Adoption of Mobile Banking Applications in Lebanon

Audi, Marc

Center of Economics, University of Paris 1 Pantheon-Sorbonne, France Faculty of Business, AZM University, Lebanon

2016

Adoption of Mobile Banking Applications in Lebanon

Marc Audi

Center of Economics, University of Paris 1 Pantheon-Sorbonne, France

Faculty of Business, AZM University, Lebanon

Abstract

This research studied the impact of mobile banking adaptation in Lebanon. A brief overview of the Lebanese banking sector has shown how it is very dynamic and large. The overview also shows that the Lebanese banking sector is very competitive and changing with the development of new technologies and the availability of new services. To explain mobile banking applications in Lebanon two models were studied in the literature. The first is the innovation diffusion theory which has 5 different constructs: relative advantage, compatibility, communicability, trailability and complexity. The innovation diffusion theory talks about the path innovations take to reach final adopters. The technology acceptance model on the other hand relates the effects of it main components, perceived ease of use and perceived usefulness, on consumer attitude and intention to adopt. Our model is based on both theories and has 8 constructs. It shows the effect of the 5 constructs of the innovation diffusion theory merging perceived usefulness to relative advantage and replacing complexity with perceived ease of use. We have developed 8 hypotheses based on the construct of the model and to study the user-none user effect. A personal administered survey done using convenient sampling managed to gather 315 respondents from 5 different locations in Beirut after administering pilot testing. All variables were tested for validity and reliability using different tests. A biverate linear regression analysis was used to test the hypotheses and establish the relations between the different variables. We also did an independent t-test to analyze the user none-user effects. It is concluded that this paper with a discussion of the tests and recommending the best way to market mobile banking applications and designing a good version of mobile banking that looks appealing to consumers.

Keywords: Mobile banking; Lebanese market; Electronic banking

Introduction

The Lebanese banking system is a very dynamic industry. Banks in Lebanon are one of the most important and strongest thriving companies competing on attaining large levels of competitive and comparative advantage. Occasionally banks launch a series of programs, services and features to improve your banking experience.

Banks are offering services ranging from the loyalty point card system that makes you gather miles to travel the world to more advanced gadgets and programs like "We Initiative" from BLC Bank, Spring Accounts from Bank Audi, Tap-to-Pay and even dating back to the ATM services that made 24/7 banking services available to people all serve to help improve banking quality and make financial transactions easy and accessible to everyone and anyone. Mobile banking applications was first launched in the Finland in 1991 and customers where then capable of paying bills and doing financial transactions using their mobile phones, later mobile banking applications developed standards for wireless financial services and was launched into the global market [1].

Electronic banking users are growing worldwide [2] and the situation in Lebanon may not be different. People's attitudes towards multi-channel banking has also been growing [3] with consumers appreciating the ease and low-cost that ATM's, internet banking and other electronic banking channels are supplying.

New innovations and technologies have also been fueling competition in the banking industry and as usage of computer banking is expanding in countries like the US [3] Finland, Turkey, China, etc. In addition, with people growing fond of Internet banking and similar technologies banks worldwide have introduced "Mobile Banking" which is the newest of banking channels. Mobile Banking has been introduced as a channel to do mobile payments which is a solution to facilitate and make micro-payments easier to consumers and bank account holders [4].

Several theories have been used in explaining the course innovations and technologies undertake to reach final users and spread in society
 or between consumers, our research will discuss the following models/ theories [5]:

- • Innovation Diffusion Model

- • Technology Acceptance Model

Many researchers have adopted the innovation diffusion model [4] and the technology acceptance model [6]. Some researchers have even used both models to try and interpret the adoption and intention to adopt of new consumer and potential users [6].

Our research will analyze the effects of the "Innovation Diffusion Model" and the "Technology Acceptance Model". Our research will also help in decreasing the gap between the banks understanding of customers and the needs of possible consumers in order to adopt mobile banking applications. Our research will also identify the factors affecting mobile banking adoption and intention to adopt along with the consumers perception of mobile banking applications. Our research will help Lebanese banks market mobile banking applications in a way that increases the rate of consumer usage and adoption. Our research will help show the benefits of using mobile banking applications in day-to-day activities and to easy do financial and banking transactions using the newest of banking channels.

This research will try to communicate with bank managers to help them better understand the consumers' needs and level of interest in mobile banking applications. Our research will supply necessary information to the managers take decisions to increase consumer interest and assess the level of intention to adopt mobile banking applications in Lebanon:

• How can banks market and promote mobile banking applications effectively and efficiently to Lebanese customers?

• What are the factors affecting the adoption of mobile banking applications in Lebanon? The paper showed the different effects of these variables and how they affect consumer's intention to adopt mobile banking applications and how can banks utilize these variables to come out with an effective strategy to market mobile banking applications. Our results show that usefulness, ease of use, compatibility, triability and trust has positively but communicability has no effect on consumers' attitude towards them. Attitude towards mobile banking applications has a positive effect on the consumers' intention to adopt them.

Managers ought to concentrate on highlighting the points of interest the application plays in their lives. They ought to likewise demonstrate that these applications are anything but difficult to utilize and accessible for testing pre-of utilization. Showing that these

applications are perfect with individuals' lifestyle would upgrade their state of mind and result in more extensive reception goal. Managers ought not center and use heaps of assets on the coherence variable as it has low consequences for buyer disposition and won't expand selection as satisfied.

Making the application accessible with the expectation of complimentary trail would upgrade purchaser mentality this expanding customer's goal to embrace. Supervisors ought to comprehend that their most grounded apparatus for enhancing buyer state of mind is demonstrating the value of the portable saving money applications. Bank supervisors ought to concentrate on planning a versatile saving money application that highlights the critical variables influencing mentality. At that point, begin a promoting effort demonstrating the diverse components the application has that would render the application valuable, simple to utilize and comprehend, good, trust commendable and accessible with the expectation of complimentary testing

Research Objective

Our research will have the following objectives:

1. To describe the current customer profiles and their banking behavior

2. To evaluate the difference in attitude and intention to adopt between user and non-users towards mobile banking applications in Lebanon

3. To assess the effect of perceived usefulness (relative advantage), perceived ease of use, compatibility, communicability, trialability, and trust on consumer attitude towards mobile banking applications

4. The address the relation between consumer attitude towards mobile banking applications and the intention to adopt them

5. To recommend and suggest appropriate approaches to market and promote mobile banking applications to customers in Lebanon

We are going to assess the current intention levels of Lebanese consumers and find a way to increase interest in mobile banking applications by identifying the relations between the different variables and utilizing these relations to get out with a final marketing plan in order to increase the intention to adopt mobile banking applications.

Contribution of the Research

Our research could be used in later research to assess the adoption levels of Lebanese consumers to innovations similar to mobile banking applications. It will also show how the innovation adoption model and the diffusion of innovations theory play a role in the Lebanese society, with particular interest in the banking sector in Lebanon.

From a managerial perspective, our research will provide bank managers with a base in order to better market and manage mobile banking applications and increase the number of adopters. It will also show bank managers the amount of people willing or not willing to adopt mobile banking applications and understand the reasons behind that to improve the services and present it in an improved way.

The paper will also provide background information about the different factors of the TAM (technology acceptance model) and the innovation diffusion model and how they affect the different demographic of the Lebanese society.

Literature Review

e-B anking

Two most important goals of service providers are to provide superior service quality and to build superior levels of customer satisfaction in order to improve the performance of their business [7].

One of the most significant studies about mobile banking adoption in urban communities has showed that the innovation diffusion theory studies the adoption of innovation over time [8]. The research has also shown a relation between personal innovativeness and the innovation diffusion theory. So this work has showed that targeting innovations on the segment of customers who communicate their experience with others is a very smart move thus highlighting the importance of communicability [8]. This theory has also been used in describing, understanding and analyzing the adoption of mobile banking application in Saudi Arabia [9].

Electronic development in saving money can be followed back to the 1970s when the computerization of money related organizations picked up force [10]. Notwithstanding, a noticeable vicinity of this was apparent to the clients since 1981, with the presentation of the ATM. Inventive saving money, from that point forward has developed by a far cry, supported basically by mechanical improvements in the information transfers what's more, Information Technology industry. The early decade of the 1990s saw the development of

robotized voice reaction (AVR) innovation. Utilizing the AVR innovation, banks offered the e-banking offices for money related administrations. With further headways in innovation, banks could offer administrations through PCs claimed and worked by clients at their comfort, through the utilization of Intranet exclusive programming. The clients of these administrations were, notwithstanding, basically corporate clients as opposed to the retail ones.

The diffusion of innovations theory are used to discuss the process of that innovations undertake to be adopted [11]. A study by Crabbe et al. [12] done in brazil has shown that the lack of understanding of the relative advantage and other aspects like risk and social security are a major barrier to a person's intention to adopt.

Similarly a study of service quality dimensions was conducted by [13] which emphasized upon overall internet and mobile banking service quality and its subsequent influence on customer satisfaction and the findings revealed online information system quality to be an important predictor of overall internet banking service quality.

• The Technology Acceptance Model (TAM),

• The Diffusion of Innovation Theory

According to Lassar et al. [14] building and sustaining stronger and satisfying relationships with valuable customers is dependent upon the quality of services. Service quality dimensions related to technology based banking were studied by Ganguli et al. [15] and the dimensions identified were "technology security and information quality", "technology convenience", "technology usage easiness and reliability" and "customer service" and out of these dimensions, "technology usage easiness and reliability" and "customer service" were found to have a positive influence on customer satisfaction. The reluctance of using the on-line channel for conducting financial transactions are newness of the service and the security concerns studied by Ramaswami et al. [16]. The quality of automated services offered to the customers should be of high value in order to enhance customer's delight which results into superior level of customer trust and ultimately leads to enhanced customer commitment [17].

Mobile banking attracts the customer's attention and there is strong positive relationship with attention and commitment [18]. Many traditional banking services been converted into E-banking services.

Lebanese e-banking

Mobile banking can be defined as a banking channel where the consumer/ customer or account holder can use his/her mobile phone to do banking or other related financial services or to interact with a bank [1]. Mobile banking is not similar to telephone banking in anyway and different from internet banking. Mobile banking is based on the exchange of information between the bank and the user through his mobile phone using a mobile application.

Most of the dimensions of traditional banking services are now used in the mobile banking [19]. According to recent research, the Lebanese banking sector is the most profitable industry in Lebanon [20]. After the war, the Lebanese banks have started to operate better and the banking sector started to develop gradually. At first, the adoptions of programs and special services have helped the improvement of the banking industry. Until recently the newest of innovation was introduced "Mobile Banking Applications" and it seems banks have started to battle to attain and make this service available with about 14 banks making their mobile banking applications available on the virtual markets.

All these banks along have rushed to introduce mobile banking applications to Lebanese citizens and into the Lebanese markets. Each of these banks has a unique application with a unique name that offers consumers, users or bank account holders with privileges and advantages that other banking channels may not offer.

Over the past years, several models have been used to discuss, explain and understand consumer perception and adoption of new technologies. These models have focused on several variable or determinants attributed to the adoption of innovations.

Technology Acceptance Model (TAM): These are one of the most used models in the adoption of new technologies [5]. Each of these models explains innovation adoption using unique variables. The first variable Relative advantage is the degree to which an innovation or a product is seen to be useful or better than its predecessor [21]. It shows that the technology improves the way of life of the user or customer.

Compatibility is the degree to which an innovation is perceived to be consistent with the potential adopters way of life and how he likes to do his job [21]. This factor assess if the innovation suites the persons ways and habits and if it fits correctly with the way the person likes to do tasks.

Information technology adoption and use in the working environment remains a focal worry of data frameworks research and practice. In spite of noteworthy advances in equipment and programming abilities, the disturbing issue of underutilized frameworks proceeds. Low use of introduced frameworks has been distinguished as a main consideration basic the "efficiency Catch 22" encompassing dreary comes back from hierarchical interests in data innovation [22]. Understanding and making the conditions under which data frameworks will be grasped by the human association remains a high-need research issue.

Diffusion of innovation theory: According to the innovation diffusion theory, complexity is also a factor used in assessing how an innovation diffuses in a society and how it is adopted by users over time. Complexity is seen as the degree to which an innovation is perceived to be difficult or hard to use [21]. The diffusion impact has been characterized as the in total expanding level of impact on a person to receive or reject advancement. Actually, Rogers' utilization of the ordinary conveyance in creating adopter classifications depends on the dissemination effect. The diffusion impact or interpersonal collaboration (or the word-of-mouth impact) recommended by Rogers has additionally served as the fundamental behavioral theory for a few other advancement dispersion models [23, 24, 25,26, 27,28].

Hypothesis development: Trialability is defined as the availability of the innovation to be tried or tested before final adoption or usage [21]. This factor shows a relation between the persons' need to experiment with the product and his intent and attitude after having done so.

One of the most important variable that has been added to almost every model explaining the acceptance and adoption of mobile banking applications or any other technology was the perceived risk factor or trust while other research has also given it the name of perceived credibility [29]. Perceived risk is referred to the amount of risk a person takes when adopting or purchasing a new product [30]. Attitude and intention both are a product of the

evolution of the technology acceptance model for the theory of planned behavior and the theory of reasoned action [31]. The above literature review helped in the development of following hypothesis (Annexure 2).

1. The perceived usefulness of mobile banking applications (relative advantage) has a positive effect on consumers' attitude towards them

2. The perceived ease of use of mobile banking applications has a positive relation with consumers' attitude towards them

3. The compatibility of mobile banking applications has a positive effect on consumers' attitude towards them

4. The communicability of mobile banking applications has a positive effect on consumers' attitude towards them

5. Trialability of mobile banking applications has a positive effect on consumers' attitude towards them

6. Perceived trust of mobile banking applications has a positive effect on consumers' attitude towards them

7. Attitude towards mobile banking applications has a positive effect on the consumers' intention to adopt them

8. There is a significant difference in attitude towards mobile banking applications among user and non-users of mobile banking applications

• **Perceived ease of use:** Five items of perceived ease of use were subjected to the PCA using SPSS v. 21. The K-M-O value was 0.88, and Bartlett's test reached statistical significance. The test revealed the presence of one component with eigen value exceeding 1, explaining 81.7% of the variance, as shown in Table 2, Annexure 3. A reliability test has been carried out, and showed a Cronbach's Alpha value of 0.94, indicating high reliability of the construct.

• **Compatibility:** Five items of compatibility of mobile banking applications were subjected to the PCA using SPSS v. 21. The K-M-O value was 0.77, and Bartlett's test reached statistical significance. The test revealed the presence of one component with eigen

value exceeding 1, explaining 81.8% of the variance, as shown in Table 3, Annexure 3. A reliability test has been carried out, and showed a Cronbach's Alpha value of 0.94, indicating high reliability of the construct.

• **Communicability:** Five items of communicability were subjected to the PCA using SPSS v. 21. The K-M-O value was 0.88, and Bartlett's test reached statistical significance. The test revealed the presence of one component with eigenvalue exceeding 1, explaining 80.2% of the variance, as shown in Table 4, Annexure 3. A reliability test has been carried out, and showed a Cronbach's Alpha value of 0.94, indicating high reliability of the construct.

• **Trainability:** Five items of trialability were subjected to the PCA using SPSS v. 21. The K-M-O value was 0.87, and Bartlett's test reached statistical significance. The test revealed the presence of one component with eigen value exceeding 1, explaining 78.8% of the variance, as shown in Table 5, Annexure 3. The reliability test has been carried out, and showed a Cronbach's Alpha value of 0.93, indicating high reliability of the construct.

• **Perceived Trust:** Five items of perceived trust were subjected to the PCA using SPSS v. 21. The K-M-O value was 0.85, and Bartlett's test reached statistical significance. The test revealed the presence of one component with eigen value exceeding 1, explaining 83.77% of the variance, as shown in Table 6, Annexure 3. A reliability test has been carried out, and showed a Cronbach's Alpha value of 0.95, indicating high reliability of the construct.

• **Attitude towards mobile banking applications:** Five items of attitude towards mobile banking applications were subjected to the PCA using SPSS v. 21. The K-M-O value was 0.90, and Bartlett's test reached statistical significance. The test revealed the presence of one component with eigen value exceeding 1, explaining 85.00% of the variance, as shown in Table 7, Annexure 3. A reliability test has been carried out, and showed a Cronbach's Alpha value of 0.96, indicating high reliability of the construct.

• **Intention to adopt mobile banking applications:** Five items of intention to adopt mobile banking applications were subjected to the PCA using SPSS v. 21. The K-M-O value was 0.92, and Bartlett's test reached statistical significance. The test revealed the presence of one component with eigen value exceeding 1, explaining 93.5% of the variance, as shown in Table 8, Annexure 3.

Assessing these factors will help in providing a better understanding of the Lebanese consumers' perception and their willingness to adopt mobile banking. Understanding how much each factor affects the Lebanese consumer's attitude and knowing how this in turn influences intention will also provide a better interpretation of how Lebanese consumers behave when adopting mobile banking applications thus providing banks with necessary information to better target and position their applications and establish a strong sustainable competitive advantage.

Research Design

Exploratory research

Our research was based on qualitative exploratory research where an in-depth interview was done with Mr. Wadih Touma, the manager of retail banking at Bank Audi Lebanon. The interview took place on April 14, 2015 for better defining the research problem and management decision problem along with collecting information regarding their mobile banking application AudiMobile. In addition, to gain preliminary insights into what Bank Audi believes or thinks about the mobile banking concern and challenges and why it exhibits certain behaviors (Annexure 2).

Data collection

Descriptive statistics: The review was disseminated in 2015 in view of advantageous inspecting. The exploration was directed by utilizing a comfort examining strategy, the factual technique for selecting so as to draw delegate information reactions due to the simplicity of their volunteering or selecting units because of their accessibility or simple access. It is the sort of examining where the accessibility and the speed with which information can be assembled.

In this manner, we figured out how to accumulate 315 respondents from five unique areas in Lebanon's Capital city, Beirut. Tests were gathered from Hamra Street, Beirut Souks Downtown Beirut, City Mall, City Center and ABC Ashrafieh.

Information was gathered from the distinctive areas at diverse dates and distinctive times to expand the level of differences and to get a more heterogeneous specimen as could reasonably be expected. This will better speak to the Lebanese populace and diminish predisposition.

Among the 315 members in the study, 58.73% were male while 41.27% were females (Figures in Appendix A and B). The biggest example of age gathering were of individuals from the ages of 21-30 years of age and they were 46.18% of the specimen bunch, while 24.84% were between the ages of 31-40 years of age, trailed by around 18.47% beneath 21 years of age while 10.19% fit in with the other age bunches.

The biggest rate of the specimen is University/school instructed, around 72.38% of the example. 15.87% were post graduates meaning they have MD's or PhD's while 11.75% are of different levels. (Around 3.17% left the inquiry unanswered).

Results and analysis: Five items of perceived usefulness were subjected to the PCA using SPSS v. 21. The K-M-O value was 0.88, and Bartlett's test reached statistical significance. The test revealed the presence of one component with Eigen value exceeding 1, explaining 76.1% of the variance, as shown in Table 1, Annexure 3. A reliability test has been carried out, and showed a Cronbach's Alpha value of 0.92, indicating high reliability of the construct.

Correlation: Furthermore a multiple regression analysis was conducted to evaluate how well the six different constructs: perceived usefulness, perceived ease of use, compatibility, communicability, trialability, and perceived trust of mobile banking applications predicted attitude towards those applications. The linear combination of the six constructs was significantly related to the attitude, $F_{(6, 299)}$

$= 88.45$, $p<.01$. The sample multiple correlation coefficients indicated that approximately 64% of the variance of the attitude towards the applications in the sample could be accounted for by the linear combination of six constructs.

Regression results: In Table 9, Annexure 3, we present indices to indicate the relative strength of the individual predictors, the six constructs. All the bivariate correlations between the sic constructs and the attitude were positive, as expected. Five of the six constructs were statistically significant ($p < .05$). Only the partial correlation between the communicability and attitude was not statistically significant, $p = 0.745$. The regression equation of the correlation is presented as follows:

Predicted attitude = 0.356 + 0.186 perceived usefulness + 0.107 perceived ease of use + 0.269 compatibility + 0.012 communicability +

0.127 trialability + 0.223 perceived trust

The regression analysis and testing of the components of the research showed relations between the variables: ease of use, perceived usefulness/ relative advantage, compatibility, communicability, trialability, trust, attitude and intention to adopt mobile banking applications.

The hypotheses testing showed that perceived usefulness has the greatest effect by a factor of 0.76. Communicability had the lowest effect on consumer attitude according to the regression analysis.

• *Predicted attitude = 0.42 communicability + 2.37*

Ease of use also has somewhat of a small relation on consumer attitude as shown by the hypotheses testing:

• *Predicted attitude = 0.58 ease of use + 1.58*

The compatibility construct has also shown a significant impact on predicted attitude according to the regression analysis done in the hypotheses testing:

• *Predicted attitude = 0.68 compatibility + 1.27*

Perceived usefulness has shown a great and significant affect on predicted attitude according to the regression analysis:

• *Predicted attitude = 0.76 perceived usefulness + 0.97*

Also, perceived trust and trialibility have major effects on attitude showing in one would result in a change in the other:

• *Predicted attitude = 0.62 perceived trust + 1.55*

• *Predicted attitude = 0.55 trialability + 1.73*

We found that each variable has a different relation with attitude while attitude effects intention significantly by a factor of 0.78 (according to multiple regression analysis):

• *Predicted intention = 0.78 attitude + 1.28*

The multiple regression analysis summed up the affects of the six constructs to predict the significance of the effect of attitude on intention.

We also, found a significant difference in attitude between users and none users. 42% of the variance of the user variable was accounted for by whether the customer is a non-user or a user of the mobile banking applications.

Hence, our research shows that as one of the variables increase it causes a major change on consumer attitude resulting in a positive increase in consumer's intention to adopt mobile banking applications.

Recommendations

Our research has shown the significance of the different variables on attitude and the role attitude plays on predicted intention. Yet, according to the multiple regression analysis done to predict the

relation between attitude and intention communicability has the smallest effect while perceived usefulness/relative advantage has the major effect.

• Predicted attitude = 0.356 + 0.186 perceived usefulness +

0.107 perceived ease of use + 0.269 compatibility + 0.012 communicability + 0.127 trialability + 0.223 perceived trust

Thus we recommend the following for bank managers to better promote mobile banking applications:

• Managers should focus on highlighting the advantages the application plays in their lives

• They should also show that these applications are easy to use and available for testing pre-of use

• Showing that these applications are compatible with people's way of life would enhance their attitude and result in wider adoption intention

• Managers should not focus and utilize lots of resources on the communicability factor as it has very low effects on consumer attitude and will not increase adoption as pleased

• Making the application available for free trail would enhance consumer attitude this increasing consumer's intention to adopt

Managers should understand that their strongest tool for improving consumer attitude is showing the usefulness of the mobile banking applications.

Bank managers should focus on designing a mobile banking application that highlights the significant factors affecting attitude. Then, start a marketing campaign showing the different features the application has that would render the application useful, easy to use and understand, compatible, trust worthy and available for free testing and trail.

Research Limitations

We were unable to do the survey at Bank Audi branches in Beirut due to bank policies that prevented us from doing this kind of personal administered surveys. So, we decided to do convenient sampling

The convenient sampling has some restrictions concerning selection bias. This means that results might sometimes be unrepresentative of the general population. This is restricted to a type of research not similar to ours. Also, we have managed to get 315 respondents to attain as much a representative group as possible.

Conclusion

According to the results of our study, it shows that banks should focus to increase perceived usefulness, ease of use, compatibility, Trialibility, and trust of mobile banking services that will cause to increase the customer attitude towards their banking services. And they also avoid communicability because our results don't provide support to our hypothesis that communicability of mobile banking applications has a positive effect on consumers' attitude towards them.

In addition, the vast majority of respondents use web managing an account every so often and numerous respondents have a little learning about the e-keeping money administrations in light of they don't have much cash in their bank' accounts. In spite of the valuable discoveries of the study, this exact study has a few restrictions that should be recognized. A few variables were inspected in this study. Future studies ought to endeavor to draw profiles in view of attributes other than these elements.

References

1. Barnes SJ, Corbitt B (2003) Mobile banking: concept and potential. International Journal of Mobile Communications 1: 273-288.

2. Collection PB (2005) Consumers' attitudes towards online and mobile banking in China. nternational Journal of Bank Marketing 23: 362-380.

3. Nui V (2001) An empirical investigation of the Turkish consumers' acceptance of Internet banking services. International Journal of Bank Marketing 19: 156-165.

4. Mallat N (2006) Working Papers on Information Systems Exploring Consumer Adoption of Mobile Payments - A Qualitative Study. Association for information system.

5. Hernandez JMC, Mazzon JA (2007) Adoption of internet banking: proposition and implementation of an integrated methodology approach. International Journal of Bank Marketing 25: 72-88.

6. Gu JC, Lee SC, Suh YH (2009) Determinants of behavioral intention to mobile banking. Expert Systems with Applications 36: 11605-11616.

7. Sureshchandar GS, Rajendran C, Anantharaman RN (2002) The Relationship between Service Quality and Customer Satisfaction - A factor Specific Approach. Journal of Services Marketing 16: 363-379.

8. Sulaiman A, Jaafar NI, Mohezar S (2007) An overview of mobile banking adoption among the urban community. International Journal of Mobile Communications 5: 157-158.

9. Al-Jabri IM, Sohail MS (2012) Mobile banking adoption: Application of diffusion of innovation theory. Journal of Electronic Commerce Research 13: 379-391.

10. Pang J (1995) Banking and Finance in Malaysia. Federal Publications Sdn Bhd, Malaysia.

11. Shi, Xiaoguang (2011) Exploring factors that hinder the adoption of Mobile Services in China A qualitative user analysis with special focus on mobile financial services. Aalto university.

12. Crabbe M, Standing C, Standing S, Karjaluoto H (2009) An adoption model for mobile banking in Ghana. International Journal of Mobile Communications 7: 515-517.

13. Rod M, Ashill NJ, Shao J, Carruthers J (2009) An Examination of the Relationship between Service Quality Dimensions, Overall Internet Banking Service Quality and Customer Satisfaction: A New Zealand Study. Marketing Intelligence and Planning 27: 103-126.

14. Lassar WM, Manolis C, Winsor RD (2000) Service Quality Perspectives and Satisfaction in Private Banking. Journal of Services Marketing 14: 244-271.

15. Ganguli S, Roy SK (2011) Generic Technology-based Service Quality Dimensions in Banking: Impact on Customer Satisfaction and Loyalty. International Journal of Bank

Marketing 29: 168-189.

16. Ramaswami SN, Strader TJ, Brett K (2001) Determinants of On-Line Channel Use for Purchasing Financial. International Journal of Electronic Commerce 5: 95-118.

17. Al-Hawari M (2011) Automated Service Quality as a Predictor of Customers' commitment: a Practical Study within the UAE Retail Banking Context. Asia Pacific Journal of Marketing and Logistics 23: 346-366.

18. Salhieh L, Doleh JA, Hijazi N (2011) The assessment of e-banking readiness in Jordan. International Journal of Islamic and Middle Eastern Finance and Management 4: 325-324.

19. Loonam M, Loughlin D (2008) Exploring e-services quality: A study of Irish online banking. Marketing Intelligence and Planning 26: 759-780.

20. Peters D, Raad E, Sinkey JF (2004) The Performance of Banks in Post-war Lebanon. International Journal of Business 9: 1-3.

21. Mohamad R, Building A, Ismail NA (2010) Demokratiefähigkeit - Kompetenztheoretischer Ansatz und Kompetenzmodelle empirischer Studien im Vergleich. Journal of Internet Banking and Commerce 15: 1-11.

22. Sichel DE (1997) The Computer Revolution: An Economic Perspective. The Brookings Institution, Washington, DC.

23. Ali, A. (2011). Disaggregated import demand functions of Pakistan; An empirical Analysis. M-Phil Thesis, NCBA&E, Lahore, Pakistan, 1-70.

24. Ali, A. (2015). The impact of macroeconomic instability on social progress: an empirical analysis of Pakistan. (Doctoral dissertation, National College of Business Administration & Economics Lahore).

25. Ali, A., & Ahmad, K. (2014). The Impact of Socio-Economic Factors on Life Expectancy in Sultanate of Oman: An Empirical Analysis. Middle-East Journal of Scientific Research, 22(2), 218-224.

26. Ali, A., & Chani, M. I. (2013). Disaggregated Import Demand Function: A Case Study of Pakistan. International Journal of Economics and Empirical Research (IJEER),

1(1), 1-14.

27. Ali, A., & Rehman, H. U. (2015). Macroeconomic instability and its impact on the gross domestic product: an empirical analysis of Pakistan. Pakistan Economic and Social Review, 285-316.

28. Mahajanand V, Peterson RA (1985) Models for Innovation Diffusion. Beverly Hills, CA: Sage Publications.

29. Gerrard P, Cunningham JB (2003) The diffusion of Internet banking among Singapore consumers. International Journal of Bank Marketing 21: 16-28.

30. Akturan U, Tezcan N (2012) Mobile banking adoption of the youth market: Perceptions and intentions. Marketing Intelligence and Planning 30: 444-459.

31. Hanafizadeh P, Behboudi M, Abedini A (2015) Author's personal copy Telematics and Informatics Mobile-banking adoption by Iranian bank clients.