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E-COMMERCE ACTIVITIES THROUGH E-BANKING SERVICES: A COMPARATIVE ANALYSIS OF THE PERCEPTIONS OF SAUDI ISLAMIC AND CONVENTIONAL BANKS CUSTOMERS

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ABSTRACT: *Purpose - The aim of this paper is to explore and evaluate customers' use of e-commerce activities through e-banking services in Saudi Islamic and conventional banks through analysing the perceptions of their customers. Design / methodology / approach -This paper 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. Findings - The findings indicate that the order of preferences in terms of mean ranking is similar in both types of banks in five out of six cases. Based on the application of K-W and MW-U tests, the findings also show that independent variables have turned out to be more significant in Islamic banks than in the conventional banks. Research limitation / implications - The study has considered six banks out of the total of 12 in Saudi Arabia. In addition, the research is based on a limited selection of bank customers in three main regions of Saudi Arabia.Practical implications - With reference to practical implications, the findings suggest that e-commerce activities can play a significant role in expanding the dealing of e-commerce through e-banking services in Saudi Arabia. Originality/value – This is the first paper in the area of exploring and evaluating customers' use of e-commerce activities through e-banking services on a comparative analysis of Islamic and conventional banks in Saudi Arabia. The findings and implications of the research offer invaluable information to the industry and policy-makers.*

KEYWORDS: E-Commerce, E-Banking services, Islamic and conventional banks, Saudi Arabia

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. 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). Moreover, 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), despite the fact that the increasing use of diverse

2052-6393(Print), 2052-6407(Online)

approaches by the customers has made e-commerce highly competitive (Alotaibi, 2013). The extensive use of e-banking services has also expanded into e-commerce areas.
The paper aims to explore and evaluate customers' use of e-commerce through e- banking services in Saudi banks in both types of bank. In doing so, it presents the initial 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.

Considering the size and the nature of the Saudi Arabian economy, it is true that e-commerce has a long way to go: online purchases in 2010 are estimated at 6 % as compared to 13 % in the Czech Republic and 58 % in the USA. Nonetheless, online shopping is becoming popular among internet users in Saudi Arabia, and the future looks promising for the business (CITC IT Report, 2010). According to European Travel Commission (2014), the Internet users in Saudi Arabia are 8.5 million users with 60% of population in 2014 (http://etc-digital.org/). In addition, the internet penetration in Saudi Arabia is 49% (www.nielsen.com, 2014).
This paper is organised in six sections; Section 2 presents a brief overview of banking sector, e-commerce and e-banking in Saudi Arabia. Section 3 presents a brief literature review on e-commerce through e-banking services in order to establish a foundation for this study. Section 4 shows the research methodology and process, while section 5 summarises the characteristics of the sample profile. Section 6 presents the findings of inferential analysis focuses on the reasons of customer preferences of using e-commerce, such as purchasing particular goods. Finally, section 7 provides a brief discussion and some concluding remarks.

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

Saudi Arabia has twelve banks and the Saudi Arabian Monetary Agency (SAMA) is the Central Bank of Saudi Arabia; and is an autonomous body and independent body. In addition to domestic banks, there are several foreign banks, which operate in Saudi Arabia. This paper, however, only focuses on Saudi Arabian domestic banks, as they have much greater networks of branches than the foreign bank. In simple terms, SAMA implements the laws and standards for all the banks and provides the necessary regulatory environment (SAMA Annual Report, 2013). Table 1 shows the details of Saudi Islamic and conventional banks, including information on branches, online-banking, call-centre, ATMs, POS and capital.

Table 1: Details of the Saudi banks within Saudi Arabia

Bank	Branches	Online-Banking	Call-centre	ATM	POS	Capital (SARbn)
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
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

Source: www.cdsi.gov.sa/, Bankscope Database (2015) and SAMA annual report (2013).

2052-6393(Print), 2052-6407(Online)

In fact the link between e-commerce and e-banking services is very clear and important; without e-payment e-commerce would not be possible (Al Saud and Abdallah, 2004). According to Al-Somali *et al*. (2009) Saudi Arabia is a regional leader in relation to Internet banking. Moreover, SAMA (2013) Saudi Arabia ranks at the top in the field of information technology amongst the Arabian states. In addition, a market study by CITC (2010) found that 82% of Saudis used online banking services. It was noted that the majority of account holders used services such as account balance enquiries, paying bills, and transfers between banks (*see*: www.citc.gov.sa).

Furthermore, 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 the level of maturity. The results stress that there is a need to improve internet shopping in Saudi SMEs. Furthermore, Elseoud (2014) 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.
Table 2 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 2: 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/

CONCEPTS AND LITERATURE REVIEW

There are several definitions offered for e-banking and e-commerce. Nitsure (2003.5377) defines e-banking as the "provision of banking products and services through electronic delivery channels". SAMA defines e-banking as electronic banking services featuring distance services provided by sanctioned 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 (SAMA, E-Banking Rules, 2010).

Regardless of such differences, definitions of e-commerce are based upon the values. Chaffey, (2009:10) defines E-commerce as "all electronically mediated information exchanges between an organization and its external stakeholders". 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 or orders" (OECD, 2011:72). As has been highlighted by several studies, there are different e-commerce types, referring to the relationships between customers, businesses and government. Table 3 illustrates a summary of some of the most relevant studies that have classified types of e-commerce.

2052-6393(Print), 2052-6407(Online)

Table 3: 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.

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. Chan *et al*., (2001) further indicated that web enabling services now helping the users in banking, stock trading and education, while match making services are providing assistance in job, travel, insurance and *etc*, whereas entertainment services are being used while the users wanted to watch movies, electronic games. Customers' satisfaction is important while judging the efficiency of any new technology. Though e-service is now the little old concept in the western world, but this still new in the developing countries.

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). Moreover, 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 (Plunkett, 2010).

Al-Somali *et al.*, (2009) though accepted Saudi Arabia as a leader in the region for Internet banking, they recognize that it should do more in improving customer relationships and especially in cost savings. The developed model was tested in among the 400 customers for the factors that are Internet quality, awareness to online banking, social influence and computer efficacy. The results indicated that the pre-mentioned factors had significant effects in the functioning of online-banking in among the customers.

2052-6393(Print), 2052-6407(Online)

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 (CITC report, 2009). In addition to the growing internet use, the use of e-commerce and e-banking 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/).

In a study, Where Ben-Jadded and Molina (2004) have highlighted the role of online banking in a bank called Samba in Saudi Arabia. The results clearly showed that the bank is using all external technologies to make their customers satisfied. It is also worthwhile to see that initially Samba group installed 24/7 ATMs in the different cities in the whole country. 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).

RESEARCH METHODOLOGY AND DATA COLLECTION

The data for this study was collected from a questionnaire, which was designed in association with the literature on e-commerce and e-banking services and the research question, and distributed to customers of both Islamic and conventional banks. In order to improve the consistency and effectiveness of the findings, it was decided that a relatively large sample size of bank customers to be considered. For the purpose of time-saving and efficiency, a detailed questionnaire was designed and distributed with the objective of gathering quantitative primary data to identify respondents' understandings, perceptions and knowledge. After a careful consideration, six main preferences were chosen in relation to the usage of e-commerce in e-banking services, based on the Likert scale (1-5), and included in the questionnaire along demographic and other related six main activities. These were as follows:

(i) To purchase electronic items;
(ii) To purchase consumer goods;
(iii) To purchase hotel rooms and airline tickets;
(iv) To pay fees or fines;
(v) To pay invoices;
(vi) To buy or sell stocks.

The survey questionnaire was administered during May-July, 2012. Instead of focusing on the respondents in the banks' branches, the researcher used a different approach. It is believed that the customers who were using e-banking services would not normally visit the branch. Therefore, friends, colleagues, and other helpers were given the survey questionnaire to distribute among users of e-banking service whom they knew. The respondents were from different cities including Riyadh, Alkarj, Jeddah, Makkah, Taif, Dammam, and Alkubr. Through this scheme, 250 questionnaires were distributed (125 each in Islamic and conventional banks). The whole process from the distribution to the collection of questionnaires took nearly three months.

2052-6393(Print), 2052-6407(Online)

The researcher was available in Saudi Arabia 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. This means there were 198 questionnaires with complete information ready for data analysis. Table 4 illustrates the questionnaire response rate for both Islamic and conventional banks.

Table 4: Questionnaire Response Rate

Type of Bank	Distributed	Received	% Completion
Islamic	125	104	83.2%
Conventional	125	94	75.2%
Total	250	198	79%

The collected data were subjected to statistical analysis through the Statistical Package for the Social Sciences (SPSS), version 20. The calculations were made for descriptive statistics such as means, standard deviations, frequencies, and ranking of various questions; and also non-parametric tests were utilized to test the significance of mean differences, if any existed.

Table 5: Reliability Statistics (Cronbach's Alpha Coefficient) for Islamic and Conventional Banks

Factor	N of Items	Cronbach's Alpha	
		Islamic Banks	Conventional Banks
Preferences for dealing in E-commerce activities through E-channel banking services	6	.879	.761

After the collection of primary data via the questionnaire, Cronbach's Alpha Test was used to measure internal consistency reliability as one of the most regularly used statistics. A Cronbach alpha value of at least 0.70 is the basis of reliability (Cronbach, 1951) and thus the 0.70 alpha value is used to judge the consistency of the variables and how these variables attribute (Fujun *et al*. 2007). Hence for this study, Cronbach's alpha values were .879 and .761 for Islamic and conventional banks respectively as shown in Table 5. They have all exceeded the minimum Cronbach's alpha value of 0.70 (Cronbach, 1951). This shows the base of testing the attributes to be reliable and preferable.

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

THE CHARACTERISTICS OF THE SAMPLE PROFILE

This section provides a summary of the sample profile investigated, based on type of bank, frequency, sub-total of cumulative total, and cumulative total for the Islamic banks: Alinma, Al-Jazera and Al-Rajihi; and the conventional banks: Arab National, Saudi Fransi and Samba. Table 6 shows that the total number of respondents was 198, with 52.5% of the respondents representing Islamic banks and 47.4% representing conventional banks.

2052-6393(Print), 2052-6407(Online)

Table 6: 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 7, which also provides the variation in the groups and the category of the respondents. The percentages for each characteristic are shown separately. Table 7 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 can be further explained during discussion. Considering the gender segregation in Saudi Arabia, this study should be considered successful in having a female sample of 44%. The classification of gender in this research investigation represents three regions: Riyadh, Western and east regions. However, the results can be compared with the published statistical data for the year 2010 for males and females. The results of nationality are quite clear, indicating that 67.7% Saudi respondents and 32.3% non-Saudis took part in this research.

Table 7: Characteristics of the Respondents

Variable Group	Frequency (Valid)	% (Valid)	Mean	Standard Deviation
Gender				
Male	111	56.1	1.44	0.498
Female	87	43.9		
Nationality				
Saudi	134	67.7	2.18	1.942
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	2.88	1.199
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	2.90	1.491
4001 - 8000 SR	46	23.2		

2052-6393(Print), 2052-6407(Online)

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	2.42	0.935
Bachelor degree	80	40.4		
Master degree or above	22	11.1		
Occupation				
Student	18	9.1		
Private sector employee	63	31.8		
Public sector employee	90	45.5	2.78	1.144
Private business	7	3.5		
Retired	11	5.6		
Unemployed	9	4.5		
Region				
Riyadh Region	65	32.8	1.86	0.710
Western Region	95	48.0		
Eastern Region	38	19.2		

The nationality mean value in this sample is shown to be 2.18, indicating that a large proportion of our respondents fell within the first two categories. 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 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 %. The mean value calculated was 2.90 implying that the average income was somewhere between the two ranges of 4000-12000 and 12001-16000. 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 came from the public sector, with 31.8% 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, with mean value 2.78. This means that the typical respondent was either a private or public employee. The final category in the study was region. 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, it can be said that the majority of the respondents were Saudi males, aged between 26-35, earning in the range of SAR 4,001-8,000 and 12,001-16,000, with bachelor degrees as their highest educational qualifications, employed in the public sector and predominantly from the Western region.

2052-6393(Print), 2052-6407(Online)

EMPIRICAL FINDINGS

This section aims to present the initial descriptive statistical findings regarding to the customer preferences of using e-commerce through e-banking services in Saudi banks. This includes analysing the responses given to a number of statements. The results can be seen in Table 8.

Table 8: 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 invoices	4.27	2	4.23	1
To buy or sell stocks	3.31	6	2.90	6

Table 8 presents a summary of all the mean values concerning preferences for dealing in e-commerce through e-banking services for the customers of Islamic and conventional banks. 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 banking services use of 'paying fees or fines' as number one, while 'to pay invoices' is ranked as the first preference by the sampled customers of the Islamic banks.

In pursuing our investigation, the research focused on the development of inferential statistical analysis based on the statistical significance of control variables in the answers provided by participants of the survey. These control variables are based on the demographic questions raised in the initial section of the questionnaire survey and they include the categories: gender, nationality, age category, monthly income, highest educational qualifications, occupation and region with the group categories in sections of security issues in e-commerce and e-banking services.

As for the determining factors of respondents' security in e-commerce environment through e-banking services, non-parametric analysis was utilised, in which the inferential statistical results are fundamentally based on testing the differences between participants in relation to each control variable for the given answers to the questions through the use of non-parametric tests, including the Independent Samples Kruskal-Wallis Test (K-W Test) and the Mann-Whitney U Test (M-WU Test).

Due to the very large data set and analysis results, each table only presents the statistically significant results and the statistically significant control variables at 5% level of significance. This, by definition, implies that the control variables, which are not mentioned in each variable or table are not significant indicating similarity in the responses. The Kruskal-Wallis Test and Mann Whitney-U test in this section focuses on testing the perceptions of customers with regard to their preferences in e-commerce usage through e-banking services and the relating to statement 1 to 6 are presented in Tables 9-15, respectively.

2052-6393(Print), 2052-6407(Online)

Table 9: Significance of Control Variables on the Statement: *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		53.86		
	26 - 35 years	**65.81**		52.63		
	36 - 45 years	54.98	**.000***	42.10	.351	K-W Test
	46 - 55 years	41.63		48.38		
	Over-55 years	22.00		37.25		
Monthly Income	Less than 4001 SR	45.86		47.66		
	4001 - 8000 SR	41.44		44.59		
	8001 - 12000 SR	62.26		43.15		
	12001 - 16000 SR	**64.96**	**.032***	52.25	.830	K-W Test
	16001 - 20000 SR	53.35		51.67		
	More than 20000 SR	37.25		57.13		
Highest Educational Qualifications	Below high school	29.14		33.58		
	High school	58.85		47.89		
	Bachelor's degree	56.79	**.000***	50.29	**.030***	K-W Test
	Master's degree or above	**65.00**		**65.00**		
Occupation	Student	**77.20**		**70.25**		
	Private sector employee	49.96		42.54		
	Public sector employee	55.87		50.12		
	Private business	59.25	**.000***	36.50	**.032***	K-W Test
	Retired	13.63		52.67		
	Unemployed	41.93		11.00		

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

Table 9 analyses control variables regarding expressed preferences in dealing with e-commerce through e-banking services through the statement using e-banking services '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. 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

2052-6393(Print), 2052-6407(Online)

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 10: Significance of Control Variables on the Statement: *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	49.13	.156	42.20	**.037***	MWU Test
	Female	57.28		**53.52**		
Age Category	18 - 25 Years	**67.40**	**.013***	43.00	.672	KW Test
	26 - 35 Years	54.84		53.35		
	36 - 45 Years	59.83		45.21		
	46 - 55 Years	44.66		44.44		
	Over-55 Years	33.53		45.15		
Occupation	Student	54.00	**.048***	50.00	.216	KW Test
	Private sector employee	47.44		44.97		
	Public sector employee	56.56		50.90		
	Private business	**77.00**		31.50		
	Retired	26.44		67.50		
	Unemployed	53.93		14.50		

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

Table 10 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 11: Significance of Control Variables on the Statement: *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		

2052-6393(Print), 2052-6407(Online)

Highest Educational Qualifications	Below high school High school Bachelor's degree Master's degree or above	36.18 56.54 **58.68** 51.64	**.024***	41.58 45.61 47.07 70.50	.064	KW Test
Occupation	Student Private sector employee Public sector employee Private business Retired Unemployed	45.60 54.79 55.50 72.25 27.25 50.21	.100	**70.75** 45.27 48.32 27.50 47.17 12.50	**.035***	KW Test
Region	Riyadh Region Western Region Eastern Region	**64.50** 46.34 44.61	**.007***	53.95 41.76 51.68	.110	KW Test

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

Table 11 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 shows 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 rabk value, of 58.68, while the 'below high school' category recorded a low value of 36.18. 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 12 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

2052-6393(Print), 2052-6407(Online)

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.

Table 12: Significance of Control Variables on the Statement*: 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		30.77		
	26 - 35 years	**59.24**		49.48		
	36 - 45 years	59.02	**.001***	44.77	.101	KW Test
	46 - 55 years	49.22		52.25		
	Over-55 years	28.16		59.25		
Monthly Income	Less than 4001 SR	36.28		33.42		
	4001 - 8000 SR	50.65		48.78		
	8001 - 12000 SR	58.79		48.82		
	12001 - 16000 SR	64.17	**.001***	50.80	.052	KW Test
	16001 - 20000 SR	**65.96**		77.00		
	More than 20000 SR	36.88		59.25		
Highest Educational Qualifications	Below high school	30.75		41.69		
	High school	**61.30**		53.85		
	Bachelor's degree	60.91	**.000***	42.83	.193	KW Test
	Master's degree or above	45.18		54.81		
Occupation	Student	51.25		41.31		
	Private sector employee	55.50		40.63		
	Public sector employee	57.23		55.81		
	Private business	**58.13**	**.004***	53.33	.102	KW Test
	Retired	16.56		54.33		
	Unemployed	47.43		25.25		
Region	Riyadh Region	**59.00**		48.75		
	Western Region	53.20	**.015***	42.88	.140	KW Test
	Eastern Region	37.22		56.38		

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

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 13 presents findings for control variables in relation to the statement regarding preferences for dealings in e-commerce through e-banking services 'to pay invoices'. 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.

2052-6393(Print), 2052-6407(Online)

Table 13: Significance of Control Variables on the Statement: *Preferences for Dealing in E-Commerce through E-Banking Services:To Pay Invoices*

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**		34.45		
	26 - 35 years	60.46		48.23		
	36 - 45 years	57.19	**.000***	47.27	.339	KW Test
	46 - 55 years	52.78		51.00		
	Over-55 years	18.81		54.60		
Monthly Income	Less than 4001 SR	43.40		45.37		
	4001 - 8000 SR	50.41		45.09		
	8001 - 12000 SR	51.00		40.32		
	12001 - 16000 SR	59.96	**.014***	53.91	.314	KW Test
	16001 - 20000 SR	**71.81**		66.00		
	More than 20000 SR	34.81		56.50		
Highest Educational qualifications	Below high school	29.34		48.08		
	High school	**61.04**	**.000***	49.15	.524	KW Test
	Bachelor's degree	59.10		43.59		
	Master's degree or above	53.64		56.50		
Occupation	Student	**61.10**		55.00		
	Private sector employee	51.42		42.64		
	Public sector employee	57.61	**.007***	54.01	.068	KW Test
	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 14 examines the independent variables with regard to preferences for respondents amongst e-banking 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.

2052-6393(Print), 2052-6407(Online)

Table 14: Significance of Control Variables on the Statement: *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	54.04	.521	**52.66**	**.044***	MWU Test
	Female	50.31		41.64		
Nationality	Saudi	**59.07**	**.029***	50.46	.354	KW Test
	Sudanese	44.00		38.83		
	Indian	25.67		29.33		
	Pakistani	37.90		48.70		
	Egyptian	52.19		35.00		
	Yemeni	30.58		52.63		
	Syrian	43.88		28.20		
Age Category	18 - 25 years	**64.95**	**.000***	41.68	.307	KW Test
	26 - 35 years	60.64		53.61		
	36 - 45 years	61.63		50.42		
	46 - 55 years	43.63		40.84		
	Over-55 years	20.38		38.00		
Monthly Income	Less than 4001 SR	37.02	**.003***	26.21	**.001***	KW Test
	4001 - 8000 SR	45.09		47.00		
	8001 - 12000 SR	54.15		52.41		
	12001 - 16000 SR	**67.10**		54.80		
	16001 - 20000 SR	66.58		**77.50**		
	More than 20000 SR	46.44		68.75		
Highest Educational Qualifications	Below high school	30.55	**.000***	27.31	**.004***	KW Test
	High school	55.20		49.94		
	Bachelor's degree	**62.41**		53.60		
	Master's degree or above	50.71		**56.19**		
Occupation	Student	51.45	**.009***	36.94	**.024***	KW Test
	Private sector employee	53.88		38.77		
	Public sector employee	**59.23**		57.27		
	Private business	47.75		46.50		
	Retired	17.13		**68.33**		
	Unemployed	43.43		39.75		
Region	Riyadh Region	**62.81**	**.023***	**58.25**	**.037***	KW Test
	Western Region	48.13		43.13		
	Eastern Region	43.19		42.50		

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

2052-6393(Print), 2052-6407(Online)

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 14 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.

DISCUSSION AND CONCLUSION

This paper has collected and analysed the views of the sampled participants, as clients of Saudi Islamic and conventional banks, regarding preferences in dealing with e-commerce through e-banking services provided by their respective banks. Using a sample of 250 participants, the study received 198 questionnaires (104 Islamic banks; and 94 conventional banks) – a rather respectable response rate of 79%. The methodology used in this paper for data analysis is based

2052-6393(Print), 2052-6407(Online)

on a quantitative approach using both descriptive statistics and inferential statistical tests, with the latter including K-W and M-WU tests.

On the whole, the initial descriptive statistical findings regarding the customer preferences of using e-commerce shows that the order of preferences in terms of mean ranking resulted from the analysis are similar; as in five cases out of six are same preference ordering is observed. In addition, the findings from the application of K-W and MW-U tests, in Table 15 shows that independent variables are significant in Islamic banking in more instances than in the conventional banks. As has been demonstrated neither 'gender' nor 'nationality' is the most significant variables for any of the statements relating to e-banking preferences. Contrary to the Conventional banks, the findings also suggest that the age group of 18-35 tends to be more satisfied amongst the Islamic banks' customers using e-banking services. 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 much stronger 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.

In general, the findings from this study further indicate that Saudi banks take advantages from e-banking services technology for customers to deal with e-commerce through e-banking services and the important reason for this is that SAMA takes control of the supervision of e-banking services and provides guidance to banks in e-banking services. This has been supported by SAMA's recently-published set of rules (E-Banking Rules) governing the offering of e-banking services in Saudi Arabia.

2052-6393(Print), 2052-6407(Online)

Table 15: 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 invoices	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

2052-6393(Print), 2052-6407(Online)

In some ways, according to the customers' perceptions, Islamic banks tend to perform marginally better than conventional banks in terms of dealing with e-commerce through e-channel banking services. One of the reasons behind this may be that as the Islamic banks came into being more recently, they have been in a position to take advantage of the latest technology and quality of service.

It can be argued that in consideration of the respondents' preferences in dealing with e-commerce through e-channel 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.

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