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Investigating Mobile Money Acceptance in Somalia: An Empirical Study

Osman Sayid
Institute of Islamic Banking and Finance, International Islamic University Malaysia,
205A Jalan Damansara, Damansara Heights, 50480 Kuala Lumpur, Malaysia
E-mail: Osmansayid@gmail.com

Abdelghani Echchabi
Department of Business Administration, Faculty of Economics and Management Sciences, International Islamic University Malaysia,
Jalan Sungai Pusu, Gombak, 53100 Selangor, Malaysia
E-mail: Abdelghani.mo@gmail.com

Hassanuddeen Abd. Aziz
Department of Finance, Faculty of Economics and Management Sciences,
International Islamic University Malaysia,
Jalan Sungai Pusu, Gombak, 53100 Selangor, Malaysia
E-mail: ahassan@iium.edu.my

Abstract

The main purpose of this paper is to study the perception and willingness of Somali customers to adopt mobile money, based on an upgraded version of technology acceptance model. The questionnaire used in this study was distributed to 100 Somali customers, and the data gathered were then analysed using multiple regression and one sample t-test. The results indicate that perceived ease of use has a significant positive influence on the perceived usefulness of mobile money. Moreover, perceived usefulness and security were found to have a significant positive influence on attitude. Finally, social influence together with perceived usefulness both have significant positive influence on the Somali customers' intention to adopt mobile money. This is one of the first studies to be conducted on mobile money in Somalia, the study uses an upgraded version of technology acceptance model and it reports significant findings based on this approach.

Keywords: Somalia, Mobile money, Multiple regression, TAM.

1. Introduction

Following the collapse of central government led by President Siyad Barre in 1991, the financial system has been destroyed including the Central Bank of Somalia and the entire banking system in Somalia (Siad Barre's Fall Blamed for Somalia's Collapse into Civil War: 2011). However, In December 2006, the Central Bank was able to reopen its offices in Mogadishu and Baidoa after 18years out of the service to keep government annual budget and to pay its salaries (African Development Bank, 2010).

Even though, the central bank seems to be inactive and there is a long way to go to regain its power and control on economy and monetary policies in the country. Therefore, the Money Transfer Companies (Hawaleh System) have arisen with the hope to fulfil this gap and deliver some of basic banking services. As a result, Hawaleh System becomes the major financial institutions in the country due to their faster and cheap service charges, growing public trust and the reliability on its service and due to having agencies across the world, which are handling up to $1.6 billion in remittance annually to the home land (CIA world fact-book statistics, 2012).

The role of the Hawaleh system is not ended with transferring money from overseas to back home, but it plays important role in trade and local investment financing since there is no investment and commercial banks in Somalia. Moreover, the Hawaleh system acts as a saving bank by accepting the public deposits in its current and saving accounts (Abdusalam, 2002).

On the other hand, one of successful histories in Somalia is the telecommunication sector that was developed by private companies. These private companies provide affordable fixed-line, mobile phone and internet services in every major city in Somalia with a lowest international calling rates and high quality, which are not available in many parts in the continent (Istanbul Conference on Somalia, 2010).

Due to having access and rapid growing of telecommunication, Hormuud Telecom in Mugdisho, Golis Telecom in Bossaso and Telesom in Hargeisa have introduced a mobile money (M-money thereafter) service in the first time in 2009, which is known as Zaad or Sahal financial Service allowing customers using their mobile phone to transfer money, to pay bills and to purchase goods and services.

Within a very short period, this product becomes more popular in the Somalis community from Ras kamboni to Rascaseyr due to its reducing risk of carrying cash around and eliminating the need to use money transfer companies to transfer money within the country. However, Al-Shabab rejected Zaad or Sahal financial service arguing that this will lead the economy to fall in hands of international corporations and bankers, elimination of local currency (So.Sh) in circulation, the hawaleh system to be destroyed. Therefore, the Zaad or Sahal financial service was suspended in South Somalia, in the area where Hormuud Telecom is operating, while Zaad and Sahal financial service is operating effectively in Puntiland and Somaliland states because there two states are not under the control of Al-Shabab which banned Zaad and Sahal services.

Even though, Zaad or Sahal financial service is partially banned, but it remains to be one of the interesting innovations in both the telecom and hawaleh industries in Somalia. It may increase competitiveness between these two industries especially in a country like Somalia, where it could be a difficult to introduce the ATM (Automatic Teller Machine) in the public place due to security issues. Hence, this paper attempts to examine the Somali customers' perception and willingness to adopt the two main M-money services in Somalia i.e. Zaad and Sahal.

After this brief introduction, the next section will present an overview on the adoption of M-money in different countries, using different approaches. The methodology employed in this study, the profile analysis as well as the results and discussion will then be presented sequentially.

2. Literature review

At the most basic level, M-money is the provision of financial services through a mobile device. This broad definition encompasses a range of services, including payments, finance, and banking. In practice, a variety of means can be used such as sending text messages to transfer value or accessing bank account details via the mobile internet. Special "contactless" technologies are available that allow phones to transfer money to contactless cash registers (Donovan, 2012).

M-money is an emerging facet of electronic banking that, unlike traditional financial services, which offer very limited functions, is a potential platform for automated banking and other financial services. It is a wireless service delivery channel that offers additional value for customers by providing "anytime, anywhere" access to financial services (Lee and Chung, 2009).

Several studies have examined the attitude and/or intention to adopt M-money services in different countries. Daud,et al. (2011) examined the critical success factors influencing the adoption of M-money in Malaysia using technology acceptance model (TAM). The authors found that perceived usefulness, perceived credibility and awareness have significant effect on user's attitude and subsequently influence the intention toward using M-money. A similar study was conducted by Cheah et al. (2011), and found that factors such as perceived usefulness, perceived ease of use, relative advantages and personal innovativeness were positively related to the intention to adopt M-money. In the same context Riquelme and Rios (2010) found that usefulness, social norms and social risk, are the factors that influence the intention to adopt M-money in Singapore.

Similarly, Bankole et al. (2011) investigated M-money adoption in Nigeria. The authors used both questionnaires and interviews for data collection. Their results showed that culture is the most important factor influencing M-money adoption behaviour in Nigeria.

In another context, Suoranta (2003) examined M-money adoption in Finland and found that relative advantage, compatibility, communication and trialability are the most important factors in explaining consumers' behaviour. Similarly, Wessels and Drennan (2010) studied M-money adoption in the Australian context, they found that perceived usefulness, perceived risk, cost and compatibility are affecting consumer acceptance of M-money.

Lee et al.(2007) examined the factors that influence adoption of M-money in South Korea using TAM. The authors found that the financial-performance risk dimension is the most salient concern for this sample and its context. Similarly, Gu et al. (2009) explored the adoption of M-money in South Korea, based on TAM model. The study found that self-efficiency was the strongest antecedent of perceived ease-of-use, which directly and indirectly affected behavioural intention through perceived usefulness in M-money. A similar study was also conducted by Lee et al. (2012), and found that connectivity influences perceived ease of use directly. In addition, perceived monetary value has a significant effect on perceived usefulness, inferring MFS is not only useful for a firm, but also is useful from a time and monetary value standpoint. Personal innovativeness significantly influences perceived ease-of-use, so innovative users can take advantage of MFS more frequently. Absorptive capacity also directly affects usage intention. Finally, perceived task technology, versus a task characteristic view, significantly influences perceived usefulness.

Furthermore, Brown et al. (2003) investigated the predictors of M-money adoption in South Africa. Factors identified included relative advantage, trialability, and consumer banking needs, with perceived risk having a major negative influence.

On the other hand, Cruz et al. (2010) examined the adoption of M-money in Brazil. Perception of cost, risk, low perceived relative advantage and complexity were revealed to be the main reasons behind the use of the service. A similar study was conducted by Puschel et al. (2010).

In another context, Koenig-Lewis et al. (2010) investigated the factors that influence M-money adoption in Germany using TAM. The results of the study indicated that compatibility, perceived usefulness, and risk are significant indicators for the adoption of M-money services in Germany.

The above studies are based on different models including theory of reasoned action (TRA), theory of planned behaviour (TPB), decomposed theory of planned behaviour (DTPB), innovations diffusion theory (IDT) and technology acceptance model (TAM), among others. Among the above models, TAM has been chosen mainly because its basis represents an important theoretical contribution towards the understanding of M-money acceptance and behaviour (Malhotra and Galletta, 1999). TAM developed by Davis (1989) postulates that perceived ease of use has a positive influence on perceived usefulness. Furthermore, perceived usefulness and perceived ease of use have a positive influence on attitude. In addition, perceived usefulness and attitude both have a positive influence on the behavioural intention. In addition, the model was upgraded by including three variables, namely, perceived security (Azadavar et al., 2011; Amin and Ramayah, 2010), perceived risk (Brown et al., 2003; Koenig-Lewis et al., 2010) and social influence (Echchabi and Olaniyi, 2012) which are documented to have a positive influence on attitude and behavioural intention respectively.

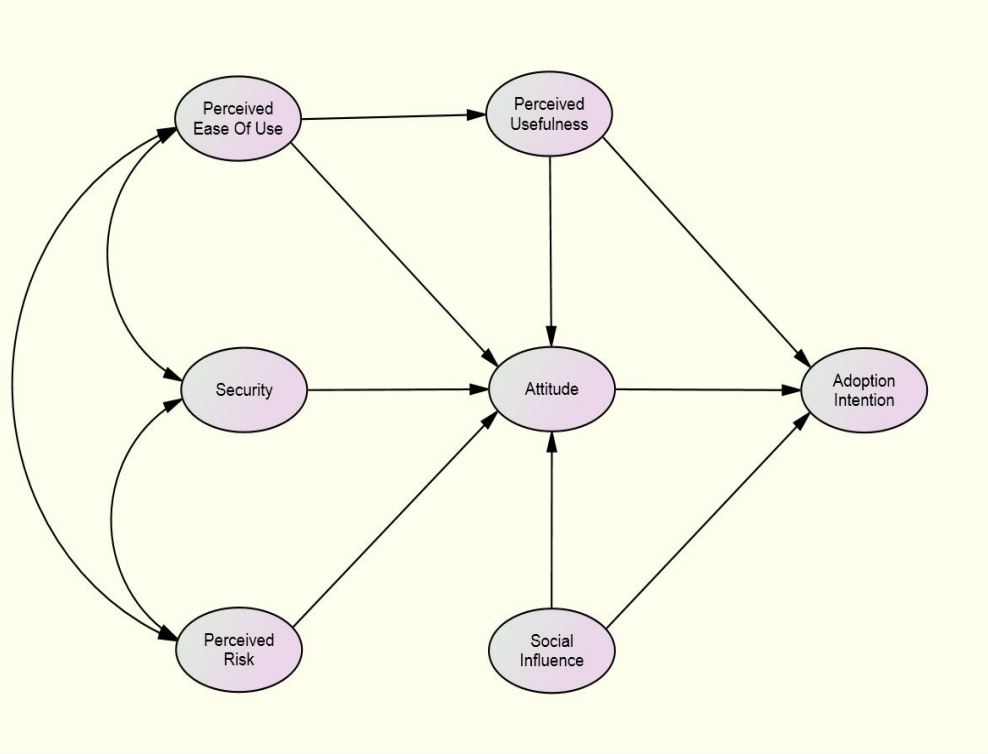

Figure 1: Research model

Based on the proposed model, the following hypotheses were developed:

H1: Perceived ease of use has a positive influence on the perceived usefulness of M-money.

H2: Perceived ease of use has a positive influence on the attitude towards M-money.

H3: Security has a positive influence on the attitude towards M-money.

H4: Perceived risk has a positive influence on the attitude towards M-money.

H5: Perceived usefulness has a positive influence on the attitude towards M-money.

H6: Social influence has a positive influence on the attitude towards M-money.

H7: Attitude has a positive influence on the intention to adopt M-money.

H8: Social influence has a positive influence on the intention to adopt M-money.

H9: Perceived usefulness has a positive influence on the Intention to adopt M-money.

3. Methodology

The current study is conducted in the context of Somalia. Hence, 100 self administered questionnaires were distributed to Somali customers by well trained research assistants. The sample size was calculated based on the following formula:

$$SS = \frac{(Z^2) \times (p) \times (1-p)}{C^2}$$

Where:

SS= Sample Size

Z = Z-value

P = Percentage of population.

C = Confidence interval.

Furthermore the sample calculated is compatible with other studies conducted in this area, and this includes Siddiqi (2011), Kulkarni (2012), Dhanabhakyam and Malarvizhi (2012), Oladele and Akeke (2012), and Heryanto (2011). Hence, the sample size is considered suitable for the current study.

The questionnaire was constructed of two main parts. The first part is meant to collect information about the four constructs of TAM. The measurement for these two section was made on a five points Likert scale (1 = Strongly Disagree and 5 = Strongly Agree). The second part gathered the demographic information of the respondents for subsequent comparative analysis.

The questionnaire was made in English and was subsequently translated into Somali language and distributed as such, since Somali is the main language in the country and most Somali people can speak Somali. The data analysis was done through one sample t-test and multiple regression analysis. It is worth mentioning that the analysis was done through SPSS 18 software.

The demographic data shown in Table 1 below indicates that 56 per cent of the respondents are male, while 44 per cent are female. 58 per cent of them are married, 34 per cent are single, while the remaining 8 per cent are divorced or widowed.

With regards to the age distribution, 42 per cent are between 20 and 30 years old, 35 per cent are between 31 and 40, 19 per cent are between 41 and 50 years old, and 4 per cent are above 50, while none of the respondents is below 20 years old. In terms of level of education, 56 per cent of the respondents are holding Bachelor's degree, 23 per cent are holding high school certificate, while 21 per cent are holding Master's degree.

Table 1: Descriptive statistics

		Percent
Gender	Male	56
	Female	44
Age	Below 20	0
	20-30	42
	31-40	35
	41-50	19
	Above 50	4
Education level	High School	23
	Bachelors	56
	Master	21
Marital status	Single	34
	Married	58
	Divorced/Widowed	8
Employment status	Student	4
	Public sector	25
	Retired	3
	Academicians	20
	NGO	26
	Private sector	22
Monthly salary	Less than USD200	22
	USD200-USD400	35
	USD401-USD600	30
	USD601-USD800	10
	USD801-USD1000	1
	USD1001-USD1200	1
	More than USD1200	1

Regarding the employment status, 26 per cent are working with nongovernmental organizations (NGO), 25 per cent are attached to the public sector, 22 per cent are working in the private sector, 20 per cent are academicians, 4 per cent are retired, while the remaining 3 per cent are students. Likewise, 35 per cent of the respondents have a salary between 200 and 400 US Dollars, 30 per cent earn a salary between 401 and 600 US Dollars, 22 per cent earn less than 200 US Dollars, while 10 per cent make a monthly salary between 601 and 800 US Dollars.

4. Results

4.1 Reliability measures

Prior to the hypotheses' testing, the reliability of the constructs will be assessed through one of the popular reliability measuring tools, namely, Cronbach Alpha. In this regard, Hair et al. (2010) suggest that the Cronbach Alpha should be at least 0.7 in order for the constructs to be reliable. Table 2 shows that all the Cronbach Alpha values are above 0.7, hence the constructs are proven to be reliable.

Table 2: Reliability measures

Elements	**Cronbach alpha**
Perceived ease of use	0.789
Security	0.722
Perceived Risk	0.787
Perceived usefulness	0.769
Attitude	0.739
Social influence	0.715
Adoption	0.885

4.1 Multiple regression

The results in Table 3 indicate that the perceived ease of use has a significant positive influence on the perceived usefulness of M-money, and the former explains 5.3 per cent of the variation in the latter. This supports hypothesis 1 initially claiming that the perceived ease of use of the M-money has a positive influence on its perceived usefulness. This is compatible with Davies (1989).

Table 3: Regression output (Dependent variable is perceived usefulness)

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.118	.307		6.894	.000		
Ease_of_use	.226	.096	.231	2.349	.021	1.000	1.000

Moreover, the results in Table 4 suggest that the perceived ease of use has no significant effect on the attitude towards M-money. This rejects hypothesis 2 stating that the perceived ease of use of M-money has a positive influence on attitude. This contradicts with Davies (1989). This could be due the Somali culture which has a tendency to promote risk raking rather than risk aversion.

Security was found to have a significant positive influence on attitude. Hence, hypothesis 3 is supported. This is in line with the findings of Azadavar et al. (2011) and Amin and Ramayah (2010). At the meantime, perceived usefulness was also found to have a significant positive influence on attitude, which supports hypothesis 5 and which is in line with Davies (1989). Both perceived security and usefulness explain 35.5 per cent of the variation in attitude. However, hypotheses 4 and 6 were rejected since both perceived risk and social influence do not have a significant influence on attitude. This finding contradicts with the findings of Brown et al. (2003) Koenig-Lewis et al, (2010) as well as Echchabi and Olaniyi (2012). This might be due to the current political and social situation in the country.

Table 4: Regression output (Dependent variable is attitude)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.633	.498		1.272	.207		
Usefulness	.407	.073	.619	5.588	.000	.531	1.884
Social influence	.027	.059	.041	.459	.647	.798	1.253
Risk	.066	.087	.085	.756	.452	.521	1.918
Security	.292	.075	.362	3.867	.000	.745	1.342
Ease of use	.065	.056	.101	1.157	.250	.859	1.164

In addition, Table 5 shows that social influence and perceived usefulness of M-money were found to have a significant positive influence on the intention to adopt it. Both the independent variables explain 25.2 per cent of the dependent variable. Hence, hypotheses 8 and 9 were supported. This is in line with the findings of Echchabi and Olaniyi (2012) and Davies (1989) respectively. However, hypothesis 7 was rejected because attitude does not have any influence on intention to adopt M-money. This contradicts with Davies (1989). This might be explained by the unique cultural and social values which distinguishes the Somali citizens from the neighbouring countries.

Table 5: Regression output (Dependent variable is intention)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.982	.441		2.225	.028		
Social influence	.230	.078	.269	2.955	.004	.939	1.065
Attitude Usefulness	.245	.134	.186	1.825	.071	.750	1.333
	.208	.086	.241	2.409	.018	.778	1.285

4.3 One sample t-test

In order to examine the attitude and willingness of the Somali customers to adopt Islamic banking services, a one sample t-test is conducted for the both variables i.e. attitude and intention and their various items. By setting the test value as 3, the results in Table 6 show that all the items are significant at 95% confidence level for attitude, which shows that the Somali customers are willing to adopt Islamic banking services.

Table 6: One sample t-test for Attitude

	Test Value = 3					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Attitude	7.546	99	.000	.47000	.3464	.5936
AT1	12.753	99	.000	1.18000	.9964	1.3636
AT2	5.014	99	.000	.36000	.2175	.5025
AT3	8.132	99	.000	.58000	.4385	.7215

With regards to the intention to adopt M-money, the results indicate that overall the customers are willing to adopt it. Nevertheless, items 1 and 2 do not significantly differ from the test value. This indicates that though the customers are ready to adopt M-money in the future, they are not willing to do so in the short run.

Table 7: One sample t-test for Intention

	Test Value = 3					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Intention	2.400	99	.018	.19667	.0341	.3592
INT1	.541	99	.590	.06000	-.1599	.2799
INT2	1.452	99	.150	.14000	-.0513	.3313
INT3	9.507	99	.000	1.02000	.8071	1.2329
INT4	11.413	99	.000	1.00000	.8261	1.1739
INT5	2.832	99	.006	.39000	.1167	.6633

5. Discussion and conclusion

The study initially aimed at examining the perception and willingness of Somali customers to adopt mobile money. Specifically, the study attempted to investigate the factors that may lead the Somali customers to adopt M-money, by using an upgraded version of technology acceptance model. Overall, the findings provide evidence on the suitability and reliability of the model used in the Somali M-money context.

The results show that the Somali customers are willing to adopt M-money. The results indicate that perceived ease of use has a significant positive influence on the perceived usefulness of M-money. Moreover, perceived usefulness and security were found to have a significant positive influence on attitude. Finally, social influence together with perceived usefulness both have significant positive influence on the Somali customers' intention to adopt M-money. As such, the Somali banks and authorities have interest in highlighting this quality of M-money, and also keeping the customers informed about the measures put forward to further facilitate its use.

The findings of the study have important implications, for decision makers, policy makers as well as to the body of knowledge. In fact, this is one of the first studies that examined the prospects and opportunities of M-money, by using an upgraded version of technology acceptance model. This enriches the literature on M-money by extending it to a different context. Moreover, the findings will give hindsight to the policy makers and decision makers that attempt to provide and enhance M-money in Somalia and similar countries.

The researchers that are aiming to undertake studies in this area are advised to take into account some additional variables, such as government contribution and credibility, etc. in order to provide more comprehensive results. Additionally, the future studies should be directed to some other countries, that still did not introduce M-money or those that have already introduced it, and it is still underused.

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