. The analysis also shows that 'gender' is not a significant variable, particularly for female customers of both banking types, this may be due to presence of no significant difference between male and female in Saudi Arabia for using the Internet (CITC, 2009).

In terms of the 'nationality' control variable, the subgroup 'Saudi' is a significant variable for Islamic banks, when compared to conventional banks for which the significant subgroup was 'Syrian'. In the 'age' independent variable, the '18-25 year-old' subgroup was the most significant for Islamic banks. In contrast, the 'age' control variable for conventional banks does not seem to have the same level of significance. In addition, the 'monthly income' control variable is not significant for the majority of participants in the Islamic banks, while the most significant subgroup for participants of conventional banks is the 'more than 20,000SR' category.

The 'highest educational qualification' as an independent variable seems to be more

significant for Islamic banks than for conventional banks in relation to the analysed statements. Within this variable, the most significant subgroup is 'Master's degree or above', particularly for the participants of conventional banks. The most significant control variable in relation to the two statements appears to be that of 'occupation', given that it involves participants from different social positions who have varying knowledge about the e-banking services, e-commerce and its services, with the subgroups for 'retired' and 'public sector employees' being the most repeated subgroups for the participants of Islamic and conventional banks respectively. Finally, in the 'region' control variable the 'Riyadh Region' subgroup was the most significant independent variable, especially for the participants of conventional banks.

Considering that Riyadh is the capital city of the country, it is meaningful to find that Riyadh among the regions covered in this study is a significant region or variable in terms of participants' knowledge of and motivational source for using e-commerce. In addition, having the younger section of the sample more knowledgeable and more motivated than other age groups is an indication that the younger section of the society are better informed about e-commerce and e-banking; as they are exposed to everyday use of internet services compared to other age groups. Furthermore, having the 'Master's and above education' group being significant is a clear indication of a positive relationship between using new forms of commerce and banking and education; as the better educated part of the society is more open to innovative methods in their everyday life.

11.3.2 Customers' Knowledge of and Motivation for E-Commerce and E-Banking Services

In the second section of the empirical analysis, the respondents' knowledge of practicing e-commerce and the motivational factors for using e-commerce and e-banking services were explored. The analysis indicates that both 'gender' and 'nationality' are not statistically significant for either banking types. In terms of the 'age category' control variable, it is interesting to note that in a majority of cases the '18-25 year-olds' and '36-45 year-olds' subgroups are found to be the most frequent users of 'e-commerce' in the case of Islamic banks, thus indicating their familiarity

with, and knowledge of, the questions proposed in the initial survey. In contrast, in the 'age category' control variable for conventional banks the most frequent highest mean ranking was the '26-35 year-old' subgroup of e-commerce users, as the young population is more interested in use of technology than old people. In addition, the 'monthly income' control variable is found to be not statistically significant for the majority of participants in either the Islamic or conventional banks as a determining variable for knowledge and motivation, since the internet service has become available for almost everyone at very low cost (Plunkett, 2010). However, despite a few cases where certain subgroups are statistically significant, there is no clear cut conclusion for conventional bank customers.

With regard to the 'highest educational qualifications' control variable, only the 'Master's degree or above' category is found to be statistically significant for both Islamic and conventional banks as an independent variable. The most significant control variable in relation to the statements analysed is 'occupation', where the subgroup 'student' is the most frequent significant independent variable with highest mean for Islamic banks, which is not statistically significant for the majority of statements in the conventional banks. Similarly, the 'region' control variable does not indicate any particular region as dominant, with the exception of 'Riyadh region', which is statistically significant in a small number of cases in conventional banks.

As for the viewpoints of respondents about their motivation in practicing e-commerce, 'gender' and 'nationality' as independent variables are found not to be statistically significant for either banking type. In the 'age category' control variable, '18-25 year-old' subgroup is found to be the most frequent significant variable with highest mean ranking value for Islamic banks, compared to the '26-35 years-old subgroup' for conventional banks. In addition, the 'monthly income' control variable is not significant for the majority of participants in either the Islamic or conventional banks.

With regard to the 'highest educational qualifications' control variable, in most cases the 'degree holders' category was found to be statistically significant in both Islamic and conventional banks as the determining factor for motivational source. Once again, the 'occupation' control variable exhibits that in the majority of cases the subgroup

‘students’ turned out to be dominant in the case of Islamic banks; however, no cases from the ‘occupation’ subgroups were found significant for the conventional banks. In terms of the ‘region’ control variable, the ‘Riyadh region’ group again appeared to be significant in a small number of cases for the two groups of banks.

For the knowledge of and the motivation for practicing e-commerce and e-banking, the most significant control variables in relation to the two statements appear to be the same findings, the ‘degree holders’ for education group being significant for both banks. In addition, for ‘age category’, ‘18-35 year-old’ is significant for both Islamic and conventional which indicates the relationship between the young ages and high degree level that motivates them to deal in and use e-commerce and e-banking services due to their exposure to the everyday reality of increased use of e-technologies.

11.3.3 The Use of E-Commerce, E-Channels Banking Services, and the Obstacles Faced

The customers’ preferences for using e-commerce through e-banking services, and e-channels banking services, and the possible obstacles faced in dealing in, using, and practising e-commerce in Islamic and conventional banks of Saudi Arabia were explored.

As regards the preferences in e-channels banking services, a summary can be made that the customers of both bank types have chosen the same preference order, despite the fact that the mean values between the banks were different. Further, the information collected regarding the obstacles faced in dealing in, using, and practicing e-commerce in Islamic and conventional banks of Saudi Arabia clearly showed differences in ranking between the two types of bank.

The findings from the inferential statistics show the respondents’ preferences in dealing with e-commerce through e-banking services, with the respondents of the Islamic banks having a much more positive outlook than the customers of the conventional banks. As for the preferences concerning e-channels banking services, the Islamic banks showed more significant control variables than those from the

conventional banks, except in the case of the ‘educational qualifications’ control variable, which proved significant for both types of banks.

Finally, the respondents’ viewpoints about the obstacles faced for dealing with e-commerce in Islamic and conventional banks suggested that similar obstacles are faced by the customers of both types of banks, and that very few differences were found between the customers of each bank type.

Moreover, most obstacles from communication companies and infrastructure are needed to be understood initially by the banks and especially the managements, since Saudi Arabia is a developing country and still in need of improving its external infrastructure and that has been echoed by most Saudi banks. The obstacles faced by the customers can be better averted towards resolutions in understanding the issues for particularly the customers of conventional banks. There is a similar impact of inferences between the customers of Islamic and conventional banks.

Finally, the results in relation to respondents’ opinions and preferences about the obstacles faced for dealing with e-commerce through e-banking platform in Islamic and conventional banks suggest that similar obstacles are faced by the customers of both types of banks with similar intensities, and, hence, very little variations found between the customers of each type of bank. This is because both types of banks use almost similar facilities and controlled and supervised under the supervision of SAMA.

11.3.4 Security Issues in E-Commerce through E- Banking Services

One main conclusion regarding the perceptions of customers about security is that the Islamic banks’ customers are more positive than those of the conventional banks. There are several reasons one can find to justify this conclusion. One striking point is that as Islamic banks are based on *Shari’ah* law, hence they tend to be more attractive to customers who appreciate safety and low-risk banking. This result is verified by earlier studies such as Beck *et al.*, (2010); Hanif (2011); Ryu *et al.*, (2012); Beck *et al.*, (2013) and Abdul Wahab *et al.*, (2014). However, on a more rationality-based understanding, the source of this trust can be explained through practical everyday

experiences, as the Islamic banks came into being more recently, and therefore they have been in a position to take advantage of the latest technology and service quality.

It is important to identify that, as the findings indicate, the provision of services in Islamic banks has made it certain that the customers feel safe and secure. However, the commercial banks also provide and assure security but less so than that of Islamic banks.

11.3.5 Locating the Perceptions on the Supply Side: Analysis of the Interviews

Based on a number of semi-structured interviews conducted with IT banking managers of Islamic and conventional banks, the following main findings can be identified: Concerning potential benefits to banks and their customers, the interviewees were unanimous in believing that e-commerce using e-banking services can significantly benefit all parties involved. Customers can benefit through reliable, secure, and fast systems for monetary transfers and online purchases. Banks could also benefit through reducing staff costs and time-saving, as more customers choose to use e-banking services.

Regarding challenges in the introduction of e-services, the managers of the six banks surveyed referred to a number of testing issues. One hurdle on which all were agreed is the presence of a rather poor telecommunications infrastructure, which potentially makes e-trade and e-commerce cumbersome and slow. Other issues raised included cyber-crime and customer awareness of the availability of e-services. Finally, as was highlighted by most managers, there still remain a large number of customers who are hesitant to use e-services, and this means the banking system must still rely on more labour-intensive operations. Some interviewees pointed out that with continuous and consistent marketing and education they might be able to convert such customers to using e-banking services.

Generally, given the findings from the interviews, it must initially be reiterated that the representatives of both groups of banks have realised the importance of e-banking services in today's banking, and that they have strategised its growth. In so doing, banks have been tirelessly engaged in promoting and marketing the potential benefits

of e-banking services to those customers who have been previously critical of dealing with e-commerce through e-banking services.

Given, however, that both groups of banks are being tightly supervised by the SAMA, one would conclude that there are no significant differences in the approaches to technical adoption between the two groups of banks.

11.3.6 Overall Reflections and Conclusions

In concluding, Saudi Arabia is still a developing country, and the results indicate the significance of e-banking services and e-commerce in the country. It can be gauged from the findings that there is a significant potential among the customers in furthering their use of technology-based services offered by the Islamic and conventional banks.

In consideration of the respondents' viewpoints about knowledge of e-commerce and e-banking services and the statistical inferences, it can be concluded that in so far as e-banking services and e-commerce are concerned, the Islamic and conventional banks tend to perform rather equally. It can be argued overall that the statistical inferences highlight that the Islamic and conventional banks tend to perform rather equally in terms of the respondents' viewpoints about their motivation in using e-commerce and e-banking services. This is owing to the fact that both types of banks use almost similar ways to encourage their customers to deal with e-commerce to enjoy the benefits by using e-banking services and dealing with e-commerce.

It is fair to argue that there are a number of similarities found between the results from the knowledge and motivation elements. In both cases the research has found that 'gender', 'nationality' and 'region' are insignificant, whilst 'age', 'qualifications' and 'occupation' were found to be significant in most cases. To this end, it can be argued that there are similarities in 'age', 'nationality', 'regions' and 'occupation' in both the knowledge and motivation constructs. In contrast, dissimilarity was found in the 'monthly incomes' control variable for the two constructs.

Findings from the inferential statistics show the respondents' preferences in dealing

with e-commerce through e-banking services, with the respondents of the Islamic banks having a much more positive outlook than the customers of the conventional banks. As for the preferences concerning e-channels banking services, the Islamic banks showed more significant control variables than those from the conventional banks, except in the case of the 'educational qualifications' control variable, which proved significant for both types of banks.

As for the respondents' viewpoints about the obstacles faced in dealing with e-commerce in Islamic and conventional banks, they suggested that similar obstacles are faced by the customers of both types of banks, and that very few differences were found between the customers of each bank type.

Based on the findings derived from security issues, the Islamic banks' customers are more positive than those of the conventional banks and the main reason being that as Islamic banks are based on *Shari'ah* law, they tend to be more attractive to customers who appreciate safety and low-risk banking, and therefore, the study provides recommendations for developing the security of e-commerce through e-banking services in Saudi Arabia as follows:

- (i). As the findings suggest, customers of Islamic banks tend to feel more secure in their e-commerce than those of conventional banks. The study therefore recommends that conventional Saudi Arabian banks should improve their technical and security provisions and these should be communicated to their customers so that customers' perceptions may be impacted in a positive manner.
- (ii). The e-banking rules are perceived to offer a safe and secure banking environment. However, the study recommends that SAMA needs to extend and enhance such rules to cover the e-commerce traders' liability towards their customers.

The findings from the interviews of IT managers of the six banks (both Islamic and conventional) reveal some interesting points. The IT managers of the Islamic banks appeared to be more focused on technology adoption than their counterparts in the conventional banking sector. Given, however, that both groups of banks are being

tightly supervised by the SAMA, one would conclude that there are no significant differences in the approaches to technical adoption between the two groups of banks.

In essence, given the findings from the interviews, it must initially be reiterated that the representatives of both groups of banks have realised the importance of e-banking services in today's banking, and that they have strategised its growth. In so doing, banks have been tirelessly engaged in promoting and marketing the potential benefits of e-services to those customers who have been previously critical of dealing with e-commerce through e-banking services.

11.4 RECOMMENDATIONS BASED ON THE FINDINGS

The findings of the study based on both customers' perceptions and IT managers' viewpoints have implications for various stakeholders including the Saudi Arabian government, the banking sector's regulator (SAMA), and the Islamic and conventional banks. Therefore, this study has come up with the following recommendations:

As for the Saudi Arabian government:

- (i). As the findings from chapters 4, 6, and 7 suggest, the government should establish a new regulator for the activities of e-commerce to support the dealing and using of e-commerce and e-banking services;
- (ii). As the findings from chapters 7, 8 and 10 show, the government should encourage the telecommunication companies to provide much wider networks of internet and other telecommunication means in support of the motivating measures in the use of e-commerce and e-banking;
- (iii). The findings from chapters 4, 7, and 8 tend to support the view that the government must make every effort to create an environment where the cost associated with use of the internet is reduced significantly and the speed increased;
- (iv). The findings from chapters 7 and 8 also point to the fact that in order to

motivate people to use e-commerce much more widely, the government should prepare to introduce conventional postal zip codes for all the houses and businesses in the country;

- (v). Finally, the findings from chapters 4 and 7 show that it is the main task of the government to promote the idea of dealing with payments and benefits using the media of the e-banking services.

With regards to the implications of the study for the Saudi Arabian Monetary Agency (SAMA), based on the findings the following recommendation are developed:

- (i). In relation to the findings from chapters 2, 4 and 9, the e-banking rules are perceived to offer a safe and secure banking environment. However, the study recommends that SAMA, as a supervisory body, and in regard to e-banking services, needs to extend and enhance such rules to cover the e-commerce traders' liability towards their customers.
- (ii). With regard the findings from chapters 4, 6, 9 and 10, as reiterated by both customers and IT managers of the banks, the SAMA must make every effort to safeguard banks and customers against any security issues.

With regards to reflecting on the results for Islamic and conventional banks, the following recommendations are provided.

- (i). According to the findings from chapters 7, and 8, in saving time and money for both customers and banks, both groups of banks should encourage and educate their customers to use e-banking services in their dealings with e-commerce and e-channel banking service in general;
- (ii). As the findings from chapters 7 and 8 indicate, the banks should provide customers in small towns and villages with ATMs and other technology-based services;
- (iii). The findings from chapters 6, 7 and 8 offer an insight that as part of motivating

customers to use e-banking services, Saudi banks should make efforts to create much more straightforward and friendly internet sites;

- (iv). Finally, as the findings from chapters 4, 7, 8, and 9 show, the banks should advise their customers to be very careful to avoid the fake websites in their buying and selling online.

11.5 CONTRIBUTIONS OF THE RESEARCH

This study is considered to make a contribution to both the academic field in particular and business in general as no one to date has undertaken research to cover the area of e-commerce through e-banking services in Saudi Arabia. The contribution for the academic field is to fill the gap in the literature related to e-commerce and e-banking in particular in the case of Saudi Arabia. In other words, contribution to the pool of empirical findings, which is currently significantly lacking in the case of Saudi Arabia should be considered as an essential strength of this study, as there is no published study regarding the implementation of e-commerce through e-banking services in Islamic banking in general or in particular in Saudi Arabia.

11.6 LIMITATIONS OF THE STUDY AND FUTURE RESEARCH

No matter how comprehensive or sophisticated, there are bound to be some limitations which can be attached to any piece of social science research. The current study is no exception to this rule.

One of the main limitations of the current study is associated with its research design. The study has considered only six banks out of a total of twelve banks in Saudi Arabia. However, the Saudi Arabian business environment is not conducive for primary data collection through questionnaires and interviews; and therefore, it is very difficult to go through the process of getting permission from different levels to conduct a questionnaire and interviews.

In addition, the research is based on a limited sample size of a selection of bank customers in three main regions of Saudi Arabia rather than all the regions of the

country. While the main regions were covered, including other regions would have provided further diversity to the results, as it is known that in other regions, the necessary infrastructure and the habit of using e-commerce are rather limited. However, time and financial resources as well as accessibility in terms of permissions etc. being the main constraints, the research could not be extended in these areas.

It should also be noted that the questionnaires were expected to be distributed in branches of Islamic and conventional banks on a random basis to enhance the chances of normal distribution. However, as mentioned above, the business environment and society in general in Saudi Arabia is not easily convinced to participate in such studies based on questionnaires and interviews. Therefore, the study opted for a snowballing sampling method, which is considered to be more efficient under the circumstances of non-accessibility.

Another source of limitation is related to the nature of the data collection being cross-sectional. Any cross-section analysis offers a single snap-shot of a given event, hence it fails to allow for the dynamism of customers' attitudes and habits over time. However, a time-bound study like this one does not have much option other than being a cross-sectional analysis; however, future research on the topic can help to conduct the study in future years to provide a longitudinal perspective.

Having a small sample size, namely 198 individual bank customers, is an important limitation on generalising the results; however, despite all the efforts it was not possible to gather a further sample due to the realities of the country in terms of people's civil willingness to participate in such studies.

It is, therefore, vitally important to state that, generally, conducting a survey by means of a questionnaire proves to be very challenging in the Middle East. In particular, finding people to spend some time to complete the questionnaire in Saudi Arabia is an extremely tough task, as the limited nature of the civil society is a main constraint. Moreover, for both the questionnaire and the interviews, the researcher had to fully convince the participants about the utter confidentiality of the information. Nevertheless, through power of persuasion and extreme politeness, the researcher

managed to overcome this massive cultural problem.

As for the future research in Saudi Arabia, one should be aware of a possible problem facing researchers relating to the data collection process. In both interview and questionnaire survey it must be borne in mind that respondents should be treated with care or they may become uninterested and uncooperative. Since this study is one of the first ones to consider a broad area of e-commerce through e-banking services, more research is needed to enhance knowledge about more specific issues relating to e-banking services.

This research proved to be a lengthy process, particularly in relation to data collection. The future researchers are encouraged to apply for permission to conduct interviews or for questionnaire distribution well in advance from both SAMA and the respective banks.

As a future research project, as mentioned above, this research can be repeated to provide a longitudinal perspective with the objective of locating changing behavioural and habitual issues. In addition, the research can be expanded to explore the e-commerce strategies of Islamic and conventional banks in Saudi Arabia. Furthermore, e-commerce and e-banking attitudes can be explored in relation to service quality.

11.7 EPILOGUE

The aim of this research has been to explore and examine the demand and supply conditions of e-commerce services provided through e-banking platforms by the Saudi Arabian Islamic and conventional banks in the sense of investigating the fundamental factors that influence customers' adoption of e-commerce in Saudi banks. In addition, this research aims to explore the e-commerce related strategies including security strategies adopted or envisaged to be adopted by Islamic and conventional banks in Saudi Arabia. Furthermore, the obstacles to demand for and to supply conditions for e-commerce services provided by the Saudi Arabian banking system are explored. It should be noted that all these aims of the study are to be fulfilled through exploring the perceptions of the respective customers in the form of primary data and in the form of comparative analysis.

To achieve the objectives of this research investigation and keeping in view the importance of research methods, this study was undertaken to adopt triangulation methods to increase the credibility, reliability and confidence in the findings using a mixture of the following methods:

- (i). Quantitative method: Structured survey questionnaires for customers of both types of bank and;
- (ii). Qualitative method: Semi-structured interviews with the top IT managers in both types of bank, Islamic and conventional.

In collecting data, in stage one the research is concerned with banks' customers' perceptions through the use of a questionnaire, while stage two was concerned with conducting a number of semi-structured interviews with IT managers in both types of banks to learn their opinions and expectations regarding e-commerce activities through e-banking services. The data were analysed in four thematic areas (Chapters 6-9) and an additional analysis chapter based on interviews is also presented in Chapter 10.

As the foundation chapters and empirical chapters' evidence, this study has fulfilled its aims and objectives; and hence concluded the research in the form of a PhD thesis.

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APPENDIX I

QUESTIONNAIRE



DCIEF
Durham Centre for Islamic Economics and Finance
Durham University Business School, UK

QUESTIONNAIRE SURVEY

**A Survey on
Exploring the Demand and Supply Conditions of E-Commerce and E-Banking
Services in Saudi Arabian Conventional and Islamic Banks**

Dear Participant,

I am a Ph.D. researcher at Durham University Business School, UK. Currently I am conducting a research on 'Exploring the Demand and Supply Conditions of E-Commerce and E-Banking Services in Saudi Arabian Conventional and Islamic Banks' at the Durham Centre for Islamic Economics and Finance at Durham University, UK. The research requires the collection of primary data through questionnaire survey. Therefore, I am asking for your assistance, as a selected respondent, in providing data or information in relation to your experience with internet banking and e-commerce as requested in the questionnaire.

The main aim of this questionnaire is to identify a comprehensive set of potential factors influencing adoption of e-commerce by the customers of Saudi banks and explore the perceptions of Saudi bank customers on the internet banking and e-commerce services offered by Saudi banks. This will help to locate the comparative performances of Saudi conventional and Islamic banks in relation to such services. Considering your experience, your opinion and perceptions will be of particular value. This research survey may be helpful to develop some policy recommendation for Saudi banks in developing their services.

All data and information provided will be analysed for academic purposes and treated as highly confidential. Therefore, it is highly appreciated if you could allocate some of your valuable time to respond to this questionnaire as soon as possible, which is essential for the successful completion of the research. Finally, a summary of my research results will be available upon request.

Thank you very much in advance for your co-operation

Yours Sincerely,

Mohammed Naif Alotaibi
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QUESTIONNAIRE

Part 1

Please tick the appropriate box:

1. Bank Name

- ☐ Alinma Bank
- ☐ Aljazira Bank
- ☐ Alrajhi Bank
- ☐ Arab National Bank
- ☐ Saudi Fransi Bank
- ☐ Samba Bank

2. Gender

- ☐ Male
- ☐ Female

3. Nationality

- ☐ Saudi
- ☐ Sudanese
- ☐ Indian
- ☐ Pakistani
- ☐ Egyptian
- ☐ Yamani
- ☐ Syrian

4. Age category

- ☐ 18-25 years
- ☐ 26-35 years
- ☐ 36-45 years
- ☐ 46-55 years
- ☐ Over 55 years

5. Monthly income

- ☐ Less than 4001 SR
- ☐ 4001-8000 SR
- ☐ 8001-12000 SR
- ☐ 12001-16000 SR
- ☐ 16001-20000 SR
- ☐ More than 20000 SR

6. Highest educational qualifications

- ☐ Below High School
- ☐ High School
- ☐ Bachelor degree
- ☐ Master's degree or above

7. Occupation

- ☐ Student
☐ Private sector employee
☐ Public sector employee
☐ Private business
☐ Retired
☐ Unemployed

8. Region and the city where your bank is located:

- ☐ Riyadh Region
☐ Western Region
☐ Eastern Region

9. How long have you been a customer of this bank?

- ☐ Less than 1 year
☐ 1 to 3 years
☐ 4 to 5 years
☐ More than 5 years

10. Are you familiar with e-banking services?

- ☐ Yes
☐ No

11. Are you familiar with e-commerce?

- ☐ Yes
☐ No

12. In your dealings with your bank, do you mostly?

- ☐ Personally go to the bank
☐ Use e-banking only

13. How many times do you usually go to your bank branch?

- ☐ Every day
☐ Weekly
☐ Monthly
☐ More than a month

14. The frequency of using e-banking services and dealing e-commerce in everyday life	Always	Very often	Often	Occasionally	Never
1. In my everyday life, I often use e-banking services	5	4	3	2	1
2. In my everyday life, I often deal with e-commerce	5	4	3	2	1

15. How long have you been dealing with e-commerce through Saudi Banks?

- ☐ Never
☐ 1 to 2 years
☐ 3 to 5 years
☐ More than 5 years

16. Are you satisfied with the e-banking service performance of your bank?

- ☐ Yes
☐ No


17. Do you face obstacles in doing e-commerce with Saudi banks?

- ☐ Yes
☐ No


Part 2

Please use the following scale to indicate your agreement or disagreement for the following questions


5= Strongly agree 4= Agree 3= Neutral 2= Disagree 1= Strongly disagree

18. Knowledge about e-commerce...	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
					
1. provides me with more options and benefits such as saving time and money	5	4	3	2	1
2. helps in everyday purchases	5	4	3	2	1
3. is compatible with modern lifestyle	5	4	3	2	1
4. leads to increased customer loyalty	5	4	3	2	1
5. has created social communities between internet merchants	5	4	3	2	1
6. is safe for performing financial transactions	5	4	3	2	1
7. can be risky in general	5	4	3	2	1
8. provides easy use	5	4	3	2	1
9. using e-services enhances my trust in purchasing goods or services	5	4	3	2	1
10. purchasing products or services by e-services is a status symbol	5	4	3	2	1

11. It is necessary to be able to experiment with e-commerce to see what it offers me	5	4	3	2	1
12. I am happy to recommend my friends and families to start dealing with e-commerce	5	4	3	2	1
13. The majority of customers of Saudi banks would start dealing with e-commerce if they were informed	5	4	3	2	1
14. Saudi banks should proactively encourage their customers to use e-banking services	5	4	3	2	1
15. Saudi banks should proactively encourage their customers to deal with e-commerce using facilities in Saudi banks	5	4	3	2	1

19. Motivation to Engage with E-Commerce and E-Banking	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
					
1. My decision to start dealing with e-commerce within Saudi banks is influenced by my family members	5	4	3	2	1
2. My colleagues encouraged me deal with e-commerce within Saudi banks	5	4	3	2	1
3. The ease of the use of e-services motivated me to switch over to e-commerce	5	4	3	2	1
4. The 24/7 availability of e-services and e-commerce motivated me to switch over to e-commerce	5	4	3	2	1
5. Website design of the bank motivated me to use internet banking	5	4	3	2	1
6. Changing nature of shopping as a life style necessitates the use e-banking services and e-commerce	5	4	3	2	1
7. My business requirements motivated me to adopt e-commerce	5	4	3	2	1
8. The Saudi banking system	5	4	3	2	1

encourages dealing with e-commerce					
9. E-payment method encouraged me to adopt e-commerce.	5	4	3	2	1
10. Saudi government policies encourage people to take advantages of e-commerce	5	4	3	2	1
11. Available and easily accessible information to use the internet for e-commerce	5	4	3	2	1
12. Banks provide information to their customers about the use of online banking, ATMs and others	5	4	3	2	1

20. Obstacles and the reasons for not dealing with e-commerce	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
					
1. Conventional trade is better than e-commerce	5	4	3	2	1
2. The cost of accessing e-commerce services is high	5	4	3	2	1
3. I am happy with my lifestyle not including e-commerce	5	4	3	2	1
4. I think learning to use e-services is not easy for me	5	4	3	2	1
5. I am not interested in learning skills about the internet or e-commerce	5	4	3	2	1
6. I would prefer to deal with a person face-to-face in my commercial and financial dealings	5	4	3	2	1
7. I do not trust e-banking channels	5	4	3	2	1
8. I do not think that there are benefits of e-commerce	5	4	3	2	1
9. Lack of postcodes does not motivate the companies to send deliveries to my home	5	4	3	2	1
10. The current weak infrastructure of the internet causes delays and suppresses internet speed	5	4	3	2	1
11. Internet services and e-banking channels are not available in my neighbourhood	5	4	3	2	1

Part 3


Please use the following scale to indicate your statement for the following questions:

5= *Always* 4= *Usually* 3= *Sometimes* 2= *Occasionally* 1= *Never*

21. Ranking of e-channels banking services	Always	Usually	Sometimes	Occasionally	Never
1. Online Banking	5	4	3	2	1
2. ATMs	5	4	3	2	1
3. Telebanking	5	4	3	2	1
4. Point of Sales (POS)	5	4	3	2	1
5. SMS	5	4	3	2	1

22. Rank your dealing with e-commerce through e-banking services	Always	Usually	Sometimes	Occasionally	Never
1. To purchase electronic items	5	4	3	2	1
2. To purchase consumer goods	5	4	3	2	1
3. To purchase hotel rooms and airline tickets	5	4	3	2	1
4. To pay fees or fines	5	4	3	2	1
5. To pay bills	5	4	3	2	1
6. To buy or sell stocks	5	4	3	2	1

Part 4

23. The Security in E-Commerce Environment through E-Banking Services	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
					
1. The e-commerce transactional environment through e-banking services is secure	5	4	3	2	1
2. Provision of security for e-channels banking services	5	4	3	2	1
3. Trustworthiness of E-commerce through e-banking services	5	4	3	2	1
4. Provision of information and software through e-channels such as programs protect	5	4	3	2	1
5. Safeguarding the transactions of all customers by the Saudi banking law	5	4	3	2	1

6. Never facing any problems due to the reliability and security	5	4	3	2	1
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24. Have you ever faced any security or other issues with e-banking services whether e-services banking or e-commerce?

- ☐ Yes
☐ No

25. If you had security and other problems for using e-channels banking services whether for dealing with e-commerce or for using e-services banking, has this affected your inclination to use e-services for banking and e-purchases?

- ☐ Yes
☐ No
☐ I did not encounter any problem

Thank you for your cooperation

**INTERVIEW SURVEY**

**A Survey on
Exploring the Demand and Supply Conditions of E-Commerce and E-Banking
Services in Saudi Arabian Conventional and Islamic Banks**

Dear Participant,

I am a Ph.D. researcher at Durham University- UK. Currently I am conducting a research on 'Exploring the Demand and Supply Conditions of E-Commerce and E-Banking Services in Saudi Arabian Conventional and Islamic Banks' at the Durham Centre for Islamic Economics and Finance at Durham University, UK.

The research requires the collection of primary data through interview survey with the relevant departments at the Saudi banks. Therefore, I am asking for your assistance, as a selected respondent, in providing data or information in relation to your experience with internet banking and e-commerce as requested in the questionnaire.

The main aim of this survey is to identify a comprehensive set of potential factors influencing adoption of e-commerce by the Saudi banks and also explore the perceptions of Saudi bankers on various aspects of e-banking services. This will help to locate the comparative performances of Saudi conventional and Islamic banks in relation to such services.

Considering your experience, your opinion and perceptions will be of particular value. This research survey may be helpful to develop some policy recommendation for Saudi banks in developing their services.

All data and information provided will be analysed for academic purposes and treated as highly confidential. Therefore, it is highly appreciated if you could allocate some of your valuable time to respond to this questionnaire as soon as possible, which is essential for the successful completion of the research. Finally, a summary of my research results will be made available upon request.

Thank you very much in advance for your co-operation

Yours sincerely,

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INTERVIEW SURVEY

Region:.....City:.....

Part 1

Please tick the appropriate box:

1. Your function within the bank is best described as: ☐ Executive Director

☐ General manager of IT banking
☐ Assistant general manager of IT banking
☐ Regional manager of IT banking

2. Who is the first person responsible for planning banking e-services?

☐ Executive Director
☐ Manager of IT Banking
☐ Department of IT banking
☐ External consultants

3. Do you feel that innovation in IT technology forces your bank to adopt e-services?

☐ Yes
☐ No

Part 2

4. In your view, what the benefits have your bank attained by introducing of e-service?
5. In your view, what the benefits of e-service would be accrued to customers of Saudi banks?
6. In your view, what challenges are facing e-service within Saudi banking sector in relation to e-banking services and e-Commerce?
7. In your view, do government policies in Saudi banking sector, such as SARIE, SPAN, SADAD, and the economic conditions play a critical role in shaping the development of e-Commerce for your customers?