
Online banking in an emerging market: evidence from Saudi Arabia

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Abstract: This paper aims to investigate and identify the adoption characteristics of online banking in one of the largest economies in the Middle East region, namely Saudi Arabia. The study is based on a questionnaire survey directly distributed to Saudi banks' customers in four major cities. The paper employs different statistical techniques such as factor analysis, multivariate analysis of variance and analysis of variance to draw the results. Eight factors including convenience, trust, difficulty, lifestyle, physical contact, complexity, reference group and third party concern are identified. Results indicate that adopters and non-adopters had varied perceptions on factors such as convenience, trust, difficulty, lifestyle, physical contact, complexity and third party concerns. The findings of this study shall enable Saudi banks to have an in-depth understanding of the factors that affect online banking adoption. Banks should refocus their efforts on customers who have not used online banking services by implementing or tailoring their marketing strategies to increase the rate of online usage. Furthermore, by enhancing online banking services, Saudi banks will be able to minimise the number of branch transactions thereby improving banking efficiency, reducing costs, gaining new clients and creating effective customer satisfaction.

Keywords: adopters and non-adopters; ANOVA; factor analysis; MANOVA; online banking; Saudi Arabia.

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1 Introduction

Nowadays, the internet and e-commerce are playing an important role in business, specifically in the service industry as the most convenient, effective and inexpensive way of settling financial transactions. These service providers have a common vision of being globally recognised as the most valued financial service provider by making the lives of customers simpler by providing solutions that help their financial aspirations. In 2014, the number of internet users worldwide rose to 2.95 billion people in comparison to 1.734 billion people in 2009. However, the number of online banking users in the Middle East is only 9% of its population, which is considered the lowest compared to other regions of the world (www.cia.gov.com). Nevertheless, in the gulf cooperation council (GCC)

region, for example, the “internet usage is relatively high with 82% penetration in Qatar, 78% in the United Arab Emirates, 68% in Oman, 55% in Bahrain, 41% in Saudi Arabia and 38% in Kuwait” (Kearney, 2013, p.3). This suggests that an increase in the number of internet users indirectly led to an increase in the number of people using online banking services worldwide (Yousafzai, 2012). On the contrary, Al-Qattan (2015) asserts that only 20% of banking customers use internet banking in the GCC region.

Many banks all over the world have adopted online banking to provide better services such as convenience and effectiveness. Numerous studies have found several benefits of using online banking such as ease in transferring money, effectiveness in scrutinising transactions, convenience in paying bills and ensuring faster payroll payments (Chou and Chou, 2000; Karjaluoto, Mattila and Pentto, 2002). Ease of use and responsiveness were also the key factors that motivated consumers to use online banking services (White and Nteli, 2004; Karjaluoto, Jarvenpaa and Kauppi, 2009). With the proliferation of studies about diffusion of online banking, the primary motivations behind adopting online banking by consumers have been unveiled in many ways. Although the benefit of having online banking versus banking at a branch is still a debatable issue, employing online services is well received at present and more likely to have a positive side than in the past. Therefore, examining the adoption of online banking is still attracting the attention of both academics and banking industry.

The current study provides valuable contributions to our knowledge about online banking especially in the emerging markets context. First, there is little knowledge about online banking in the gulf region and only a few studies focused on online banking in Saudi Arabia. Second, knowing whether customers in Saudi Arabia would use online banking services would provide many benefits to both academics and practitioners. Being able to identify the factors affecting adoption from customers’ perspective would help bank managers in Saudi Arabia for their strategic plans. Third, as the main focus of the present study is to examine whether online banking users would perceive the same benefits of using services online as non-users, this would help bank managers to have better understanding of their customers. Finally, GCC or regional stock markets generally have several similar characteristics. In this case, online banking in Saudi Arabia, to some extent, may share some important similarities with other GCC markets. Thus, the findings of this study provide a platform for future comparative research based on other GCC markets.

Therefore, conducting research on online banking in Saudi Arabia is interesting for both scholars and practitioners. The examination of online banking in the GCC region has, until recently, been much more limited especially with regard to Saudi Arabia. Recently, a report by Kearney (2013, p.2) clearly stated that “Only a third of all GCC bank customers have signed up for online services, and only half of those - 18% of total customers - are active online. However, several elements, including GCC demographics and user profiles, indicate that online banking in this region has a promising future”. This obviously provides justification for the current paper to examine online banking in the biggest and the most important country in the GCC region. For example, it is a member of G20 and is the largest oil producer in the world (Fallatah and Dickins, 2012, p.10025). The market capitalisation of Saudi equity market is \$203.0 billion (as of 06/30/2014); this would place Saudi Arabia as the ninth largest emerging market country, similar in size to Malaysia or Mexico (Parametric, 2014).

Therefore, this study will have a high potential to contribute significantly to the existing body of knowledge and in particular, provide the opportunity for readers to assess the extent of online banking adoption amongst consumers in this country.

Till date and to the best of our knowledge, only few studies have emerged in the context of examining online banking in Saudi Arabia (Al-Somali, Gholami and Clegg, 2009; Al-Ghaith, Sanzogni and Sandhu, 2010). The former study is based on 202 responses elicited from the city of Jeddah, while the latter expanded their focus to Riyadh and Damam obtaining responses from 651 participants. In contrast, the current paper encompasses four major cities in Saudi Arabia and evokes relevant opinions as the time period employed for data collection is between 2013 and 2014.

The main focus of this study is to identify the factors of using online banking. Employing factor analysis, the results suggest eight factors namely convenience, trust, difficulty, lifestyle, physical contact, complexity, reference group and third party concern as prominent determinants impacting online banking. All these factors contribute up to 51.21% of the explained variance. Multivariate analysis of variance (MANOVA) shows significant differences between adopters and non-adopters amongst nine factors. To further underscore the results, analysis of variance (ANOVA) is also performed, and it indicates that the significant differences between adopters and non-adopters are focused on factors namely convenience, trust, difficulty, lifestyle, physical contact, complexity and third party concern. The result shows that there is no significant difference between adopters and non-adopters on reference group as an influential factor. The study also provides important implications for policymakers in Saudi banking industry.

The following section elaborates on the theoretical background and prior research whilst the data, methodology and hypotheses development are presented in Section 3. The empirical results are discussed in Section 4, and the last three sections conclude the paper, provide some practical implications and suggest areas of future research.

2 Theoretical background and prior research

The theory of diffusion innovation has been well known by the work of Rogers (1962). Extant research suggests that many previous studies based their online banking research on diffusion innovation theory. Rogers explained innovation as an idea, practice or object that was perceived as new by an individual or other unit of adoption. The perceived newness of the idea for the individual determined his or her reaction to it. However, the diffusion and adoption of innovation such as online banking were not necessarily desirable for all adopters. Some adoption attributes may play a different role amongst adopters and non-adopters. Thus, the degree of importance of the attributes affected the rate of adoption, which was found in a previous study by Black et al. (2001). In addition, Gerrard and Cunningham (2003) found that online banking adopters and non-adopters had different perceptions of such adoption characteristics such as social desirability.

Traditional diffusion study suggested that the rate of adoption was affected by some attributes such as relative advantage, compatibility, complexity, trial and observability (Rogers, 1983). Many previous studies examined the diffusion of adoption of online banking and found similar adoption's attributes. Convenience, easy adaptability and compatibility were found as important attributes amongst online banking adopters (Gerrard and Cunningham, 2003). In a similar vein, convenience, ease of use and quick download were other common attributes affecting the adoption of online banking

(Waite and Harrison, 2002, 2004; White and Nteli, 2004). Recently, in their empirical study, Raza and Hanif (2013) found that usefulness and convenience of online banking services were the most important factors influencing the adoption of online banking in amongst Pakistani customers.

Research by White and Nteli (2004) established that there were five key attributes for online services namely responsiveness of service delivery, credibility of online banking provider, security of the bank's website, ease of use of the bank's website and product variety or features. Amongst these attributes, their study found that security of the bank's website was considered the most significant attribute in the customers' minds when considering internet banking. Comparing between traditional banking and online banking services, they found that customers rated higher scores on the security and credibility for traditional banks compared to non-traditional banks. Consistent with this study, many scholars found that security was still the main concern amongst online banking adopters (Sathye, 1999; Pikkarainen et al., 2004; Cooper, 1997; Rothwell and Gardiner, 1984; O'Connell and Tremethick, 1996; Daniel, 1999; Christiansen, 2001; Mansumitchai and Al-Malkawi, 2011).

In consumer behaviour, reference groups and social influence also played important roles in shaping consumers' behaviour (Fishbein and Ajzen, 1975; Bogozzi, 2000). Social influence is also an important attribute that affects the adoption of innovations. Karjaluoto, Mattila and Pento (2002) indicated that reference groups strongly affected attitude and online banking behaviour. Based on the theory of diffusion innovation outlined above and prior research, the following sections are devoted to framing research questions and formulating hypotheses.

3 Data, methodology and hypotheses development

3.1 Questionnaire administration

First, the questionnaire was developed based on a survey of small different groups of people who were either users or non-users of online banking. This procedure helped to identify the motives behind using online banking. The results showed that people had different perceptions towards using internet banking. After thoroughly examining all the feedbacks from the survey, 46 items about the perception towards online banking were concluded and used to develop the questionnaire.

From the survey, it showed that adopters and non-adopters of online banking had different perceptions towards online banking. Adopters emphasised on the benefits of enjoying online services such as convenience, life style and compatibility. The comments were "Using internet banking was practical and was not complicated at all". "I could perform my bank transactions on the web easily".

The perceptions towards online banking amongst non-adopters were difficulty, complexity, trust and physical contact. The comments from them were "Doing transactions at the bank was more secure"; "I preferred to do transactions at the bank because it was safer than to do transactions online", and "I was worried about the security of internet banking".

Quantitative analysis was used in the next step from the data collection of the questionnaire. The pilot test of the questionnaire was performed to remove errors related to the questionnaire before distributing them to the sample.

Initially, a total of 500 questionnaires were directly distributed in four major cities in Saudi Arabia namely Jeddah, Qassim, Hail and Riyadh. The questionnaires were administered during the period from September 2013 to June 2014. The target sample was bank customers of both genders (males and females). Out of the 500 questionnaires distributed, 320 responses were returned and were eligible for the analysis indicating a response rate of 64%.

Table 1 shows the profile of respondents and their internet usage. The table clearly reveals the dominance of female respondents in our sample with about 61%. The majority of our respondents is above 26 years of age (69.1%) with monthly salary of more than SR 10,000 (59.4%) and has college education or above (86.2%). The table also shows that almost all the respondents have computer and internet at home (about 98%) indicating that the use of information and communication technologies by Saudi people is quite common. In addition, 64% of the respondents spend more than 6 hours a week using the internet.

Table 1 Profile of respondents and their internet use

	<i>All</i>		<i>Adopters</i>		<i>Non-adopters</i>	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
<i>A. Gender</i>						
Female	195	60.90	89	38.2	36	41.4
Male	125	39.10	144	61.8	51	58.6
Total	320	100.0	233	100.0	87	100.0
<i>B. Age</i>						
Below 20 years old	9	2.80	4	1.7	5	5.7
20–25	90	28.10	58	24.9	32	36.8
26–30	90	28.10	70	30.0	20	23.0
31–35	37	11.60	31	13.3	6	6.9
36–40	49	15.30	41	17.6	8	9.2
Above 40	45	14.10	29	12.4	16	18.4
Total	320	100.0	233	100.0	87	100.0
<i>C. Marital status</i>						
Married	191	59.70	146	62.7	45	51.7
Not married	129	40.30	87	37.3	42	48.3
Total	320	100.0	233	100.0	87	100.0
<i>D. Education</i>						
High school	44	13.80	27	11.6	17	19.5
College degree	211	65.90	153	65.7	58	66.7
Master degree	57	17.80	46	19.7	11	12.6
Doctoral degree	8	2.50	7	3.0	1	1.1
Total	320	100.0	233	100.0	87	100.0

Table 1 Profile of respondents and their internet use (continued)

	<i>All</i>		<i>Adopters</i>		<i>Non-adopters</i>	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
<i>E. Household income per month (SR)</i>						
Below 10,000	130	40.60	83	35.6	47	54.0
10,001–20,000	97	30.30	78	33.5	19	21.8
20,001–30,000	49	15.30	37	15.9	12	13.8
30,001–40,000	26	8.10	19	8.2	7	8.0
40,000–50,000	8	2.50	7	3.0	1	1.1
Above 50,000	10	3.10	9	3.9	1	1.1
Total	320	100.0	233	233	87	100.0
<i>F. Have computer at home</i>						
Yes	316	98.80	230	98.7	86	98.9
No	4	1.30	3	1.3	1	1.1
Total	320	100.0	233	100.0	87	100.0
<i>G. Have internet at home</i>						
Yes	312	97.50	228	97.9	84	96.6
No	8	2.50	5	2.1	3	3.4
Total	320	100.0	233	100.0	87	100.0
<i>H. Have computer at work</i>						
Yes	271	84.70	208	89.3	63	72.4
No	49	15.30	25	10.7	24	27.6
Total	320	100.0	233	100.0	87	100.0
<i>I. Have internet at work</i>						
Yes	249	77.80	189	81.1	63	72.4
No	71	22.20	44	18.9	24	27.6
Total	320	100.0	233	100.0	87	100.0
<i>J. Number of months using internet</i>						
Less than 6 months	6	1.90	4	1.7	2	2.3
6–12 months	15	4.70	9	3.9	6	6.9
1–3 years	35	10.90	17	7.3	18	20.7
4–6 years	66	20.60	41	17.6	25	28.7
7 years or more	198	61.90	162	69.5	36	41.4
Total	320	100.0	233	100.0	87	100.0
<i>K. Number of hours a week using internet</i>						
Less than 1 hour	22	6.90	13	5.6	9	10.3
1–5 hours	93	29.10	65	27.9	28	32.2
6–10 hours	57	17.80	41	17.6	16	18.4
11–20 hours	72	22.50	53	22.7	19	21.8
21–40 hours	55	17.20	46	19.7	9	10.3

Table 1 Profile of respondents and their internet use (continued)

	<i>All</i>		<i>Adopters</i>		<i>Non-adopters</i>	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
Over 40 hours	21	6.60	15	6.4	6	6.9
Total	320	100.0	233	100.0	87	100.0
<i>L. Internet access</i>						
Home	124	38.80	83	35.6	41	47.1
Office	13	4.10	6	2.6	7	8.0
Both from home and office	169	52.80	131	56.2	38	43.7
Others (mobile)	14	4.40	13	5.6	1	1.1
Total	320	100.0	233	100.0	87	100.0

Note: The table shows the profiles of the respondents and their internet uses.

3.2 Factor analysis

Before conducting the factor analysis, several reliability tests were performed. The Cronbach's alpha was measured to assess the degree of consistency amongst measurements of the items, and it showed that the reliability of all 46 items was 0.698, which was considered satisfactory for exploratory research. The Bartlett test showed that non-zero correlations existed at the significance level of 0.000. The Kaiser-Meyer-Olkin test was also significant at less than 1% level indicating the adequacy of sample (MSA). The result of these two tests suggested that the set of variables met the requirements for factor analysis.

Factor analysis with different rotation criteria were used to examine the patterns of factor loadings. The results showed that varimax rotation and equamax rotation provided better results in terms of factor loadings. However, after comparing the results of the patterns of factor loadings from both criteria, it showed that equamax rotation provided better solution in terms of interpretation. Following the suggestions from Hair et al. (1998), the cut-off point of 0.50 for factor loading was used to identify the items for each construct. The original eleven factors were suggested from the loadings with all eigenvalue greater than 1, represented 64.05% of the variance explained.

After thoroughly examining the items in each variable, the study found that the factors 9, 10 and 11 contained only one item for each construct. Thus, factors 9, 10, 11 were eliminated. The result of factor analysis with only eight factors was concluded. The eight factors provided 51.24% of variance explained. Eight factors were named as convenience, trust, difficulty, lifestyle, physical contact, complexity, reference group and third party concern. Tables 2 and 3 summarise the factors, the variances explained and reliability of each factor.

Table 2 Factor underlying adoption characteristics

<i>Factors</i>	<i>F1</i>	<i>F2</i>	<i>F3</i>	<i>F4</i>	<i>F5</i>	<i>F6</i>	<i>F7</i>	<i>F8</i>
<i>Factor 1: Convenience (mean = 4.17)</i>								
1. I like privacy. (4.31)	0.69							
2. Internet banking enables transactions to be conducted at home. (4.21)	0.64							
3. I like sourcing services on the internet. (3.96)	0.65							
4. Internet banking provides convenience since it is available 24 hours. (4.18)	0.71							
<i>Factor 2: Trust (mean = 3.5)</i>								
1. Using internet banking is financial secure. (3.41)		0.73						
2. I trust in the ability of the internet bank to protect my privacy. (3.56)		0.77						
3. I trust in the technology the internet banking is using. (3.56)		0.72						
<i>Factor 3: Difficulty (mean = 2.12)</i>								
1. Internet banking is more expensive than going to a branch office. (2.04)			0.70					
2. Using of computer or/and internet is difficult. (2.01)			0.62					
3. Using internet requires a lot of mental effort. (2.31)			0.59					
4. Internet banking is a difficult way to conduct banking transactions. (2.29)								
<i>Factor 4: Lifestyle (mean = 3.86)</i>								
1. Using internet banking fits into my working style. (3.72)				0.64				
2. I like innovations. (3.99)				0.65				
3. Using internet banking is easy. (3.88)				0.68				
<i>Factor 5: Physical contact (mean = 2.62)</i>								
1. Face to face interaction is important for bank service. (3.01)					0.48			
2. Using traditional banking is more effective than using internet banking. (2.54)					0.63			
<i>Factor 6: Complexity (mean = 2.66)</i>								
1. Internet banking transactions involve complex procedures (2.64)						0.50		
2. Procedures of opening account online are complex. (2.88)						0.83		
3. Using internet banking is difficult to understand. (2.49)						0.61		

Table 2 Factor underlying adoption characteristics (continued)

<i>Factor 7: Reference group (mean = 2.77)</i>	
1. My decision to adopt internet banking is influenced by my friends. (2.86)	0.88
2. I use internet bank to improve my social status. (2.75)	0.51
3. My decision to adopt internet banking is influenced by my colleagues and peers. (2.80)	0.91
4. My decision to adopt internet banking is influenced by my family. (2.66)	0.61
<i>Factor 8: Third party concern (mean = 2.93)</i>	
1. Hackers may be able to gain access to internet bank accounts. (3.08)	0.54
2. Customers financial affairs may be passed on to other companies in the bank group. (2.98)	0.60
3. Third party may track my bank usage patterns on the internet. (3.06)	0.74
4. Third party may be able to access my financial details on the internet. (2.63)	0.62

Note: Number in parenthesis is the mean of each item.

Table 3 Eigenvalue and percentage of variance explained in each factor

<i>Factor</i>	<i>Eigen value</i>	<i>% of VARIANCE</i>	<i>Cumulative % of variance</i>	<i>Cronbach alpha</i>
Convenience	12.79	7.74	7.74	0.830
Trust	3.32	7.49	15.23	0.852
Difficulty	2.5	6.66	21.89	0.789
Lifestyle	1.85	6.66	28.55	0.784
Physical contact	1.74	5.99	34.54	0.595
Complexity	1.33	5.74	40.28	0.710
Reference group	1.28	5.47	45.75	0.753
Third party concern	1.24	5.46	51.21	0.670

3.3 Hypotheses development

The hypotheses were developed based on the theory of diffusion innovation as well as prominent factors emerged from previous studies as those affecting adoption of online banking services. In general, many studies indicated the positive relationship between adopting online banking and the attributes such as ease of use (Moutinho and Smith, 2000; Mattila, Karjaluoto and Pento, 2003; Wang et al., 2003), compatibility (Guraau, 2002), trust (Rotchanakitumnuai and Speece, 2003; Mansumittrchai and Al-Malkawi,

2011) and reference group influence (Karjaluoto, Mattila and Pento, 2002). Some studies indicated the negative relationship between adopting online banking and the attributes such as third party concerns and human contact (Guraau, 2002; Mattila, Karjaluoto and Pento, 2003). Therefore, the following hypotheses can be formulated as follows.

H1: As compared to non-adopters, adopters are more likely to perceive online banking more convenient (H1a), more trustworthy (H1b), more compatible with their lifestyles (H1c) and more influenced by reference group (H1d).

H2: As compared to non-adopters, adopters are more likely to perceive online banking less difficult (H2a), less requirement for physical contact (H2b), less complexity (H2c) and less concern of third party (H2d).

4 Empirical results

Multivariate analysis of variance was performed across eight factors. The results showed significant differences between adopters and non-adopters on eight factors. All statistical tests of Pillai's, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root were significant at 0.00 level.

Analysis of variance was tested on each factor (convenience, trust, difficulty, lifestyle, physical contact, complexity, reference group and third party concern). Table 4 summarises the overall averages and the averages of each factor for adopters and non-adopters. Table 5 presents the mean differences between adopters and non-adopters on the items for each factor.

Table 4 Comparison of adopters and non-adopters on the characteristics of adoption

	<i>All</i>		<i>Adopters</i>		<i>Non adopters</i>	
	<i>Mean</i>	<i>std</i>	<i>Mean</i>	<i>std</i>	<i>Mean</i>	<i>Std</i>
<i>Adoption characteristics</i>						
Factor 1: Convenience	4.17	0.77	4.31	0.64	3.77	0.95
Factor 2: Trust	3.50	0.84	3.64	0.75	3.11	0.94
Factor 3: Difficulty	2.12	0.86	2.00	0.80	2.43	0.93
Factor 4: Lifestyle	3.86	0.86	2.42	0.78	3.16	0.95
Factor 5: Physical contact	2.62	0.89	3.03	0.75	3.04	0.80
Factor 6: Complexity	2.66	0.85	2.48	0.79	3.14	0.84
Factor 7: Reference group	2.77	0.93	2.79	0.94	2.72	0.91
Factor 8. Third party concern	2.93	0.77	2.84	0.74	3.18	0.81

Notes: The table shows the comparison of the means and standard deviation between adopters and non-adopters. 5 indicates strongly agree on the Likert scale. 1 indicates strongly disagree on the Likert scale.

Table 5 Comparison of the mean scores on the characteristics

	<i>Adopter mean</i>	<i>Non-adopter mean</i>
<i>Convenience</i>		
1. I like privacy.	3.80	3.59
2. Internet banking enables transactions to be conducted at home.	4.01	4.00
3. I like sourcing services on the internet.	3.85	3.79
4. Internet banking provides convenience since it is available 24 hours.	3.53	3.50
<i>Trust</i>		
1. Using internet banking is financially secure.	2.94	2.81
2. I trust in the ability of internet bank to protect my privacy.	3.05	3.13
3. I trust in the technology the internet banking is using.	2.98	3.04
<i>Difficulty</i>		
1. Internet banking is more expensive than going to a branch office.	2.84	3.09
2. Using of computer or/and internet is difficult.	2.99	3.13
3. Using internet requires a lot of mental effort.	2.18	2.65
4. Internet banking is a difficult way to conduct banking transactions.	2.15	2.66
<i>Lifestyle</i>		
1. Using internet banking fits into my working style.	3.42	3.12
2. I like innovations.	3.49	3.18
3. Using internet banking is easy.	3.56	3.30
<i>Physical contact</i>		
1. Face-to-face interaction is important for bank services.	3.24	3.12
2. Using traditional banking is more effective than using internet banking.	3.24	3.18
<i>Complexity</i>		
1. Internet banking transactions involve complex procedures.	3.36	3.10
2. Procedures of opening account online are complex.	3.17	3.09
3. Using internet banking is difficult to understand.	2.29	3.01
<i>Reference group</i>		
1. My decision to adopt internet banking is influenced by my friends.	3.16	3.38
2. I use internet bank to improve my social status.	3.30	3.67
3. My decision to adopt internet banking is influenced by my colleagues and peers.	2.81	2.79
4. My decision to adopt internet banking is influenced by my family.	2.68	2.62

Table 5 Comparison of the mean scores on the characteristics (continued)

	<i>Adopter mean</i>	<i>Non-adopter mean</i>
<i>Third party concern</i>		
1. Hackers may be able to gain access to internet bank accounts	2.94	3.39
2. Customers financial affairs may be passed on to other companies in the bank group.	2.87	3.26
3. Third party may track my bank usage patterns on the internet.	3.03	3.13
4. Third party may be able to access my financial details on the internet.	2.50	2.94

Note: The table shows the comparison of mean scores on each factor.

4.1 ANOVA results and hypotheses testing

To test all hypotheses, ANOVA was used to examine whether adopters and non-adopters had different perceptions on all the factors. Statistics showed that adopters and non-adopters had different perceptions on convenience, trust, difficulty, lifestyle, physical contact, complexity and third party concern. As can be seen from Table 6, these differences were statistically significant at 1% level. However, the test showed that reference group had no effect on the adoption of online banking between adopters and non-adopters.

From the statistical analysis, the results supported the hypotheses H1a, H1b, H1c, H2a, H2b, H2c and H2d. That is, there are statistically significant differences between adopters and non-adopters of online banking in terms of convenient (*H1a*), trust (*H1b*), compatibility with their lifestyles (*H1c*) and difficulty (*H2a*). However, only hypothesis H1d was rejected. That is, there is no difference between adopters and non-adopters in terms of reference group influence (*H1d*) in the case of Saudi Arabia. Table 6 shows complete results on all factors.

Table 6 Analysis of variance (ANOVA)

	<i>Sum of square</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>Sig.</i>
<i>Adoption characteristics</i>					
<i>Convenience</i>					
Between groups	18.73	1	18.73	34.25	0.000***
Within groups	173.93	318	0.547		
Total	192.67	319			
<i>Trust</i>					
Between groups	18.00	1	18.00	27.43	0.000***
Within groups	208.65	318	0.656		
Total	226.66	319			
<i>Difficulty</i>					
Between groups	11.40	1	11.40	16.09	0.000***
Within groups	225.34	318	0.709		
Total	236.75	319			

Table 6 Analysis of variance (ANOVA) (continued)

	<i>Sum of square</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>Sig.</i>
<i>Lifestyle</i>					
Between groups	18.15	1	18.15	26.33	0.000***
Within groups	219.31	318	0.689		
Total	237.37	319			
<i>Physical contact</i>					
Between groups	34.40	1	34.40	49.40	0.000***
Within groups	221.45	318	0.696		
Total	255.85	319			
<i>Complexity</i>					
Between groups	27.60	1	27.60	42.21	0.000***
Within groups	207.94	318	0.654		
Total	235.55	319			
<i>Reference group</i>					
Between groups	0.316	1	0.316	0.357	0.551
Within groups	281.33	318	0.885		
<i>Third party concern</i>					
Total	281.64	319	7.36	12.57	0.000***
Between groups	7.36	1	0.586		
Within groups	185.69	318			
Total	193.05	319			

Notes: ***significant at $p < 0.01$

5 Conclusion

The findings from this study support many previous studies about online adoption characteristics. The study documents that consumers in Saudi Arabia perceived convenience, trust, difficulty, lifestyle, physical contact, complexity, reference group and third party concern as major factors when they adopted the online banking services. These findings are consistent with the results obtained by Al-Somali, Gholami and Clegg (2009) for Saudi Arabia.

Convenience and lifestyle may be considered as a form of functional benefit. Consumers nowadays are buying or using things based on convenience and their lifestyles. These factors were also identified as major contributors in previous studies (Gerrard and Cunningham, 2003; Mansumittrchai and Al-Malkawi, 2011).

Furthermore, trust, difficulty, physical contact, complexity and third party concern were considered as barriers for using online banking services. Amongst these factors, trust is still the main issue for online banking either with respect to the credibility of the bank's website or the trust of technology used by the bank for online services. The study reveals that consumers were reluctant to use online banking because of security issues. Trust and third party concern were considered a major obstacle for adopting online

services. Difficulty and complexity in usage also discouraged people from using online services due to lack of consumers' expertise and experience in using the internet and technology. Infrastructure such as the bank's website may be considered as difficulty and complexity for some consumers.

6 Practical implications

This study identified a number of factors that affected the online banking adoption amongst Saudi consumers, and that differentiated the perception of online banking users and non-users in the country. These factors included convenience, trust, difficulty, lifestyle, physical contact, complexity, reference group and third party concern.

The study provides several benefits to bank managers in Saudi Arabia. First, it showed that convenience was considered the most important factor affecting online banking adoption. Customers who used online services enjoyed more convenience than their counterparts. Saudi banks may need to encourage customers to use more online services. Demonstration or imparting educational campaigns may be needed as a tool for bank managers to reach those who have not used online services yet. Furthermore, the study suggested that non-adopters perceived difficulty and complexity as major factors for not using online services. Banks may offer additional services to those people in need.

This study also showed that trust and third party concerns were major factors that discouraged consumers in using online services. Therefore, Saudi banks need to build confidence amongst clients about using online services. This can be done by informing consumers about the security of the bank's website or the technology used in the security system in online services. Advertisements about security from both online and offline will be needed to create awareness and knowledge of safety issue of the bank. Nevertheless, customers who already adopted online services were still doubtful about third party concerns. Thus, Saudi banks should be aware of these issues because customers may stop using the bank's online services if they feel insecure about using internet banking. The government can also set stringent privacy and security standards that allow greater protection for client's rights and privileges. Such guarantees need to be explicitly mentioned to the non-adopters to invite their trust in online banking.

As suggested earlier, the findings of this study can enable Saudi banks to understand the factors that affect online banking adoption. Banks should focus more on customers who have not used online banking services by implementing or tailoring their marketing strategies to increase the rate of using online services. In addition, by enhancing online banking services, Saudi banks will be able to minimise the number of branch transactions thereby improving banking efficiency, reducing costs, gaining new clients and creating effective customer satisfaction.

7 Limitations and future research

A potential limitation of the present study is using only the quantitative research type. This would provide little knowledge of the customers who did not resort to internet banking. Therefore, future research applying qualitative analysis may be needed to unfold whether they were not interested in using bank's services online.

Finally, another interesting topic which can be addressed by future research is whether demographic factors such as age, gender and education would act as potential determinants of online banking adoption. Knowing the demographics of both adopters and non-adopters will benefit banks' managers to expand their latent online banking users and create a positive impact through exemplary standards of service that are beneficial to customers at large.

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