

An Empirical Study of the Influencing Factors of User Adoption on Mobile Securities Services

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Abstract—In view of the barrier that users held a low adoption intention of mobile securities currently, this study developed a theoretical model of user adoption on mobile securities services based on Technology Acceptance Model, and attempted to explore the influencing factors which play a role in user adoption. By collecting questionnaire survey data, we proceeded statistical analysis and Structural Equation Modeling analysis with SPSS and AMOS, and tested the theoretical model and further made a discussion on the results of data analysis. The results shown that perceived usefulness and perceived ease of use posed a significant positive impact on user adoption on mobile securities services but perceived risk posed a significant negative impact; the impact of perceived cost on user adoption on mobile securities services was not significant. We also verified the impacts of usability of mobile device and usability of mobile communication network. Ultimately, we proposed suggestions to all participants of mobile securities and pointed out the direction of future work.

Index Terms—mobile commerce, mobile securities, Technology Acceptance Model, user adoption, Structural Equation Modeling

I. INTRODUCTION

Mobile securities, also known as handset securities, is a typical application of mobile commerce. It enables users to obtain real-time quotations, browse market information and address securities trading by using mobile devices (handsets, PDAs, etc) which rely on the data transmission function of mobile communication network. Relative to the telephone agency transactions and online transactions, mobile securities breaks the space-time restrictions, allows users expediently, effectively to make information inquiry and address securities trading anytime anywhere. Mobile securities can provide convenient, prompt and personalized securities services, nonetheless, compared with large groups of mobile phone users, the number of users using mobile securities is less and adoption intention of mobile securities is relatively low currently[1]. Therefore it is necessary to understand user's attitude toward using mobile securities and its influencing factors to help mobile operators and securities companies to understand

the requirement of user and develop the mobile securities service that user is willing to use.

Currently the research on mobile securities is still in its initial stage, and the analysis of user technology adoption behavior and its features on mobile securities services by systematic approach is rather scarce. For this reason, this paper introduced and applied Technology Acceptance Model (TAM) to the actual use environment of mobile securities services in China, attempted to explore the influencing factors which play a role in user adoption currently. It was of practical and theoretical significance.

II. RESEARCH OVERVIEW OF TECHNOLOGY ACCEPTANCE ON MOBILE SECURITIES

Technology Acceptance Model that Davis proposed in 1989 is one of the best technology acceptance theories in the research field of information management. Due to the simple model and various kinds of empirical studies on its value [2], Technology Acceptance Model has been widely used in the researches on various information acceptance issues. TAM is also the foundation and main theoretical basis of this study.

The theoretic basis of Technology Acceptance Model is the Theory of Reasoned Action (TRA) which is from social psychology. According to TRA, certain behavior of an individual is decided by behavioral tendency of taking this behavior, and the behavioral tendency is jointly decided by his attitude and subjective criteria [3] [4].

Technology Acceptance Model, which is based on TRA, regards perceived usefulness and perceived ease of use as the determinants of adoption intention and the use of information technology. Davis defined perceived usefulness as the subjective probability of improvement of user's job performance due to the use of certain technology application system in organizational environment, and defined perceived ease of use as the degree of user can easily use certain technology application system without paying too much effort [5]. Perceived usefulness and perceived ease of use both present user's attitude toward certain technology application system and are seen as the user's willingness of accepting the system. User's attitude and perceived usefulness affect the behavior intention of the use of certain technology application system, behavior intention

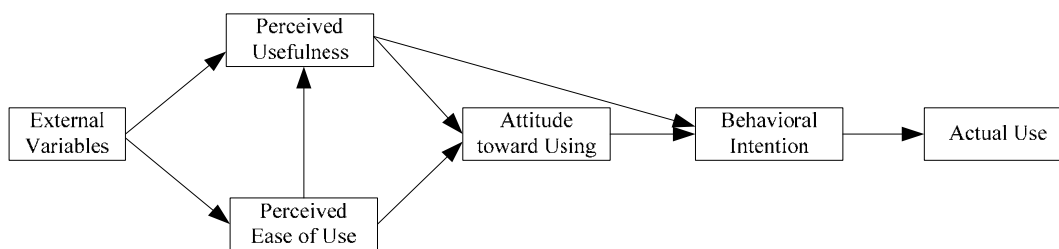


Figure 1. Basic framework of Technology Acceptance Model

also affects user’s actual behavior. Figure 1 shows the basic framework of TAM.

Although TAM was originally used to explain the adoption of information technology for organization [6], but studies have shown that TAM model which are made suitable expansion and correction can discover and explain the process of user’s adoption of certain new technology and conduct certain prediction and evaluation to user’s behavior [7]. In various kinds of technical conditions, TAM model has good robustness and adaptability [8]. In recent studies of mobile commerce and mobile services, TAM model has also been applied effectively and demonstrated good power of explanatory [9] [10] [11].

Through the literature search, it was found that the research results on the issue of technology acceptance of mobile securities were hardly seen currently. In the existing research results, researchers have paid more attention to trust factor of user adoption behavior. For instance, Lin made expansion and modification for TAM model, added four factors (perceived safety, trust propensity, information quality and convenience) to TAM model, and analyzed the impact of these factors on user trust of mobile securities and his use willingness [12]. Carrying out researches on technology acceptance of mobile securities from the perspective of trust has proved that the investigations and studies on user adoption can find practical information and basis for the improvement of mobile securities management. The research method of using TAM model is scientific and reliable. However, is it reasonable to explain user adoption behavior of mobile securities only from the perspective of trust? Is it in conformity with the actual situation? They are both questionable. The authors of this paper thought that user adopts mobile securities not only influenced by a certain factors, but also influenced by other important factors. The researches on user adoption behavior of mobile securities carried on from only one aspect or one perspective were unreasonable and one-sided. Therefore, it is necessary to studies user adoption behavior from more comprehensive perspectives, synthetically to consider which key elements exactly take effect on the adoption of mobile securities. This is a topic worthy deeply discussing and researching.

III. RESEARCH MODEL

The theoretic research model this paper proposed is an expansion model based on TAM. It retained the basic structure of TAM, added some external factors combined

with the characteristics of mobile securities and regarded user’s behavioral intention as the key indicators of predicting and explaining user’s behavior. It was hoped that this model could comprehensively understand the influencing factors of user adoption on mobile securities.

Behavioral intention reflects user’s willingness which has been shown in the process of ordering and using mobile securities. It is a necessary condition before user takes actual action. In the past research, researchers have proved that behavioral intention was a reliable observation variable, user’s behavioral intention had a direct correlation with his actual usage, and behavioral intention can predict user’s adoption behavior perfectly [13]. According to “attitude-intention-behavior” three-layered structure of TAM, what plays a role on behavioral intention was the attitude of user, namely, user holds positive or negative attitude toward whether use mobile securities or not [13]., this paper put forward the following hypotheses:

H1: attitude toward using has a significant positive impact on behavioral intention of mobile securities.

In the analysis of influencing factors of user adoption on mobile securities, this paper borrowed many ideas from the current research results on technology adoption, eventually attributed the possible influencing factors of user’s attitude toward use to four aspects: perceived usefulness, perceived ease of use, perceived cost and perceived risk.

A. Perceived Usefulness and Perceived Ease of Use

In the context of mobile securities, perceived usefulness refers to the subjective possibility of improvement of user’s job performance due to use mobile securities to get real-time quotations and processing securities transactions in mobile context; perceived ease of use refers to the degree of user’s belief that mobile securities is easy to learn and easy to use. Perceived usefulness and perceived ease of use are the most important factor in TAM. Many research results related to information system adoption have shown that perceived usefulness has a significant influence on attitude toward use and behavior intention [14] [15]; perceived ease of use had a significant influence on user’s attitude toward use, meanwhile it also affects perceived usefulness [16]. So this paper put forward the following hypotheses:

H2: Perceived usefulness has a significant positive impact on attitude toward using of mobile securities.

H3: Perceived usefulness has a significant positive impact on behavioral intention of mobile securities.

H4: perceived ease of use has a significant positive impact on attitude toward using of mobile securities.

H5: perceived ease of use has a significant positive impact on perceived usefulness of mobile securities.

B. Perceived Cost

Economic motivation and consequence were the research focus of information system adoption, and the cost was always the important influencing factor of information system adoption [17], service charge had a significant impact on user attitude toward adopting mobile service [18]. In the process of using mobile securities, user needs to pay communication traffic charges to mobile operators and pay monthly service fee to securities companies. When self-perception of cost is too high, it is easy for user to have a negative attitude toward mobile securities service. User adopts this service only when he can accept the service fee. Hence, this paper put forward the following hypotheses:

H6: perceived cost has a significant negative impact on attitude toward using of mobile securities.

C. Perceived Risk

Perceived risk is user's psychological feeling and subjective cognition of various kinds of objective risks encountered in the course of using mobile securities service [19]. In most of the studies related to user adoption of business activities or financial services, user's perceived risk on financial security and personal privacy was an important factor which has been verified and considered repeatedly [11][19]. According to this, this paper put forward the following hypotheses:

H7: perceived risk has a significant negative impact on attitude toward using of mobile securities.

D. Influencing Factors of Perceived Usefulness and Perceived Ease of Use

In order to gain a better understanding of the forming process of perceived usefulness and perceived ease of use these two key variables in the course of user adoption of mobile securities, this paper introduced two external variables- usability of mobile device and usability of mobile communication network combined with the usage features of mobile securities.

Usability refers to user can carry out a task effectively,

efficiently and satisfactorily with the help of certain product in specific situation [20]. Relying on mobile communication network, mobile securities gets real-time quotations and processes securities transactions in use of mobile devices such as handsets, PDAs, but the restrictions of mobile devices and the immature of mobile communication network technology can bring certain negative impacts on user's perceived usefulness and perceived ease of use. Specifically, the negative impacts include the following aspects:

First, mobile devices are the carrier that provides high-quality mobile securities services for users; the usability of mobile device mainly refers to the usability of input-output device, computation speed, storage space and battery life capability of mobile device [21]. The limitations that the screen size of mobile device is small and its keyboard is hard to operate have seriously affected the user's perceived ease of use, meanwhile, the slow computation speed, the limited storage space and the short battery life have also a negative impact on user's perceived usefulness [22]. Therefore, the usability of mobile device is an important factor that actually affects user's perceived usefulness and perceived ease of use. This paper proposed the following hypotheses:

H8: usability of mobile device has a significant negative impact on perceived usefulness of mobile securities.

H9: usability of mobile device has a significant negative impact on perceived ease of use of mobile securities.

Second, the usability of mobile communication network mainly refers to the stability, coverage and data transfer rate of mobile communication network [21]. Use's perceived usefulness and perceived ease of use also come from the rapid response to the request for mobile securities, and this puts forward higher requirements for the usability of mobile communication network. It must be guaranteed that user's location can be covered by mobile communication network; besides, good stability and fast data transfer rate of mobile communication network will also significantly influence the adoption behavior [23]. This paper proposed the following hypotheses:

H10: usability of mobile communication network has a significant negative impact on perceived usefulness of

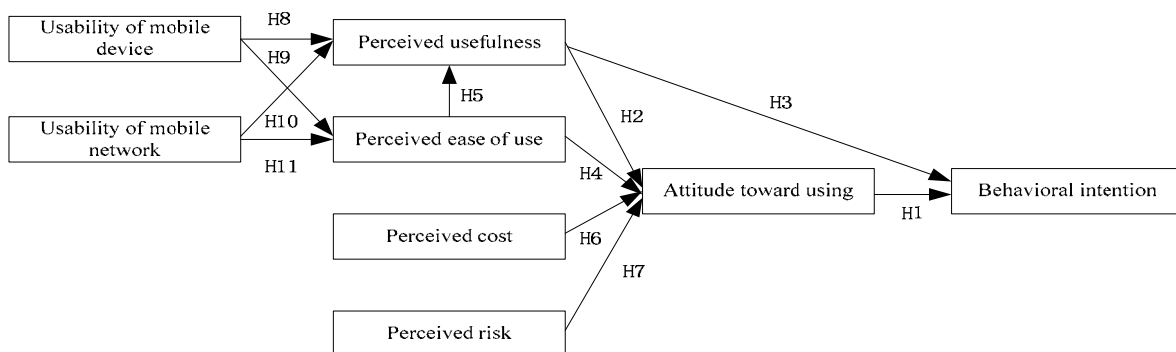


Figure 2. Basic framework of user adoption on mobile securities

TABLE II. DEFINITIONS OF THE VARIABLES AND SCALE SOURCES

| Variables | Definitions | Number of questions | Scale sources |
|---|---|---------------------|---|
| Behavioral intention | The motivation of user to adopt mobile securities | 3 | Venkatesh and Davis(1996)[25] |
| Attitude toward using | The degree of desirability of user to adopt mobile securities | 3 | Taylor and Todd(1995)[26] |
| Perceived usefulness | the subjective possibility of improvement of user’s job performance due to use mobile securities to get real-time quotations and processing securities transactions | 3 | Moore and Benbasat(1991)[27], Davis(1989)[5] |
| Perceived ease of use | the degree of user’s belief that mobile securities is easy to learn and easy to use | 3 | Davis(1989)[5], Campeau and Higgins(1995)[28] |
| Perceived cost | The acceptability of user to the monthly chare of mobile securities | 3 | Luarn and Lin(2005)[29] |
| Perceived risk | user’s psychological feeling and subjective cognition of various kinds of objective risks encountered in the course of using mobile securities service | 3 | Wang(2003)[20] |
| Usability of mobile device | the usability of input-output device, computation speed, storage space and battery life capability of mobile device | 4 | Lamarch, Langheinr and Truong(2007)[23] |
| Usability of mobile communication network | the stability, coverage and data transfer rate of mobile communication network | 3 | Kim(2007)[31], Hung(2003)[32], Yuan. Y. F(2006)[33] |

mobile securities.

H11: usability of mobile communication network has a significant negative impact on perceived ease of use of mobile securities.

Based on the analysis given above, this paper set four basic influencing factors for uses adoption behavior on mobile securities at the present stage in China, added two interpretive external variables for perceived usefulness and perceived ease of use, and proposed 11 basic hypotheses for their influencing paths. Figure 2 shows the basic framework of the model.

IV. RESEARCH METHODOLOGY

A. Questionnaire Design

This study verified the research model mentioned above by questionnaire approach. In order to ensure the reliability and validity of the variables, this paper fully referenced the questions used in relative literatures, and made appropriate expansion and adjustment according to the characteristics of mobile securities. All questions adopted the presentation of 7 points Likert scale system, asked respondents to show attitude toward the statements. Point 1 to 7 respectively means strongly disagree, disagree, slightly disagree, neutral, slightly agree, agree, strongly agree.

In order to avoid the semantic problems of the questionnaire that may lead to respondents’ misunderstanding of the meaning of questions, this paper inspected the contents of the questionnaire by using pre-test approach. The objects of the pre-test were 10 Masters whose research fields were information management. They were asked to give feedback for the expression syntax and item meaning of the questionnaire. And then modifying the questionnaire accorded to the feedback. Eventually, the definitions of the variables and scale sources are seen as table I.

B. Sample Collection

In March 2010, the authors of this paper investigated the enterprise and institution staff members who were

TABLE I. DEMOGRAPHIC INFORMATION OF RESPONDENTS*

| Measure | Items | Frequency | Percent |
|---|---------------------|-----------|---------|
| Gender | Male | 130 | 74.7 |
| | Female | 44 | 25.3 |
| Age | <20 | 3 | 1.7 |
| | 20-30 | 78 | 44.8 |
| | 30-40 | 81 | 46.6 |
| | 40-50 | 6 | 3.4 |
| | >50 | 6 | 3.4 |
| Education background | Ph.D | 41 | 23.6 |
| | Postgraduate | 106 | 60.9 |
| | Undergraduate | 24 | 13.8 |
| | Secondary and below | 3 | 1.7 |
| Vocation background Education background | Governments | 38 | 21.8 |
| | Finance | 23 | 13.2 |
| | Education | 18 | 10.3 |
| | Real estate | 21 | 12.1 |
| | Retail | 20 | 11.5 |
| | IT | 6 | 3.4 |
| | Services | 26 | 14.9 |
| Job title | Others | 22 | 12.6 |
| | Staff | 76 | 43.7 |
| | Middle-leve cadres | 75 | 43.1 |
| Yearly income | Exectutive leader | 3 | 1.7 |
| | Others | 20 | 11.5 |
| | 30000-60000 | 72 | 41.4 |
| | 60000-15000 | 74 | 42.5 |
| Years of investment experience | 15000-30000 | 26 | 14.9 |
| | >30000 | 2 | 1.1 |
| | <2 | 57 | 32.8 |
| | 2-5 | 84 | 48.3 |
| | 5-10 | 22 | 12.6 |
| | >10 | 11 | 6.3 |

*sample size = 174

students of part-time MBA and Master of Engineering in School of Business Administration of South China University of Technology. A total of 200 questionnaires were sent in the process of investigation, and a total of 192 replies were returned. Excluding the incomplete and invalid questionnaires, a total of 174 questionnaires were valid. The rate of valid questionnaires was 90.63%. Table II shows the demographic information of the respondents.

As is shown in the table, most of the respondents in the sample had been received higher education and relatively young. 67.2% of the respondents had more than 2 years' experiences of investment. The number of male respondents was 130 while the number of female respondents was 44. In addition, 56.3% of respondents took senior positions in their jobs and 58.6% of respondents got annual income of more than 60,000 RMB.

V. DATA ANALYSIS AND HYPOTHESIS TESTING

A. Method of Statistical Analysis

This paper processed the data by using Structural Equation Model, SPSS and AMOS software.

Structural Equation Model is a research method based on the technology of statistical analysis and is very suitable to explore and analyze complex multi-variable data. For this reason, SEM has been widely used in research fields such as economics, sociology and behavioral science.

table III, the values of Cronbach's α of all variables are above 0.7. It indicated that the questionnaire is of good reliability.

2) Validity Test

The rating scales used in this study were all from the existing literatures. Many scholars have used these rating scales to measure relevant variables. Before the final confirmation, the questionnaire was tested by using pre-test method, and made proper adjustments according to the feedback. Therefore, the scale had a considerable

TABLE III. RELIABILITY TEST

| Variables | Number of items | Cronbach's α |
|---|-----------------|---------------------|
| Behavioral intention | 3 | 0.833 |
| Attitude toward using | 3 | 0.701 |
| Perceived usefulness | 3 | 0.758 |
| Perceived ease of use | 3 | 0.782 |
| Perceived cost | 3 | 0.780 |
| Perceived risk | 3 | 0.707 |
| Usability of mobile device | 4 | 0.774 |
| Usability of mobile communication network | 3 | 0.795 |

content validity and could meet the requirements of construct validity.

This paper used confirmatory factor analysis to test the construct validity of the scales. Table IV shows the confirmatory factoring analysis of variables. Most of

TABLE IV. CONFIRMATORY FACTOR ANALYSIS OF VARIABLES

| Index | Ideal standard value | BI | AU | PU | PEU | PC | PR | UMD | UMN |
|--------------|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| $\chi^2(df)$ | N/A | 5.47(3) | 5.07(3) | 5.81(3) | 6.34(3) | 3.62(3) | 4.08(3) | 6.42(4) | 4.75(3) |
| χ^2/df | ≤ 2.00 | 1.823 | 1.690 | 1.937 | 2.113 | 1.207 | 1.360 | 1.605 | 1.583 |
| GFI | ≥ 0.90 | 0.956 | 0.974 | 0.931 | 0.974 | 0.927 | 0.961 | 0.933 | 0.982 |
| AGFI | ≥ 0.80 | 0.963 | 0.919 | 0.952 | 0.936 | 0.972 | 0.941 | 0.972 | 0.965 |
| RMR | ≤ 0.05 | 0.028 | 0.015 | 0.008 | 0.042 | 0.034 | 0.025 | 0.020 | 0.022 |
| RMSEA | ≤ 0.05 | 0.019 | 0.048 | 0.021 | 0.026 | 0.015 | 0.008 | 0.039 | 0.043 |
| CFI | ≥ 0.90 | 0.941 | 0.964 | 0.927 | 0.936 | 0.985 | 0.917 | 0.962 | 0.908 |
| AVE | ≥ 0.5 | 0.759 | 0.818 | 0.815 | 0.828 | 0.895 | 0.925 | 0.952 | 0.917 |

SPSS18.0 and AMOS18.0 used in this article are powerful social science statistical software and SEM modeling tool. Through the expansion of traditional multivariate data analysis such as regression analysis, factor analysis, correlation analysis and variance analysis, the model can be specified, evaluated, tested and developed in the intuitive path diagram. Then hypothesized relationships among different variables can be verified in the path diagram.

B. Reliability and Validity Test

1) Reliability Test

Reliability refers to the consistency and stability of measurements. The higher the reliability of questionnaire is, the more credible the results get. Reliability test always uses the method of Cronbach's α . Generally believed, the value of Cronbach's α is greater than 0.7 means the questionnaire is of reliability. As seen from the

TABLE V. OVERALL MODEL FIT INDEXES

| Fit index | Ideal standard value | Acceptable standard value | Scores |
|-------------|----------------------|---------------------------|---------|
| χ^2 | N/A | N/A | 783.018 |
| df | N/A | N/A | 565 |
| χ^2/df | ≤ 2.00 | ≤ 3.00 | 1.386 |
| GFI | ≥ 0.90 | ≥ 0.80 | 0.926 |
| RMR | ≤ 0.05 | ≤ 0.08 | 0.061 |
| RMSEA | ≤ 0.05 | ≤ 0.08 | 0.057 |
| AGFI | ≥ 0.80 | ≥ 0.70 | 0.844 |
| NFI | ≥ 0.90 | ≥ 0.80 | 0.928 |
| CFI | ≥ 0.90 | ≥ 0.80 | 0.875 |
| PNFI | ≥ 0.5 | | 0.682 |
| PCFI | ≥ 0.5 | | 0.743 |

indexes (like χ^2/df , GFI, AGFI, RMR, RMSEA, CFI) of every construct achieved ideal standard value, while some of them reached the standard value or closed

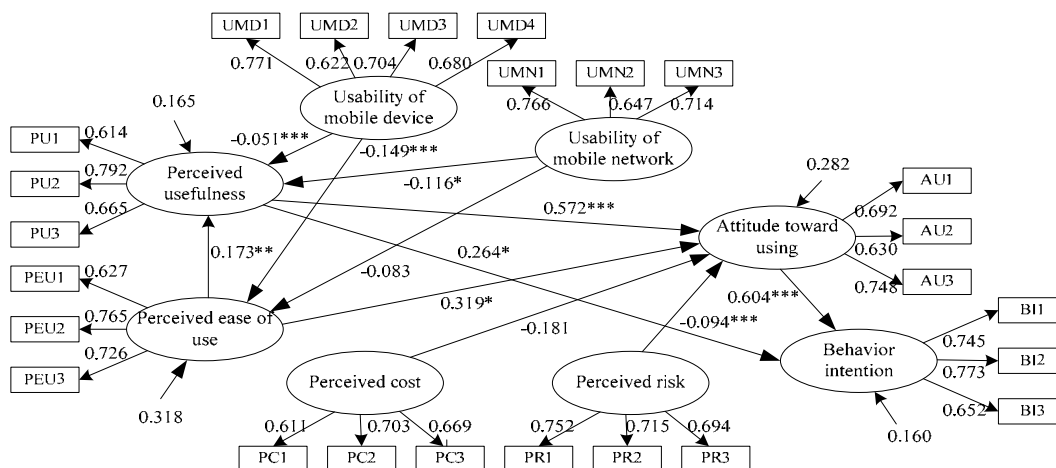


Figure 3. The path coefficient of research model

to ideal standard. It indicated that the overall scale had good construct validity.

Average Variance Extracted had been used to examine the convergent validity and discriminant validity [34]. As table IV, the values of all factors are more than 0.5. It indicates that the model is of good convergent validity. In summary, the scale used in this study had good validity. The squared values of correlation coefficients between all variables were less than the corresponding AVE. It indicated that the model was of good Discriminant validity.

In summary, the scale used in this study had good validity.

C. Structural Equation Analysis and Hypothesis Testing

The test of the model was carried out using SEM, a confirmatory factor analysis that tests a model and its validity simultaneously. Amos18.0 was used to perform the SEM analysis.

Table V shows the overall model fit indexes. It shows that the model proposed by this study resulted in good results at the χ^2/df , GFI, RMR, AGFI, CFI, and marginal fitness levels for the indexes of NFI, PGFI, and PNFI. It can be concluded that the model had reached an acceptable level and could be used to explain the hypotheses.

And then this paper analyzed the path coefficient of the theoretic model. Figure 3 depicts the final results about the path coefficient of the research model. Table VI shows the results of hypothesis test. It shows that, the hypotheses H1, H2, H3, H4, H5, H7, H8, H9 and H10 were supported, but the hypotheses H16 and H11 were not supported.

D. Model Revise

According to above analysis of path coefficient and hypothesis test of research model, this paper revised the model by deleting two invalid paths. Figure 4 shows the revised model. Because the model had been revised, it was needed to reexamine the overall model fit indexes. Table VII lists overall model fit indexes. It shows that our model resulted in good results at the χ^2/df , GFI, RMR, AGFI, CFI, and marginal fitness levels for the indexes of

TABLE VI. SUMMARY RESULTS OF HYPOTHESIS TEST ABOUT THE RESEARCH MODEL

| Hypothesis | Path | Path coefficient | P value | Results |
|------------|---------|------------------|---------|---------------|
| H1 | AU→BI | 0.604*** | 0.000 | Supported |
| H2 | PU→AU | 0.572*** | 0.000 | Supported |
| H3 | PU→BI | 0.264* | 0.021 | Supported |
| H4 | PEU→AU | 0.319* | 0.037 | Supported |
| H5 | PEU→PU | 0.173** | 0.005 | Supported |
| H6 | PC→AU | -0.181 | 0.156 | Not supported |
| H7 | PR→AU | -0.094*** | 0.000 | Supported |
| H8 | UMD→PU | -0.051*** | 0.000 | Supported |
| H9 | UMD→PEU | -0.149*** | 0.000 | Supported |
| H10 | UMN→PU | -0.116* | 0.030 | supported |
| H11 | UMN→PEU | --0.083 | 0.415 | Not supported |

*P<0.05 ; ** P<0.01 ; *** P<0.001

TABLE VII. OVERALL MODEL FIT INDEXES OF THE REVISED MODEL

| Fit index | Ideal standard value | Acceptable standard value | Scores |
|-------------|----------------------|---------------------------|---------|
| χ^2 | N/A | N/A | 788.216 |
| df | N/A | N/A | 572 |
| χ^2/df | ≤2.00 | ≤3.00 | 1.378 |
| GFI | ≥0.90 | ≥0.80 | 0.929 |
| RMR | ≤0.05 | ≤0.08 | 0.061 |
| RMSEA | ≤0.05 | ≤0.08 | 0.058 |
| AGFI | ≥0.80 | ≥0.70 | 0.844 |
| NFI | ≥0.90 | ≥0.80 | 0.928 |
| CFI | ≥0.90 | ≥0.80 | 0.875 |
| PNFI | ≥0.5 | | 0.689 |
| PCFI | ≥0.5 | | 0.746 |

NFI, PGFI, and PNFI. We concluded that our model had reached an acceptable level and could be used to explain our hypotheses.

After examining the overall model fit indexes of the revised model, we needed to recalculate the path coefficient and then find out the relation among variables. Table VIII lists the path coefficient and hypothesis test of the revised model.

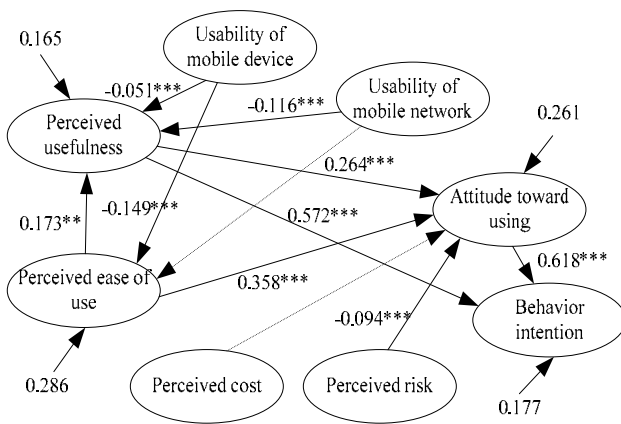


Figure 4. The revised model and path coefficient

VI. DISCUSSIONS AND IMPLICATIONS

First, perceived usefulness was the most important influencing factor of user adoption on mobile securities service. This effect was also produced indirectly via attitude toward using. It indicates that user is serious about whether mobile securities can bring them convenience and efficiency or not. In order to promote user adoption, mobile securities must satisfy user’s demand of accessing to market information and addressing securities trading.

Second, perceived ease of use significantly affected user’s attitude toward using and perceived usefulness. User operates mobile securities through mobile device, if they feel it is very hard to use, this will not only reduce usefulness cognition of mobile securities, but also directly affect the attitude toward using.

Third, perceived risk had a significant negative impact on user adoption of mobile securities. Although mobile securities operators constantly enhance system security from technical angle, user is still worried about the losses of their funds and property. If mobile securities operators make corresponding institutional guarantee through the methods of commitment, feedback mechanisms, laws and regulations, etc, it can reduce user’s perceived risk effectively and promote user adoption of mobile securities.

Fourth, the impact of perceived cost on user adoption on mobile securities services was not significant. This result is contrary to the original hypothesis. The possible reason for the result is that most of the respondents in the sample is senior managers who have certain economic basis, and the current monthly service charge of mobile securities is around 15 RMB. The price on most of them is acceptable. Therefore the factor of cost does not impact the attitude toward using significantly.

Fifth, the usability of mobile device posed significant negative impact on perceived usefulness and perceived ease of use. Mobile device is the carrier of mobile securities service, but currently there are many deficiencies of the usability of mobile securities such as

TABLE VIII. THE PATH COEFFICIENT AND HYPOTHESIS TEST OF THE REVISED MODEL

| Hypothesis | Path | Path coefficient | P value | Results |
|------------|---------|------------------|---------|-----------|
| H1 | AU→BI | 0.618*** | 0.000 | 0.604*** |
| H2 | PU→AU | 0.572*** | 0.000 | 0.572*** |
| H3 | PU→BI | 0.264* | 0.021 | 0.264* |
| H4 | PEU→AU | 0.358* | 0.037 | 0.319* |
| H5 | PEU→PU | 0.173** | 0.005 | 0.173* |
| H7 | PR→AU | -0.094*** | 0.000 | -0.094*** |
| H8 | UMD→PU | -0.051*** | 0.000 | -0.051*** |
| H9 | UMD→PEU | -0.149*** | 0.000 | -0.149*** |
| H10 | UMN→PU | -0.116* | 0.030 | -0.116* |

*P<0.05 : ** P<0.01 : *** P<0.001

the limitation of display screen, the inconvenience of key operation, the shortage of battery life, the slowness of computing speed, the limitation of storage space, etc. all of these maybe bring negative impact on user’s perceived usefulness and perceived ease of use.

Sixth, Usability of mobile communication network had a significant negative impact on user adoption of mobile securities. The reason for this may be that although the technology of mobile communication network is maturing, but there are still some problems. For example, it is out of signal coverage in some remote areas, when user enter in one of these areas, it must bring negative influence on user’s perceived usefulness; however, The impact of usability of mobile communication network on perceived ease of use was not significant. The result indicated that user’s direct perceived ease of use has no relationships with signal coverage, data transmission of mobile communication network.

VII. CONCLUSION AND LIMITIATIONS

As a typical application of mobile commerce, mobile securities is of broad application prospects, and user adoption is the key to the success of mobile securities. In view of the barrier that users hold a low adoption intention of mobile securities currently, this paper developed a theoretical model of user adoption on mobile securities services based on Technology Acceptance Model, and attempted to explore the influencing factors which play a role in user adoption. By collecting questionnaire survey data, we proceeded statistical analysis and Structural Equation Modeling analysis with SPSS and AMOS, and tested the theoretical model and further made a discussion on the results of data analysis. The results shown that perceived usefulness and perceived ease of use posed a significant positive impact on user adoption on mobile securities services; perceived risk posed a significant negative impact on user adoption on mobile securities services; the impact of perceived cost on user adoption on mobile securities services was not significant; the usability of mobile device posed significant negative impact on perceived usefulness and perceived ease of use; the usability of mobile communication network posed significant negative impact on perceived usefulness but its impact on perceived ease of use was not significant.

The sample of this study was mainly from the enterprise and institution staff members who were students of part-time MBA and Master of Engineering in School of Business Administration of South China University of Technology. This group had certain representativeness, but considering the promotion of the research conclusions, future research would expand the sample scale and improve the randomness of the sample. In addition, there may be other factors not considered in this study, future studies can be further investigated.

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