FACTORS AFFECTING THE ACCEPTANCE OF MOBILE BANKING SERVICES IN MAKASSAR INDONESIA

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Abstrak
Mobile banking services is a relatively new banking services. The main objective of this research is to investigate and explore factors that underlying acceptance factors of the customers to mobile banking services. The research involved 100 customers of mobile banking in Makassar selected by convenience and accidental sampling. Data were collected through structured interviews with a questionnaire. Based on exploratory factor analysis, it can summarize that are three factors underlying the customer acceptance of mobile banking, i.e. the ease of use, the services and advertising, and the security and family. The research concluded that to increase customer acceptance or adoption of mobile banking services, the banks should pay attention and communicate factors which considered supports the acceptance of customer on mobile banking.

Keyword: mobile banking, acceptance, services.

1. Introduction
In the current decade, the influence of Information and Communication Technology cannot be denied in the business and government segments. Information and communication technologies to facilitate and establish individual daily lives by offering services such as e-commerce, e-government, e-learning, e-health and e-working (Dwivedi et al., 2008).

Mobile banking is one result of the development of mobile technology used in the commercial domain. Mobil banking combines information technology and business applications together. Thanks to mobile banking, customers can use it to get banking services 24 hours a day without having to visit a bank branch for personal transactions. Mobile banking is a relatively new service offered by banks to their customers and because of the convenience and time-saving features and customers appreciate the service (Suoranta, 2003).

Compared to other e-banking services, the development of mobile banking (m-banking) spelled out the most quickly. This development is due to the presence of m-banking services are able to answer the needs of modern society which is promoting mobility. With one touch, m-banking to create ease of banking services in one hand. Usefulness of the car service banking will improve customer satisfaction. Furthermore, mobile banking creates a "value" for bank customers' transactions as a delivery channel for wireless services (wireless).

Technological development, especially in banking technology forced the banking industry players to formulate their strategies to employ information technology in order to remain competitive. Customers now want something more than just banking services. Customers want the convenience and flexibility (Birch dan Young, 1997; Lagoutte, 1996) on products and services that fit their needs and easy to use that cannot be offered by traditional banks. In future e-banking will be important strategic applications to compete that must be offered by all banks and financial institutions.
Transactions in the bank branch are still the most common method used to bank transaction in Makassar (Munir, as well as in other cities. However, mobile technology and Internet technologies are rapidly changing the design and delivery of financial services. Today almost all the banks in Makassar has introduced mobile banking system to improve operations and reduce transaction costs. Despite all the efforts aimed at developing a mobile banking system which is better and more easily, mobile banking is generally less noticed and utilized by customers. Therefore it takes an understanding of customer acceptance on mobile banking and it needs to identify the factors that may affect the customer's intention to use mobile banking. These issues are important because the answers to these studies will provide clues that will help the banking industry to formulate their marketing strategies to promote a new form of mobile banking in the future.

This study will enrich our understanding the factors that make consumers have the intention to behave towards this technology. Given previous similar studies are still few and especially no one has done in Makassar. Based on reason mentioned before, the objective of this research to analyze which factors underlying of customer acceptance toward mobile banking.

2. Literature Review

2.1. Mobile banking

Mobile banking is an electronic banking product offered by the bank to their customers to conduct banking transactions via mobile phone. Mobile banking services provided by the bank with the primary purpose of providing convenience to customers. Mobile banking services usefulness, among others, may be used for:

1. Pay phone bill or paying home loan installments, car, motorcycle, or any loans every month
2. Carry out money transfer to another bank.
3. Refill mobile credits
4. Pay credit card bills.
5. Paying the pension contributions in the Financial Institutions Pension Fund.
6. Bank transfer payment to another quickly through real-time gross settlement (RTGS).

Research related to customer acceptance of the mobile banking and electronic banking are generally focused on three research perspectives, which are (Laforet & Li, 2005):
1. The perspective of quality, which is the focus more examines what factors are expected by customers related to electronic banking services, including mobile banking.
2. Perspective motives and acceptance of various technologies in the fields of banking, including the internet and mobile technology in banking.
3. Perspectives attitudes and behavior of the use of electronic banking technologies, including mobile banking.

2.2. Benefits of Mobile banking

Besides providing benefits to customers, the use of mobile banking also provides important benefits to the bank.

Benefits to customers:
1. Can access anytime.
2. Can access from anywhere.
3. Save time, no line and no traffic
4. pay bills on time  
5. Ability to manage your own bank account  
6. In terms of physical security is more secure  
7. Transactions in e-banking, if managed well will be very safe.

Benefits to Bank:  
1. Maintain bank customers who want to use mobile banking facility in order not to move to other banks that have such facilities  
2. Reduce operating costs, fee-per-transaction for mobile banking is cheaper than other delivery channels.  
3. Banks do not need to open a lot of ATMs and branches.  
4. Having the ability to compete with other larger banks in the virtual world (in the virtual world they are same or equivalent).

2.3. Customer Acceptance of Mobile banking  
Customer acceptance of the electronic banking, in this case, mobile banking in has been investigated with different perspectives. Research conducted by Gerrard and Cunningham (2003) review the mobile banking customer acceptance from product characteristic aspects of innovation. In this study, the acceptance of mobile banking is more focused on the extent to which mobile banking product has a relative advantage, compatibility, easy, testable, demonstrable and safe. More positive perception of the easier acceptance of mobile banking.

Research conducted by Polatoglu and Eklin (2001) in Turkey showed that there are three factors that underlie the receiving mobile banking customers, namely reliability, ease of access and savings. Meanwhile, research conducted by Howcroft, Hamilton & Hewer (2002), aims to determine consumer attitudes towards e-banking as well as the important factors that drive and impede the acceptance of e-banking. The results show that customers interested because of safety and convenience. Acceptance of e-banking is also influenced by the bank's strategy. Customers will be positive and accept or use e-banking if they had been familiar with internet facility on their phones.

3. Research Methodology  
3.1. Research Design and Variable  
This research was conduct in Makassar City in South Sulawesi Province with a consideration that Makassar City is the centers of economic activity which also mean as central banking activities in South Sulawesi. This study is a survey that using a questionnaire as the main data collection tool. From the aspect of purpose, this study is a study which aims to describe the phenomenon in management with cross-sectional data.

Based on the research objectives, the operational definition of the variables are:  
Variable underlying customer acceptance of the mobile banking:

1. Lower cost (V1)  
   Lower cost variable is the view of the customer to make transactions through mobile banking can save expenses.  
2. Better Quality of service (V2)  
   Better quality of service Variable is the view of customers that make transactions through mobile banking will get good service.  
3. time saving (V3)  
   time-saving Variable is the view of customers that the transactions through
mobile banking can save their time.

4. Security Guarantee (V4)
   security guarantee Variable is the view of customers that the transactions
   through mobile banking will be secured by a bank.

5. 24-hour service (V5)
   24-hour service Variable is the customer view that the transactions through
   mobile banking can be done anytime without waiting for the bank to open

6. Easy to Access information (V6)
   Easy to Access information Variable is the view of customers that use mobile
   banking services can easy see the information, for example, deposit rate
   information, information deposit rates, lending rates information and
   information on foreign exchange.

7. Knowing from family (V7)
   knowing from family Variable is customer aware of the mobile banking service
   from the family.

8. Knowing from friends (V8)
   knowing from friends Variables is customer know mobile banking service from
   a friend.

9. Knowing from the mass media (V9)
   knowing from the mass media Variable is customers know mobile banking
   services from the mass media.

10. Reduce traffic on the bank lobby (V10)
    reduce traffic on the bank lobby Variable is the view of customers that conduct
    transactions through mobile banking will reduce traffic on the bank.

11. Ease to transfer between the customer (V11)
    ease to transfer between the customer Variable is the customer view that mobile
    banking services provide ease of transfer between the customer.

12. Ease to transfer interbank (V12)
    Ease to transfer interbank Variable is the view of customers that mobile
    banking service provides easiness to transferring between banks.

All Variables that underlying attitude towards mobile banking customer acceptance
mentioned above was measured with a scale of 1 to 5 for the answer from Strongly Not Agree
to Strongly Agree.

3.2. Research Instruments

Instruments of Research are developed based the questionnaire on previous research by
Howcroft and Hamilton (2002). Indicators from the variables are presented in Table 1.
Table 1.
Research Instruments

<table>
<thead>
<tr>
<th>Construct</th>
<th>Variables</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Factors are underlying customer acceptance of the mobile banking.</td>
<td>Lower cost (V1)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Better Quality of service (V2)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>time savings (V3)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Security Guarantee (V4)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>24-hour service (V5)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Easy to Access information (V6)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Knowing from family (V7)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Knowing from friends (V8)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Knowing from the mass media (V9)</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Reduce traffic on the bank lobby (V10)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Ease to transfer between the customer (V11)</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Ease to transfer interbank (V12)</td>
<td>12</td>
</tr>
</tbody>
</table>

3.3. Instruments validity and reliability

Test of Item Validity was used to test the extent a measuring instrument can be said to be proper in performing its function (Malhotra, 2004). Validity test was performed involving 30 respondents. In this case, the validity of the tests carried out by correlating between a score of items with total value with product-moment correlation technique from Pearson (Singgih Santoso, 2000; Husein Umar, 2000). The Level of significance was set to 5%. The validity of the test results is presented in Table 2.

Table 2
Result of Instrument Validity

<table>
<thead>
<tr>
<th>No.</th>
<th>Variables</th>
<th>Pearson Correlations</th>
<th>Status on 0,05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V1</td>
<td>0,3653</td>
<td>Valid</td>
</tr>
<tr>
<td>2</td>
<td>V2</td>
<td>0,4496</td>
<td>Valid</td>
</tr>
<tr>
<td>3</td>
<td>V3</td>
<td>0,3594</td>
<td>Valid</td>
</tr>
<tr>
<td>4</td>
<td>V4</td>
<td>0,6843</td>
<td>Valid</td>
</tr>
<tr>
<td>5</td>
<td>V5</td>
<td>0,3703</td>
<td>Valid</td>
</tr>
<tr>
<td>6</td>
<td>V6</td>
<td>0,3396</td>
<td>Valid</td>
</tr>
<tr>
<td>7</td>
<td>V7</td>
<td>0,5323</td>
<td>Valid</td>
</tr>
<tr>
<td>8</td>
<td>V8</td>
<td>0,4381</td>
<td>Valid</td>
</tr>
<tr>
<td>9</td>
<td>V9</td>
<td>0,5443</td>
<td>Valid</td>
</tr>
<tr>
<td>10</td>
<td>V10</td>
<td>0,3976</td>
<td>Valid</td>
</tr>
<tr>
<td>11</td>
<td>V11</td>
<td>0,4411</td>
<td>Valid</td>
</tr>
<tr>
<td>12</td>
<td>V12</td>
<td>0,4870</td>
<td>Valid</td>
</tr>
</tbody>
</table>

Results of Reliability test on a small sample using the same number of respondents as the validity test showed the results as presented in Table 3.
Table 3
Result of Instruments Reliability

<table>
<thead>
<tr>
<th>No.</th>
<th>Variables</th>
<th>Alpha Cronbach</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Customers’ acceptance on Mobile banking</td>
<td>0.8132</td>
<td>Good</td>
</tr>
</tbody>
</table>

Test of Reliability is performed using Alpha-Cronbach test. This means that the measuring instrument has high internal consistency and is able to provide a relatively consistent measurement results.

3.4. Population and Samples

The population in this study were banking customers Makassar. Samples were taken that bank customer who uses the car service banking eighteen years and over. For male respondents amounted to 67 people and female respondents amounted to 33 people.

3.5. Data Collection

Data collection method used is questionnaire method, which is a technique of collecting data by distributing questionnaires in the form of a written statement listing in the sheet form distributed directly to the respondents for answers and information about the problems examined. At each respondent was asked to rate the questions with answer ranging selection, strongly disagree (1), disagree (2), doubtful (3), agree (4), and strongly agree (5).

3.6. Analysis Technique

In this research, descriptive analysis and statistical analysis were used. To measure the factors underlying acceptance of mobile banking is used exploratory factor analysis techniques. This analysis is used to simplify the observation that complex and interconnected into factors along with the formulation according to Malhotra (2004),

\[ X_i = A_{i1} F_1 + A_{i2} F_2 + A_{i3} F_3 + \ldots + A_{im} F_m + V_i U_i \]

Where:
- \( X_i \): \( i \)-th Standardized Variable
- \( A_{ij} \): Standardized Multiple regression coefficients of variable \( i \) on common factor \( j \).
- \( F \): Common factor
- \( V_i \): Standardized regression coefficient of variable \( i \) on unique factor \( i \)
- \( U_i \): Unique factor for variable \( i \)
- \( M \): number of common factor

The unique factors uncorrelated each other and with the common factor. The common factors can be expressed as linear combination of the observed variables.

\[ F_i = W_{i1} V_1 + W_{i2} V_2 + W_{i3} V_3 + \ldots + W_{ik} V_k \]

Where:
- \( F_i \): estimate of \( i \)th factor
- \( W_i \): Weight or factor score coefficient
- \( V_i \): \( i \)-th variables
- \( k \): number of variables
4. Result and Analysis

Factors underlying customers’ acceptance on mobile banking services

From the results of data analysis requirements which include the feasibility of the samples and testing requirements of the identity matrix shows that the value of KMO = 0.821 and there is a very significant intercorrelation between variables. This means that data meets the requirements for factor analysis. Full rotation results are presented in table 6.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Variables</th>
<th>Correlation</th>
<th>% cumulative variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1. lower cost (V1)</td>
<td>0.782</td>
<td>29.674</td>
</tr>
<tr>
<td></td>
<td>2. 24-hour service (V5)</td>
<td>0.601</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Easy to Access information (V6)</td>
<td>0.804</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Reduce traffic on the bank lobby (V10)</td>
<td>0.646</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1. Better Quality of service (V2)</td>
<td>0.649</td>
<td>14.585</td>
</tr>
<tr>
<td></td>
<td>2. time savings (V3)</td>
<td>0.642</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Knowing from the mass media (V9)</td>
<td>0.683</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Ease to transfer interbank (V12)</td>
<td>0.582</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1. Security Guarantee (V4)</td>
<td>0.843</td>
<td>11.053</td>
</tr>
<tr>
<td></td>
<td>2. Knowing from friends (V7)</td>
<td>0.795</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total of Cumulative variance</strong></td>
<td></td>
<td><strong>55.312</strong></td>
</tr>
</tbody>
</table>

Thus, there are three important factors that underlie customer acceptance of the mobile banking, three factors are in accordance with the variables in it called:

1. **Ease factor**
   Ease factor consist of lower cost (V1), 24-hour service (V5), Easy to Access information (V6), and Reduce traffic on the bank lobby (V10) variables.

2. **Service and Advertising factor**
   Service and advertising factor consist of Better Quality of service (V2), time savings (V3), Knowing from the mass media (V9), and Ease to transfer interbank (V12) variables.

3. **Security and Family factor**
   Security and family consist of Security Guarantee (V4) and Knowing from friends (V7) variables.

From the results of the factor analysis it is known that customer acceptance of the mobile banking services is based on:

1. **Ease factor**
   Ease Factor come into consideration of underlying customers using mobile banking services, ease factor is formed by the 24-hour service, Easy to Access information, reducing the load variable in the bank lobby variables. In using the mobile banking service, customers do not need to pay a lot, because customers can conduct transactions at home, in the office or wherever the customer is located. Customers do not need to bother to come to the bank and do not need to spend on transportation costs. 24 hours services provided through mobile banking bank is also the convenience factor, because with 24-hour service customers do not need to wait for banks are open for transactions. Transactions through mobile banking can be done at any time either
during the day, night and whether rain or sunny. Mobile banking services also facilitate an easier access to information. Their access to information is easier and the customer can find all information about the banks, both regarding accounts held and other banking information. Customers who use mobile banking services are much less to come to the bank, this is due to the use of mobile banking services customers will automatically reduce the traffic on the bank lobby. Customers will only come to the bank to deposit money in time deposits run out.

These results are relevant to the study conducted by Polatoglu & Ekin (2001), using the factor analysis method found that access factors (ease of transactions, speed and can easily access anywhere and anytime) are underlying factors in customer acceptance of the e-banking. Research by Gerrard and Cunningham (2003) in Singapore also showed that comfort, ease of access and economic benefits becomes important for adopters to accept mobile banking. Another study conducted by Sathye (1999) also showed that the ease of use become important in the adoption of mobile banking.

2. Service and Advertising factor

Service and advertising factors become consideration of customers using mobile banking services, formed by better quality of service, time savings, knowing from the mass media and the ease of transfer interbank variables. Service Quality provided by the bank through the mobile banking service an important underlying factor in the customer uses the service. Customers who use mobile services banking will be able to save time. Customers of mobile banking do not need to come to the bank to stand in line waiting for their turn, through mobile banking customers can be served immediately without having to wait in the queue, in addition to the customers also do not need to waste time on the road to go to the bank and is not affected by traffic jams. Results of research conducted by Polatoglu dart Eklin (2001) also showed that the reliability factor of the service to be main factor underlying adopting e-banking customers.

Awamleh (2003), also found that customer acceptance of the mobile banking services depends on the quality of service and ease of access. Howcroft et al (2002), revealed that customer considerations in using e-banking services ie lower costs and better service quality.

Knowing from the mass media variable is also a factor to be considered for customers to use mobile banking services. By knowing their mobile banking services in the media become affected customers to try and use the mobile banking service. Ease of transfer between banks is also a variable that selected customers to use mobile banking services. Interbank transfers can be easily made via mobile banking.

3. Security and Family factor

Safety and family factor become customers’ consideration in using mobile banking services. This factor is formed by Security Guarantee and Knowing from friends variables.

Security in the use of mobile banking services is an important underlying factor in the customers using mobile banking services. These results support previous research conducted by Polatoglu and Ekin (2001) which shows that the factor of
security and privacy is a factor underlying the adoption of e-banking, including mobile banking. Their PIN number must not be known to anyone including the operator is a security guarantee for the customer. The use of user ID and PIN are secret code and the authority granted by banks to customers mobile banking service users. Another variable that becomes form factor is friends. Customers using mobile banking services because of enforcement from friends who have used the service before.

In general, the results of this study support previous studies. The difference lies in the variables that form factor which has little difference. The existence of this difference can not be separated from customers’ knowledge gaps which will indirectly affect the perception of factors underlying acceptance to mobile banking.

5. Conclusion, Implication dan Limitation

This research concludes that from results of the factor analysis of mobile banking shows that the factors underlying customer acceptance of the mobile banking services, which are:

a. Ease Factor which is formed by the 24-hour service, Easy to Access information, reducing the load variable in the bank lobby variables.

b. Service and advertising factors which are formed by better quality of service, time savings, knowing from the mass media and the ease of transfer interbank variables.

c. Security and family factor, which are formed from security guarantee and knowing from friends variables.

Important implication and suggestions from this study are that the bank should conduct an evaluation system of mobile banking services and strive to improve and communicate the factors that have been seen as considerations of customer acceptance of the mobile banking. Marketing communications about the relative advantages of mobile banking are important to encourage the customer acceptance of the mobile banking. Besides that, banks that provide mobile banking services should continue to provide information and dissemination on how the use of mobile banking. This is important for customers feel the convenience of mobile banking.

This study has a number of limitations, especially in sample size therefore it is advisable in this aspect of the sample should increase to cope representativeness. Beside that from variable aspect to consider the include of product characteristics particularly mobile banking as a new product, customer familiarity with 4G mobile facilities and the benefits of mobile banking more specifically. This is important in order to complement previous studies in the field of e-banking including internet banking and mobile banking which are still done partially on these variables.
References


